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"SULAM for Future Sustainability"

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ABOUT THE JC 2023 (2ND SULAM & 8TH ISS 2023)

Background

With a primary focus on the intersection of SULAM and teaching and learning (T&L), this conference aims to foster dialogues and the exchange of ideas on ways to enhance the quality of education. Under the theme, "SULAM for Future Sustainability," the conference seeks to emphasize sustainable practices and inspire participants to showcase innovative strategies that promote effective and meaningful (T&L) experiences. These experiences can ultimately contribute to the betterment of society.

This joint conference serves as a platform for sharing SULAM initiatives, Scholarship of Teaching and Learning (SoTL) research findings and reflections, and best practices of future educational leaders who have participated in UUM's Inspirational Academician Programme (IAP). The guiding principles of this effort are centered around educators as crucial agents of change and students as empowered future leaders. The conference celebrates their commitment to fostering love, happiness, and mutual respect among members of the society, including communities, industries, and higher education institutions.

Objective

This conference is organized to achieve the following objectives:

- To provide a platform for all stakeholders to share their views, experiences, and research in the implementation of Service-Learning Malaysia (SULAM) and innovations in (T&L).
- To promote the exchange of ideas among institutions and organizations to enhance awareness and improvements in SULAM and innovations in (T&L).
- To facilitate collaboration and networking among institutions and organizations in the implementation of SULAM and innovations in (T&L).

Theme

"SULAM for Future Sustainability

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Developing Intentional Learning Skills Among E-Commerce Students - Action Research in Metacognition through Reflective Learning Log

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Abstract

Intentional learners are self-directed people who take charge of their education, whether in a setting or an informal setting. Learners who practice intentional learning skills choose their learning methodologies and organize their studies in accordance with their interests, preferences, and speed. This study embarks on the following objectives: (i) To look into ways how to scaffold intentional learning experiences among the student and ritualize the intentional learner's mindsets and best practice skills, (ii) To investigate the effects(through a reflective learning log) of intentional learning skill of student on their study habits and attitudes toward learning, and, (iii) To examine their critical reflection log while they are studying E-commerce module which is underpinned by the intentional learning paradigm and Hatton and Smith's framework. In this qualitative study, data from 140 students in three classes of E-Commerce were required to write reflections that would be used to determine final grades using the reflective learning log. In order to support students' purposeful learning development as they join the job market, the study's findings strongly imply that they urgently need to strengthen their reflective writing skills while enrolled in higher education. The undergraduate must also be given the fundamental tools necessary to shape them into purposeful learners through exercises in reflective learning. The Hatton and Smith reflective framework worked well for categorizing written reflections and making the reflective learning log evaluation less subjective. This studybrought to light the fact that many business students were unfamiliar with the genre of reflective writing andthat this genre needed to be explicitly taught in the relevant course. Hence, to support students' purposeful learning development as they join the job market, the study's findings strongly imply that they urgently needto strengthen their reflective writing skills while enrolled in higher education.

Keywords: Intentional Learning Skills, Reflective Learning Log, Metacognition, E-Commerce, UUM

Introduction

Learning is a skill in and of itself, and mastering it is essential for long-term professional success. People who have mastered the attitudes and techniques of successful learning can advance professionally more quickly than their colleagues and reap the rewards of all learning opportunities that come their way (Christensen, Gittleson & Smith, 2020). Thus, to put things into perspective, the World Economic Forum has proclaimed a reskilling emergency as the world faces more than one billion employments being revolutionized by technology as a result of the development of social media, e-commerce, and Industrial Revolution 4.0 (Christensen et al., 2020). This development highlighted the significance and insistence on University Utara Malaysia (UUM) students to become intentional learners and each of them can become anintentional learner if timely intervention is carried out, and this is the sole purpose of this study. Moreover, the teaching philosophies at UUM are based on student-centered learning and outcome-based education, and the attributes of an ideal learner are developed through intentional learning, which is a process that is required for student-centered pedagogies (Cholbi, 2007).

In UUM, the learning outcome of the e-commerce module is to prepare students to deploy the Internet and intranets effectively for their company objectives and to become more competitive by utilizing all aspects of e-commerce knowledge. Students in this program learn how to develop sales websites, and business websites, and sell electronic goods and services for the B2B & B2C domain. In addition, they learn how to sell online using a platform such as Shopee, Alibaba, and Lazada. As a result, graduates who successfully completed this module will be prepared to handle a variety of e-commerce needs and electronic business scenarios. With the help of this curriculum, our business graduates will be extremely productive in the online environment right away. They will also advance professionally if they have a solid grasp of the financial effects of e- commerce decisions. Successful managers in this era of electronic and network businesses are those who understand that things must change and prepare themselves by consciously adopting new mindsets, new ideas, and new abilities to take advantage of these changes. These managers are our future graduates.

There are two critical mindsets and five core practices for a person to become an intentional learner. Mindsets have a big impact on how we act, sometimes deliberately and sometimes unintentionally. Two mindsets—a growth mindset and a curiosity mindset—serve as particularly potent fuel for deliberate learners when built on a foundation of self-efficacy, the conviction that your activities can help you reach desired goals (Bandura, 1977). The crucial thing to remember is that these attitudes are neither fixed nor immovable, even though some people may have a natural tendency toward them. The fact that they can be produced is an element of their strength. Intentional learning skills consist of five key practices to assist intentional learners to maximize their learning opportunities: (i) Setting objectives, (ii) conserving learning time, (iii) actively seeking feedback, (iv) engaging in the intentional practice, and (v) reflecting one's performance as a benchmark for further progress (Christensen, Gittleson & Smith, 2021). Due to the time constraint and the nature of Scholarship of Teaching & Learning (SoTL), this study intends to conduct action research on the fifth best-practice behavior, namely, reflecting to evaluate oneself and determine their progress on intentional learning through reflective (metacognition) learning log.

Research Objectives

This study embarks on the following objectives:
1. To investigate ways how to scaffold intentional learning experiences among the student and ritualizethe intentional learner's mindsets and best practice skills, and,
2. To investigate the effects (through reflective learning log) of intentional learning skills of students ontheir study habits and attitudes toward learning, and,
3. To examine their critical reflection log while they are studying the E-commerce module which isunderpinned by the intentional learning paradigm and Hatton and Smith's framework.

Research Questions

This study attempts to answer the following research questions:
1. What are the mindsets and best practices involved to become an intentional learner?
2. To what extent are the effects (through reflective learning log) of intentional learning skills of studentson their study habits and attitudes toward learning? and,
3. To what extent their critical reflection is characterized by the intentional learning paradigm and Hatton and Smith's framework while they are studying the E-commerce module?

Literature Review

Intentional Learning

Intentional learning has been defined as *"effort invested in learning, over and above the effort devoted to achieving other goals of an activity,"* with the specific goal of developing independence in learners (Bereiter & Scardamalia, 1987b, p. 19). It represents an instructional process whereby teachers help students, on their own initiative, *"to activate prior knowledge, relate old knowledge to new in systematic and reflective ways, organize disparate pieces of information, and reach conclusions and assess those conclusions before settling* on them" (Hawley, 1990, p. 228). In contrast, learning that is not intentional occurs as a by-product-intended by the instructor but which is unintentional as far as students are concerned. Although students do learn, "very little of it is intentional"; most is either spontaneous or else it is incidental to achieving some other goal such as getting a grade on an assignment (Bereiter & Scardamalia, 1987a, 1987b). The key to fostering intentional learning in students is to create appropriate learning situations-in this instance through reflective learning log.

A person can become an independent, lifelong learner by choosing to learn and then selecting what and how to learn (Francis et al., 1995). It is believed that learners can develop their attitudes and skills through intentional learning. Depending on the learning setting, this process is ongoing and circular and requires students to organize, connect, question, and adjust their information (Francis et al., 1995). Intentional learners are portrayed by Cholbi (2007) as highly self-aware people who want to live up to high standard and gain self-esteem from achieving learning objectives after persistent effort. When faced with academic challenges, intentional learners build learning strategies and exhibit high degrees of accountability and control over their learning processes (Mollman & Candela, 2018).

For intentional learners who enjoy solving problems and are driven to develop the expertise, they can impart to others, a loosely structured learning environment with a wealth of content is appropriate (Cholbi, 2007). Intentional learners acquire knowledge that is richer, more integrated, and appreciated by them. This knowledge may also be used to solve new problems with ease (Cholbi, 2007).

Intentional learners are self-directed people who take charge of their education, whether in a formal setting or not, according to Valjataga & Laanpere (2010). Learners that exercise learner control choose their learning methodologies and organize their studies in accordance with their interests, preferences, and speed (Valjataga & Laanpere, 2010). The goals chosen by the students serve as the direction for the cognitive process of intentional learning (Chee, 2014). Self-confident and mastery-oriented, intentional learners use the mastery approach to achieve their learning objectives (Hanham et al., 2014). Additionally, independent, self-initiated, self-regulated, and taking charge of their learning are all characteristics of intentional learners (Hanham et al., 2014; Hung, 2014). Learning is a deliberate, free choice made by students in purposeful learning who are aware of the goal of the learning process and self-monitor their learning (Hung, 2014). Simply put, intentional learners are aware of their learning objectives and actively decide how to achieve them (Spector & Kim, 2014). To learn intentionally, one needs to have the desire, comprehension, and conviction that learning is necessary, as well as the knowledge of what and how to learn. Those who are learning are very actively involved in this process, which extends beyond their participation in classroom activities. By putting learners in cognitively demanding learning settings that go beyond their initial knowledge of the topic, the intentional learning process promotes deep learning (Lee, Rooney & Parada, 2014). These definitions of intentional learning point to the learner who directs their own learning from the start through goal mastery. These learners have faith in their capacity to learn and assess it throughout the entire cognitive process to ascertain they are on track to meet their objectives (Mollman & Candela, 2018).

Metacognition through Reflective Learning Log
All cognitive tasks, including the capacity to consider and draw lessons from experiences, depend on metacognition, self-reflection, and self-direction (Moon, 1999). Reflection is a diagnostic skill that enables a person to assess their learning demands and compare them to those of acknowledged experts, as well as to their past performance (Murray & Kujundzic, 2005). Individuals who reflect on their actions are better able to break down their actions into various parts, refine those parts, and then reassemble those parts in a way that enhances their performance (Milligan, Bingley & Gatrell, 2005). Before, during, and after an activity is the three main times when reflection that fosters learning occurs. A cognitive task can be forecasted by just looking forward. These are the times when we are planning how we will handle a task, how we will solve an issue, or what we will say in a challenging conversation. We are considering what is to come.We are prepared to learn through this process of anticipating or planning. We can change our direction and make modifications when we reflect while an event is happening (Moon,1999). Even though we are "in the arena," we are aware of what is going on and are able to experiment and learn right away. Finally, retrospective reflection enables us to take stock of our performance in the past and predict how we might respond to a similar circumstance in the future (Murray & Kujundzic, 2005).

Among the various advantages of reflection, the two emerged. The relationship between introspection and self-efficacy comes first. Individual self-belief in one's ability to learn, progress, and take the necessary actions to reach desired performance levels is at the heart of learning (Moon,1999). Reflection starts a positive cycle of confidence-building that strengthens our sense of competence and competence (Murray & Kujundzic, 2005). Having the courage to take on more difficult problems leads to the development of both new abilities and stronger ones that already exist. Thinking back on those difficulties generates more confidence, and so forth. Reflection also lessens a person's resistance to change, which is crucial (Moon, 1999). The best issue solvers experiment with new approaches when their previous ones fail. Because of the speed at which our job is done, being unfamiliar with something might be a big challenge. Cognitive acquaintance with novel procedures is increased by reflection (Milligan, Bingley & Gatrell, 2005). Concerns about adjusting become less potent because one has thought about something before and is constantly considering how to improve and develop it.

Methodology

This study used classroom-based educational action research as its research approach (Angelo, 1991; Elliott,1991). Reflecting on what is happening in the classroom and seeing any discrepancies between what was intended and what happened are key components of good teaching. The teacher gains a deeper grasp of his or her practice by engaging in "systematic, intentional inquiry" inside the confines of his or her classroom (Cochran-Smith & Lytle, 1993). All students registered in University Utara Malaysia's BPME 3033 E-Commerce module had been introduced to the idea of reflection writing through the reflective learning log (Moon, 1999), which would be graded as a part of their coursework, beginning with the academic year 2021-2022. The goal of including the reflective learning log as part of the coursework mark contribution is to incentivize students to participate in the activity given that they naturally tend to act strategically when it comes to their class participation.

In this qualitative study, data from 140 students in three classes who were required to write reflections that would be used to determine final grades were collected using the reflective learning log (which could only account for a maximum of 10% of the coursework marks). Students have also been informed that they would only receive a maximum of 5% of the possible marks if they write their reflection in a very in-depth or journalistic style. As a result, the researcher found that students were able to achieve the formative assessment's learning outcome if they were able to acquire a score of more than 5% on the reflective log exercise. The careful adherence to ethical standards includes obtaining their agreement and keeping their name a secret so they could speak freely (Marshall & Rossman, 1999). Finally, we describe our findings using pseudonyms rather than real identities to preserve the students' privacy.

Findings and Discussions

The following Table 1 tabulates the frequency of score percentage for the graded reflective learning log.

Table 1
Frequency of Score Percentage for Graded Reflective Learning Log & Four Level Reflections

Score Percentage	Frequency
1% - 5%	75 (Level 1)
6%	35 (Level 2)
7%	17 (Level 3)
8%	7 (Level 4)
9%	2 (Level 4)
10%	0

The students that received a score of 6 to 9 percentage points out of a possible 10 percentage points were all the ones who provided reflections for the results section. A total of 75 (or around 55%) of the reflective logs were classified as level 1 (from 1% to 5%), in which there were no reflections on the weekly lessons and the reflections were only descriptively written. 61 learning logs in total were used for additional analysis as a result of these learning logs being removed from the analysis. A large number of learning logs (75 logs in total) that were discarded for further analysis (about 55%) could be seen as a significant indicator that the task of doing reflection can be difficult due to a lack of ability in reflective thinking or it could also be a sign that the students were simply not interested in completing the assessment. Using a theme approach, the reflections from the 61 reflective learning logs were presented (anonymously), and all data was verbatim recorded. The data were analyzed using open coding (based on constant comparative techniques) (Strauss & Corbin, 1998) to identify themes that represented recurrent thoughts that showed up in reflections about participants' experiences with the E-Commerce module. In order to identify trends in the students' reflection themes and discussions, labels were assigned to the reflective learning logs, as shown in Table 2 below.

Table 2
Reflection topics and respondents

No	Reflection Topics	Number of Respondents
1	E-Commerce website & user experience	136
2	Selling online	136
3	E-Commerce ecosystem	112
4	Blockchain	45
5	Dynamic Pricing	67
6	5G Connectivity	34
7	Cyber Security & Fraud	48

Technical Reflections

Technical reflections are expected, and a sizable portion of the reflective learning log in this study may be categorized as "technical rationality" because "time and opportunity for development" are necessary for truly"successful reflection" (Hatton & Smith 1999). This kind of self-and-task-centered reflection is typical for my students in this e-commerce course. Additionally, many them were unfamiliar with reflective techniques in the courses they registered for, making it likely that their reflections would center on "technical decision-making concerning imminent actions or skills;" (Hatton & Smith 1995). A total of 75 reflective learning pieces, or roughly 55% of them, fell into this category (ranging from 1% to 5%), where the reflections were merely written descriptively without reflections on the reflected topics. 166 views on the topics of e- commerce websites and selling online were distinguished as "technical reflections," which predominated all issue areas. Technical thoughts were prevalent in the topics of selling online and e-commerce websites (106out of 140). This may be due to the courses' emphasis on the student's personal project (creating their website and selling online) and the skills they were learning, rather than on the consequences of the fundamentals of e-commerce. At this early level of the reflective practice process, the students were considering their use of "essential abilities or generic competencies" as "applied in [a] controlled, small scale context," even if they did so with the assistance of peers (Hatton & Smith 1995).

However, it is interesting to note that only a tiny portion of the reflections (30 out of 140) transitioned from "technical rationality" to the "descriptive reflections" level of "reflection on action" (Hatton & Smith 1995). Five out of the seven subjects share this momentum, including the blockchain, dynamic pricing, 5G connection, cyber security, and fraud as well as the e-commerce ecosystem. This is most likely because most of the students are beginning to address both "task" and "effect concerns" associated with their project, although they are still very early in their purposeful learning growth.

The technical writings can be seen as the following extracts:

"The first step in creating an eCommerce site is to get a great domain name. The domain name is our business's online identity. It is the address my customers will use to get to my website and make a purchase and help me build my business. So, how do we go about it?" *[sic]*

"A good domain name must check the following boxes: It should be short, It should be meaningful, It should be relevant to your industry, It should be brandable, It should be keyword rich" *[sic]*

"eCommerce is pretty much like physical retail. We buy and sell. The difference is that eCommerce operates digitally. It is simple: one of the parties pays money, and the other provides goods or services. Almost everything we can find in a brick-and-mortar store we can buy online now: books, apparel, gadgets, and food. Building an E-Commerce site has a lot of moving pieces we need to consider before jumping in headfirst. We can miss a lot of important things that we need to make our site function the way you want it to if we do not take a moment to plan" *[sic]*

"When I adopt a drop-shipping-based business model, I simply need to contact the

manufacturer or vendor I can link with. I can get my website designed in a manner that every order reaches the vendor automatically. My partner company will pick, pack, and ship the product on my behalf. In the drop-shipping model, I do not have to worry much about inventory management. I simply must choose the products that I am selling acros syour portal" [sic].

Descriptive Reflections

Several reflections may be classified as "descriptive solely," in addition to reflective learning logs that switch between "technical" and "descriptive" categories (35 out of 140). The fact that the activities being reflected on are still fresh in the students' minds and that deeper reflection-on-action takes more time for contemplation and the scaffolding of deeper reflective processes is likely one factor contributing to the high percentage of descriptive reflections. The emphasis in these reflective learning logs is on the individual, as indicated by the following passages, but the concentration is on "best practice" as a basis for an analysis of one's practice and processes as below:

"From my personal experience, my first eCommerce drop shipping business was an utter disaster. In fact, it did not even make even a single cent. But in the process, I learned how to develop and market an eCommercewebsite, which looking back was way more profitable than any amount of money that store could have produced" [sic].

"I started my first e-commerce back in December. It is not even a month but now I feel that there is a lot to learn which I initially thought I know it all. Digital marketing and specially SEO is very tough. Content is the king and photography would be a queen. It takes a lot of patience to make your initial sales. The feeling of what am I doing wrong will always stays with me. I need some motivation and some honest reviews from my friends as well. I can think of lot of strategies on daily basis. The tough part is trying all of them and then see which one works the best for me. It is hard but it is worth the risk" [sic].

Dialogic Reflections

According to Hatton and Smith (1995) "dialogic reflections" are more *"deliberative, cognitive, and narrative", with the student practitioner "weighing competing claims and viewpoints, and then exploring alternative solutions".* The following extract on user experience in using the E-Commerce website characterized the dialogic reflections:

"In order to improve e-commerce customer experience, it is imperative that I speak to my customers. When I talk to my customers, I can get direct feedback on what they liked, didn't like, what they were frustrated by and wished they saw but didn't see. Customers research is the process of understanding customer's behaviors, thoughts, and opinions on our product or service and analyzing their feedback to improve their experience and increase our revenue. There is a ton of data I can get from things like Google Analytics about what actions customers are making on my website. However, these actions do not tell me "Why" the customers are taking those actions. Therefore, I need to conduct customers' research" [sic].
"There are two barriers stand in the way of global ecommerce growth, namely, cyber security and fraud arethe biggest challenges to e-commerce growth. They are not only hampered the growth of e-commerce, but they have also resulted in significant losses. E-

commerce fraud is not going away any time soon; in fact, the risk of online fraud is increasing. Beyond the financial costs, theft erodes buyers' trust in online merchants, possibly taking even more money from e-commerce businesses. While fast delivery and a fun user experience can be enticing for customers, one data breach could destroy e-commerce business and scare loyal customers (and potential new customers) from shopping online at the store ever again. Thus, security is a business enabler and worthwhile investment now and for the foreseeable future" [sic].

Critical Reflections

In our study, "critical reflections," as they are described in the literature, were the least common, with only a small number (nine out of 140 thoughts) falling into this category. In critical reflections, responders are "thinking about the impact upon others of their actions, taking account of social, political and/or cultural issues," and applying these to the broader profession, claim Hatton and Smith (1995). We speculate that perhaps the E-Commerce themes' nature prevented them from being applied to larger challenges and tended to encourage the respondents to concentrate on their unique E-Commerce topics. The few responders who did, however, discuss more general social, political, or cultural themes did so about their E-commerce topics. The extracts as below:

"Ecosystems are built around consumer needs; they go beyond simple partnerships across industry boundaries to bring together digitally accessible services or products, providing consumers with seamless experience and more choices. Ping An of China is an illustrious example of an ecosystem builder in the insurance industry. The organization goes beyond selling insurance products, offering its customers myriad services such as Ping An's Good Doctor, PingAnfang, and Autohome. To ensure scalability, an ecosystem is often built by amalgamating the service offerings of a range of independent companies. For instance, Autohome, Ping An's online car-purchasing platform, attracts more than 29 million unique visitors each day, generating one-third of customer leads for the Ping An's insurance products and financial services. Customers also can derive many benefits from the ecosystems such as lower insurance premiums, convenience, and better health. Ping An's self-build ecosystem through its many independent subsidiaries generates many new customers and increases loyalty among its present customer due to the assortment of products and services available in the ecosystem" [sic].

"Blockchain and e-commerce are creating a sustainable economic ecosystem for both consumers and online retailers. As more online retailers incorporate distributed ledger technology into their business processes, they discover new ways to serve their customers. Blockchains provide them with an efficient means to improve their customer experience. First, smart contracts are computer programs that automate tasks based on predefined rules. Smart contracts can be used to create jobs that can be automated by computer systems. They can expand an e-commerce business by reducing the cost of hiring employees. Inventory management can also be made easier with smart contracts as they make it easier to keep track of products. Second, supplychain monitoring can help online shops accomplish their targeted business goals. This is due to supply chains, which allow store owners to know what products are on the way and when they will arrive. Third, warranties and receipts are easily accessible. Consumers and businesses can save receipts and warranties of products

using blockchain technology. Buyers and sellers will be able to conveniently obtain receipts and warranty data, as well as validate proof of ownership. One of the issues that purchasers experience while making online transactions is the loss of paper receipts". [sic]

"Price is a pivotal element in affecting consumer purchase behavior, and it has the significant decisive effecton whether, when and which product the consumer wants to buy, as well as the purchase quantity and other purchase-related decisions. In the highly competitive e-commerce, where customers have more choice than ever before, price can be a deal-breaker. In the realm of e-commerce, dynamic pricing playing a crucial role in promoting online products. Meaning which by successfully integrating the pricing and promotions through advanced analytics engagement. By doing so, one can understand the price elasticity of each item and then, the price elasticity curve can then be utilized to elicit the desired behavior. Generally, this is carried out to enhance sales, but it may also imply tempering client demand in order to avoid scarcity'[sic]

"One of the critical leverage points in the growth e-commerce is secure remittance/payment solution. This is not a new issue, but an issue besieged e-commerce since it started. Custom e-commerce software development with 5G can assist e-commerce entity in improving payment choices for merchants and customers. Most consumers check the security level before making a purchase. Sometimes if they find it satisfactory and simple, they will continue the entire payment process. But if they feel secure, they will exit the website and abandon the payment process. It is because there are many users who become a victim to fraud or scam during their financial transactions. Sometimes the system keeps deducting the money from theconsumer account. Such fraudulent activities and security issues are the primary impediments to online purchase and online payment. However, customer can entirely protect the payment procedure on the e- commerce web business by employing 5G technology" [sic]

Implications of the Study

This study brought to light the fact that many business students were unfamiliar with the genre of reflective writing and that this genre needed to be explicitly taught in the relevant course. In order to support students'purposeful learning development as they join the job market, the study's findings strongly imply that they urgently need to strengthen their reflective writing skills while enrolled in higher education. The undergraduate must also be given the fundamental tools necessary to shape them into purposeful learners through exercises in reflective learning. The Hatton and Smith (1995) reflective framework worked well forcategorizing written reflections and making the reflective learning log evaluation less subjective. This graded evaluation was assigned a 10% weight and is regarded as significant in grade. Although the study's findings may not be conclusive regarding the students' capacity for intentional learning through reflective writing, it would be odd if this were the case and they were unwilling to write reflectively, a dilemma that might call for more research. It is advised that the university might think about delivering coursework that includes a component of reflective writing as part of the evaluation based on the results of the 61 students who had shown proficiency in reflective writing. Therefore, if this were done, students with the same level of ability as those in this sample group

would have benefited from assessments that focus on reflective ability and that allow students to create a wider perspective on the module they are studying. This will encourage the development of introspective ability, which is acknowledged as a taught behavior (Gustafson & Bennett, 1999).

The study also recommended that we should encourage our students to engage in conversation with, confront,or challenge another student (such as a close friend). Placing the learner in a safe setting where self-revelation can take place, would facilitate the reflective process. By submitting them to scrutiny in front of a peer they feel comfortable taking such risks with, students were also able to distance themselves from their thoughts, beliefs, and actions (Hatton & Smith, 1995). Even though the researcher discovered that more than half of the students were only able to complete Level 1 of reflection, as recommended by Hatton and Smith (1995),the idea of providing additional detailed instructions will likely lead the students to certain preconceived notions about how to write reflective learning logs (Stamper, 1996), which could be detrimental. As such Holland (2013) suggested that *"it is only necessary for reflective writing skills being developed with the reflective thinking skills so as to assist in the ability of the students to write a good reflection and in the process, develop their intentional learning faculty."*

Limitations of the Study

During their academic journey at the university, it is important to not downplay the difficulties of getting used to a grading system that most of them are not used to. Students who are telling personal experiences or writing about delicate or private subjects want guidance, assurance, and confidence. The results of this studyshow that most students are afraid to even attempt writing in the first person, with just a tiny fraction of themshowing interest in doing so. To determine if the findings of this study solely relate to this group of students or this field of study, more research in this area needs to be done across the university. The researchers also urge additional research in the form of a comparative longitudinal study on the issues and difficulties associated with encouraging learning reflection at the undergraduate level.

Conclusions

Students can record and remark on E-Commerce teachings in a meaningful way by keeping a reflective learning log in the module. They can self-monitor their viewpoints in this module's first class and keep trackof how their understanding of E-Commerce has changed as the lectures go on until the end of the semester. They engage in self-discovery in the world of e-commerce while also tracking their own cognitive and personal progress. Students may identify their thinking about e-commerce, the risks involved, and the myths associated with being an aspiring online entrepreneur by keeping a reflective learning journal. Reflection canaid in a person's ability to change, according to research. Even though most of the students registering for this module are undergraduate students who have little experience to draw from when considering specific issues (this is the findings from this study). As reflection becomes ingrained in students' daily lives, it givesthem a deep understanding of their academic and, ideally, future professional development.

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Acknowledgment

Improving Student Active Learning Through Acting in Sales (AIS) Activity in Salesmanship Course

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Abstract

This study investigates the effectiveness of active learning, particularly the Acting In Sales (AIS) role-play activity, in promoting students' grasp of sales concepts within the context of BPMM3173 Salesmanship. The research explores on how do students comprehend sales concepts during this activity to foster active learning? Additionally, it aligns with CLO2, emphasizing the demonstration of the process and communication strategies of selling to customers. The study employs a qualitative methodology, employing triangulation through reflection from both instructors and students, instructor observations, and focus group interviews. The findings reveal several key outcomes. Firstly, the AIS activity facilitates real- world application and hands-on experience, bridging the gap between theoretical knowledge and practical skills. Secondly, it serves as a potent tool for skill development through role- playing, offering students a dynamic platform to actively apply theoretical concepts in simulated sales scenarios. The study further identifies enhanced engagement and motivation among students, emphasizing the positive impact of active learning strategies in the sales education landscape. Team collaboration and communication skills are also highlighted as pivotal outcomes, showcasing the collaborative nature of the AIS activity. However, challenges such as uneven participation levels, limited spontaneity, time management issues, and constrained inter-group collaboration are noted. Despite these challenges, the study underscores the importance of the AIS activity in cultivating a positive classroom atmosphere. To optimize the learning impact of the AIS activity, the study recommends further executions and a longitudinal approach to assess the durability of acquired knowledge and skills. These insights contribute to ongoing refinement and optimization of sales education strategies, emphasizing the broader implications of active learning methodologies in fostering a comprehensive understanding of salesmanship.

Keywords: Active Learning, Role-Play, Salesmanship, Learning Development, Sales Education

Introduction

Ideally, active learning desired to nourish education ecosystem in Malaysia. The mission is toenhance higher education quality and sealed in the Malaysia Education Blueprint (Ministry ofEducation Malaysia (MoE), 2015). The purpose of the education system is to ensure that Malaysian youth develop holistically and have the necessary values, knowledge, and skills to succeed in an increasingly competitive and uncertain world. By focusing on transforming the education system to a better standard, the institution prepares our students to meet the global and economic competitive challenge. Furthermore, the education system aims to grow and integrated for intellectual citizenship (*Falsafah Pendidikan Kebangsaan*, 2019). Inconjunction with Malaysia Education Blueprint, this study intent to implement teaching and learning improvement

allign with national agenda.

BPMM3173 Salesmanship
The School of Business Management (SBM) within the Marketing Department provides this course tailored for undergraduate students pursuing a Bachelor of Marketing (Hons), primarily targeting those in semesters 6 and 7. A prerequisite for enrollment is the successful completionof BPMM1013 Principles of Marketing. In essence, the course delves into fundamental concepts, theories, and practices of personal salesmanship. Its focus lies in cultivating the traitsof an effective salesperson, understanding the nuances of the effective communication process,and exploring the intricacies involved in personal salesmanship.

At the end of the course, students are expected to:

i.   understand the terms, concepts, and techniques related to personal selling.
ii.   understand the communication process involve in personal selling activities.
iii. gain knowledge on personal selling process and approaches to be used in managing personal selling activities.
iv.   acquire awareness on after sale service and managing territories.
v.   discovered a problem with the teaching and learning pedagogy.

The learning outcomes of the course are intended for the students to:

i.   Explain the terms and concepts of effective personal selling.
ii.   Explain the process and communication related to customers.
iii. Describe on personal selling process and approaches for successful selling.
iv.   Prepare comprehensive sales plan that is executable in sales settings.

Problem Statement

In the past, the instructor employed a traditional teaching approach, delivering lectures and elucidating PowerPoint slides throughout the entire class duration. This method essentially fostered one-way communication, with the instructor occasionally posing a few questions related to the topic. However, these attempts to gauge student understanding were met with consistently silent and unresponsive feedback.

After revising pertinent teaching documents (E.G. Table 4, MQA Syllabus), the instructor wouldlike to relook one specific Course Learning Outcome (CLO), two Programme Learning Outcome (PLO) and two transferred skills involved at this stage namely:

(CLO2) Demonstrating the process and communication strategies of selling to customers
PLO2 (LOC2 - Cognitive Skills)
PLO5 (LOC3c - Communication Skills)

The predominant challenge within the course lies in the widespread occurrence of passive learning for BPMM3173 Salesmanship. This apprehension surfaced as a result of the instructor's keen observations, which unveiled limited student responses following the explanation of PowerPoint slides. Despite proactive encouragement, students exhibited reluctance to actively participate, leading to a deficiency in engagement, fostering a teacher- centric environment, and ultimately, an inability to integrate students into class activities. As aconsequence, the course failed to attain its learning objectives, leaving students with a lasting impression of a passive classroom experience. To rectify this issue, below are researchobjective and research question postulated for this study:

(RO) To explore the learning process involved during the "Acting in Sales" activity to enhance active learning.
(RQ) How students grasp sales concepts during this activity to promoteactive learning.

Teaching Issue

After teaching the course of BPMM3173 Salesmanship for several semesters (A212, A211, A202) through online medium, substantive and series of observation was made and come to conclusion that the student of this course are passive learners. Attached is instructor reflectionafter conducted the class session.

I felt soooo frustated when the student are not excited as I am. I always trymy best to deliver in the classroom my details out the teaching plan and hoping for tremendous respond from them. But again and again, I was likespeaking to the wall. Sometimes, I blaming my self but sometime blaming the student. Tanya soalan simple pun tak reti jawab.

Waiting for the student to respond or answer any of my question are teribble feeling. How can university student can't even answer the basic questions? I baru jer ajar tadi dah tak boleh jawab. Spoon feed is not myway. I belief that they need to demonstate thinking skills and articulate their though in the class. Asyik orang sama ja jawab... yang lain mana?

The aforementioned narrative encapsulates the instructor's observations and reflections following the early stages of teaching in the semester. This scenario unfolded in an online class,where the instructor discerned a recurring challenge of passive learning persisting across multiple semesters. Evidently, students exhibited passive, inactive, quiet, and uninvolved learning behaviours, despite the various activities implemented by the instructor. Consequently, recognizing the need for intervention, efforts were initiated to address and rectify the issue of passive learning. The goal was to transform the classroom into a more engaging environment, facilitating active learning experiences for students to meet the intended learning objectives.

Literature Review

Active Learning

Active learning is a new pedagogy prevalent used to inculcate student engagement. In contrast to passive learning, a plethora of empirical research establish active learning to benefit learning attainment and learning score (Bonwell & Eison, 1991; McKeachie & Gibbs, 1999). Active learning is defined as "any instructional method that engages

students in the learning process"(Prince, 2004). For example, the student must read, write, discuss, or be engaged in
solving a problem. In short, active learning requires students to do meaningful learning activities and think about what they are doing.

Additionally, the student encourages articulating in higher-order thinking tasks such as analysis, synthesis and evaluation. Currently, Felder (2021) defines active learning as a short course-related individual or small-group activity that all students in a class are called upon to do. It alternates with instructor-led intervals in which student responses are processed and new information is presented. Active learning has at its heart, the notion that learning by doing mayhelp make the content more 'real' (Baldwin, 2006). Literature on active learning has formed a number of techniques namely, think-pair-share, concept test, and thinking-aloud pair problem solving (TAPPS) (Felder, 2021). Furthermore, empirical evidence attests that active learning is effective in several disciplines (Freeman et al., 2014; Hake, 1998; Michael, 2006).

Core elements for active learning are student activity and engagement (Prince, 2004). Past studies has identified varies indicators for active learning. In example, Carton (2012) mention seven elements for active learning including inquiry, action, imagination, invention, interaction, hypothesizing, and reflection. In parallel, Rossetti and Nembhard (1998) highlighted elements of talking/ listening, reflecting, writing and reading as indicator for active learning.

In the context of Malaysia, the education policy reflects a commitment to fostering active learning strategies. The Malaysian Education Blueprint 2013-2025 outlines a strategy prioritizing teaching and learning quality, emphasizing access to meaningful information, transparent accountability, and appropriate learning environments. Malaysia's commitment to active learning reflects a progressive approach to education, aiming to enhance critical thinking skills and prepare students for modern challenges.

Active learning, crucial in higher education, incorporates dynamic methods like role-play. This strategy engages students, fostering critical thinking and practical skills. Role-play in higher education, evidenced by studies and innovative teaching guides, enhances student involvement,making learning a vivid and participatory experience.

Role-play
Scholars consensually agreed that sales role-play is an effective approach for active learning (Stevens, 2015). In addition, role-play encourages participation among passive students,improves dynamism in the classroom and encourages retention in learning. Recently, Johnsonet al. (2021) found that sales role-play is able to provide additional professional development benefits for sales students. Results of the repeated-measures study support that a sale role-playare more than a tool to refine sales presentation skills and positively influence students' intentto pursue a sales career. In addition, sales role-play activity initiates active and experiential learning for sales students (Young & Hawes, 2013) along with a proven and effectivepedagogical tool for teaching selling skills (Widmier et al., 2007). Role-play has been recognized as an effective method of teaching selling, sales management, and business negotiation skills (Castleberry 1989; Good 1990). The selling process relies upon a variety of skills including prospecting, identifying needs, communication, and closing the sale (Szymanski 1988; Parks and Areni 2002), and role-play allows sales students to experience thesales process directly.

Sales role-play is a pivotal tool for shaping effective sales teams. It offers a unique avenue to demonstrate optimal customer interactions, deal handling, and sales techniques. In contrast to conventional training methods, role-play cultivates practical

skills by immersing salespeople in lifelike scenarios, boosting their confidence and competence. Successful sales role-plays enhance product knowledge and presentation skills, providing a hands-on approach to refining communication and negotiation abilities. Employers increasingly recognize the value of role- play in evaluating a candidate's sales experience during interviews, emphasizing its effectiveness in real-world situations. Technology further amplifies its impact, allowing for the creation of scripted scenarios for targeted training and continuous improvement.

In conclusion, exploring sales role-play and incorporating improvisation techniques proves vital for enhancing adaptive selling skills and overall sales performance. The proven effectiveness of sales role-play games and scenarios highlights their significance in preparing sales teams for diverse challenges Further innovation and exploration in this realm promise to optimize training methodologies, ensuring sales professionals excel in dynamic business environments.

Acting In Sales (AIS)

The Acting In Sales (AIS) is one of the group assignment design for BPMM3173 Salesmanship in A222 semester. This AIS activity carry 40 percent from overall assessment. To facilitate students, a comprehensive guideline were provided to ensure student have clear idea how thisactivity should turn out. On top of this, the learning objective clearly explain to make sure thelearning goals achieved at the end of the semester. Beside that, the instructor give a clear briefing just to make sure the students understand the whole concept and the steps should be take on.

This AIS activity is a semi-structured role plays. Even a comprehensive guideline were provided, students are not bounded to the topic suggested. However, creativity from the student to conduct the AIS is central focus in this task. As mentioned earlier, this activity is to underscore CLO3 and intended transferred skills are cognitive and communication skills. The process of this activity can be unfold into three stages i.e. before, during and after the AIS activity.

Before AIS activity

In the initial week of the semester, the AIS activity commences with the formation of groups of five students. The instructor articulates detailed AIS guidelines provided in student Online Learning (OL) platform, expressing expectations and fostering motivation for active group participation. Subsequently, topics for AIS activities are assigned based on syllabus topics. Ina dynamic method, the group representative chooses an AIS topic at random and determining the presentation ordering. The instructor supplements theoretical learning by providing a related YouTube video on AIS activity and introducing Gibb's Reflective Cycle for effective reflection. Simultaneously, the AIS rubric is explained, ensuring students are aware of the assessment criteria. This multifaceted approach lays a solid foundation for structured and successful AIS engagement.

Basic AIS guideline cover on several elements likely: i) Topic, ii) Learning objective, iii) Salesscenario, iv) assign roles, v) format, vi) relevant points and vii) additional reading materials. The specific guideline was given for every topic in the syllabus. At the end of the AIS guidelinehand book, assessment rubric and guideline for reflection assert to complement the AIS activity. This multifaceted approach lays a solid foundation for structured and successful AIS engagement.

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syllabus. At the end of the AIS guideline hand book, assessment rubric and guideline for reflection assert to complement the AIS activity.

During AIS Activity
The AIS activity started from week 2 until week 12. It takes 10 weeks to completed because this course has 13 chapters to covers and have 13 groups. The instructor observation did for every AIS activity and reflection took place for these 10 weeks subsequently. While two groups were scheduled to present in each session, some exceeded the allocated time due to extended question-and-answer sessions in the classroom. Despite students being granted 30 minutes for their AIS activity, many surpassed this timeframe. Notably, the instructor refrained from intervening, valuing and appreciating the students' dedication to their task. Simultaneously, it is crucial to consider fostering tolerance for stage fright, supporting introverted students, and addressing any challenges related to communication skills.

After AIS Activity
Following the completion of the AIS activity, the researcher conducted focus group interviews in weeks 13 and 14. A meticulously planned schedule ensured that three groups were interviewed during each session, totalling six focus group interviews throughout the week. These sessions, held on both Monday and Thursday, provided a comprehensive exploration of student experiences. By the conclusion of week 14, students were tasked with submitting reflective essays, offering a thoughtful and individualized perspective on their engagement with the AIS activity.

Methodology

Research Design
This qualitative research employs a multifaceted methodology to address the research questions. The three distinctive data collection procedures identified are: i) Reflection, a thoughtful introspection on the subject matter; ii) Observation, involving a keen and systematic scrutiny of the research context; and iii) Focus Group Interview, a structured engagement with participants to gather insights collectively. Reflection delves into personal contemplation, observation captures nuanced details, and focus group interviews facilitate group dynamics for a comprehensive understanding. These strategic approaches aim to triangulate data, ensuring a robust and holistic exploration of the research phenomena.

Reflection
This study employs a comprehensive critical reflective analysis based on Gibbs' (1988) reflective cycle to meticulously examine the intricacies of the recruitment process. Beginning with a detailed exploration in the descriptive phase, the recruitment efforts are objectively scrutinized, delving into occurrences and probing associated emotions such as surprise, excitement, and satisfaction. Mortari (2015) underscores the significance of reflexivity in qualitative research, framing it as a fundamental practice to legitimize and validate research procedures.

This reflective process enriches the research, providing deeper insights into the complexities of chosen methodologies. Additionally, Eldh et al. (2020) emphasize the "gold standard" of authentic citations in qualitative studies, aligning with the broader ethos of presenting genuine voices and perspectives, thereby enhancing authenticity and credibility. Mitchell Jr. (2020) reflects on a qualitative research course, illustrating the

transformative nature of thinking throughout the research journey. Pain (2018) contributes a meta-reflection on visual methods, while Radivojevic (2021) connects qualitative research and literature reviews. Sutton (2015) reviews principles of data management, offering valuable guidance for navigating the intricacies of qualitative inquiry.

In this study, the reflective process unfolds from dual perspectives—both the instructor and the student contribute distinct insights. The instructor engages in weekly reflections, fostering an ongoing evaluation of the teaching approach and adapting strategies as needed. This consistent self-assessment allows for the refinement of instructional techniques throughout the entire duration of the study. On the other hand, students partake in a more comprehensive reflection, sharing their insights at the culmination of the AIS activity after week 12. This delayed reflection provides students with the opportunity to synthesize their overall learning experiences, offering a holistic perspective on the extended period of active learning. The convergence of these dual viewpoints enriches the study's reflective framework, capturing the dynamic evolution of teaching and learning strategies over time.

Observation

Observation serves as a multifaceted data-gathering strategy, involving participatory study where the researcher immerses themselves in the contextual environment of their respondents while diligently noting and recording observations. In the context of this study, unstructured observation is employed from both the teacher's and student's perspectives in a classroom setting, aiming to collect and analyse diverse data emerging from the AIS activity. This observation is meticulously documented through journaling or notes, focusing on its influence on active learning and AIS activity. In the realm of action research, observation takes on the role of systematically monitoring variables and characteristics within the considered system, a process that is both continual and. Qualitative observation, as highlighted in the supplementary information, goes beyond mere data collection; it seeks to offer a comprehensive understanding of the research background. Researchers keenly observe and document nonverbal signs, relationships, and environmental elements during events. Noteworthy is the dynamic nature of qualitative observation, often characterized by variability and emergence. This inherent flexibility allows researchers to adapt their focus or methodologies as new insights unfold during the research process.

Observation during class activities occurred persistently from week 2 to week 12, capturing valuable insights into the learning environment. This extended timeframe allowed for a comprehensive understanding of pedagogical dynamics, student engagement, and instructional effectiveness. The observation encompassed diverse activities, ranging from active learning sessions to teacher-student interactions. Such continuous monitoring facilitated nuanced analyses of the evolving classroom dynamics, enabling educators to refine teaching strategies and improve student outcomes. The information gathered during this prolonged period serves as a rich resource for enhancing the overall educational experience.

Focus Group Interview
Focus group interviews play a vital role in research, offering a plethora of benefits and significance in the field. One of their primary advantages is the synergy of diverse perspectives they bring together. By assembling a group of participants, focus groups allow for rich discussions and the exploration of varying viewpoints, fostering a deeper

understanding of there search topic. Additionally, these interviews promote open and interactive communication, enabling participants to freely express their thoughts and engage in collective idea sharing. This dynamic environment can lead to unexpected insights and discoveries, enriching the research process. Moreover, focus group interviews are particularly valuable for exploring complex social and cultural phenomena, making them an essential tool in qualitative research.In summary, focus group interviews are a powerful research method, offering a collaborative and insightful approach to understanding multifaceted topics.

This study employs this approach to interview 13 groups, exploring the impact of AIS in the classroom. The interviews are strategically conducted after the completion of the AIS activity in weeks 13 and 14 during class hours. The rationale behind this timing is twofold: (i) to avoid interference with students' preparations and (ii) due to time constraints after regular class hours. The primary goals of these interviews are to comprehend the process and assess the impact ofsales role-play on student learning. To ensure rich data, these semi-structured interviews were recorded for subsequent qualitative analysis.

Finding

The objective "to discover the learning process involve during Acting in Sales activity in improving active learning" in the field of higher educational and active learning demands a thorough investigation. This section serves as an insightful journey into the discoveries stemming from four distinct data sources: (i) findings from instructor's reflection (ii) findings from student's reflection, (iii) findings from instructor's observation, and (iv) Findings from Focus Group Interview. Each data source contributes unique facets to the mosaic of findings. Rich with meaningful themes, the findings presented in this section delve into the core of AISactivities, supported by poignant quotes and excerpts. Together, they paint a vivid picture, shedding light on the effectiveness and nuances of the AIS approach, offering valuable insights for educators, administrators, and scholars alike.

Findings from Instructor's Reflection
This section delves into the effectiveness of Acting in Sales (AIS) activities through the lens of instructors' reflections. Instructors, as crucial stakeholders, provide unique insights into the dynamics of AIS initiatives. Eight pivotal themes emerge from their reflective perspectives. Throughout this concise finding, the researcher explores each theme, supported by insightful quotes, offering a comprehensive understanding of the nuanced interplay between AIS activities and the discerning perspectives of those steering academic discourse.

1) Real-world Application (Hands-on Experience)
Acting in Sales (AIS) provides students with a tangible, real-world application of sales concepts. Through role-play, students engage in practical scenarios, simulating actual sales interactions, enhancing their understanding of theoretical concepts.

2) Skill Development through Role-Playing
Role-playing in AIS fosters the development of crucial sales skills such as communication, negotiation, and relationship-building. Students actively practice these skills, honing their ability to apply theoretical knowledge in dynamic sales situations.

3) Immediate Feedback

The immediate nature of role-play in AIS allows for instant feedback. Students receive constructive criticism and insights from peers and instructors, enabling them to identify strengths and areas for improvement, facilitating continuous learning. The feedback gains are spontaneous through open question and answer (Q&A) session.

4) Reflective Practice

Post-activity reflection sessions encourage students to analyze their performance, identify areas for improvement, and develop a reflective practice. This self-awareness contributes to continuous learning and personal growth in salesmanship.

Findings from Student's Reflection

This section looks into insights gained from a student's AIS reflection, which serves as a pivotallens into the AIS dynamics. The reflections of 65 students after week 12 of the A222 semester provide a parallel examination, revealing eight significant themes. These reflections, which were based on Gibbs' reflection and were supplemented by emotional comments, add to a comprehensive knowledge of the dynamic interplay of AIS activities.

1) Practical Application of Theory

Students appreciate the tangible application of theoretical sales concepts during AIS. Reflecting on the experience, they acknowledge the value of bridging classroom knowledge with real-world scenarios.

"AIS transformed sales concepts from abstract theories to real-life scenarios. I can now see how what we learn in the classroom directlyapplies to the dynamic sales world."

2) Skill Development Recognition

Through reflection, students recognize the development of specific skills like effective communication, negotiation, and relationship-building.

They note the direct correlation between AIS activities and the enhancement of these practical skills.

"Participating in AIS has made me aware of the practical skills I've gained.
I never thought I could negotiate and communicate this effectively in asales context."

3) Feedback-Driven Growth

Reflecting on the immediate feedback received during AIS, students express gratitude for constructive criticism.

They acknowledge the role of feedback in identifying strengths and areas for improvement,contributing to continuous learning.

"Participating in AIS has made me aware of the practical skills I've gained.
I never thought I could negotiate and communicate this effectively in a sales context. The questions are so challenging and….takut nak jawab"

4) Increased Engagement and Motivation

Students reflect on the heightened engagement experienced during AIS. Recognizing increased motivation, they link active participation to a positive learning environment that fosters a deeper understanding of sales concepts.

"AIS keeps me engaged and motivated. It's not just about listening; it's about doing. This hands-on approach has made learning about sales enjoyable. We did rehearse to make the best role-play and something toremember…best sangattt"

5) Risk-Free Experimentation

Reflections highlight the significance of the risk-free environment provided by AIS for experimenting with diverse sales strategies.

Students value the opportunity to explore and innovate without the fear of real-world consequences.

"I'm grateful for the safe space AIS provides. I've tried out different sales strategies without the fear of failure. It's like a testing ground for success."

6) Team Collaboration Insights

Reflecting on collaborative role-playing scenarios, students emphasize the importance of team work and effective communication.

They recognize the practical implications of these skills in sales settings and acknowled getheir growth in these areas.

"Collaborating with peers in AIS taught me how essential teamwork is insales. It's not just about the individual; it's about how the team works together to close the deal."

7) Critical Thinking and Problem-Solving Recognition

Students reflect on the challenges presented in AIS scenarios, noting the development of critical thinking and problem-solving abilities.

They see the direct application of these skills in navigating complex sales situations.

"The challenges in AIS forced me to think critically and solve problems on the spot. Now, I'm more confident in my ability to handle complex sales situations."

8) Establishment of Reflective Practice

Reflective sessions post-AIS activities contribute to the development of a reflective practice.

Students recognize the value of self-analysis in identifying areas for improvement and view it as a tool for ongoing personal and professional growth.

"Reflecting after AIS sessions is a bit hard at first. However, it helps me see my strengths and weaknesses, and I'm now actively working on improving my sales skills."

Findings from Instructor's Observation

The following finding are derived from instructor deep observations from week 2 until week 12 for A222 semester whereby AIS activity was carried out. Below are the four themes arise after codes has been revisited for two times by the researcher and teams.

1) Mastery of Practical Application

Students demonstrated a commendable ability to apply theoretical knowledge in practical salesscenarios during AIS. This showcased the effectiveness of AIS in fostering active learning by encouraging hands-on application of concepts, promoting a deeper understanding.

2) Uneven Participation Levels and Limited Spontaneity

Uneven participation was noted, with some students hesitating to respond spontaneously in role-play scenarios. Addressing this imbalance is crucial for ensuring a more inclusive and dynamically engaging active learning environment.

3) Skill Development and Constructive Feedback Dynamics

Significant skill development, particularly in communication and problem-solving, was observed. The feedback exchange was constructive. AIS effectively contributed to skill enhancement, emphasizing the positive impact of active learning methodologies and

constructive feedback in refining abilities.

4) Time Management Challenges and Limited Inter-group Collaboration

Some groups faced challenges managing time, and inter-group collaboration was less pronounced. Effective time management is essential for a comprehensive learning experience,and promoting inter-group collaboration aligns with the collaborative nature of active learning.

Findings from Focus Group Interview

This section delves into the findings extracted from Focus Group Interviews, shedding light on crucial aspects of AIS activities. The thematic analysis reveals four significant findings offering valuable perspectives on diversifying AIS activities. Together, these themes form a comprehensive exploration of Focus Group Interview insights, enriching our understanding of AIS effectiveness.

Theme 1: Group Dynamics and Collaboration

Student expressed a positive experience with group formation, emphasizing the significance ofbeing able to choose group members. This was particularly beneficial in overcoming challenges associated with unfamiliarity. The cooperative environment fostered positive team dynamics, contributing to a sense of excitement and camaraderie. *"I really loved the way Dr gave us the chance to choose our own group member because sometimes honestly it was hard to perform any idea or tostart doing group discussion especially with students that we aren't that close or never talk to before."*
"I felt like we were in a team to build and support each other."

Theme 2: Positive Classroom Atmosphere

Students highlighted the positive classroom atmosphere as a key factor in their learning process. The vibrant and friendly ambiance positively influenced their engagement and performance during role-play activities.
"I even feel so excited to wait for the class to start since the vibe and the atmosphere were sooo positive, friendly, and I felt like we were in a team tobuild and support each other."
"From the live role-play, I could admit I managed to handle my nerves... because of the vibe, the positive vibe people gave during the class, and ofcourse for having a friendly and supportive lecturer like Dr Azanin."

Theme 3: Challenges in Task Selection

Students expressed dissatisfaction with the predominance of AI in their role-play task, leading to a diminished experience. This suggests a potential need for more balance in task design to maximize the benefits of role-play activities.
"For me, the role-play task kinda best. But my group buat 90% using AI.Then, dia jadi tak best. Thus, I tak dapat sangat the benefits."
"I think role-play boleh jadi the main task untuk this subject. Because both tasks are kinda big and during the subject consumer behaviour we dah adatask sales pitching."

Theme 4: Suggestions for Task Variation

Some students proposed diversifying tasks by suggesting that role-play could serve as the maintask for the subject, distinct from sales pitching. This implies a desire for varied and meaning fullearning experiences.
"I think role-play boleh jadi the main task untuk this subject. Because both tasks are kinda big and during the subject consumer behaviour we dah ada task sales pitching."

In conclusion, the finding of thematic analysis from Focus Group Interview reveals that positive group dynamics and a supportive classroom atmosphere significantly contribute to thelearning process during role-play activities. Additionally, participant feedback suggests the importance of carefully considering task design, with a need for variation to maximize the benefits and engagement of students. Integrating these insights can enhance the effectiveness of role-play activities in the classroom setting. A comprehensive finding of this research can be view in *Figure 1*.

Instructor Reflection	**Student Reflection**	**Instructor Observation**	**Focus Group Interview**
• Real-world Application (Hands-on Experience) • Skill Development through Role-Playing • Immediate Feedback Mechanism • Enhanced Engagement and Motivation • Application of Sales Strategies in a Risk-Free Environment • Team Collaboration and Communication • Critical Thinking and Problem-Solving • Reflective Practice	• Practical Application of Theory • Skill Development Recognition • Feedback-Driven Growth • Increased Engagement and Motivation • Risk-Free Experimentation • Team Collaboration Insights • Critical Thinking and Problem-Solving Recognition • Establishment of Reflective Practice	• Mastery of Practical Application • Uneven Participation Levels and Limited Spontaneity • Skill Development and Constructive Feedback Dynamics • Time Management Challenges and Limited Inter-group Collaboration	• Theme 1: Group Dynamics and Collaboration • Theme 2: Positive Classroom Atmosphere • Theme 3: Challenges in Task Selection • Theme 4: Suggestions for Task Variation

Figure 1: Findings from reflection observation and Focus Group Interview

Discussion

Active learning, exemplified by the innovative approach of Acting In Sales (AIS) role-play, reshapes the sales education landscape by integrating insights from the benefits of role-playing. This dynamic strategy enhances engagement and motivation through immersive experiences in real-world scenarios, transcending traditional teaching methods to create a stimulating learning environment. AIS role-play emerges as a potent tool for skill development, aligning with experiential learning principles. By simulating real-world sales scenarios, students actively apply theoretical knowledge, enriching their practical competencies. The activelearning environment of AIS role-play is fortified by immediate feedback mechanisms, promoting an iterative learning process—a cornerstone of active learning.

This approach aligns with active learning principles, providing a platform for simple yet effective practice in sales strategies. To improve this activity, it is recommended to incorporate technology for enhanced realism and interactive feedback. Virtual or augmented reality applications could simulate authentic sales situations, providing students with a more immersive and adaptive learning experience. Additionally, creating a structured debriefing process after each role-play session could further reinforce learning outcomes by facilitating reflective discussions and identifying areas for improvement. This would contribute to a more comprehensive and impactful AIS role-play experience.

Conclusion

In summary, this research has successfully delved into the inquiry of how students comprehend sales concepts within the context of the discussed activity, revealing valuable insights into promoting active learning. The investigation aligns seamlessly with CLO2, which emphasizes demonstrating the process and communication strategies of selling to customers. The observed success in meeting these goals underscores the efficacy of the active learning approach employed, particularly the Acting In Sales (AIS) role-play. The immediate impact on students' understanding and application of sales concepts is evident. However, for a more comprehensive evaluation of the AIS activity's learning impact, a longitudinal study is recommended. This would involve tracking students over an extended period to assess the durability of the acquired knowledge and skills. Additionally, further executions of the AIS activity with diverse cohortscould provide a nuanced understanding of its effectiveness across varied student groups. Suchextended and varied assessments would contribute to a more robust and comprehensive understanding of the long-term learning outcomes associated with this innovative pedagogical approach, offering valuable insights for ongoing refinement and optimization of sales education strategies.

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Application of Kolb Learning Style Inventory on Postgraduate Students Taking Finance Courses

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Abstract

This study assessed the learning styles of 70 master's students taking finance courses using Kolb Learning Style Inventory (KLSI), covering six different courses and five different programs. The respondents are diversified across gender, race and age groups, but concentrated on those working in the private sector. The most dominant learning style is Reflectors (52.9%), followed by Theorists (14.3%), Activists (12.9%) and Pragmatists (5.7%). Further analysis shows that MSc Management students taking Corporate Finance course are quite balanced between Reflectors and Activists, as opposed to MSc Finance students taking Corporate Financial Management, whom mostly are Reflectors. For MBA students taking Accounting and Finance for Managers, the students are balanced between Reflectors and Theorists. The paired-sample t-tests show that the MBA and MSc students differ in three learning styles (R, T, P), but not in A. The MBA students are greater Reflectors, but the MSc students are greater Theorists and Pragmatists. Female students are greater Reflectors than male students, while male students are more prepared before coming to class. Overall, the students provided positive feedbacks on course coverage, delivery, relevance and usefulness. They shared their opinion on the problems of time constraint, inadequate basic knowledge and challenging topics that involved difficult calculations. Relevant reflection on the findings is done and several initiatives for future improvements are provided.

Keywords: Kolb Learning Style Inventory (KLSI), Learning Styles, Postgraduate Students

Introduction

Postgraduate education in Malaysia has been growing rapidly in recent years. In 2020, there were over 100,000 postgraduate students enrolled in Malaysian universities, a number that is expected to reach 200,000 by 2025. This growth is being driven by a number of factors,including the increasing demand for skilled workers in the knowledge economy, the government's commitment to improving the quality of higher education, and the growing availability of scholarships and financial assistance (Ministry of Higher Education Malaysia, 2023). The development of postgraduate education in Malaysia is playing a vital role in the country's economic and social development. By producing highly skilled workers and conducting cutting-edge research, postgraduate education is helping to make Malaysia a more competitive and prosperous nation (Wan Hussin & Ahmad, 2019).

The high growth of postgraduate education in Malaysia is propelled by the online learning platform that has become more rampant especially after the COVID-19 pandemic. This has attracted many working adults to further their studies in various programs at public and private universities, with career advancement as the primary motive. Many of them pursue their studies on part-time basis, and they have to juggle

between work and academic commitment. Some of them are married and have to cater to family needs as well. Therefore, the teaching and learning environment for these students are very much different from the undergraduate students and also from full-time post-graduate students.

Research has shown that there are differences in students' learning styles and that these differences will impact on the overall learning process (Gooden, Preziosi & Barnes, 2009). With that regard, how the students learn, specifically, their learning style, is expected to be staggeringly different, given their maturity, hectic schedule and multiple responsibilities. Understanding their learning style is ubiquitously imperative for the lecturers so that they can deliver the postgraduate courses more effectively, and this is the motivation of this study. Barnes et al. (2004) identified differences in the learning styles of the students and that students have preferences in certain course delivery methods over others. In another research paper, Barnes et al. (2008) also found that there may be differences in learning outcomes for certain courses when courses are offered at different locations. Furthermore, Tomlinson (1996) emphasized that instructors need to be aware of and adapt to student learning styles. Thus, an analysis of students' learning styles can enhance learning and expand students'the knowledge base.

Specifically, this study aims to assess post-graduate students' learning style using Kolb Learning Style Inventory (KLIS), one of the most prominent instruments used to assess students'learning style.

The Kolb Learning Style Inventory (KLSI) is a self-report inventory that measures individual preferences for four learning modes: Activist, Reflector, Theorist, and Pragmatist. The KLSI is based on David Kolb's experiential learning theory, which states that learning is acyclical process that involves four stages (Kolb & Kolb, 2005):

1. Concrete experience: This involves actively participating in an experience and gathering new information through our senses (Activist).
2. Reflective observation: This involves thinking about and reflecting on the experience to make sense of it (Reflector).
3. Abstract conceptualization: This involves developing abstract concepts and theories to explain the experience (Theorist).
4. Active experimentation: This involves using the concepts and theories to test out new ideas and solve problems (Pragmatist).
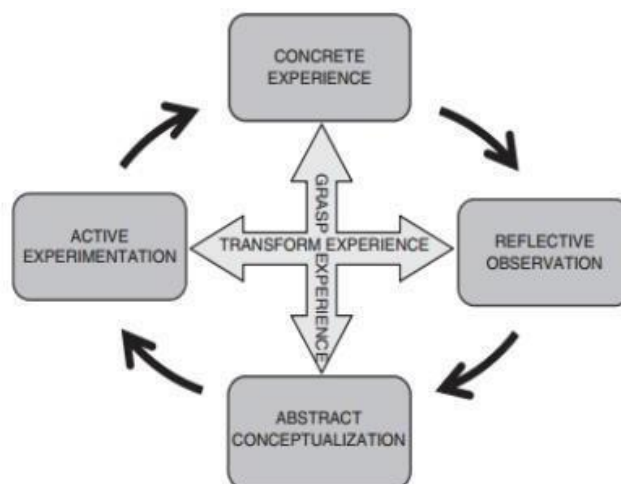
Figure 1: Kolb & Kolb's (2009) Experiential Learning Cycle.

Activists want practical tasks and very little theory. They learn best from activities where new experiences are emphasized and there is a lot of action and excitement. The focus is on the present and on doing such activities such as games, problem solving and simulations. **Theorists** want handouts, something to take away and study. They learn best from activities where the learning forms a part of a conceptual whole, such as a model for a theory. They are willing to spend time to explore the interrelationship among elements. **Reflectors** want lots of breaks to go off and read and discuss. They learn best from activities where there are opportunities to observe and consider, and there is time to think before having to act or contribute. There is a strong element of passive involvement such as listening to a speaker or watching a video. **Pragmatists** want shortcuts and tips. They learn best from activities where there is a clear link back to some job-related problem. They are able to practice what they have learnt and can relate to a successful role model.

According to Smith and Rayfield (2017), Kolb's Learning Style Inventory (KLSI) has been found to be an accurate measure of an individual's preference for processing and understanding information during learning. Researchers have found that using the KLSI as an indicator of the learning preferences for a particular group can help explain their preferred learning method, which can help guide decisions regarding curriculum development and delivery. The KLSI instrument has been noted as a relatively stable measure of learning style preference (Kolb & Kolb, 2005).

Methodology

This study focuses on the courses taught by the researcher for the past two years where the mode of delivery is through online learning. Altogether, there are six courses involved and all of them are finance-related courses in UUM and two private universities. A questionnaire was developed and comprises i) basic demographic background ii) 80-items Kolb Learning Style Inventory (KLIS) iii) additional questions on their evaluation of the course, learning style and overall reflection. The questionnaire was distributed online to the students from 1 August to 14 August 2023.
The breakdown of the courses and respondents are as follows:

Table 1: Respondents based on programs

No	Course	Program	Number of respondents
1	Corporate Finance	MSc Management	12
2	Advance Corporate Finance	MSc Finance	12
3	Seminar in Finance	MSc Finance	11
4	Corporate Finance	MBA	12
5	Managerial Finance	MBA	13
6	Accounting & Finance for Managers	MBA	10
		TOTAL	70

The data collected are analyzed using excel and comprise descriptive analysis, paired-sample t-test and correlation analysis. In addition, reflection using thematic analysis is also provided in order to add robustness to the findings.

Findings

Descriptive Analysis

Table 2 presents the demographic background of the respondents. The gender ratio is balanced, while the racial composition is dominated by the Chinese (40%) and the Malays (32.9%), and international students made up 10% of the total sample. Most of the respondents are below 35 years old (71.4%), and majority of them are working in the private sector (77.1%).

Table 2: Demographic background of the respondents

	Gender		**Race**		
Male	34	48.6%	Chinese	28	40%
Female	36	51.4%	Malay	23	32.9%
			Indian	12	17.1%
	Age		Others	7	10.0%
<30	21	30%			
31-35	29	41.4%	**Occupation**		
36-40	12	17.1%	Private	54	77.1%
41-45	5	7.1%	Public	6	8.6%
>50	3	4.3%	Own Business	6	8.6%
			Unemployed	4	5.7%

It can be concluded that the students are fairly diverse in terms of race, age and gender.

Analysis of Learning Styles

Table 3 to Table 6 presents the analysis of students' learning styles based on the KLSI in the survey questionnaire of the study.

Table 3: Overall respondents' learning styles

Learning Style	A	R	T	P	R/T	R/P	T/P	A/P	A/T	A/R/P	R/T/P
Frequency	9	37	10	4	4	1	1	1	1	1	1
Percentage	*12.9%*	*52.9%*	*14.3%*	*5.7%*	*5.7%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*	*1.4%*

A=Activist, R=Reflector, T=Theorist, P=Pragmatist, R/T=Reflector/Theorist, R/P=Reflector/Pragmatist, T/P=Theorist/Pragmatist, A/P=Activist/Pragmatist, A/T=Activist/Theorist, A/R/P= Activist/Reflector/Pragmatist, R/T/P= Reflector/Theorist/Pragmatist.

Table 3 shows the breakdown of respondents' learning styles. The most dominant learning style is Reflector (R) with 37 respondents, followed by Theorist (T) with 10, 9 for Activist (A), and 4 for Pragmatist (P). Four respondents are balanced between R and T. Six respondents do not have a single dominant learning style and are balanced between R/T (1), T/P (1), A/P (1), A/T (1), A/R/P (1) and R/T/P (1).

The findings show that about half (52.9%) of the students are Reflectors, and the most notable trait is passive involvement such as listening to the lecturer or watching a video. In general, they need some time to think before having to act or continue with the

next topic. Their strength is that they can produce good reports that require careful analysis of a problem and are able to probe an issue in some depth. They can also interact with others in a group without worrying of hurting other people's feelings. However, they will not work well under pressure and short dateline as they need some time to process and analyze the information (Kolb & Kolb,2005).

Table 4: Respondents' learning styles – by courses

Learning Styles

Course	A	R	T	P	R/T	R/P	T/P	A/P	A/T	A/R/P	R/T/P
Corp Finance (MSc)	4	5	1	1	-	1	1	-	-	-	-
Advance CF (MSc)	-	9	2	-	-	-	-	-	-	-	1
Seminar (MSc)	2	4	2	1	1	-	-	-	-	-	-
Corp Finance (MBA)	2	8	-	-	1	-	-	-	-	1	-
Man. Finance (MBA)	1	7	1	2	1	-	-	-	-	-	-
Acctg&Finance (MBA)	-	4	3	-	1	-	-	1	1	-	-

A=Activist, R=Reflector, T=Theorist, P=Pragmatist, R/T=Reflector/Theorist, R/P=Reflector/Pragmatist, T/P=Theorist/Pragmatist, A/P=Activist/Pragmatist, A/T=Activist/Theorist, A/R/P= Activist/Reflector/Pragmatist, R/T/P= Reflector/Theorist/Pragmatist.

Table 4 shows the breakdown of the learning styles according to the specific program sand it further reinforces the findings in Table 3 earlier whereby Reflector is the most dominant learning style. For Corporate Finance (MSc Management), the number of Activists (4) is almost the same as Reflectors (5), showing that the composition between the two learning styles is quite balanced. In general, Activists want practical tasks and very little theory, and they learn best from activities where new experiences are emphasized. They like action and excitement, therefore activities such as games, problem solving and simulations are deemed appropriate (Smith & Rayfield, 2017). For Advance Corporate Financial Management course (MSc Finance), almost 82% of them are Reflectors and none of them are Activists. The other MSc Finance course, which is Seminar in Finance, records a low number of Activists as well (20%).The same goes for the other courses, including Accounting and Finance for Managers (MBA),which have 40% Reflectors, 30% Theorists, and 0% Activists. Theorists learn best from activities where they can explore the interrelationship among elements and generally are more intellectually stretched. Pragmatists, on the other hand, prefer to learn things that are related or applicable to their work and life. Their main aim is to make their work easier and to be able to practice what they learn (Kolb & Kolb, 2005).

Table 5: Paired-sample t-test of learning styles between MBA and MSc programs

	Activist		Reflector		Theorist		Pragmatist	
	MBA	MSc	MBA	MSc	MBA	MSc	MBA	MSc
Mean	10.80	10.34	15.57	17.11	14.26	15.80	14.34	15.14
Variance	27.58	38.11	25.78	12.69	19.14	13.52	7.94	6.01
t Stat	0.341477		-1.43444		-1.74648		-1.47177	
P Value	0.367423		0.0803*		0.0449**		0.0751*	

*significant at 10%, **significant at 5%

Table 5 shows the results of paired-sample t-test of learning styles between the studentsin the MBA and the MSc programs. The number of students in each category is 35. Students inboth programs do not differ significantly in Activist learning style. They do however, differ significantly in the other three learning styles. The MBA students, collectively, are greater Reflectors (17.11) compared to the MSc students (15.57). However, the MSc students are more of Theorists (15.80 vs 14.26, and significantly different at 5% level) and Pragmatists (15.14 vs14.34, and significantly different at 10% level) compared to the MBA students.

Table 6: Paired-sample t-test of learning styles between genders

	Activist		Reflector		Theorist		Pragmatist	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Male*	*Female*
Mean	10.88	10.82	15.44	17.09	14.94	14.91	14.85	14.74
Variance	38.59	23.48	26.31	12.75	21.75	12.39	10.13	4.32
t Stat	0.047762		-1.80353		0.035855		0.199667	
P Value	0.481097		0.040221*		0.485807		0.421483	

*significant at 5%

Table 6 shows the results of paired-sample t-test of learning styles between the genders, and significant difference is recorded on Reflector. It indicates that female students are greater Reflectors (17.09) compared to male students (15.44), and the difference is significant at 5% level. The findings imply that female students are more attentive and better listeners than theirmale counterparts. They also interact better in groups and can probe into certain problems moredeeply compared to the male students.

Table 7: Paired-sample t-test of students' preparedness between genders.

	Score		Score	
	MBA	*MSc*	*Male*	*Female*
Mean	12.09	12.63	12.68	12.00
Variance	4.90	3.48	3.26	5.27
t Stat	-1.26634		1.322771	
P Value	0.1070		0.0975*	

*significant at 10%

In addition to the learning styles, the questionnaire also contains two items with regards to students' preparedness – "I always read and go through the materials uploaded

in the portal before class" and "I always go over the materials learnt immediately (1-2 days) after class". The students answered them using the Likert scale (1 to 5), and the answers for both items are added to represent the score on students' preparedness. The score is not significantly different between the MBA and the MSc groups, showing that students in both groups have almost similar levels of preparedness when taking the courses. However, there is a significant difference (at 10% level) between the male (12.68) and female (12.00) students. In general, male students are more prepared, whereby they tend to go through the course materials before and after classmore than the female students.

Correlation Analysis

Table 8: Correlation analysis of learning styles

Table 8: Correlation analysis of learning styles

	Activist	*Reflector*	*Theorist*	*Pragmatist*
Activist	1			
Reflector	-0.5028	1		
Theorist	-0.5189	0.8423	1	
Pragmatist	0.4014	0.2102	0.2507	1

Table 8 shows the correlation coefficients among the learning styles. The highest correlation is recorded between Reflector and Theorist (0.8423), showing that the two learning styles go hand-in-hand, whereby reflective students tend to be theoretical. However, Activist is negatively correlated with both Reflector (-0.5028) and Theorist (-0.5189), showing that students who prefer a more vibrant and enjoyable class setting tend to score low on Reflector and Theorist learning styles. Activist also is positively correlated with Pragmatist, showing that students who prioritize relevant and practical learning prefer in-class activities such as games, problem-solving and simulations, rather than discussion on theories and concepts.

Other Aspects

The questionnaire also contains other aspects in which the researcher is interested to investigate, such as students' perception on the length of study period, course objectives achieved, students' understanding, course difficulty, exercises done in class and online vs physical class. Likert scale was used, ranging from 1 (Totally Disagree) to 5 (Totally Agree).
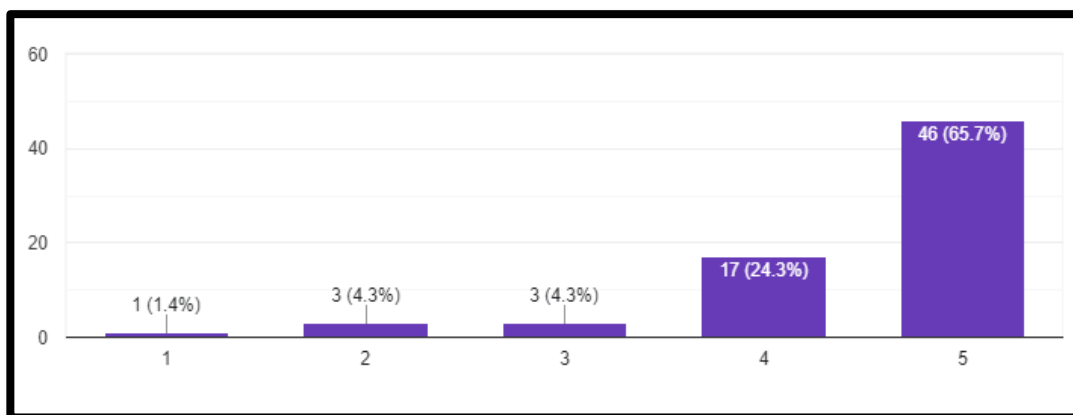
Figure 2: "Overall, the course content is appropriate and commensurate with the length of the study period".
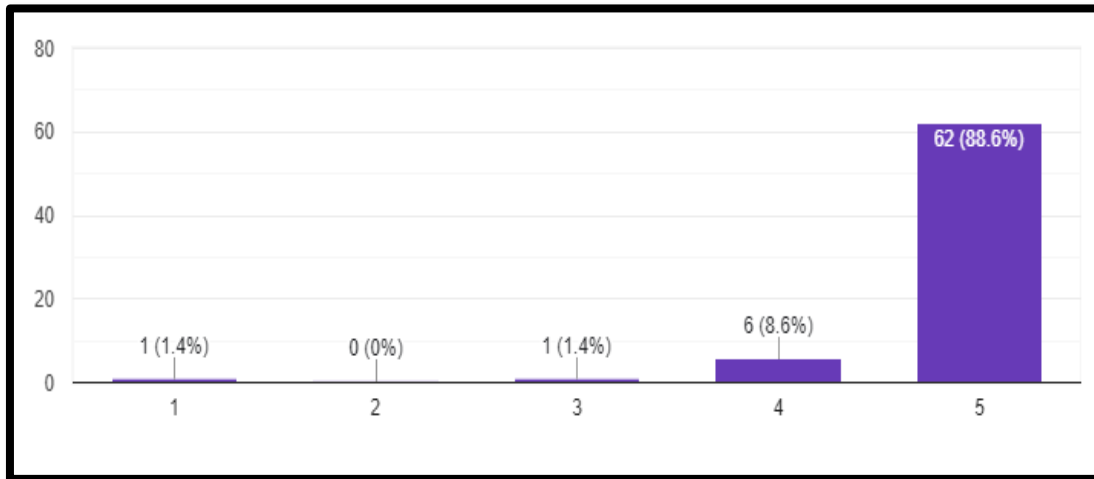
Figure 3: "Overall, the lecturer has achieved the objectives stated in the syllabus".
The findings in Figure 3 show that almost all students agreed that the lecturer has achieved the objectives stated in the syllabus. Only one student totally disagreed (Seminar in Finance) and one student was neutral (Advanced Corporate Financial Management).
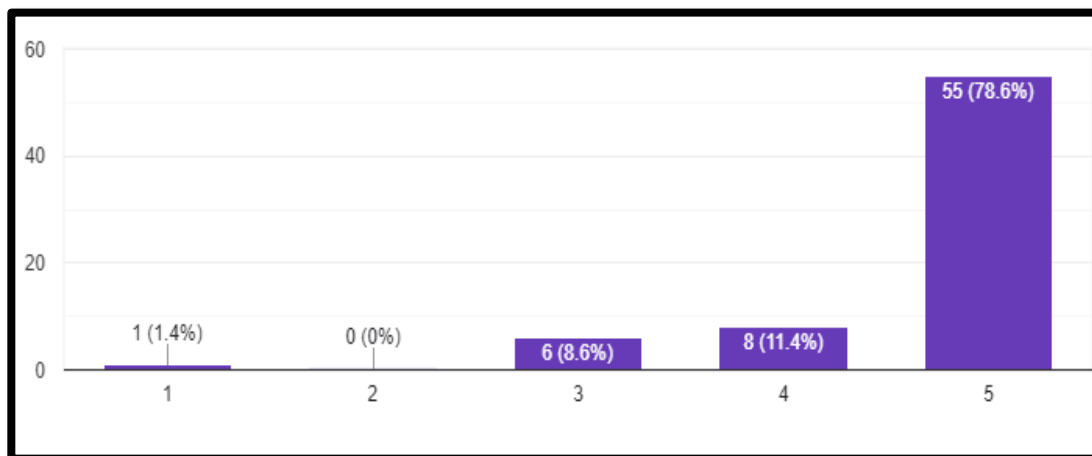
Figure 4: "Overall, I can understand and follow the lectures and discussions in class"
Almost 80% of the students answered "Totally Agreed" on this item, while about 11% of the mans wered "Agreed". Six students answered "Neutral", while only 1 student answered "Totally Disagreed" (Seminar in Finance). This shows that in general, students did not have a problem in understanding and following what is taught and discussed in class.
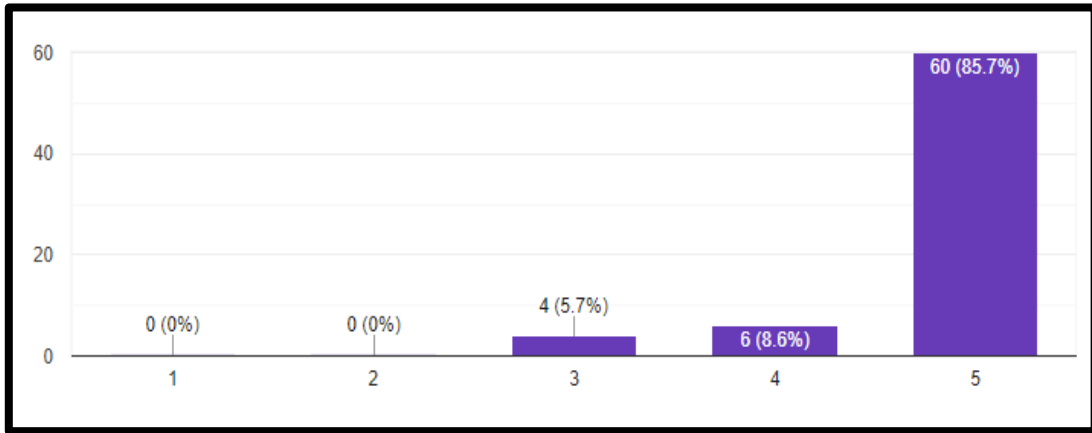
Figure 5: "The exercises done during class are helpful to reinforce my understanding on the subject". Based on the findings in Figure 5, a staggering 85.7% of the students answered, "Totally Agreed" on the statement, with another 8.6% answered "Agreed". Four students answered "Neutral" and none of the students answered "Disagree" or "Totally Disagree". This shows that the exercises given to the students during class are helpful and reinforce their understanding. The lecturer showed and explained the workings as he expected the students to work out the problems together.
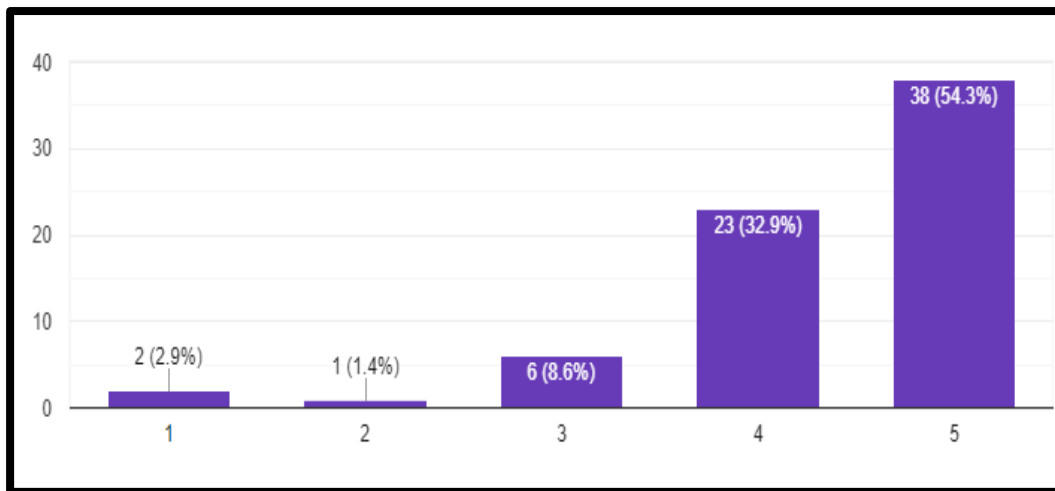
Figure 6: "Compared to other courses I have to take for the program, this course is the most difficult and challenging". Around 87% of the students think that the course they are taking is the most difficult and challenging compared to other courses in the program. In a typical MBA program, Corporate Finance is generally considered as the most difficult course because it comprises several financial calculation topics. For MSc Finance program, Advanced Corporate Financial Management is considered as one of the most challenging courses as it contains several extended topics in capital budgeting, capital structure and valuation.
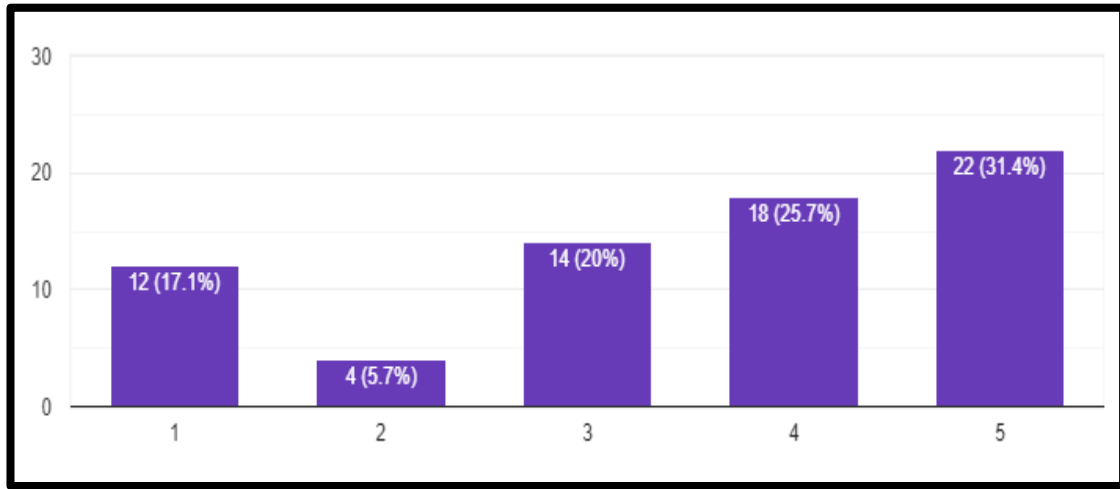
Figure 7: If the classes were conducted physically, instead of online, I would have a better grasp and understanding of the subject. In terms of preference and effectiveness of online classes, the students are quite divided. Although 31.4% and 25.7% of the students answered, "Totally Agree" and "Agree", about 17.1% of them answered "Totally Disagree". This implies that not all students think that they would have followed the class better if it was conducted physically. Some students prefer online classes, possibly due to mobility and logistic factors, as they may live quite far away from the campus.

Thematic Analysis on Students' Evaluation and Reflection
The last two items in the questionnaire are open-ended questions that require the students to provide overall evaluation and reflection on the course. The first question is "What are among the main challenges you faced while taking this course?", and the second question is "What are your general comments and reflection on course?"
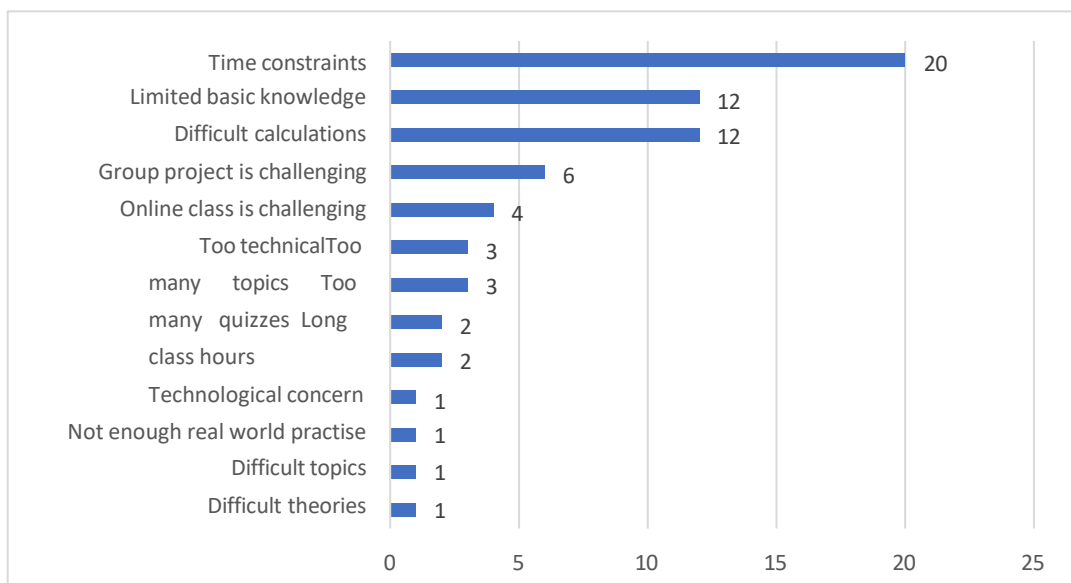
Figure 8: Challenges faced by students.

As the questions are open-ended, a variety of answers were recorded. The answers were analyzed and grouped according to certain recurring themes. As shown in Figure 8, 'time constraints' is at the top of the list, with 20 students put it as their main challenge. This is understandable as most of the students are working and some of them have families. The work and family commitments make it difficult for them to spend considerable time on preparing andstudying for the courses. 'Limited basic knowledge' is the second in the rank, and this is particularly applicable to MBA students. Many of them took undergraduate degree years ago, and they have lost touch on some of the important financial concepts and calculations. The third challenge is "difficult calculations", and this is inevitable because finance courses deal with various calculations involving time value of money, bond valuation, stock valuation and capital budgeting. Following the lectures and doing a lot of exercises are imperative in order to get a good grasp of the course. The next item is 'group project is challenging'. This is possibly exacerbated by the fact that discussions were conducted online instead of physically. Therefore, some of the sessions might not run smoothly, and some others might not give full cooperation.The remaining issues were expected and shared by small number of students.
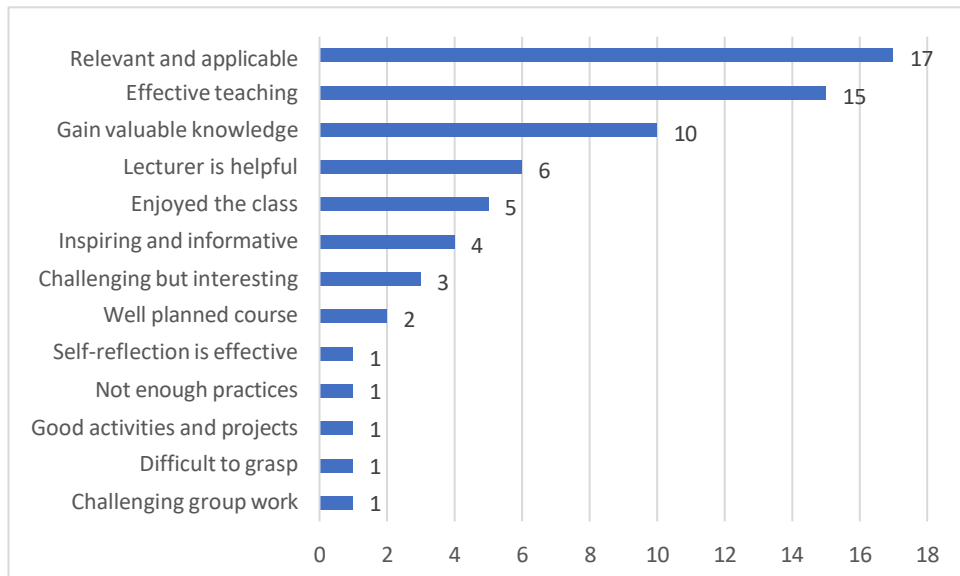
Figure 9: Students' overall reflection on the courses taken.

In terms of students' overall comment and reflection, 13 themes are identified and most of them are positive and encouraging. 17 students commented that the course they took is relevant and applicable to what they are doing (work or business), and 15 of them highlighted that the lecturer's teaching is effective. 10 of them said they gain valuable knowledge, 6 students commented that the lecturer is helpful. 5 of them said they enjoyed the class, 4 students noted that the class was inspiring and informative, while another 3 stated that it was challenging but interesting. The negative comments are 'not enough practices' (1), 'difficult to grasp' (1), and 'challenging group work' (1).

Conclusion

Major Findings

The demographic background analysis shows that the students' composition is fairly diverse in terms of gender, age group and race. Most of them are working in the private sector,thus their work schedule is quite hectic. In terms of learning styles, most of them are Reflectors(52.9%), followed by Theorists (14.3%) and Activists (12.9%). This is expected as most of the students have a business/management/finance background and are working in the private sector. Their previous academic background and working experience may have shaped their learning style that involves focusing one project at a time, reflecting on it and working on the solutions through group discussions. When the courses are analyzed separately, it can be observed that MSc Management students taking Corporate Finance course are quite balanced between Reflectors and Activists, as opposed to MSc Finance students taking Corporate Financial Management, where 82% of them are Reflectors. For MBA students taking Accounting and Finance for Managers, the students are balanced between Reflectors and Theorists. None of the courses have a noticeable number of Pragmatists.

The paired-sample t-tests show that the MBA and MSc students differ in three learning styles (R, T, P), but not in A. The MBA students are greater Reflectors, but the MSc students are greater Theorists and Pragmatists. In terms of gender, female students are greater Reflectors than male students, implying that they are more focused in class and work better in group projects that involve problem-solving.

However, the male students scored higher in terms of preparedness score, indicating that they go through the course materials before and after the class more than the female students. A possible explanation could be due to the fact that some of the female students are occupied with house chores and raising small children, thus they do not have ample time to go through the materials diligently before and after each class. Nonetheless, they are more focused and participative in class.

Overall, the students opined that the courses have achieved their objectives, the classes were conducted effectively, the exercises were helpful in reinforcing their understanding, and the lecturer is knowledgeable and helpful. Many of them declared that the topics covered are relevant and applicable to their job settings. Although many of them stated that the courses are challenging and that they do not have adequate basic knowledge, they said that they have gained useful and practical knowledge and enjoyed the classes. Some of them prefer online classes compared to physical classes, possibly due to logistical factors. The main challenges faced by the students are time constraints, weak prior knowledge and tough calculations. A tiny minority of the students commented that the exercises given were still not enough and that there were too many quizzes.

Reflection for Future Improvement

Analyzing students' learning styles has helped the lecturer to understand and appreciate the differences among the students, and serve as a guide in mapping out improvement measures for the upcoming semester. Next semester, the lecturer will be teaching an MBA group and an MSc Finance group. The following mitigating and improvement measures are to be adopted:

i. Ask the students to take the Kolb Learning Style Inventory test at the beginning of the semester in order to assess their learning styles. This will be helpful as the lecturer can plan and design the lecture and activities accordingly and effectively throughout the semester. Possibly, the groups for

the course project can be formed according to the learning styles.

ii.   Incorporate more 'fun' activities that require the students to engage and participate in groups. For example, instead of lecturing on stock return and risk calculations, the lecturer can initiate a competition that involves stock tracking simulations. This bodes well for the three dominant learning styles – Reflectors, Activists and Pragmatists.

iii.   Reduce the number of conventional difficult quizzes and replace them with more practical exercises that mirror the real settings and problems in their workplace. This will ensure that effective learning takes place and that they can absorb the knowledge more efficiently.

iv.   Take several initiatives to provide the students with basic knowledge and skills that are essential for them to understand challenging topics. For example, the lecturer can put in lecture notes or videos in the online learning platform or suggest several videos that the students can watch before coming to the class.

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Enhancing Immersive Learning: An Examination of Integrated Problem-Based Learning (iPBL) and Its Effects on Student Skill Development and Engagement

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Abstract

This research focuses on exploring the impact of Integrated Problem-Based Learning (iPBL) in the context of modern education. The primary objectives of this study are to develop iPBL's immersive learning aspects and assess their effects on skill development and student engagement. iPBL incorporates six essential components: digital tools, collaborative learning, active engagement, a series of exploration prompts, connected content, and reflection. These elements come together to establish an immersive learning environment that encourages students to connect theoretical concepts with real-world applications, thereby deepening their understanding of the subject matter and fostering a more meaningful learning experience. The data was collected through student reflections and surveys from participants in the Systems Analysis and Design (SAD) course at Universiti Utara Malaysia. The primary findings of this research indicate that iPBL has a significant positive influence on immersive learning. It enhances students' comprehension of complex concepts and equips them with practical skills for real-world applications. Moreover, it effectively increases student engagement by promoting active participation and the practical application of knowledge acquired during the course. In conclusion, this research underscores the potential of iPBL to enhance immersive learning, foster skill development, and boost student engagement. These insights provide valuable guidance for educators and institutions striving to adapt to the ever-evolving educational landscape. By implementing iPBL, they can deliver more effective, skill-oriented, and engaging learning experiences, thus better preparing students for the challenges of the modern world.

Keywords: iPBL, Immersive Learning, Meaningful Learning, Engagement, Reflective, Digital, Skill

Introduction

Immersive learning has been increasingly gaining the attention of researchers and educators in recent years due to its benefits of providing students with dynamic, engaging, and effective learning experiences. Zhou and Kang (2022) demonstrated that an immersive learning environment can boost in-person interaction and cooperation, promote collaborative inquiry-based learning, and facilitate collaboration. While immersive learning is often associated with online or virtual settings, its importance extends beyond these domains. Immersive learning can also serve as an essential tool for enhancing the face-to-face classroom experience, especially in environments where passive, non-interactive learning methods continue to dominate (Ly et al., 2017). In a face-to-face classroom, where traditional teaching methods are prevalent, students often

find themselves in a passive role. The students sit, listen, and take notes, with limited active participation and engagement opportunities. While this approach certainly has its merits, a question arises as a one-way flow of information can lead to disinterest, reduced retention of material, and a lack of critical thinking.

On the other hand, immersive learning transforms learning by encouraging active participation, exploration, and engagement in a learning environment that simulates real-world experiences. Hand et al. (2016) described immersive learning as a process where students actively engage with a knowledge base while incorporating their cognitive values and abilities. In an immersive classroom, students become active participants in the learning process instead of being passive recipients of information. In immersive classrooms, students experience hands-on learning in this context, actively engaging with the content while integrating their existing knowledge and skills. This approach creates a sense of presence and immersion in the learning process.

Problem-based learning (PBL) and immersive learning are interconnected by focusing on active, student-centered, and experiential learning approaches. PBL is an instructional strategy that presents students with complex, real-world problems to solve, promoting critical thinking and collaboration. On the other hand, immersive learning involves deeply engaging students in a learning environment that simulates real-world experiences. The connection lies in that PBL often creates an immersive learning environment to address the presented problems. In a PBL scenario, students are immersed in problem-solving, making decisions, conducting research, and working collaboratively, which aligns with the principles of immersive learning.

The incorporation of technology in problem-based learning facilitates exploration, fosters collaborative inquiry, and cultivates the essential skills students need as they transition into the modern world (Green, 2018). Technology tools must be appropriately selected (Tambouris et al., 2012) to ensure their relevancy in aligning with the learning objective, their ability to enhance student engagement, and their ability to support active participation and collaboration among students to make the learning experience more authentic.

In the literature, immersive learning is frequently linked with the utilisation of technology, such as using immersive technology (e.g., virtual and augmented reality) to create an actual user experience (Lock & MackDowell, 2023). While virtual technology can enhance immersion, it is crucial to note that immersive learning can also occur in traditional classroom settings. Immersion is not solely reliant on technology but centers on the sense of being fully present (Dengel & Mägdefrau, 2019) in the learning experience in real time, regardless of whether it takes place in a physical or virtual classroom. In this context, immersion can be achieved in the traditional classroom by crafting dynamic and interactive learning experiences that captivate students' attention, making them feel as if they are 'there' in the learning process.

Therefore, this study aims to investigate how PBL can be seamlessly integrated with immersive learning, particularly in the context of utilising these technological tools to enhance the overall learning experience and make it more meaningful for students. This model is referred to as integrated PBL (iPBL). Specifically, this study investigated the implementation of iPBL on immersive learning, skill development, and student engagement.

Literature review

PBL's introduction as an educational approach aimed at enhancing students' skills and capabilities can be traced back to the late 1960s. It originated in the efforts of McMaster University Medical School to incorporate practical medical teaching and learning (Nilson, 2016). The successful application of PBL in medical education ledto its widespread adoption in various other fields, including engineering, social sciences, business, and law.

PBL has gained broad acceptance as a pedagogical approach for improving students' skills and increasing graduates' employability (Jabarullah & Hussain, 2019; Okolie et al., 2020). Previous research has shown that PBL has the potential toenhance students' learning motivation (Setyani & Susilowati (2022), lateral thinking abilities (Mustofa & Hidayah, 2020), critical thinking abilities (Fadilla, et al., 2020), teamwork and collaboration skills (Allert et al., 2022), problem-solving skills (Kök & Duman, 2023) and critical thinking skills (Pramudiayanti et al., 2023).

PBL has evolved significantly, especially in traditional classrooms, primarily due to the incorporation of digital tools. In its traditional form, PBL typically centered around face-to-face interactions where students collaboratively tackled real-world issues. Yet, the emergence of digital tools has ushered in a more dynamic and interactive form of PBL. Digital tools allow for efficient organisation and management of tasks, easy sharing of resources, and real-time collaboration, fostering the development of problem-solving and critical thinking skills in students. In addition, it promotes deeper engagement and meaningful interactions among students. Lavonen et al. (2023)'s study revealed that the PBL teaching module, with its focus on collaboration, the incorporation of scientific and engineering practices, and the utilisation of digital tools, effectively captivated students in the learning process and significantly enhanced their achievement of learning outcomes compared to conventional teaching methods. An investigation by Hidayati et al. (2023) into the role of digital mind maps in PBL revealed that PBL integration with digital tools is more effective in promoting collaboration skills.

Therefore, this study has developed an Integrated Problem-Based Learning (iPBL) approach with a strong emphasis on enhancing the immersive experience for students by promoting their active participation. Instead of passively absorbing information, in the iPBL, students are expected to participate in their learning actively. The iPBL integrates six components of digital tools, collaborative learning, active engagement, a series of exploration prompts, connected content and reflection. These components are integrated to create an immersive learning environment that encourages students to connect theoretical concepts with real-world applications, thus promoting a deeper understanding of the subject matter and meaningful learning experience.

The importance of replacing traditional PBL with iPBL lies in the enhanced learning experiences it offers. iPBL leverages digital tools and technology to create a dynamic and interactive PBL classroom atmosphere, fostering deeper connections between theoretical knowledge and its real-world applications. Rahmawati et al. (2020) emphasised that integrating technology could contribute to the attainment of competencies essential for the 21st-century workforce, where technology has the potential to offer learners a robust and enriching educational experience. Several studies in PBL and technology focus on its integration with online learning.

For example, Hendarwati et al. (2021) explored the integration of Collaborative Problem- Based Learning (CPBL) with online learning to enhance student collaboration and problem-solving skills. Their findings indicated that this integration is an effective solution, particularly in building knowledge, seeking resolution strategies, and evaluating solutions in breakout rooms, collaborative forums, and Zoom meetings. Applying the concept of Electronic-Problem-Based Learning (E-PBL), Setyani and Susilowati (2022) incorporated PBL with technology during the COVID-19 pandemicto assess its effects on students' interest, motivation, and achievement. The results indicated that E-PBL had a positive impact, leading to heightened learning motivation and interest, ultimately resulting in improved learning achievement. In a different study, Hidayati et al. (2019) integrated PBL with a digital mind map (DMM), studentsused mind maps to organise interconnected concepts while studying Human Anatomy and Physiology. The findings suggested that the integration of PBL and DMM model can be used as an alternative approach for simultaneously empowering students' critical thinking and creativity. The iPBL highlighted in this study differs from the examples highlighted in the literature. Digital tools, the first component of iPBL, were integrated into iPBL during class discussions, where students used these tools to brainstorm ideas and comprehend the PBL problem, seeking suggested solutions. The brainstorming process involved a digital collaboration platform within a physical PBL classroom, allowing students to work collaboratively and actively engage in discussions with team members to find solutions.

In addition to the digital tool's component, iPBL emphasises collaborative learning, active engagement, and reflection. Collaborative learning is defined as any learning activity involving the collaborative efforts of two or more individuals to accomplish tasks, such as solving cases, with the overarching goal of achieving specific learning outcomes (Pluta et al., 2013). According to Almulla (2020), collaborative learning within the context of PBL is instrumental in cultivating the skills and knowledge essential for the 21st century. This approach was identified as crucial for engaging students, potentially leading to improved academic performance. iPBL supports collaborative learning because, in iPBL, students actively participate and share responsibilities, drawing on each other's strengths to accomplish the group's objectives, with each member contributing unique insights (Davidson & Major, 2014). Active engagement focuses on students' dynamic and participatory involvement in learning (Michael (2006). It involves students actively participating in discussions, problem-solving activities, and collaborative tasks within the PBL framework. Such engagement could positively impact students' achievement (Lugosi & Uribe, 2020). Regarding reflection, Lolle et al. (2023) suggested that reflection can occur at the individual and collective levels, and it can be viewed from two distinct perspectives: one involving reflections as processes and the other involving reflections as outcomes. The significance of reflection in learning was emphasised by Guo (2022), who discovered that reflective interventions had a positive andsignificant medium-sized effect on learning outcomes.

Connected content integrates and links various learning materials, concepts, and resources within the iPBL framework. The content is carefully curated and designed to establish meaningful connections between theoretical concepts and real-world applications. This interconnected approach aims to enhance students' understanding by demonstrating the relevance of academic knowledge in practical scenarios.

Concerning this, Hung (2016) highlighted that the design of problems in PBL should address the appropriateness and sufficiency of content knowledge, knowledge contextualisation, and knowledge integration to equip students with the ability to solve real-world problems. In this regard, connected content with real-world scenarios allows the students to apply the acquired content knowledge, allowing for practical and authentic learning experiences (Hung, 2016). In the iPBL, a series of exploration prompts serves as a structured set of inquiries or directives that guide students through the learning process. It consists of emails and memorandums highlighting the activity requirements students need to perform.

Theoretical Framework

The constructivist learning theory and Howland et al. (2012) dimension of meaningful learning is used as the theoretical foundation of iPBL. By leveraging the six components of digital tools, collaborative learning, active engagement, a series of exploration prompts, connected content, and reflection, students are engaged in immersive experiences, fostering active participation and meaningful connections between theoretical knowledge and real-world contexts. In this context, Howland et al. (2012) elucidated the five dimensions of meaningful learning as intentional (goal-directed/regulatory), active (manipulative/observant), constructive (articulative/reflective), authentic (complex/contextual), and cooperative (collaborative/conversational). The present study employed these five dimensions to combine in iPBL. In iPBL, students are expected to construct their own learning (from a constructivist perspective) and immerse themselves in the learning process to experience meaningful learning. The framework of iPBL is illustrated in the following diagram:
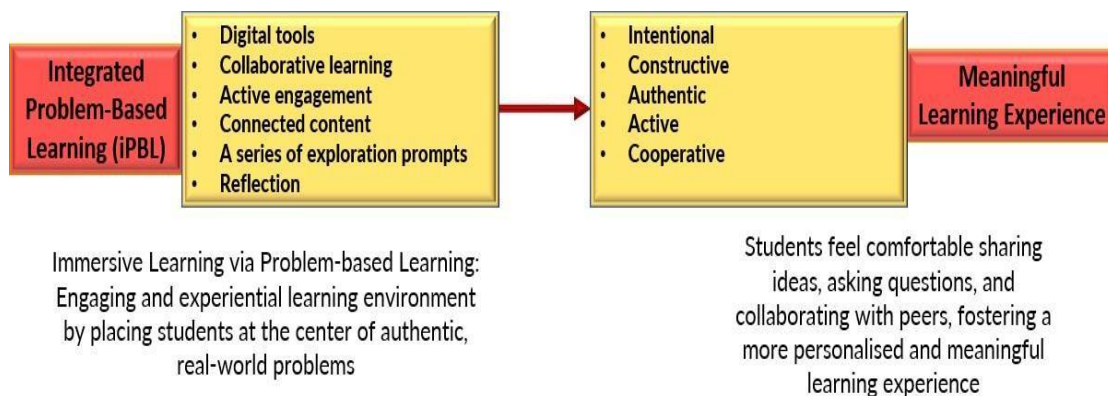
Figure 1. This diagram shows the framework of immersive learning in iPBL for meaningful learning experiences.

The components of iPBL are summarised as follows:

Table 1
Description of iPBL components

iPBL components	Description
Connected content	iPBL begins with the presentation of real-world problems. These problems serve as the driving force for the entire learning process, providing context and relevance to the subject matter. iPBL integrates subject-specific content into the problem-solving process
Digital tools	iPBL leverages digital tools to support the learningjourney.
Collaborativelearning	Students work in teams to analyse, discuss, and solve the presented problems.
Active engagement	Rather than passive absorption of information, students actively participate in problem-solving, critical thinking, and decision-making processes.
A series of exploration prompts	A structured series of prompts or questions to guide students through problem-solving. These prompts helpstudents explore the problem thoroughly and systematically.
Reflection	Students engage in reflection activities after solving problems. They assess their learning experiences, identifyimprovement areas, and consider their solutions' broader implications.

Context and Setting of Study

The iPBL approach has been integrated into the Systems Analysis and Design (SAD) course, which is available to students enrolled in the Bachelor of Accounting and Bachelor of Accounting (Information Systems) programs at Universiti UtaraMalaysia (UUM). The study focused on two classes of the SAD course (a total of 81 students). These classes, under the supervision of the researcher, were organised into eight groups, each consisting of five members. The iPBL was implemented over an academic period of 11 weeks, aligning with the total duration of the selected semester, which spanned 14 weeks.

The objectives of iPBL in the SAD course were, firstly, to increase student engagement within the context of a theoretical course of SAD. The iPBL was designed to foster students' active participation. Digital tools are integrated to create an immersive learning environment that encourages students to connect theoretical concepts with real-world applications, thus promoting a deeper understanding of the subject matter and a meaningful learning experience. Secondly, to foster hands-on exploration for the development of soft skills.

By immersing students in problem- based communication, and leadership skills. scenarios and real-world challenges, the students have opportunities to actively engage and develop soft critical thinking and problem-solving skills, interpersonal, communication, and leadership skills.

The self-reflection approach was selected to enable students to contemplate their experiences after completing PBL 1 activities. This choice aligns with Zimmerman's (1998) definition of self-reflection as the "processes that occur after learning efforts and influence a learner's reactions to that experience" (p. 2). In this study, we collected a sum of 81 self-reflections from students who were part of the SAD course, which also corresponded to the total number of students involved in the study.

This study employed a qualitative and quantitative approach to investigate the impact of iPBL implementation to increase students' engagement and skill development. The analysis focused on 81 students' reflective writings, examining their learning and experiences with the iPBL approach. In the survey, only 49 out of 81 students participated, resulting in a response rate of approximately 60.50%.

iPBL Implementation Approach

The PBL questions were formulated following the guidelines proposed by Howland et al. (2012) for creating meaningful PBL problems. The researcher assumed the role of a facilitator during the PBL sessions in each class, where students actively collaborated in groups to complete the PBL tasks.

Table 2

iPBL for immersive learning

Howland et al. (2012)	PBL activity explanation
Active	Students are actively engaged in the meaningful PBL activity, and the results from the PBL activity are observed.
Cooperative	Students must collaborate, communicate, and complement each other's knowledge and skills to solve the PBL problems.
Constructive	Through solving the PBL problem, students construct their knowledge and articulate their understanding by doing reflection. Reflection can be done impromptu – during class orwritten.
Authentic	The PBL question is designed to reflect real-life problems. In this context, students experience the learning process to obtain knowledge on what they learn, rather than memorising the abstract concept without understanding it. This real-life problem allows the students to explore and meaningfully construct the concept that they learnt during the PBL session.
Intentional	The PBL activity is designed to achieve related learning goals. When students are actively involved in a discussion series, their intentions to solve the problem is clear, and they execute their actions accordingly.

The iPBL activities are summarised as follows:

Table 3
iPBL learning activities.

Activities	PBL activity explanation
1. Students attended face-to-face classrooms.	• Students were prompted to remember their role as system analysts. • Students receive PBL documents.
2. Students engaged in iPBL activities.	• Students appointed a leader to lead the team discussion. • Students worked in teams to confront the problem, to identify learning gaps, and to develop viable solutions. • The instructor facilitated the iPBL session.
3. Students received a series of exploration prompts and performed analysis.	• Students analysed the problem to understand its context and find potential solutions. • Students shared their insights and brainstormed possible solutions with their peers. • Students used critical thinking to evaluate possible solutions and make informed decisions.
4. Students prepared after class reflection & Oh MyLeader activities.	• Students prepared weekly group report. • Students wrote individual reflections (freestylein Wakelet). • Students completed Oh My Leader assessment.
5. Students prepared andsubmitted PBL report.	• Students documented their findings and prepared proposed solutions. • Submission of PBL 1 & 2 reports. • Peer evaluation of interpersonal skills.
6. Students prepared team reflection: Our Tree OfKnowledge.	• Team reshuffle: students worked in a different team to allow for experience sharing during the reflection. • Students prepared reflections on completingthe PBL 1 & 2 • Students presented the reflection.

In iPBL, constructive alignment ensures that the learning outcomes are achieved through authentic assessment tasks that reflect real-world challenges. Teaching strategies guide students to acquire the necessary skills, promoting active learning and practical application. Learning activities are delivered using digital tools during in- class sessions where students act as systems analysts to find the solution to theauthentic problem. It is designed to immerse the students in the learning process and promote meaningful learning experiences by connecting what is taught, how it is taught, and how it is assessed. As students immerse themselves in learning, iPBL incorporates "Oh My Leader" activities to foster leadership development. Students have the opportunity to take on leadership roles within their team, with responsibilities rotating regularly to ensure everyone has a chance to lead and the team members assess their skills.
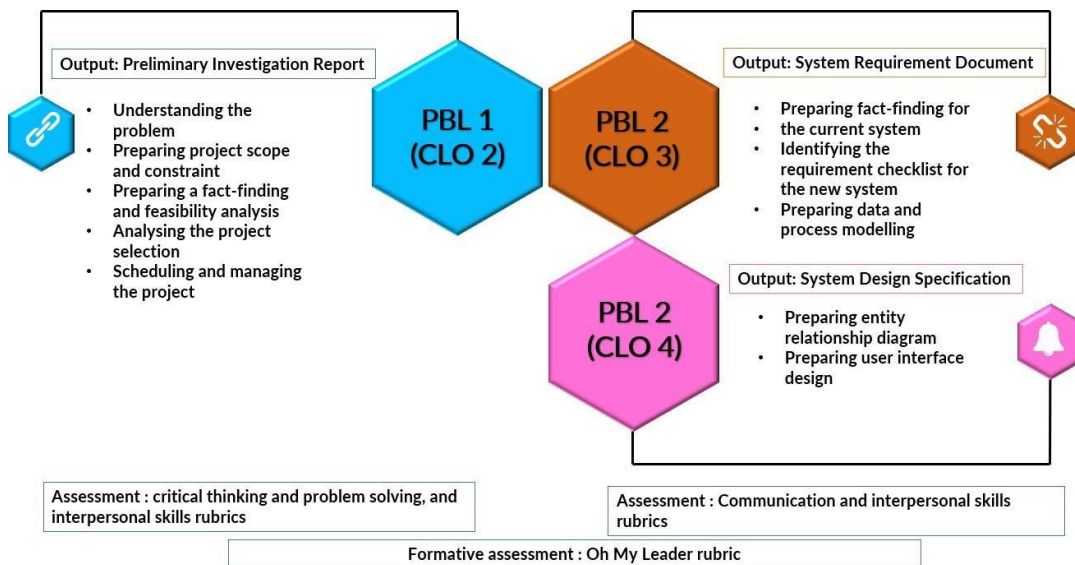
Figure 2. This diagram shows the design of iPBL assessment in the SAD course.
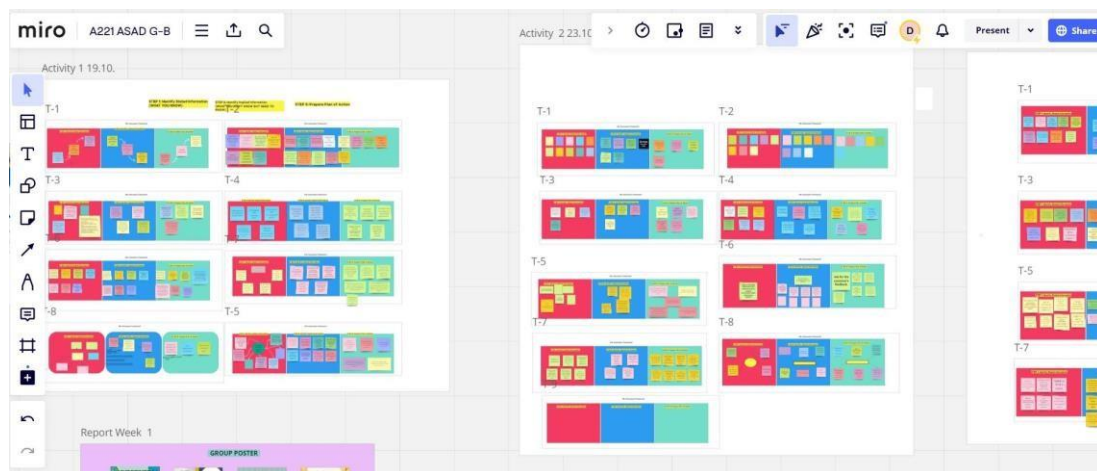
Figure 3. This diagram shows the iPBL implementation, where the students, using digital tools such as Miro Board, worked as a team of systems analysts, collaborating to solve the iPBL question together.

Data Analysis

Data was collected from the students' reflections, which were submitted after the submission of iPBL report. Following the method outlined by Braun and Clarke (2006), this study utilised a thematic analysis approach involving six key steps: (1) immersing in the data, (2) generating preliminary codes, (3) identifying themes, (4) reviewing themes, (5) defining and labeling themes, and (6) preparing a comprehensive report. Within this framework, recurring patterns of significance were identified to establish the primary themes. Meanwhile, data from survey was analysedto determine the percentage of agreement on items related to iPBL implementation. The data was collected once the students completed the course.

Findings

In the iPBL implementation, students actively took on the role of system analysts, immersing themselves in real-world scenarios by visiting companies to experience the problem-solving process firsthand. This practical experience empowered them to apply their theoretical knowledge to identify, analyze, and propose solutions for the challenges encountered. The instructions provided to the students were thoughtfully aligned with the course content and delivered as a series of exploration prompts. These prompts guided the students through problem-solving, ensuring that their activities were connected with the course content. At the end of this immersive learning journey, students prepared reflections, further enhancing their understanding and retention of knowledge while fostering a more profound and meaningful learning experience.

The number of students who participated in the reflection after the PBL submission was 81, comprising 61.9% females and 30.9% males. These students were all in their third semester, experiencing PBL for the first time. Consequently, some students encountered difficulties comprehending PBL due to their limited prior exposure to this approach.

In their reflections following the introduction to iPBL activities, most students characterised the PBL problems as enjoyable, expressing an improved sense of enjoyment, developing new skills, and a heightened perception of themselves as real system analysts. For example, Student A responded with the following:

It really achieves my expectations as I would like a class with discussions with my group members and even the lecturers rather than the lecturers talking by themselves in front of the class for the whole class… Now, Ithink that the class is fun, and I enjoyed learning this course. (Student A).

In their reflections, Students B and C expressed their deep immersion in the learning process during the iPBL, with an authentic sense of being actual systems analysts:

This is the best experience for me because this moment made me feel like a realsystem analyst. (Student B). I have learnt many things and gained new knowledge and skills. This is the best experience for me because this moment made me feel like a real system analyst. It was not easy to be a system analyst as this was my first time. I have to work hard and understand all the requirements as well, as I have to be more patient while working on it. I have to be brave to face any challenges and changes so I can improve my work and also the quality of it. While conducting PBL 2, I felt I wanted to be a system analyst one day. I wanted to design a system for my business in the future. I wanted to create my own design. This PBL 2 inspired me because I, experienced it by myself.

(Student C).

During iPBL activities, students observed a significant improvement in their skill development. The students made the following remarks:

In the end, everyone can improve their critical thinking skills, leadership skills, and communication skills which will be beneficial for the corporate world later. (Student D)

Besides, during PBL 2, I have learnt new skills, such as critical thinking, leadership, negotiation, communication, time management, and listening skills. For the critical thinking skill, it was very important because I had to think forward and ensure that I was on the right track… I have to think what the best solution and suggestion is to provide in order to solve the problem, and I have also to know what the advantages and disadvantages are. (Student E)

This teaching approach really helped me improve my communication skills. Because in other classes, the lecturer is the only one who will talk, and the student must listen to the lecturer. But in this class, the students are given the opportunity to speak, share, and actively participate in the class within their group. (Student F)

For me, I think one of the improvements from PBL 1 to PBL 2 is the skills of using Canva. Before this, I seldom used Canva. However, during this semester, I used Canva many times in order to complete the tasks. Besides, the teamwork and the cooperation spirit among the group members. For PBL 2, the relationship between my group members is closer compared to before. Therefore, when one of us meet any problems while preparing the PBL, we will try to ask and discuss together. (Student G)
The instructor's evaluation of the students' critical thinking and problem-solving traits revealed that all of the students obtained Good and Excellent traits, as presented in Table below:

Table 4
Assessment score for iPBL using the critical thinking and problem-solving rubric.

Traits	N	Poor(0-3)	Fair(4-6)	Good(7-9)	Excellent (10-12)
Problem Identification	81	0 0%	0 0%	0 0%	81 100%
Problem Analysis	81	0 0%	0 0%	61 75%	20 25%
Conceptualisation and Generation of solutions	81	0 0%	0 0%	72 89%	9 11%
Evaluation	81	0 0%	0 0%	79 98%	2 2%
Decision making	81	0 0%	0 0%	47 58%	34 42%

It is important to note that the survey was administered to the same group of students (81 students) after the conclusion of the semester, and only 49 students participated (73.5% female and 26.5% male). The scale represents (1) strongly agree to (5) strongly disagree. The results yielded the following:

In PBL class, the lecturer extensively used Miro Board and other digital tools, such as Wakelet. The use of digital tools enhance my engagement in PBL sessions
49 responses
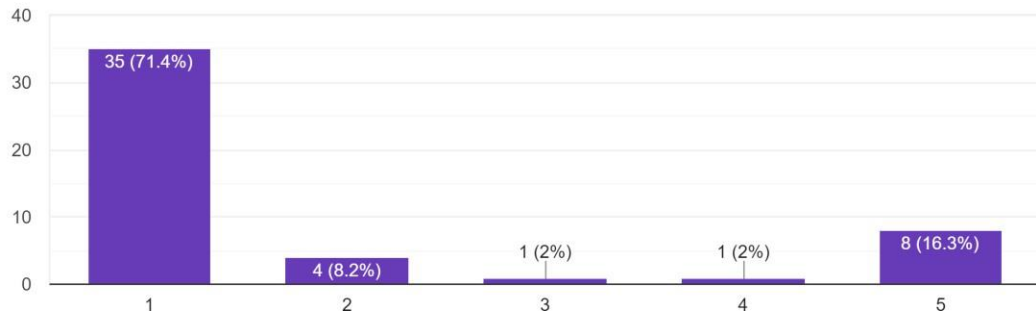
Figure 4. This diagram shows that 79.6 percent of the students either strongly agreed (35 respondents) and agreed (4 respondents) that the use of digital tools enhances students' engagement in iPBL sessions. However, 8.3 percent of the students disagreed with the statement that digital tools enhance their engagement in iPBL.

The integration of digital tools, helped me better understand the concepts discussed in the PBL sessions.
49 responses
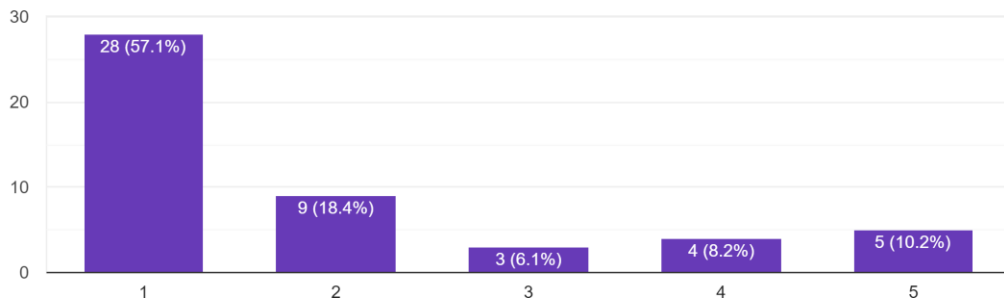
Figure 5. Out of 49 responses, 51.7 percent strongly agreed, and 18.4 percent agreed that integrating digital tools helped them better understand the concepts discussed in the iPBL session. However, 8.2 percent disagreed, and 10.2 percent strongly disagreed with this statement.

The experience of using digital tools for discussion positively impacted my learning in the PBL class

49 responses
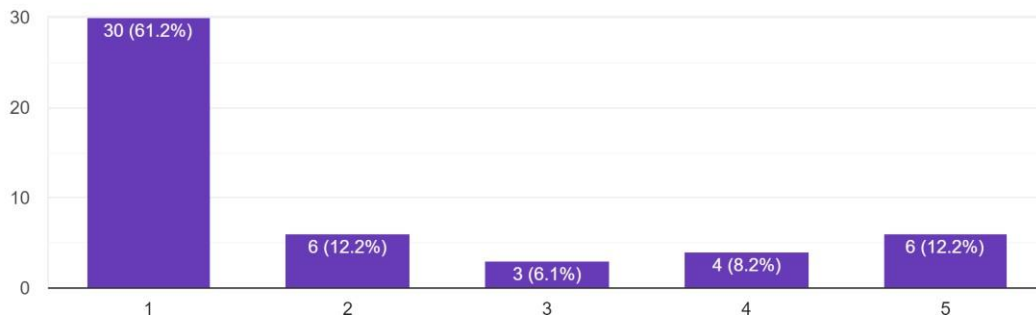
Figure 6. 36 respondents strongly agreed (61.2 percent) and agreed (12.2 percent) that the use of digital tools positively impacted their learning. Only 12.2 percent strongly disagreed with the statement.

PBL encouraged me to be more active and participative in class discussions

49 responses
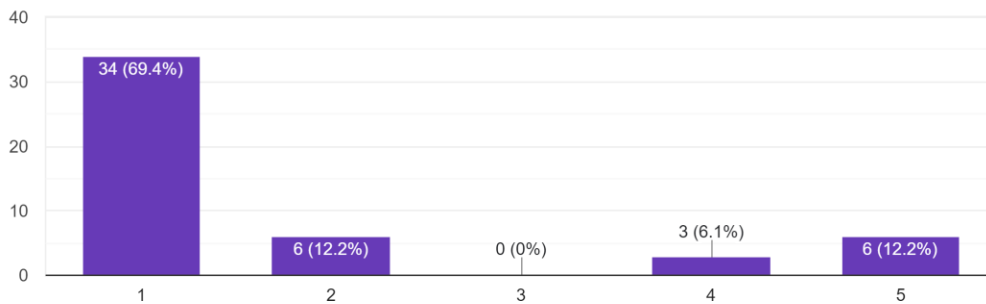
Figure 7. The majority of the students agreed that iPBL encouraged them to be more active and participate in class discussions (69.4 percent strongly agreed and 12.2percent agreed). However, nine responses indicated their disagreement with this statement (12.2 percent strongly disagreed and 6.1 percent disagreed).

PBL significantly improved my understanding of complex concepts in SAD course

49 responses
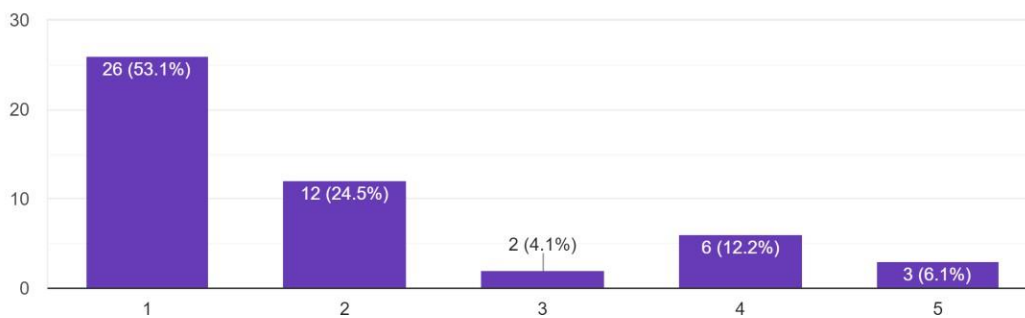
Figure 8. The majority of the respondents agreed that iPBL had significantly improved their understanding of complex SAD concepts, with 53.1 percent strongly agreeing and 24.5 percent agreeing. However, 18.3 percent disagreed, and 4.1 percent indicated neither agreement nor disagreement.

Preparing reflection in PBL significantly improved my learning experience and understanding for SAD course

49 responses
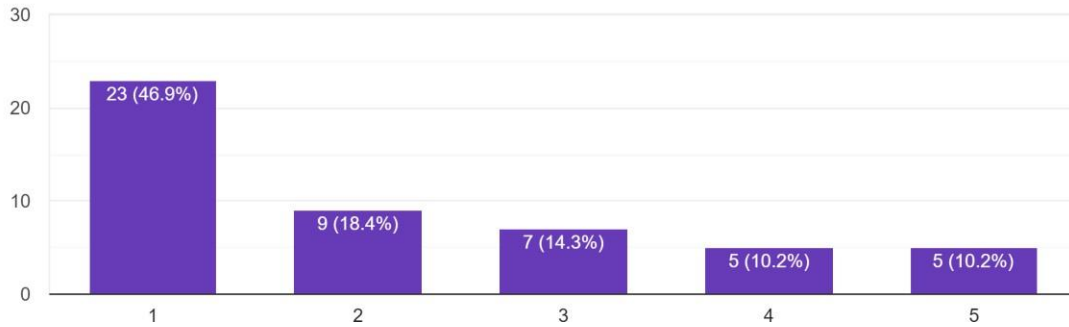
Figure 9. The results of the reflection, indicating its potential to significantly enhance students' learning experience and understanding of SAD concepts, reveal that. 32 respondents agreed (with 46.9 percent strongly agreeing and 18.4 percent agreeing). A portion of the responses indicated that they neither agreed nor disagreed (at 14.3 percent), while both 10.2 percent strongly disagreed and disagreed with the statement regarding the reflection and its impact.

Conclusion

This study involves a systematic investigation into students' learning experiences with the intent of sharing the findings with the broader educational community. This research aims to explore the development and application of the iPBL approach to immersive learning to foster meaningful learning among students in the SAD course and assess its impact on their skill development.

This study examines explicitly how immersive learning is fostered through active engagement in the learning process, including enjoyable activities and incorporating various iPBL elements to enrich students' knowledge and enhance their soft skills for meaningful learning. iPBL integrates six key components: digital tools, collaborative learning, active engagement, a series of exploration prompts, connected content, and reflection. These components work together to establish an immersive learning environment, encouraging students to bridge theoretical concepts with real-world applications, ultimately fostering a deeper understanding of the subject matter and creating a more meaningful learning experience.

The study demonstrates the positive impact of iPBL in creating immersive learning experiences and fostering student skill development. Through integrating digital tools, collaborative learning, active engagement, a series of exploration prompts, connected content, and reflection, iPBL offers a comprehensive approach to meaningful learning. It significantly improves students' understanding of complex concepts, engages them in problem-solving activities, and enhances their soft skills, making learning more enjoyable and applicable to real-world scenarios.

The findings reveal that iPBL effectively boosts student engagement, with most respondents strongly agreeing that it enhanced their learning experience. However, it's essential to acknowledge that a small percentage of students expressed some reservations. These insights offer a valuable perspective for educators and institutions aiming to enhance teaching methods and provide students with more immersive, skills-focused learning experiences. One of the noteworthy outcomes of this study was the development of critical thinking and problem-solving skills among the students.

The instructor evaluation revealed that all students obtained good to excellent traits in these areas. These skills are highly desirable in today's competitive job market and essential for graduates to excel in their careers.

In conclusion, this study reinforces the significance of embracing innovative approaches like iPBL, which bridge the gap between theoretical knowledge and practical application. By aligning pedagogy with technology, active participation, reflection, and connected content, students are better prepared for the challenges of the modern world. As education continues to evolve, iPBL stands as a promising model for creating meaningful and engaging learning environments that equip students with the skills and knowledge they need to succeed.

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Developing Analytical Proficiency Through Case-Based Learning (CBL) With C.L.E.A.R Coaching

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Abstract

This study explores the efficacy of Case-Based Learning (CBL) with C.L.E.A.R coaching as a pedagogical strategy to improve students' analytical skills. In today's complicated and dynamic academic and professional situations, analytical skills are crucial. This study investigates how CBL, through C.L.E.A.R coaching, helps students develop their analytical thinking skills. 34 accounting students participated in the study, and data were gathered using a two-cycle qualitative action research methodology. Critical thinking problem solving rubric was used to measure the analytical ability. The researcher's reflection and observation checklist were used to gather data throughout the intervention. These provide information of changes or improvement on how well the students develop analytical ability. The results showed that students exposed to CBL with C.L.E.A.R Coaching showed notable gains in their critical thinking, analytical skills, and problem- solving abilities. Additionally, the approach's interactive and interesting features enhanced their learning process. This study highlights the importance of implementing cutting-edge teaching techniques like CBL with C.L.E.A.R Coaching to promote analytical proficiency. It gives instructors knowledge of productive techniques for fostering students' analytical abilities, which are essential for success in the classroom and future professions in a variety of fields.

Keywords: Case-Based Learning, Accounting Students, Action Research, Analytical Skill

Introduction

In today's rapidly evolving and complex world, the ability to think critically and analyse information is more valuable than ever before. Analytical skills, often regarded as the corner stone of effective decision-making and problem-solving, are the cognitive tools that empower individuals to dissect, interpret, and make sense of the wealth of information and data at their disposal. Analytical skills encompass a diverse set of mental capabilities that enable individuals to break down intricate problems into manageable components, identify patterns, evaluate evidence, and draw well-founded conclusions. Whether in academia, the workplace, or everyday life, these skills are crucial for making informed choices, discovering innovative solutions, and understanding the ever-shifting dynamics of our globalized society (Bennett, 2004; Fernandez, Aman & Omar,2020; Flyvbjerg, 2011; Hancock, Algozzine & Lim, 2021).

From dissecting data sets and optimizing business operations to unravelling complex scientific phenomena and making sense of conflicting information in the media, analytical skills serve as thecompass guiding individuals through the maze of information overload. In essence, they empower us to see the forest through the trees, to question assumptions, and to approach challenges with intellectual rigor. This exploration delves into the multifaceted realm of analytical skills, sheddinglight on their significance in various aspects of life, their applications across diverse fields, and how individuals can cultivate and refine these skills to thrive in an information-driven world. Whether you are a student aiming to excel academically, a professional navigating the complexities of the business world, or simply someone interested in sharpening your cognitive toolkit, the journey into the realm of analytical skills promises insights, strategies, and practical wisdom to enhance your analytical prowess (Thomas, 2021; Flyvbjerg, 2011; Hancock, Algozzine& Lim, 2021).

Case-Based Learning (CBL)
In the realm of education, innovation is the driving force behind transformative learning experiences. Case-Based Learning (CBL) emerges as a dynamic and immersive educational approach that bridges the gap between theoretical knowledge and practical application. Rooted in the philosophy that learning is most effective when it is experiential and contextual, CBL offers a pedagogical framework that has gained prominence across various fields and disciplines. At its core, CBL revolves around the use of real-world scenarios or cases as central teaching tools. These cases present students with intricate challenges, dilemmas, or problems encountered in professional or academic settings, inviting them to navigate the complexities and intricacies that mirror the intricacies of the actual world. By immersing learners in these contextualized narratives, CBL not only stimulates critical thinking but also nurtures problem-solving skills, decision- making abilities, and a deep understanding of the subject matter (Weil, Oyelere, Yeoh & Firer, 2001; Bennett, 2004; Fernandez, Aman & Omar,2020).

The power of CBL lies in its capacity to transcend traditional rote learning and ignite the spark of curiosity. It encourages students to assume the role of active investigators, drawing from their accumulated knowledge and applying it to analyze, interpret, and propose solutions to the issues presented in the cases. This approach fosters a sense of ownership over one's learning journey, promotes collaborative learning, and equips individuals with skills and competencies that are directly transferable to their academic and professional lives. From medical schools employing patient cases to business programs utilizing corporate dilemmas, CBL is finding applications in adiverse range of educational contexts. Its adaptability and effectiveness in cultivating critical thinking, problem-solving, and decision-making skills make it a valuable asset in preparing learners for the challenges of the 21st century (Frommelt, Hugener & Krammer, 2019 Lu, 2023; Mahdi, Nassar & Almuslamani, 2020; Pally, 2001; Stover & Pollock, 2014).

C.L.E.A.R COACHING
The CLEAR model was formulated in the early 1980s by Professor of Leadership Peter Hawkins, then of Bath Consultancy Group. CLEAR operates under the idea that in order to achieve maximum workplace performance, it is no longer enough to be just a manager – directing and orchestrating actions – you must often intervene in the processes of staff and act as a catalyst, or aguide to their development. The model places a strong emphasis on the

need for coaching and mentoring in today's fast and competitive business environment. CLEAR coaching is a question-driven framework designed to help individuals achieve transformational change rather than just helping them achieve a specific goal (Hawkins & Carr, 2023 Hawkins, 2022).

The CLEAR coaching model acronym in detail below:

Contract
In the first stage of the CLEAR coaching model, coaches' start by having a discussion about how the coach and coachee will work together, what the individual would like to achieve from this session and what this success looks like. This stage focuses on establishing desired outcomes – both individual and shared – and revealing how the coach and the process can be tailored to be most valuable to the individual's needs. The main goal of this stage is to clarify the general scope of the session and to outline the coaching process in order to avoid confusion and misunderstanding. Logistical issues should be tackled, including the frequency, duration and location of meetings, inorder to create an organised and trackable schedule for the process.

Listen
After the contract stage, it's crucial that the coaches actively listen to coachees. At this point, coaches should be looking for clarity, details, and connections to understand both what the individual thinks about this topic and how they feel about it. The key aspects here are 'active listening' and 'contract'-focused, catalytic questions that aim to allow the coach and individual to truly understand the situation. This step is crucial, as it allows the individual to challenge their own assumptions and motivations surrounding their behaviour.

The coach
The coach should not intervene overly during this period, instead, they need only encourage and guide the conversation towards the topics and issues at hand.

Explore
In the next stage, the facts and feelings of the coachee should become clearer. This allows the coach to start asking probing and specific questions to help the coachee understand their emotional connection with their current state – and what they think may need to change to reach another desired state. Once the individual has outlined their current situation, the coach should act slightly more proactively to probe further about the depth and context of the situation. This step aims to enable the coachee to develop an emotional connection to their behavioral change. More catalytic questions should be utilised to examine how the employee is emotionally and professionally affected by their current situation, and how future actions would impact on them. Often in this step, an individual will have an epiphany, or a small 'light-bulb' moment, in which they will realise something which has been preventing them from reaching their goals. This step also involves the initial determination of potential interventions and exploration of their effectiveness.

Action
The coach now asks questions to help the students consider possible actions, explore how they feel about them and ultimately help them commit to those actions. It's essential to note that these questions should be helpful but not guide in any specific direction or otherwise help the individual if they cannot think of suitable actions. The focus of this stage is to get the coachee to commit to the required changes with the intent of internalising their new outlook. The coachee should lead the route to action by truly considering each potential option for their next step and its impact on them, personally and professionally. Once again, the model suggests taking a slightly-backseat, question-focused approach that promotes consideration. This is done with questions that use 'who' 'what' 'where' 'when' and 'how' to enable the coachee to put consideration into their rationale foreach decision, and how their action plan will make them feel in perhaps a few months' time. The coach should also offer support or help to organise potential support pathways throughout the action process.

Review
In the last stage of the session, coaches review the key points from the session, including a reflection on the contract objectives and their progression. At this point, the coach should ask the coachee if there's anything else they'd like to cover. This stage is as much about following up oncoachee progress as it is about feedback on the coach's coaching ability. It is important to ensure that the coachee is on track to reaching their goal whilst asking how the coach can improve their style to provide more support. Feedback should be encouraged from the coachee – what they found beneficial, what they struggled with, and what they would change in future coaching sessions. Theset of action steps should be reviewed and examined, to confirm that the most suitable and practical plan has been developed. Failure to reach several of their newly developed goals (perhaps gathered at a future coaching session) may require the process to begin again, with a reassessment of the individual's new position.

Methodology

This study employed action research methodology where the data were collected through critical thinking problem solving (CTPS) rubric, interviews, observations, checklists and reflections as well as literature. The students were interviewed using open-ended questions for further understanding of their engagement with the community through CLEAR coaching. The research was conducted in BKAM3033 (Seminar in Management Accounting) class that consists of 34 students. Students will be given two case studies in order to access analytical skills through critical thinking and problem-solving rubric (CTPS) with adoption of CLEAR approach. There will be three stages, 1st Stage, 2nd Stage and 3rd Stage based on C.L.E.A.R

Findings

From the analysis of Critical Thinking Skill rubrics, the results are:

Table 1 – Critical Thinking Rubric Assessment (1st case)

Critical thinking criteria	Able to identify issue/ problem in a complex situation and able to assess and justify the situation	Able to analyze issue/problem in a complex situation and able to assess and justify the situation.	Able to develop and improve thinking skills. Able to analyze and clearly explain a situation and assess the discussion.	Able to think beyond boundaries at most times and to provide challenging views.	Able to make decision based on real solid evidence and to identify the source of evidence.
Participants	71%	74%	72%	70%	74%

Table 1 provides an overview of the critical thinking assessment based on several criteria. The assessment aims to evaluate the participants' critical thinking abilities in various dimensions. Here's an analysis of the data:

    1) Identifying Issues/Problems and Assessing/Justifying Situations:
The first criterion measures the participants' ability to identify issues or problems within complex situations and subsequently assess and justify those situations. The data shows that 71% of participants were able to meet this criterion, indicating a moderate level of competence in recognizing problems within complex contexts.

    2) Analysing Issues/Problems and Assessing/Justifying Situations:
This criterion assesses participants' proficiency in analysing problems within complex scenarios and providing justifications for their assessments. The data reveals that 74% of participants met this criterion, suggesting a slightly higher level of competence in analysing complex issues and justifying their assessments.

    3) Developing and Improving Thinking Skills:
This criterion evaluates whether participants can enhance their thinking skills over time. The data indicates that 72% of participants achieved this criterion, showing that a significant portion ofthem demonstrated an ability to develop and enhance their thinking skills through the exercise.

    4) Thinking Beyond Boundaries and Providing Challenging Views:
This aspect measures participants' capability to think creatively, go beyond conventional boundaries, and offer innovative perspectives. The data suggests that 70% of participants met this criteri on, indicating that a noteworthy proportion exhibited the capacity to think creatively and provide challenging viewpoints.

5) Making Decisions Based on Solid Evidence and Identifying Sources:
This criterion assesses participants' ability to make decisions grounded in credible evidence and identify the sources of that evidence. The data highlights that 74% of participants achieved this criterion, implying that a substantial number of them could make decisions supported by real and reliable evidence while identifying the sources.

Overall, the analysis of this critical thinking rubric assessment indicates that the majority of participants demonstrated competence in various aspects of critical thinking. However, there is room for improvement, particularly in the ability to think beyond boundaries and provide challenging views. These results provide valuable insights for educators to tailor their teaching strategies and interventions to further enhance students' critical thinking skills, ultimately contributing to their academic and professional development.

Table 2 – Critical Thinking Rubric Assessment (2nd case)

Critical thinking criteria	Able to identify issue/ problem in a complex situation and able to assess and justify the situation	Able to analyze issue/problem in a complex situation and able to assess and justify the situation.	Able to develop and improve thinking skills and able to analyze and clearly explain a situation and assess the discussion.	Able to think beyond boundaries at most times and to provide challenging views.	Able to make decision based on real solid evidence and to identify the source of evidence.
Participants	81%	76%	78%	80%	80%

Table 2 provides an assessment of critical thinking based on various criteria. The aim is to evaluate participants' critical thinking skills in different dimensions. Here's an analysis of the data:

1) Identifying Issues/Problems and Assessing/Justifying Situations:
This criterion measures the participants' ability to recognize issues or problems within complex situations and subsequently assess and justify those situations. The data shows that a substantial 81% of participants met this criterion, indicating a high level of competence in identifying problems within complex contexts.

2) Analysing Issues/Problems and Assessing/Justifying Situations:
This criterion assesses participants' proficiency in analysing problems within complex scenarios and providing justifications for their assessments. The data reveals that 76% of participants met this criterion, indicating a good level of competence in analysing complex issues and justifying their assessments.

3) Developing and Improving Thinking Skills and Analysing/Explaining Situations and Discussions:

This combined criterion evaluates whether participants can develop and enhance their thinking skills over time while being able to analyse and clearly explain a situation and assess discussions. The data indicates that 78% of participants achieved this criterion, suggesting that a significant portion of them demonstrated the ability to improve their thinking skills and effectively analyse and explain complex situations and discussions.

4) Thinking Beyond Boundaries and Providing Challenging Views:

This aspect measures participants' capability to think creatively, go beyond conventional boundaries, and offer innovative perspectives. The data suggests that 80% of participants met this criterion, indicating that a majority exhibited the capacity to think creatively and provide challenging viewpoints.

5) Making Decisions Based on Solid Evidence and Identifying Sources:

This criterion assesses participants' ability to make decisions grounded in credible evidence and identify the sources of that evidence. The data highlights that 80% of participants achieved this criterion, implying that a significant number of them could make decisions supported by real and reliable evidence while identifying the sources.

Overall, the analysis of this critical thinking rubric assessment (2nd exercise) indicates that the majority of participants demonstrated high levels of competence in various aspects of critical thinking. These results are notably positive, with the majority of participants excelling in identifying, analysing, and justifying complex issues. Additionally, they exhibited strong skills in thinking creatively, providing challenging perspectives, and making evidence-based decisions. These findings suggest that the participants have made considerable progress in their critical thinking abilities since the first exercise, as evidenced by the improved scores. This growth in critical thinking skills may have resulted from the instructional approach or the nature of the exercises.

Conclusion

In conclusion, the implementation of C.L.E.A.R Coaching has demonstrated a substantial and positive impact on enhancing participants' analytical skills. Through a structured and comprehensive coaching approach, participants were guided and mentored in developing their analytical abilities across various dimensions. This conclusion is based on a thorough analysis of the results obtained from two critical thinking rubric assessments, which were conducted as part of the coaching program.

The first exercise, as indicated in Table 1, initially gauged participants' critical thinking skills, including their capacity to identify and assess complex issues, analyze situations, develop thinking skills, think innovatively, and make decisions based on solid evidence. The data from this exercise revealed that a significant proportion of participants already possessed commendable critical thinking abilities.

However, the second exercise, as demonstrated in Table 2, further evaluated participants' critical thinking skills after receiving C.L.E.A.R Coaching. The results clearly illustrate notable improvements in several critical thinking criteria. Participants displayed

enhanced capabilities in identifying and analyzing complex issues, developing and improving their thinking skills, thinking creatively, and making decisions based on solid evidence. These enhancements are indicative of the positive influence of the coaching program on participants' analytical proficiencies.

Moreover, the coaching program's success can be attributed to its ability to instill a growth mindset, foster critical thinking habits, encourage the exploration of diverse perspectives, and promote evidence-based decision-making. C.L.E.A.R Coaching not only equipped participants with the necessary analytical tools but also empowered them to apply these skills effectively in real-world scenarios.

It is essential to acknowledge that while the coaching program has been instrumental in enhancing analytical skills, continued practice, application, and ongoing support are vital for sustaining and further developing these competencies. Additionally, personalized coaching sessions tailored to individual needs and ongoing feedback mechanisms can contribute to even greater improvements in analytical skills over time.

In conclusion, the implementation of C.L.E.A.R Coaching has proven successful in enhancing participants' analytical skills. The positive outcomes observed in the critical thinking rubric assessments provide evidence of the program's effectiveness. As participants continue to apply and refine these newly acquired analytical skills, they are well-positioned to excel in problem-solving, decision-making, and analytical tasks in various personal and professional contexts.

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Service-Learning Projects Via Non-Profit Organizations (NPOs) For Entrepreneurs: An Experiential Learning for UUM Accounting Students

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Abstract

Service learning is a type of experiential learning which is as a particular form of learning from life experience which is contrasted from lecture and classroom learning. Based on an initial survey conducted among 95 students enrolled for the Specialized Financial Accounting in Semester A212, 80 (84.2%) of them have no practical experience in preparing financial accounting. Due to this reason, the objective of this research is to investigate how students apply practical skills in accounting and reporting for entrepreneurs via NPOs based on accounting principles through service- learning activities. This research employs a quantitative method design to gain deep understanding about the learning experience and behaviour among different groups of students who are assigned to different entrepreneurial settings. Using the practicalrubric, the trait 'follow instructions' showed that the highest average score of 11.93 followed by 'use tools/techniques/technology' (score of 11.63) and 'task completion' (score of 11.46). However, the traits "contribution towards task objectives" and 'format' showed the lowest score of 10.37 and 10.23 respectively. This finding indicates that service-learning activities have benefited the students because they could apply their accounting knowledge in the project by using real data and develop a better knowledge of academic concepts. In other words, this experiential learning has resulted in understanding the course content, appreciating the discipline, and enhancing students' affections towards society and responsibilities. Hence, educators and policy makers should promote and support this service learning which is regardedas one of the high impact educational practices in Malaysia.

Keywords: NPO, Service Learning, Experiential Learning, Accounting

Introduction

Service learning is generally a type of experiential learning. Jacoby (1996) has defined service learning as "a form of experiential education in which the students engage in the activities that address human and community needs together with structured opportunities intentionally designed to promote student learning and development (p. 5). Furthermore, service-learning activities also offer direct application of theoretical models and provides a distinctive, meaningful and influential life experience (Zieren and Stoddard, 2004). Tate and Keeton (1978) believed that experiential learning through service-learning projects is a particular form of learning from life experience which is contrasted from lecture and classroom learning.

At accounting faculty, students are exposed to the theoretical part of the body of

accounting knowledge throughout lectures and classes attended. However, they are lacking in terms of actual experience in preparing accounts. Based on an initial survey conducted among 95 students enrolled for the Specialized Financial Accounting in Semester A212, 80 (84.2%) of them have no practical experience in preparing financial accounting. Given that students have less practical experience in the normal classes, introducing service learning is hoped to provide the students with invaluable experiential learning. Specifically, service-learning projects via non-profit organizations (NPOs) for entrepreneurs will be worth conducted given that accounting is known as an 'art' or a 'service activity' that comprises a body of techniques is deemed to be useful for certain purposes (the Accounting Principles Board, Statement No. 4, para. 40).

In addition, accounting students in UUM seem to be unable to apply what they have learned in class to the real-world context due to traditional methods of teaching and learning in the course over the years. This research investigates how the students apply their practical skills in accounting and reporting the entrepreneurs via NPOs based on accounting principles through service-learning activities. Furthermore, the request among entrepreneurs who are zero with accounting knowledge and ask for helping to prepare financial statements has given rise to conduct the service-learning activities.

This study is underpinned by critical education theory. This theory becomes enshrined in the logic of the formula, besides observation and technique become starting points for theoretical practice (Habermas, 1973). Myers-Lipton (1998) further assumed that humans are active agents (i.e. students) of social change who participate in service learning through the process of action and reflection. Specifically, the following research objectives of this study are:

1) to investigate how students apply the practical skills in accounting and reporting for the entrepreneurs via NPOs based on accounting principles through service-learning activities; and

2) to explore what are the challenges faced by the students when applying the skills in accounting and reporting the entrepreneurs via NPOs based on accounting principles through service-learning activities.

The remainder of this paper is divided into 4 sections. The next section of the paper discusses literature review. Section 3 presents the research method, section 4 discusses the findings and discussions, and the final section ends with conclusions.

Literature Review

Service-learning is beyond memorable. It can influence one's career path and enhance civic responsibility. Service-learning extends learning beyond the academic term, it lays the foundation for continual personal growth throughout the student's academic experience. Past research on academic service-learning reveals that the real- world application of classroom knowledge in a community setting allows students to synthesize course material in more meaningful ways. Common goals achieved by service learning include gaining a deeper understanding of the course/curricular content, a broader appreciation of the discipline and an enhanced students' affections towards society and

responsibilities.

The process of reflection is a core component of service-learning. Service-learning practitioners and researchers alike have concluded that the most effective service- learning experiences are those that provide 'structured opportunities' for learners to critically reflect upon their service experience. Reflection can enable learners to examine and form the beliefs, values, opinions, assumptions, judgments, and practices related to an action or experience, gain a deeper understanding of them and construct their own meaning and become aware of their responsibility towards others (Godfrey, Illes & Berry, 2005).

Another element that tends to make service-learning unique is that multiple stakeholders could assess the students. Martin (2015) listed the following assessments that include (1) community assessment whereby the community partners can get their say as well by assessing the students; (2) teacher assessment which along with evaluating students on the content, teacher can observe student learning activity at the real community site on how well the student apply the soft skills; (3) student assessment that involves students who might conduct self-assessment as a form of reflection. This assessment could also give the students the opportunity to express their affections towards the community and responsibility (Berry & Workman, 2007).

Besides, the notion that higher education should urgently be a place of moral education which emphasized on social justice and social action by providing skills (e.g. practical skills) to communities. Govekar and Govekar (2008) also stated that service learning is widely recognized as promoting skills and a greater understanding of conceptual models while educating students relating to social and community issues.

In addtion, applying accounting conceptual framework in education seems tobe an interesting way of learning an accounting course due to service-learning activity has been implemented in accounting disciplines such as managerial accounting by Lafond & Wentzel (2022) and taxation by Calvert, Kurji & Kurji (2011) and Christensen, Schmidt & Wisner (2010). However, up to our knowledge, less information is available about how service learning is conducted in the financial accounting discipline. Hence, this research is aimed to solve the entrepreneur's problems via NPOs through service learning projects as well as to to explore what are the challenges faced by the students when applying the skills in accounting and reporting.

Methodology

Methods, Duration, and Procedures

This research employs a quantitative method design to gain deep understanding about the learning experience and behaviour among different groups of students who are assigned to different entrepreneurial settings via NPOs. This NPOs are dummy organizations because were established by UUM accounting students with the purpose to complete this project by providing accounting services to real entrepreneurs. The study also used qualitative methods in which feedback and observation as well reflection from entrepreneurs and students are used as major qualitative research tools. Data from students' performance of the course is used as quantitative data. Data is collected for one semester A212 on students enrolled in *BKAR 3063 Specialized Financial Accounting* that includes accounting for NPOs as one of the course learning outcomes. This course is an elective course for the bachelor's degree of accounting students and are usually enrolled in their 6th or 7th

semester, just few semesters beforetheir internship program and finishing their study at degree level.

This research is divided into 3 phases throughout the semester, in which phase1 resembles the pre-intervention stage i.e., before service learning is introduced in the course. In this phase discussion with the students on their expectations and ways of learning as well as concepts on accounting on NPOs as well as financial reporting is conducted. Introduction and explanation on systematic accounting process that needs to be followed by the entrepreneurs (the need of evidence of all documentations suchas receipts, invoice, bills). These inputs on accounting procedures are given by the instructors to the students before they work with the community. In addition, reflections from the students involved are also collected. Students are required to understand the problem faced by the entrepreneurs. Students' ability to solve the entrepreneurs' accounting and reporting issues is assessed and measured through the financial statements prepared by the dummy NPOs.

Phase 2 functions as the interventional stage once the service-learning activities are introduced. This phase involves examining students' ability to apply the accounting procedures for the entrepreneurs through service-learning project. It also analyzed situational factors that influence accounting and financial reporting using the accounting framework and values through service learning. Students are divided into 20 groups and are assigned to different entrepreneurs. Data is collected from focus group interviews with the students, as well as students' performance on formative and summative assessments related to the course. It should be noted that adaptation will be made depending on problems that students face while being involved with thecommunity. The adaptation is done before the next phase begins. Tools for measurement of students' skills are in the form of practical rubrics.

Phase 2 – Service Learning
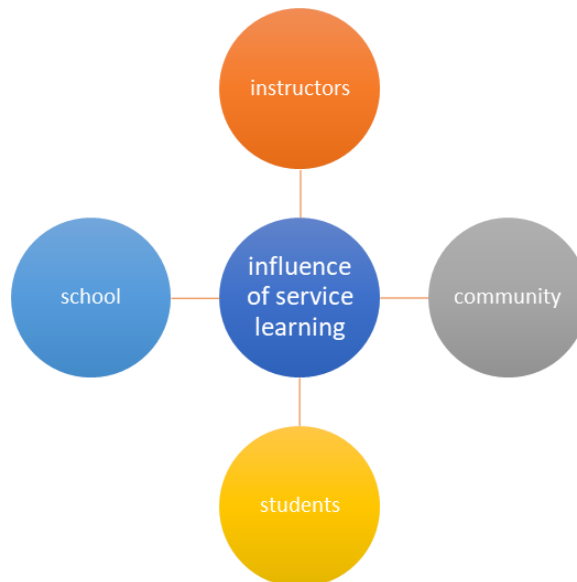
The influence of service learning on students obtained from the various ways of data collection method is used to further understand how service learning can be used to provide

better learning experiences. Specifically, feedback, documents, observation as well as reflection from students are collected in this stage.

Phase 3 – Post intervention

This stage in which the final examination of the students' learning experiences and performance as well as reflection cycle is done. In Phase 3 reflections are done by the students on their lecturers' delivery when service learning is introduced and lecturers' reflection on themselves. Reflections of students and instructors done in phase 1, 2 and 3 will be compared to see evidence of change in relation to behaviour and cognitive domain among the accounting students.

Data Analysis
Qualitative data in this study is analysed using thematic analyses (Braun & Clark, 2006) whereas the quantitative data consists of scores that students is assessed either through formative or summative assessments. Data from the different phases will be compared for all the different methods.

Findings and Discussions

Practical skills in Accounting and Reporting
The service-learning activities have benefited the UUM accounting students via dummy NPOs. The students realized that they had much more to learn to get an idea in order help the owners related to accounting during the first activity. Being a dummy NPO, this activity which took about two weeks to get to know their business' activities, the students had been meeting the café operators virtually and immersing themselves in the activities. After progressing through each activity, the lecturer observed that her students required less assistance.

More importantly, the lecturers were required to measure the practical skill for the students via a written report. The grading was carried two ways. Firstly, each student was required to submit a written report of his/her self-reflection of the experience in being involved in the project, and finally, through the lecturer's meeting with students and cafe owners.

A rubric was adopted to measure the practical skills among students in the *Specialized Financial Accounting* course. It was divided into five skills, namely, (i) follow instructions; (ii) use tools/techniques/technology; (iii) task completion; (iv) format; and (v) contribution towards task objectives.
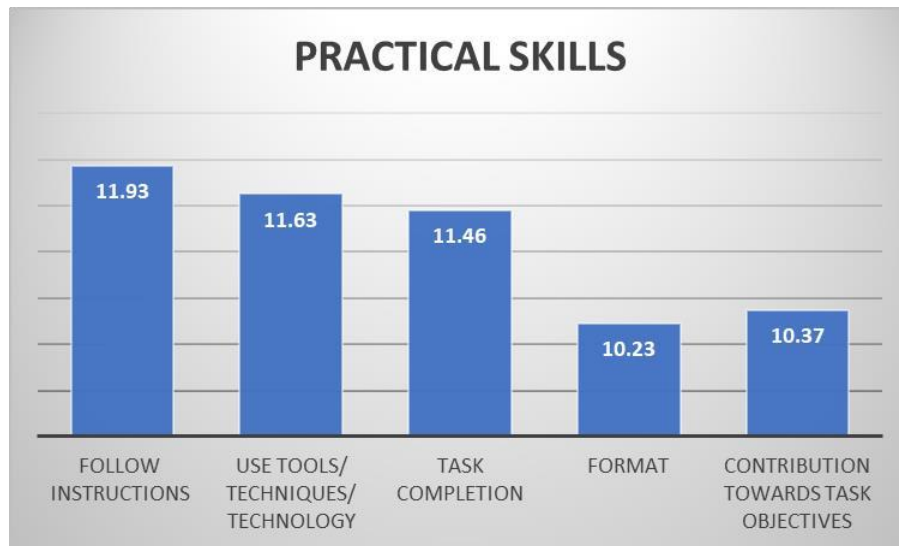
Figure 1. This is a bar chart showing score results for practical skills for students.

The findings of Practical Skills which are shown in Figure 1 reveal varying levels of performance across different skills and traits among the students. These results hed light on the strengths and areas for improvement within the group. The skill of following instructions emerged as the strongest among students, with an impressive average score of 11.93. This indicates a high level of proficiency in comprehending and executing tasks as per the given directives. It is encouraging to note that many students excelled in this trait, suggesting that clear communication and adherence to instructions are strong points within the group.

Following closely behind, the skill of using tools, techniques and technology received an average score of 11.63. This result reflects the students' competence in utilizing various resources to accomplish tasks. It indicates that the group possesses a solid foundation in technology and resource management, contributing positively to their overall performance.

Task completion, with an average score of 11.46, demonstrates that the students, on average, successfully finished assigned tasks. This suggest that the group of students has a strong commitment to completing their duties, meeting deadlines, and achieving the expected outcomes. In contrast, the trait related to 'format' yielded one of the lowest average scores, standing at 10.23. This outcome implies that students faced challenges or discrepancies in structuring and presenting their work. It may be beneficial to provide additional guidance or training in this area to enhance the overall quality of outputs.

Similarly, the trait 'contribution towards task objectives' garnered a relatively low average score of 10.37. This suggests that students may need further support or clarification regarding their roles and responsibilities within the context of task objectives. Strengthening this aspect could lead to more effective collaboration and good attainment. These findings offer valuable insights into the group's skill set and potential areas for development. The strength in "follow instructions," "use tools/techniques/technology," and "task completion" underscores the group's ability to execute tasks efficiently and effectively, aligning with established procedures.

On the flip side, the lower scores in "format" and "contribution towards task objectives" emphasize the importance of addressing communication and task alignment issues. Enhancing these areas can contribute to more polished and synchronized work processes within the group. Moving forward, it is recommended to implement targeted training or support programs to further bolster these skills and traits. Additionally, continuous monitoring and feedback mechanisms can help track progress and ensure that improvements are made over time.

In addition, these findings provide a foundation for informed decision-making and improvement strategies within the group. By capitalizing on their strengths and addressing areas of weakness, the group can enhance their overall performance and productivity.

The Challenges while Completing the Service Learning Activities

The challenges faced by the students when applying the skills in accounting and reporting the entrepreneurs via NPOs based on accounting principles through service-learning activities include (1) cooperation with community; (2) meeting schedule; (3) communication with community; and (4) self-belief and skills.

Cooperation with Community

The first challenge faced by UUM accounting students when they are involved in the service-learning activities is cooperation with the community. Attempting to collaborate on service-learning activities and obtain financial information, the entrepreneurs have declined due to the confidentiality of financial data. As one student remarked, "Reject our request as they want to ensure the financialconfidentiality of the financial information". [Student A5]. Similarly, another student found that "Face difficulties in finding a suitable entrepreneur for us to interview and assist them in the financial matter because most of their financial information isconfidential. Afraid of exposing their income and the nature of the organization, so it isn't easy to cooperate with us". [Student A3]

Cooperation with the community also stems from the lack of proper documentation and systematic records, making it challenging to assess the entrepreneurs' financial performance accurately. The quote below points out the difficulties in comprehending the actions of entrepreneurs and assessing their financial status, as well as obtaining financial information.

"Some problems such it is hard to understand what had been done by the entrepreneurs, what is their financial situation as the documents and transactions are not recorded properly. I had difficulty in obtaining the financial information because they had not yet maintained a systematic record. Most of them were reluctant to provide us with access to their financial records due to documents, receipts and evidence required were insufficient. As a result, they do not give us complete data and evidence as well as information to complete further our assignment.". [Student B6]

Meeting Schedule

The challenge is also attributed to scheduling various meetings and interviews. Time constraint and tight schedules of entrepreneurs have resulted in additional difficulties to complete the service-learning activities. Among the comments given the student are "Time constraints in scheduling multiple meetings with the owners especially dealing with outside organizations. Also, time spent on this part is long due to the tight schedule of the owner".

[Student B2 and B8]

In addition, [Student A1] quoted, "Faced the challenge of scheduling an interview with the entrepreneurs' representative," indicates that he encountered difficulty in arranging a meeting or interview with a representative who acts on behalf of entrepreneurs. This could be due to conflicting schedules, logistical issues, or other constraints. Furthermore, "Allocating a suitable time to conduct the interview session with the representative, facing problems from the flexibility of the time" [Student C2] suggests that the students needed to find an appropriate and convenient time to carry out an interview with a representative from the entrepreneurs. These challenges remain in coordinating schedules and ensuring that the interview can take place when both parties are available and ready.

Communication with Community
Communication with the entrepreneurs proved challenging due to delayed responses and slow provision of financial information. The evidence is quoted by a student as "The treasurer hardly replied to us in the first place, and it took quite a long time to receive the financial information needed". [Student B1] This student is complaining about the entrepreneur's lack of responsiveness. He did not promptly or adequately respond to their communication efforts. Furthermore, when they did receive a response, it took a significant amount of time to obtain the financial information they required. This suggests a lack of efficiency and effective communication on the entrepreneur's part.

In another context, the challenge is associated with communication via social media platforms. [Student B7] said "Initial obstacle that we encountered was attempting to locate and communicate with a lot of entrepreneurs using social media platforms". This quote suggests that the students faced a challenge when trying to connect with entrepreneurs through social media platforms. The use of the word"obstacle" indicates that this was a significant difficulty because the students may have had trouble finding and reaching out to the entrepreneurs as they needed to contact, which could have hindered their business or networking efforts. In other words, slow responses among the entrepreneurs could have had a detrimental impact on their ability to successfully engage in business-related tasks or build and maintain their professional relationships.

Slow communication between the students and the entrepreneurs is another challenge while completing the service-learning activities. The entrepreneurs are likely too busy to be involved with the interviews, and it's after a significant delay when they do respond. This can make it difficult to engage with them in a timely and effective manner, potentially affecting the progress of project that requires their participation. In addition, the difficulties are faced by the students in trying to communicate with the entrepreneurs because they either did not respond at all orchose to ignore the messages sent to them, particularly when the messages were related to requesting their financial record-keeping information. This lack of responsiveness or willingness to communicate can be frustrating and challenging when trying to gather important financial data or collaborate with entrepreneurs. The following quote remarked, "They do not have time to communicate with us, and they constantly respondlate. Most of the members that we tried to contact either did not reply to the message or ignored the message after we asked for their financial record keeping". [StudentC8]

Self-belief and Skills

The UUM accounting student said, "feeling uncertain." [Student A9]. This phrase expresses a state of doubt, do not confident or sure about a particular situation, decision, or course of action. It suggests lack of self-belief to apply the accounting principles in completing the task of preparing the financial statement for the entrepreneurs. Subsequently, [Student B8] quoted, "Difficulties and gaps in relatingthe theoretical knowledge that we learn in class with the practice in real life situations". It signifies that students are finding it challenging to bridge the gap between what they have learned in theory and how to effectively apply that knowledge in practical, real-life situations.

"Challenges that we faced throughout this project include the development of our organizational, interpersonal, practical, leadership, and communication skills". [Student B9] In this remark, the challenge of the student is related to a set of skills encountered during a specific project. These challenges pertain to various skills, including organizational, interpersonal, practical, leadership, and communication skills. The implication is that these skills were tested and had to be improved or developed to successfully complete the project. It highlights the multifaceted nature of the challenges faced and the need for skill development in different areas to overcome them.

"Challenging to search for the weaknesses of the business and provide a better way or suggestion for them to improve their financial presentation". [Student C7]

This quote describes the difficulty of identifying and addressing the shortcomings or weaknesses of an entrepreneur's financial presentation. It implies that finding areas that need improvement is not straightforward. Furthermore, it suggests that it's also challenging to come up with effective recommendations or solutions to enhance the financial presentation of the business. This indicates a complex and demanding task of completing the service-learning activities via NPOs for entrepreneur requires practical and soft skills.

Conclusion

In conclusion, this research which requires dummy NPOs established by students has provided valuable insights into areas of service-learning activities in accounting course. This experiential learning has resulted in understanding of the course content, appreciating the discipline, and enhancing students' affections towards society and responsibilities. In addition, the result based on the practical rubric with the scores between 10.23 to 11.93 implies that the students could apply their accounting knowledge by using real data and develop a better knowledge of academic concepts. However, the students have faced challenges in completing the service-learning activities which are related to cooperation with community, meeting schedule, communication with community and self-belief/skills. Given that these challenges could be overcome by having careful planning and preparation, educators and policy makers should promote and support this service learning which is regarded as one of the high impact educational practices in Malaysia.

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Video Based Teaching "VIDGRATION" Method in Transformative Teaching: A Conceptual Paper

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Abstract

Video-based teaching which also known as the "VIDGRATION" method is one of thetransformative teaching tools that used by the educators. Various advantages and disadvantages can be gained through this teaching method especially when this method is intended to be used toward the non-law students in teaching the law related subject. Lacking in the law background becomes the main challenge faced by these students. Therefore, this conceptual paper is designed to identify the non-law students' intention to use the "VIDGRATION" method in learning law-related subjects. There are three main variables that will be tested in this study which are perceived ease of use, perceived usefulness and perceived enjoyment toward the dependent variable of non-law students' intention to use the "VIDGRATION" method. Perceived enjoyment is the variable that proposed to be added in the original version of TechnologyAcceptance Model (TAM) that will be tested in this study. The researchers plan to conducted this study toward 101 non-law students from two different classes in a public university in Malaysia. The data will be collected using 23 questionnaire items through the platform of Google Form. These students are from various courses across the university. The students are required to study 11 labour laws and regulations practiced in Malaysia when they enrolled for the Human Resources Management subject. The result of this study will help to reveal whether the students perceived that it is easy, fun and useable to use the "VIDGRATION" method in helping them learning these 11 labour laws and regulations in Malaysia.

Keywords: Intention to use "VIDGRATION" Method, Perceived Ease of Use, Perceived Usefulness, Perceived Enjoyment

Introduction

Law related subject is one of the common preconditions/prerequisite subjectswhere most of the university students need to learn. As a result, students from different courses are required to undertake the law related subject even though they are not from the law course. These students face challenges because of their lacking inthe law background as compared to the law students. They often encounter thedifficulty to understand the fundamental knowledge of the law related subject due to the barrier in understanding of the law language and vocabulary (Abdul Razak et al., 2020).

The difficulty faced by the non-law students have make them to be reluctant and not in favour to study the law related subject (Khan, 2021; Richardson et al., 2009). This scenario has caused challenges for the lecturer to teach this subject in class. To make sure the teaching and learning session able to proceed without any issue, lecturer need to be able to create an interactive teaching environment for the non-law students in order to boost their motivation and confident to learn this subject.

McLinden (2013) further emphasized that one of the best teaching pedagogies that can be practiced by lecturers in order to encounter such difficulty is through the flexible learning approach. This approach also offers the solution for the limitation of the traditional face-to-face learning method in class. The flexible learning approach comprise of three main elements which are when the learning process is taking place (the flexibility of learning pace), where the learning process is taking place (the flexibility of learning place) and finally how the learning process is taking place (the flexibility of learning mode) (McLinden, 2013).

This learning flexibility can help the non-law students in learning the law related subject through the video-based teaching which also known as "VIDGRATION" method (Ahmad et al., 2019). This method used the pre-recorded video lecture or any video relating to the law subject in assisting the lecturer to teach the non-law students (Ahmad et al., 2019). Lecturer needs to upload the pre-recorded video lecture or any video prior the commencement of the face-to-face class. Next, the non-law students are required to watch the video before the lesson in order to get the general idea about the topic that is going to be teach in the class. During the class, lecturer can focus on doing interactive discussion with the non-law students rather than teaching the presentation slides. The non-law students can also use this platform to ask the lecturer anything that they did not understand when watching the video prior class.

Another advantage of the "VIDGRATION" method is that the non-law students are able to control the pace of video that they are watching (Scagnoli et al., 2017). They can pause or stop the video and also watch the video repetitively at anytime and anywhere (David, 2012). This also will benefit any students who are unable to attend the face-to-face class because they will not miss any of the lesson. Besides that, lecturer can also integrate the "VIDGRATION" method with any other teaching tools such as quiz or playing games. During the class, lecturer can play games or doing quiz based on the lesson that the non-law students watch before class. This will make the teaching lesson more attractive to the students.

This transformative learning method become one of the best teaching methods to comprehend the traditional face-to-face (Ahmad et al., 2019). Therefore, in this study,the researchers are intended to investigate the non-law students' intention to use the "VIDGRATION" method based on three main independent variables which are perceived ease of use, perceived usefulness and perceived enjoyment.

Literature Review

Perceived ease of use and perceived usefulness are two variables under the original model of Technology Accepted Model or also known as TAM. This model is originated by Davis (1989) and commonly use to investigate on studies relating to the acceptance to use the application of technology in various field.

Perceived ease of use is a scenario where a person believes that the application of technology or system that been use is very convenience or easy (Davis, 1989). The technology or system is considered to be convenience or easy to be use is when there is very minimal effort is required by the users to use the technology or system (He et al., 2018). He et al., (2018) further emphasized that users will be declined to use the technology or system ifit seems complicated and they need to use their time, money and energy. Therefore, it is a crucial aspect to make sure any technology or system that been introduce to the users is user friendly.

The application of "VIDGRATION" method in teaching the non-law students is aligned with the flexible teaching pedagogy as proposed by McLinden (2013). The method is easy to be used because the non-law students can access the video lecture uploaded by the lecturer at anytime and anywhere. Study by Maziriri et al., (2020) further reported that university students in Johannesburg, South Africa use the YouTube platform as one of their teaching tools because it is easy to be used and highly accepted by the students.

The similar finding also been emphasized in a study by Galatsopoulou et al., (2022), which highlighted the significant relationship between perceived ease of use and intention to use the video lecture as the teaching tool in class. Students were reported in favour with this teaching method because some of them unable to attend the traditional face-to-face lecture (Galatsopoulou et al., 2022). Said et al., (2022) further reported the significant relationship between perceived ease of use and the application of video in learning session among the Malaysia university students. Students show positive attitude and become more alert as well as productive in class when the lecturer integrating the video in the learning session (Said et al., 2022).

The second independent variable for this study is perceived usefulness. Perceived usefulness is a scenario when a person believe that the application of technology or system is useful or able to give benefit for the user especially in improving the user understanding as well as the overall performance (Davis, 1989). Perceived usefulness is one of the important variables under the TAM which determine a person intention whether or not to become the user of the technology or system (He et al., 2018). If the person unable to see the advantage of using the technology or system, he/she will definitely being reluctant to become the us.

Study by Munoz-Carril et al., (2021) reported that students perceived that the computer supported collaborative learning implement by the educator indeed give a positive impact toward their learning process. As a result, the students are in favour ofusing this learning tools which significantly improve the students leaning process and able to help them to get a better score in assessment (Munoz-Carril et al., 2021). Besides that, Galatsopoulou et al., (2022) also reporting the same finding where students significantly believe that the use of video-assisted tool really useful in the teaching and learning session. This definitely has help to create interest among students to watch the provided video as a part of their teaching intervention.

Moreover, the video-based lecture also proves to be useful in improving the students' education performance (Maziriri et al., 2020). Some students have limitation in understanding the face-to-face lecture due to barrier like language limitation. Lecturer mainly use English as the medium of communication when teaching in class. This will definitely cause trouble for the non-native English speakers to understand the teaching lesson (Robertson & Flowers, 2020).

Therefore, the video lecture is very useful in helping these students to overcome this language barrier because they are able to watch the video repetitively and pause the video every time, they need to search for certain word translation (Robertson & Flowers, 2020).

The final independent variable for this study is perceived enjoyment. This variableis being proposed to be added in the extended version of TAM. Perceived enjoymentis a scenario when a person believe that the application of technology or system is very enjoyable which make the user having a pleasant time to use the technology or system (Lai & Ahmad, 2015). An enjoyable environment will be able to create aninteractive learning experience for the students because they are sleepy and feelboring. Nevertheless, lecturer also should be concerned on the duration of video provided to the students. Study by Wilson and Korn (2007) reported that students' attention will significantly decline around 10 to 15 minutes of the lecture. Students will face difficulty to concentrate on the lecture when the lecture is too long (Wilson & Korn, 2007). Thus, it is recommended for lecturer to limit the duration of video given to students for about maximum 15 minutes.

Study by Mohd Shariff and Mohd Shah (2019) reported a significant relationship between perceived enjoyment and intention to use YouTube in learning process. Students reveal that they are having fun when the teaching and learning process is being integrated with the YouTube as the teaching supplementary tool (Mohd Shariff & Mohd Shah, 2019). Students also reported that they are able to conduct self- learning using YouTube because of the teaching contents are accessible worldwide and become one of the guidance for them to improve their English vocabulary (Mohd Shariff & Mohd Shah, 2019).

In addition, study by Munoz-Carril et al., (2021) and Galatsopoulou et al., (2022) also reported the significant relationship between perceived enjoyment and the application of video teaching tool in class. Both students and educators agreed that the use of video as teaching assistance tool show the positive impact on the students' reaction and behaviour in class (Galatsopoulou et al., 2022; Munoz-Carril et al., 2021). The students really enjoy their learning session as well as satisfied with the teaching experience created by the educators.

In overall, it can be summarized that most of the previous literature prove the significant relationship between the perceived ease of use, perceived usefulness and perceived enjoyment toward the application of video-based teaching tool. However, most of the literature were reported in the context of general students and not focus on certain courses. Contradictory, this study proposes to use the sample of specificrespondent which is the non-law students who required to undertake the law related subject. Based on the following discussion, the researchers develop three hypotheses that going to be tested in this study. The hypotheses are: -

H1 : There is a significant relationship between perceived ease of use and intention touse "VIDGRATION" method among the non-law students.
H2 : There is a significant relationship between perceived usefulness and intention touse "VIDGRATION" method among the non-law students.
H3 : There is a significant relationship between perceived enjoyment and intention touse "VIDGRATION" method among the non-law students.

The proposed research framework that going to be tested in this study is shown inFigure 1.
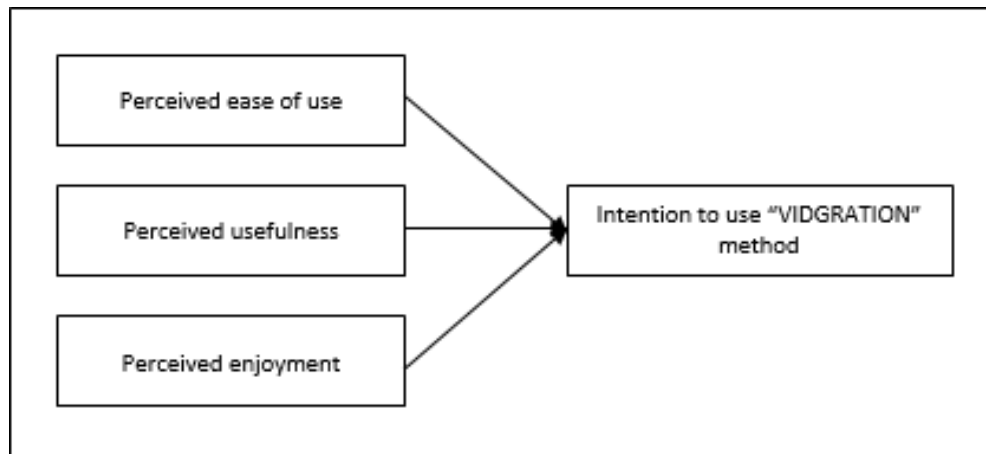
Figure 1. Research Framework

Methodology

This study will apply the quantitative method through the distribution of online questionnaire via the platform of Google Form. The data will be collected from the sample of 101 non-law students from two different classes who undertake the Human Resources Management subject. Under this subject, the non-law students are required to learn 11 labour laws and regulations in Malaysia. The related laws and regulations are: -

1. Employment Act 1955
2. Minimum Wage Order 2022
3. Minimum Retirement Age Act 2012
4. Children and Young Persons (Employment) Act 1966
5. Workers' Minimum Standards of Housing and Amenities Act 1990
6. Workmen's Compensation Act 1952
7. Employees Social Security Act 1969
8. Employees Provident Fund Act 1991
9. Trade Union Act 1959
10. Industrial Relations Act 1967
11. Occupational Safety and Health Act 1994

The unit of analysis for this study is individual, where one non-law student is considered as one individua. The research time frame is cross sectional study, and this study will apply the convenience sampling technique. The Google Form link will be given to all non-law students from both classes, and they will be required to answerthe questionnaire items within 14 to 21 days (two to three weeks).

Once all the data have been collected, the researchers will clean the data and further analysis for several analysis such as descriptive analysis, mean and standard deviation, reliability test, Pearson correlation analysis and Regression analysis.

The questionnaire items that will be used in this study is adapted from a study by Galatsopoulou et al., (2022). There are 23 questionnaire items covering from three items for the independent variable of perceived ease of use, 11 questionnaire items forthe independent variable of perceived usefulness, three questionnaire items for the independent variable of perceived enjoyment and finally six questionnaire items for the dependent variable intention to use "VIDGRATION" method. All the adapted questionnaire items have the reliability of more than cut off point 0.70 (Nunnally, 1994). The detail of the questionnaire items is as shown in Table 1 below:

Table 1
Questionnaire item

Variables	Items
Perceived ease of use	1. "VIDGRATION" method is easy to use during learning session.
	2. Learning on how to use "VIDGRATION" method during lesson is easy (playback/save/study with texts).
	3. "VIDGRATION" method does not required much mental effort.
Perceived usefulness	1. Using "VIDGRATION" method in lessons provides flexibility in interaction.
	2. "VIDGRATION" method facilitate reflection, analysis and critical thinking.
	3. The "VIDGRATION" method are useful during the lessons and meet my learning needs.
	4. With the "VIDGRATION" method, I gain more knowledge.
	5. I learn better with "VIDGRATION" method.
	6. The use of "VIDGRATION" method in the course material gives me more control and flexibility in the study.
	7. "VIDGRATION" method used in this course save me time.
	8. Using "VIDGRATION" method in lessons or studying material meets my expectations.
	9. Using "VIDGRATION" method in lessons or studying material improves my performance as a student.
	10. The use of "VIDGRATION" method in lessons or the study of material is useful in the learning process.
	11. Using "VIDGRATION" method in lessons or studying material increases my productivity.
Perceived enjoyment	1. I find it enjoyable to use "VIDGRATION" method in learning session.
	2. I have fun watching videos of the "VIDGRATION" method during lesson.
	3. using "VIDGRATION" method in lessons is a pleasant experience.
Intention to use "VIDGRATION" method	1. In the future, I will continue to use "VIDGRATION" method during my study.
	2. In the future, I will continue to attend classes that use "VIDGRATION" method.
	3. In the future, I will continue to participate in discussions when the "VIDGRATION" method is conducted in class.
	4. In the future, I may search for other videos used in the "VIDGRATION" method from different sources related to the subject of the course for more knowledge.
	5. In the future, I may search online video lectures about the courses to learn more (MOOCs, YouTube, TEDx).
	6. I would recommend others to attend classes that used the "VIDGRATION" method for teaching and learning session.

Discussion, Limitation and Recommendation

The result of this study will help to reveal the non-law students' intention to use the "VIDGRATION" method in learning the law-based subject. Through this finding, it will be identified that whether the non-law students find that the "VIDGRATION" method is useful, fun and easy to be used in their learning process. The findings also will benefit the researchers whether or not to use the "VIDGRATION" method in teaching the students all the 11 labour laws and regulations as mentioned before. In addition, the findings will also enrich the body of knowledge especially on the literature focusing on the non-law students.

This study consists of several limitations. Firstly, the number of sample/respondents will be involved in this study is rather small. This is because the total number of non-law students who enroll for this subject, Human Resources Management is small. Therefore, the finding of this study will only be limit to the non-law students who enroll for this subject and not reliable for the other law related subject. Second limitation is that this study is planned to be conducted using the quantitative method through the data collection method of online questionnaires. Although all the questionnaire items are adapted from reliable scholars but the findings that will be gained from this method will only reveal the result on the surface. There is no further deep explanation on the reasons for the presented findings.

Finally, the research framework tested in this study also limited to three independent variables of perceived ease of use, perceived usefulness and perceived enjoyment. Therefore, the findings of this study will only be able to reveal on the non- law students' intention to use "VIDGRATION" method from the prospect of easiness, usefulness and enjoyable moment to use this method. The researchers' discussion and recommendation on the findings will only be limited to these three aspects only.

For further research it is recommended for other researchers to further extend this study in a bigger sample using a large number of respondents which not only limited to students who enroll for one subject. There are various subjects offered in universities which required the non-law students to learn on the law-related subjects. Thus, it is highly recommended for the future researchers to widen this research scope. Moreover, the future researchers also could consider conducting action research by applying the qualitative research method. This method will help the researchers to have a deeper understanding on the students need which could be really useful for the lecturers to plan for the best teaching and learning method for the students.

Apart from that, future researchers also could consider to further extend the TAM framework by adding a few other variables to the existing framework. Some of the possible variables that can be further investigate by the future researchers are the perceived value and perceived risk that the students believe that they will encounter if they agree to use the "VIDGRATION" method in teaching and learning process.

Besides that, the future researchers also could consider to further extend the TAM framework by adding another dependent variable of actual behaviour and make the intention to use "VIDGRATION" method as the mediator for the study. By adding the dependent variable of actual behaviour, researchers will be able to look on the students' final behaviour and not only their intention or perceptions on using the "VIDGRATON" method.

Conclusion

In conclusion, the researchers believe that this study is crucial in enhancing the literature review which found to be under investigate especially when using thesample of non-law students. It is a fact that some non-law students really struggle in understanding the law-related subject because of their background limitation. Besides that, the language that been used in the laws and regulations sometime cause difficultyfor students to interpret. As a result, non-law students will show their discouragement when attending this class.

Therefore, lecturers must be creative and put some initiative to make a meaning fullearning experience for the non-law students. The non-law students deserve the best teaching and learning environment, so that they are able to be understanding the lesson given by the lecturer. "VIDGRATION" method is one of the best solutions that can be implemented to the non-law students and lecturers should consider on implementing this teaching intervention in class.

Although the lecturers need to invest their time and effort preparing for the class, but based on the past literature review this method is proven to be helpful in improving the non-law students understanding in learning the law-related subject. Additionally, this method also shows some proofs that the non-law students are able to improve their grade and final score.

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"Transforming Capstone Course: An Open Exhibition Approach to Teaching Cases"

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Abstract

Traditional teaching methods, such as group presentations, were evidently lacking in terms of meeting the intended objectives for the Integrated Case Study course. These methods were repetitive and often failed to effectively engage students. The open exhibition day is an experiential and interactive approach in teaching cases that aims to transform this capstone course, a departure from its conventional approach. It requires students to actively demonstrate their comprehension of a final case through various means, including posters, presentations, and interactive activities. The design of the open exhibition infuses the approach of gallery walk and competition- based learning. The participation of a substantial number of students, 384 students in 78 groups, along with the inclusion of 20 industry and academic experts as judges, showcased elements of authenticity and experiential learning for the course. The evaluation criteria for the exhibition day, which encompassed traits such as clarity, quality, innovation, and professionalism, underscore the emphasis on not just transferring knowledge but also cultivating students' soft skills. The results and reflections from the judges, students and instructors revealed the success of the open exhibition in creating a capping experience for the course and attainment of the course learning outcomes.

Keywords: Open Exhibition, Gallery Walk, Competition Based, Capstone, Cases

Introduction

Integrated case study (ICS) is a capstone course for accountancy programs in Malaysia that was introduced in 2010. The compulsory course is offered for final year students. This inclusion of ICS was consistent with the recommendations by Boyer Commission (1998) on the introduction of a capstone course in undergraduate program that utilise research and communication skills that was accumulated from the previous semesters.

Real business teaching cases that integrate the body of knowledge including from accounting & reporting, management accounting, taxation, audit, finance, management and business, information technology and other social sciences coursesare uniquely selected every semester and use in lieu of textbook or chapters. The focus of the course is also in the development and assessment of their soft skills of cognitive, leadership and teamwork. The full utilisation of cases, at the core of the course, contributes to the attainment of these skills. Case studies as learning tools had been shown to improve the meta skills of learners (Harvard Business School (2022), Wilkin (2017), Tran and Herzig (2023).

All these are reflected in the course learning outcomes, (i) interpret various accounting and business-related issues in an organizational context (C5); (ii) make independent research (C3, P7); (iii) develop alternative solutions to issues, devise action plans, and resolve implementation issues (C6); (iv) demonstrate ideas, views and recommendations effectively both verbally and in writing (C4) and (v) demonstrate leadership and teamwork in issues development and resolution (C3).

Given the course learning outcomes, ICS has been structured to be student- centred, preceded with brainstorming that proceed with presentations for every case. However, upon reflections, the instructors recognised that the repetitiveness of these approach have let to mere surface skimming, mediocrity in tasks completion with the aim of getting it done and over with and a lack of meaningful engagement in the classroom (Abdul Malak, 2021).

These impede the development of the skills and the authentic attainment of the course learning outcomes. There was no capping moment in a capstone course. Consequently, there was a need to constructively align the learning activities (Biggs, 2003) and reimagine the role of the leaners in the conduct a capstone course (Healy, 2014). The concerns lead the instructors to explore the integration of a more interactive and experiential approach in the approach of teaching and learning in ICS, as recommended in transformative learning.

The following section explores the concept of open exhibition that include elements of experiential learning with the combination of gallery walk and competition based into the design of the open exhibition. It then investigates the implementation phase of the open exhibition via an action research methodology. The next section presents the results and discussions based on judges', students' and instructors' responses and reflections.

Transformative Learning

Transformative learning is a process of learning differently by critically reflecting and transforming the uncritically held assumptions, perspectives, beliefs and understanding about the world (Mezirow, 2000). Transformative learning often occurs when people encounter new experiences, perspectives, or challenges that challenge their existing beliefs, leading to a fundamental re-evaluation and reconstruction of their worldview.

One of the key elements of transformative learning is exploration of new perspectives. Students will seek for new information from their readings and discussions and reflect upon it to discover new perspectives and ways to solve an issue. This will foster a sense of autonomy and self-confidence among them. Students may also undergo multiple learning experiences as they encounter new challenges that prompt them to re-evaluate their perspectives.

Transformative learning serves as a motivation for personal and intellectual growth by encouraging students to analyse information, question the assumptions, and make more informed judgments. They can analyse issues from multiple angles and consider various solutions, leading to improved problem-solving abilities. Transformative learning can lead to positive changes in behaviour. Individuals often become more socially responsible, open to social and environmental issues, and engaged in their communities, thus leading to a more holistic individual.

Open Exhibition and Poster Competition as an Approach in Transformative Learning

An open exhibition gallery in an educational setting is a space or event where students can showcase and share their creative or academic work to other students, lecturers, and the wider community. This can encompass a wide range of projects, including art, science, research, technology, literature, and more.

Open exhibition galleries can contribute to transformative learning. Through open exhibitions, it displays a wide range of ideas and research projects. Encountering this diversity can challenge students' existing beliefs and encourage them to consider alternative viewpoints. In addition, both participants and attendees can engage in discussions during the open exhibition. These interactions provide opportunities for critical dialogue and the exchange of ideas, thus fostering transformative learning. Rodenbaugh (2015) found that gallery walk improved class time management, students' accountability, and engagements. Insani and Sapriya (2017) also showed that gallery walk encouraged students' participatory skills of interaction, monitoring and influencing.

On the other hand, poster competitions create a competitive environment, where students strive to present their work effectively. The pressure of competition can motivate individuals to examine their work more closely and make improvements. Creating a poster can be a form of self-expression and can boost students' confidence in presenting their work and ideas to others.

To optimize the transformative potential of open exhibition galleries and poster competitions, it's essential to encourage critical reflection and open dialogue. Students should be given opportunities to articulate their thought processes and engage with feedback and alternative perspectives. These activities are most effective when they encourage students to question their assumptions and explore new horizons, ultimately leading to personal and intellectual growth.

Methodology

The overall approach that was adopted for this study is in the form of an action research. An action research is defined as, "The process through which teachers collaborate in evaluating their practice jointly; raise awareness of their personal theory; articulate a shared conception of values; try out new strategies to render the values expressed in their practice more consistent with educational values they espouse; record their work in a form which is readily available to and understandable by other teachers; and thus develop a shared theory of teaching by research practice (Elliot, 1991)." The trigger that started the overall the research cycle was the reflection that the course could be re-constructively aligned to reflect being a capstone course. The intervention that was used was in the form of an open exhibition day approach.

Incorporating the Open Exhibition into ICS

The open exhibition involved 384 students in 78 groups that was enrolled in the ICS course for Semester 1 in the 2022/2023 session. The brief to the open exhibition integrated the concept of galley walk and competition-based learning. The brief was handed out early to the students in Week 7 of the semester. It contained the following instructions:

- Poster presentation must be presented in English language.

- Participants must provide a printed vertical poster (Poster size: A1 (594 x 841mm/ 23.4 x 33.1 inch) (width x height).
- Content of the poster: Executive summary, key issues, causes or factors, decision criteria & alternative solutions/strategies, recommended solution/strategies, and references (in QR Code format).
- Participants must prepare a maximum of 5-minutes presentation including peer activity for the judges and other audiences.
- Participants must also be ready to answer any questions posted by the judges during the judging process (maximum 5 minutes).
- Participants may bring additional materials such as brochures, photographs, iPad/tablet etc. to support their presentations.

Students were also made aware of the judging criteria and awards:
- Case study analysis will be made by experienced judges, appointed by the organizers.
- Participants are to exhibit and demonstrate their case study analysis in front of a panel of judges during the judging session. The time allocation for the presentation and question & answer is 10 minutes.
- Scoring criteria are based on critical thinking, originality and creativity and presentation.
- 3 winners will be selected from each case. The winners will receive Certificates of Appreciation. 3 Grand Prize Winners will be selected. The winners will receive Certificates of Appreciation and prizes.

Over the teaching weeks prior to the open exhibition day, the students were to various interactions methods, traditional approaches such as role plays, jigsaws and integration of tools 2.0. This was to prepare the students for their own engagements and interactions during the open exhibition day.

Results and Discussion

Observations during the Open Exhibition
The open exhibition was conducted on 17th January 2023, in Week 13 of the semester. During the day, students were stationed on their poster's exhibit on a rotational basis. Their tasks were to explain on their assigned case and conduct activities with their visitors. The information and invitations to the open exhibition was shared publicly via social media channels and emails. The event was held at the main foyer of the faculty, whereby the teams were stationed in a circular form. The atmosphere was very vibrant and full of myriad of interactions between the students, visitors and judges. A student summed it up by reflecting that, "*The open exhibition day was so lively, and I can see the efforts of all the groups in making their exhibition the best. It was also good to see all the course mates who are taking ICS exist at the same place as we rarely have the chance to meet each other* (Student 56)." Another student remarked that, "*It's quite fascinating, can went to other booth to play some games and get reward, got a good comment for our peer activity, got to create last memories with other friends and lecturer* (Student 193)." The instructors were very impressed with all the efforts that were made by the students in terms of the preparation, the layout and display of the posters, the pitching to judges and the interactions through the prepared games.

Professional Judges' Evaluation and Reflections

There were 20 juries that comprised of industry and academic experts that were tasked to assess the exhibition. Each was given a scoring sheet that assessed the poster content, poster design and team pitching delivery. The scoring sheet also included open ended comments for each trait and its sub-traits and overall comment for the team. Several traits or sub-straits of the scoring was matched to the course learning outcomes.

Traits/ sub-traits	Course Learning Outcomes (CLO)
Juries scoring sheet	
Traits - Total score and overall impressions on quality	CLO 1: Interpret various accounting and business-related issues in an organizational context (C5)
Sub traits - Additional references and independent study	CLO 2: Make independent research (C3, P7)
Sub traits - Quality of content	CLO 3: Develop alternative solutions to issues, devise action plans, and resolve implementation issues (C6)
Traits - Poster content and poster delivery responses, engagement and professionalism	CLO 4: Demonstrate ideas, views and recommendations effectively both verbally and in writing (C4)
Students' evaluation	
Items P, Q and R in students' evaluation form and also peer evaluation	CLO 5: demonstrate leadership and teamwork in issues development and resolution (C3).

Table 1: Mapping of traits or sub-traits to the course learning outcomes of ICS On

average, the total average score for the 78 groups was 79%, with the overall impression on the quality was on average 81%. Clarity of content score the highest among the sub-traits. This showed that the juries were satisfied with the clarity of the content that was illustrated on the posters. This translated directly to CLO 1 that was focused on students' ability to interpret various accounting and business-related issues in an organizational context.

Nonetheless, the quality of the content could be further enhanced (76.5%). This specific sub-trait embedded the CLO 3 of developing alternative solutions to issues, devise action plans, and resolve implementation issues. The juries appeared to rate the pitching delivery (responses, engagement and professionalism) highly. This mean that the students had been able to demonstrate ideas, views and recommendations effectively both verbally and in writing (CLO 4).

The lowest scoring sub-trait was additional references and independent study, on average at 75%. This was tied to CLO 2 that looked at the students' ability to look beyond the case and to find external evidence in support of their ideas and recommendations.
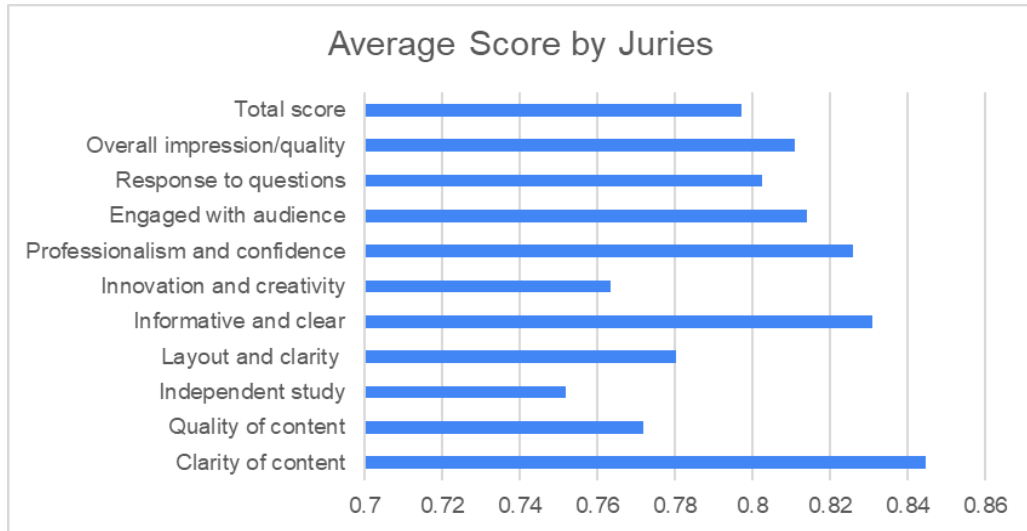
Figure 1: Average scores by juries based on the scoring sheet.

The open-ended comments that were provided by the juries were analysed and themed into positive comments and areas of improvements. The judges commended the excellent pitching and interactive activities that were conducted. However, they also pointed on improvements that was needed on the responses to answers especially the depth and context, poise, confidence and gestures during presentations and also on task delegations.

Positive Comments	Areas of improvements	
Confident presentation.	Improve on responding.	Reading text, presentation too long, not answering the question.
Excellent pitching delivery. Knows the study case well.	Occasional reading of text.	Not able to answer. Less preparation.
Good teamwork, all able to answer questions.	Start to refer to the poster after a while.	Unable to provide convincing justification for XBRL suggestion.
Presenter answers confidently and clearly.	Not answering questions from the jury. Presentation is okay.	Lack of eye contact, reading.
Excellent.	Small fonts, design informative with graphics.	No confidence in answering questions.
Smooth and confident.	The response to "how is this relevant for accountants?" is not satisfactory.	Student needs to explore more on Grab's market strategy.
Very interactive game on TikTok gesture/dance.	To improve task delegation.	Student needs to explore Grab's key partners, lack of knowledge on customers, suppliers, technology.

Table 2: Thematic comments by juries based on the open-ended spaces

Students' Evaluation and Reflections

After the open exhibition, students were asked to complete an evaluation of the approach, in terms of their roles as exhibitors, listeners and team members and the overall approach. The students appeared to be very satisfied with the open exhibition as an approach to learning ICS (75.53 percent: strongly agreed). In addition, 69.68 percent strongly agreed that the method interest them more to learn and 58.5 percent strongly agreed that the method was better than traditional lectures. Only 7.45 percent found that the method was boring and 9.04%, thought it was burdensome. The evaluation also found that students were happy with the attainment of their soft skills in terms of confidence in articulating ideas, critical thinking and teamwork.

Question ⇕	Strongly Disagree ⇕	Disagree ⇕	Neutral ⇕	Agree ⇕	Strongly Agree ⇕	Average ⇕
a) I understand the case.	0% (0) [1]	0% (0) [2]	0.53% (1) [3]	33.69% (63) [4]	65.78% (123) [5]	4.65
b) I prepared well.	0% (0) [1]	0.53% (1) [2]	4.81% (9) [3]	33.69% (63) [4]	60.96% (114) [5]	4.55
c) I understand well as a listener at other posters.	0% (0) [1]	0% (0) [2]	9.04% (17) [3]	35.64% (67) [4]	55.32% (104) [5]	4.46
d) This method interests me more to learn.	0% (0) [1]	0.53% (1) [2]	5.32% (10) [3]	24.47% (46) [4]	69.68% (131) [5]	4.63
e) This method is better than traditional lectures.	0% (0) [1]	1.06% (2) [2]	14.89% (28) [3]	25.53% (48) [4]	58.51% (110) [5]	4.41
f) I hope to learn in similar method again.	0% (0) [1]	0.53% (1) [2]	11.7% (22) [3]	29.79% (56) [4]	57.98% (109) [5]	4.45
g) I feel more free to ask what I don't understand.	0% (0) [1]	0% (0) [2]	8.51% (16) [3]	34.04% (64) [4]	57.45% (108) [5]	4.49
h) I am satisfied with other groups' presentation.	0% (0) [1]	1.6% (3) [2]	5.32% (10) [3]	31.38% (59) [4]	61.7% (116) [5]	4.53
i) Five minutes at each poster is enough.	9.04% (17) [1]	25.53% (48) [2]	15.96% (30) [3]	15.43% (29) [4]	34.04% (64) [5]	3.4
j) I like this method for other courses.	0.53% (1) [1]	2.66% (5) [2]	21.81% (41) [3]	26.6% (50) [4]	48.4% (91) [5]	4.2
k) I like my lecturers to use this method.	0% (0) [1]	0% (0) [2]	15.96% (30) [3]	26.06% (49) [4]	57.98% (109) [5]	4.42
l) I find this method boring.	46.81% (88) [1]	37.77% (71) [2]	6.91% (13) [3]	1.06% (2) [4]	7.45% (14) [5]	1.85
m) I find this method burdensome.	27.13% (51) [1]	31.38% (59) [2]	26.06% (49) [3]	6.38% (12) [4]	9.04% (17) [5]	2.39
n) This method builds my confidence in articulating my ideas.	0.53% (1) [1]	0.53% (1) [2]	4.79% (9) [3]	39.89% (75) [4]	54.26% (102) [5]	4.47
o) I find this method assist in my critical thinking.	0% (0) [1]	0% (0) [2]	2.13% (4) [3]	32.45% (61) [4]	65.43% (123) [5]	4.63
p) I can lead my team members.	0.53% (1) [1]	1.06% (2) [2]	12.23% (23) [3]	37.23% (70) [4]	48.94% (92) [5]	4.33
q) I can work well with my team members.	0.53% (1) [1]	0.53% (1) [2]	2.66% (5) [3]	22.34% (42) [4]	73.94% (139) [5]	4.69
r) My team dynamics are good.	0.53% (1) [0]	1.06% (2) [0]	4.79% (9) [0]	22.34% (42) [0]	71.28% (134) [0]	0
s) Overall, I am very satisfied with the open exhibition.	0% (0) [1]	0% (0) [2]	2.13% (4) [3]	22.34% (42) [4]	75.53% (142) [5]	4.73

Table 3: Students evaluation

The positive evaluations were supported by the reflections by the students on their thoughts on the open exhibition. The students also were motivated by the elements of gamification and competition that were incorporated into the open exhibition day. Below are some of the reflections with the theme highlighted in bold.

*"This event had encouraged me to be **more creative** on **how to deliver the unique ideas** outside the case given. It also taught me to be **more active in sharing ideas, pitching with the judges, and engaging** with other audience (Student 12)."*

*"The open exhibition is something new to me, and I find it **interesting** because it allows us **to engage with several groups** and view their designs and ideas. In addition, it is a **wonderful chance for us to collaborate** with the members in our group and **make every effort to win the competition** (Student 16)".*

*"During the whole preparation process for the open exhibition, **I have learned the importance of teamwork** because if one of our teammates is not willing to give a full commitment, then our work progress would not be effective and efficient. Open exhibition provides a unique way for students to **enhance their soft skills such as pitching skills** that will not be learned during normal lectures in class, where the students must pitch to the judges with the important points within a short time (Student 53)."*

*"I believe the greatest plus is the opportunity given to the student to **explore more** and **get creative** with the ideas that they have. It is a **great alternative for students to leash out their potential and express** their ideas in a different way. Also, the **bond between students is tightened** through this exhibition which is very good. We **can communicate more freely**, not limited like in the formal class and have some special time together (Student 72)."*

*"The **open exhibition was exciting as there are many games** provide by the other group. Instead of just listen to the presenter, it is interesting to play a game. **It helps to understand more compared to just listening** (Student 130)."*

Conclusion

The changing dynamics of the 21st century and the employability landscape demands that capstone projects be reimagined to fit the demands of students and employers (Hill, Kneale, Nicholson, Waddington and Ray (2011). The findings from this paper have indicated that the approach of open day exhibition had successfully transform ICS into a more meaningful course especially in the attainment of the CLOs. It was evident that traditional teaching methods, such as group presentations, have proven to be ineffective and lacking in engagement for this course. Additionally, issues related to group dynamics often hinder the learning experience. Recognizing these challenges, the introduction of an open exhibition day represents a significant departure from conventional teaching methodologies. The open exhibition day presents an innovative and interactive approach to address the limitations of traditional teaching methods. During this event, students actively demonstrate their comprehension of a final case through various means, including posters, pitches, and interactive activities. The of enlisting industry and academic experts as judges adds an element of authenticity and competitiveness to the activity.

The evaluation criteria for the open exhibition day, which includes factors like clarity, quality, innovation, and professionalism, underscores the emphasis not only on knowledge transfer but also on nurturing students' soft skills. These soft skills, encompassing communication, presentation, teamwork, and problem-solving, are vital for success in the accounting and business world. The approach was limited and impacted by external factors such as funding, that hampered the logistics and possibility of a better venue for the day.

These external factors may have affected the performance of the students and assessment of the students by the juries. Furthermore, additional iterations of the approach should be done to validate the findings across cohort and to integrate continuous quality improvements to the approach.

Nonetheless, the open exhibition day approach in teaching ICS can be transposed to other courses, in a smaller and a larger scale, depending on the resources and fund available. Teaching with cases is not restricted to the accounting faculty and thus, this approach could also be mimicked in other disciplines, with minimal variations. Future study could examine the potentials of this approach as an alternative assessment to final summative examination and to properly match the open day with institutional and industrial supports.

Acknowledgment

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Appendix 1: Juries Rubric (Source: developed by authors)

Pusat Pengajian Perakaunan
Tunku Puteri Intan Safinaz
TUNKU PUTERI INTAN SAFINAZ SCHOOL OF ACCOUNTANCY
Universiti Utara Malaysia

TISSA-UUM INTEGRATED CASE STUDY
OPEN EXHIBITION 2023

Group No: _____ Case Name: _____ Judge Name: _____

Please mark the score for each evaluation criterion below. You may include constructive comments for the presenter(s) in the space provided.

Poster content
- Clarity of content (Clear info, free of spelling & grammar errors)
- Quality of content (Background, key issue, causes or factors, evaluation of alternative solutions/strategies, recommended solutions/strategies)
- Additional references or independent study
- Reflects innovative and creativity

Poor	Fair	Good	Excellent
1	2	3	4
2	4	6	8
1	2	3	4
1	2	3	4

Comments on poster content:

Poster design
- Layout and clarity (organized, effective, appropriate font size, visual aids, etc.)
- Informative and clear topic, purpose, summary

Poor	Fair	Good	Excellent
1	2	3	4
1	2	3	4

Comments on poster design:

Delivery (Pitching)
- Professional, confident, knowledgeable about topic
- Engaged with audience
- Response to questions

Poor	Fair	Good	Excellent
1	2	3	4
1	2	3	4
1	2	3	4

Comments on delivery (pitching):

Overall impression/ quality

Poor	Fair	Good	Excellent
2	4	6	8

Importance of Digital Literacy in Enhancing the Work Performance of Secondary School Teachers in Malaysia

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Abstract

Digitalisation has become one of the most demanding requirements and most probably covers a lot of our daily aspects of life, especially education. Teachers played a great role and example towards a generation of students. Hence, the recent era of globalisation that leads to more involvements of gadgets, technology and virtual or online interaction which go beyond the conventional ways demands most teachers to be motivated to utilise the advancement that has been created to align with the digital concepts. Due to that, a teacher should have the knowledge and understanding usage ofdigital platforms and how to make an impact on their teaching with the innovation built. Therefore, this qualitative research has applied an in-depth interview to understand theimportance of digital literacy in enhancing secondary school teachers' work performance in Malaysia. The five informants for this research were among the secondary school teachers in three different secondary schools situated in the northernregion of Malaysia. They were selected based on their expertise in handling and having experiences with the education digital shift due to the pandemic. The first finding that has been obtained was the role of digital platforms that could be seen from the types of digital platforms and the schools' infrastructure. The second finding highlighted the strategy of teaching and learning using digital platforms and the importance of digital literacy towards enhancing the work performance of secondary school teachers. These findings motivated secondary school teachers to enhance their digital literacy due to its positive impact towards their work performance.

Keywords: Digitalisation, Digital Literacy, Digital Platforms, Work Performance, School Teachers

Introduction

Engaging and interacting with the people around us as well as equipping our needs plays much in the concept of media as well as in the world of digital. Malala Yousefzai, a well-known young lady who advocates and fights for education and children said that "one child, one teacher, one book, one pen could change the world" (Outlook Web Desk, 2014). This has proven the importance of education, the impact of teachers and the value of an education one must pursue to make a difference in one'slife and the world.

Durakbasa, Bas and Bauer (2018) stated that the traditional industry transformation has completely influenced the system of education through digital technologies. The institution of education played an essential role before the model of Education 4.0. It is more significant due to the skill requirements as well as its importance. As stated by Shrestha (2018), technological advancement has widened the digital literacy capacity over time, from basic skills of technology to the skill of critical and cognitive thinking. Stordy (2015) and Shrestha (2018) added that digitally literate

employees possess the attitudes, knowledge, awareness and skill set within the digital environment to interact and operate with the tools of digital. Furthermore, as believed by Ahmed and Rasheed (2020), digital literacy is a required skill towards every person especially in this era of digital. Therefore, this research was conducted qualitatively, to understand the importance of digital literacy in enhancing secondary school teachers' work performance in Malaysia. In the literature review section, previous experiences and analyses from other countries are added to gain more information as well as a deeper understanding related to this research in the Malaysian context.

Literature Review

The fourth industrial revolution (IR4.0) was considered an innovation of digital technology which developed on the occurrence of the Internet of Services (IoS), robotics and the Internet of Things (IoT). Digital device combinations have created an easier path in enhancing the environment of learning and teaching. Based on Ramirez and Morales (2018), the computer control of modern 3-D technologies provides a better experience of learning. The application of 3-D technologies in teaching increases a new method and skill which allows a higher potential of employability for the study of engineer as well as to foster the interest of students. In order to build citizenship of digital, several components need to be considered that are educated, protected and respected citizens, which also include the aspects of digital such as digital ethics, digital skills and knowledge (Komalasari & Anggraini, 2019).

According to TheStar news regarding media literacy education, a team of Malaysian media practitioners and educators have worked together in designing the first curriculum of media literacy in Malaysia through a potential partnership in setting up a movement of national known as the Media Education for All (ME4A) with other 15 members. The Senior Lecturer of the Faculty of Educational Studies, Dr Aini Marina Ma'arof, reported that there is limited national curriculum standardisation guidance for media literacy (TheStar, 2021). Little studies about digital literacy have been done in Malaysia especially focusing on secondary school teachers' work performance within their school compound through the literacy of digital.

Digital Competence Theory

The digital competence theory as illustrated in Figure 1 shows the integration of three dimensions, namely ethical, technological and cognitive.
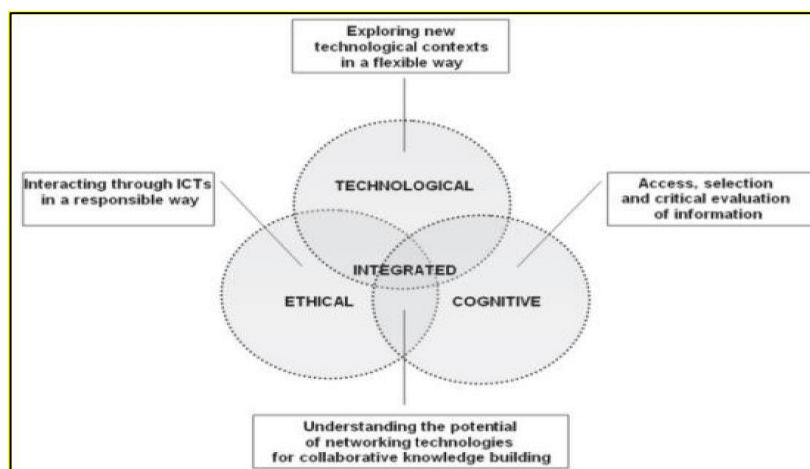
Figure 1. Digital Competence Theory

Ethical Dimension. The Digital Competence Theory emphasises the importance of ethical considerations in using digital technologies. Ethical digital literacy helps teachers make informed decisions about online privacy, security, and responsible digital citizenship. By understanding ethical implications, teachers can create a safe and respectful digital environment for their students as well as foster a positive learning atmosphere that enhances their work performance.

Technological Dimension. Proficiency in technological digital literacy allows teachers to effectively use digital tools and platforms in their teaching practices. Teachers can leverage technology to create engaging and interactive lessons and to promote active learning among the students. Technology integration enhances teaching methods, leading to an increase in efficiency and effectiveness in the classroom which will positively impact their work performance.

Cognitive Dimension. Cognitive digital literacy involves critical thinking, problem-solving and information evaluation skills in the digital context. Teachers with strong cognitive digital literacy can critically assess digital resources, ensuring high-quality and reliable information is used in teaching. These skills also enable teachers to adapt and innovate in response to technological advancements and also keep their teaching methods up-to-date and relevant thereby enhancing their work performance.

Digital Literacies

Digital literacies, from a wider point of view, involve the attitude, awareness and capability to access, integrate, identify, analyse, manage, synthesise and evaluate the resources of digital through their tools. These abilities function in creating media expressions, communicating in ways that are socially recognisable with others as well as in developing new knowledge (Martin & Grudziecki, 2006). Some scholars like Saljo (2012) characterised digital literacies as a skill, knowledge and attitude in transforming and dominating information through digital platforms and also for technological tools operation. Bawden (2008) had a similar description of digital literacy by advancing Glister's (1997) masterpiece by amplifying the literacy which includes the skills of cognitive and critical thinking and technical ones in the era of digital.

Ng (2012) defined a digitally literate individual as a digital tool user like software programs or the internet, who uses the tools responsibly and possesses the skills of critical thinking with the information obtained and the skills to search, communicate and evaluate a task being performed. For an individual to be able to operate in the digital environment, digital literacies must blend in together with internet literacy, ICT literacy, visual literacy, and computer literacy. Based on Rizal et al. (2020),real-life problems are seen to be solved with digital literacy due to it as being perceived a basic skill in the critical usage of digital tools and information meanwhile Zhong (2011) believed that literacy raises social interaction, collaborative personnel skills and in retrieving information. As stated by Ahmed and Rasheed (2020), sufficient digital literate individual is essential in the 21st century to be part of social activities. Hence, in the era of digital, digital literacies act as one of the survival skills (Eshet-Alkalai,2004).

The innovations and devices of technology have allowed the goals of training and development due to the boundless resources of information (Andriushchenko et al., 2021). Besides, it has connected with immense chances of education despite the community's settings, desires, abilities, and skills. As an example, blended learning and online courses. Frey & Osborne (2017) stated the formal goal of training and

development was to accelerate individual's potential and ability in their adaptation towards the digital framework amendments. In addition, not only changes in the ways of training and development performed but also their objectives via digitalisation impacted the organisation. Ulrich & Dulebohn (2015) mentioned that digitalisation prepares for any possibilities such as connection, innovation, simplicity, and management risk and therefore doing so will empower the performance of an organisation.

Khan & Kureshi (2020) stated that the Education 4.0 concept highlights the skills of today's world that probably will not be advantageous in tomorrow's world. A person will be perceived as skilful with the new technology learnings within time passed. Hence, modern world education aims to transition and shift from conventionalto digital in terms of technological usability and learning.

Methodology

This study chose informants among the secondary school teachers in the Northern region, specifically Penang. They were chosen from both the boarding and daily schools. The chosen secondary schools were from Maktab Rendah Sains MARA Ulul Albab Kepala Batas, Penang (boarding school-based) and Sekolah Menengah Kebangsaan Datuk Haji Ahmad Badawi, Kepala Batas, Penang and Sekolah Menengah Kebangsaan Permai Indah, Bukit Mertajam, Penang (daily school-based). The secondary school teachers were among the senior teachers as well as practical teachersthat taught different subjects such as English, Mathematics, Science Computer, Pendidikan Seni Visual & Seni Reka, Pendidikan Islam, Tasmik Hafazan and Pendidikan Syariah & Sunnah.

Five informants were chosen for an in-depth interview based on the questions provided on the roles of digital platforms and the importance of digital literacy in enhancing the teacher's work performance. Creswell (1998) indicated that informant selection of around five to 25 informants could be done or stopped as it reaches its data saturation. This study has analysed the secondary school teachers within three months this year (March to May). The analysis has been guided by the research objective. The sampling in this research was based on purposive sampling to choose the most suitable information source which can assist in understanding the phenomenon (Creswell, 2012). The researcher has identified the chosen informants according to the study objective via interviews in obtaining the information and data of this study. Interview sessions with the informants have been recorded using the smartphone's voice recorder. Recorded voice has been permitted by the informants in facilitating the researcher's data analysis.

Findings

The findings in this section were the audio transcriptions thematic analysis results based on five chosen secondary school teachers in Penang, Malaysia. The researcher's notes as well as the notes from informants were applied as the audio transcription data of supplementary. Table 1 illustrates the characteristics of the informants.

Table 1

Characteristic of Informants

Informant	Position	School
T1	Science and MathematicsTeacher (Practical Teacher)	SMK Datuk Haji Ahmad Badawi
T2	English and Science ComputerTeacher (Practical Teacher)	SMK Datuk Haji Ahmad Badawi
T3	English Teacher (Senior Teacher)	SMK Permai Indah
T4	Pendidikan Seni Visual & SeniReka Sir (Senior Teacher)	MRSM Ulul Albab
T5	Pendidikan Islam (PaI), TasmikMRSM Ulul Albab Hafazan, Pendidikan Syariah & Sunnah (PSS) Ustazah (Senior Teacher)	MRSM Ulul Albab

The teachers were known as the important stakeholders who have been dealing with daily schools, particularly in the experiences of applying digital elements in teaching whether during times of COVID-19 pandemic or post-pandemic. Most of the teachers had some collaboration projects such as master's research particularly relatedto technology which were the augmented reality under the subject of Geometry, collaborative projects for English lessons with post-graduate students regarding the quizzes as well as classroom and also some of the teachers whom had experienced professional networking with others and also attended seminars or talks under the collaborative projects in designing and producing websites for students' quizzes and subject questions. Some teachers have not had the opportunity yet to join in any related workshops, but they are looking forward to future endeavours.

Table 2 illustrates the themes and codes from the thematic analysis. The themes were digital platforms, infrastructure, the strategy of teaching and learning, and the importance of digital literacy.

Table 2
Themes and Codes from Thematic Analysis

Themes	Codes
Digital Platforms	Social Media
	Online Website
	Online Editing Platform
	Google Site
	Microsoft
	Digital Devices
Infrastructure	LCD
	Multimedia/Computer Lab
	Library
	Screen Projector
	Wi-Fi
Strategy of Teaching and Learning	Practices and Engagement Enrichment
	Diverse Learning
	Learning Interactivity
	Latest Trends and Updates in Education
	Learning Outcome or Feedback
Importance of DigitalLiteracy	Efficiency and Productivity
	Performance of Teachers and Students
	Diverse Learning Outcome
	Progressive Improvements
	Various Teaching Methods
	Better instructional and Effective Personalised Learning
	Rich in Lesson Materials and Two-Ways Communication

The teachers have utilised various digital platforms that allow them to engage, communicate, and complete their tasks as well as learn various educational materials, information, and content. The most used digital platforms in their classroom or even in the school environment were Telegram, WhatsApp, TikTok, Facebook, Instagram, YouTube, online websites or games (*Plickers*, *Kahoot*, *WordWall, Spin The Wheel, Gallery Walk, Jamboard),* online editing platform (*Canva, slidesGo*) and the *'Pencil Board'* a digital device as well as multiple Google sites and Microsoft such as Google Meet, Google Classroom, Google Drive, Microsoft Teams and not to mention the students also possess their educational email.

Schools have multiple infrastructures and digital resources that can be used yet still need some alternatives, initiatives, and immediate actions to fully utilise the digital at its best for the betterment of a sustainable education state as well as school settings. Digital resources were mostly obtained from the Internet. The infrastructures are the Library, Computer Lab, LCD, Screens Projector and Wi-Fi connection. All the teachers would probably rate their schools both the accessibility and infrastructure as medium, basic, or moderate.

Strategy of Teaching and Learning

Digital literacy possesses a positive influence from the aspects of engagement and management which is considered as one of the greatest strategies in ensuring a diverse learning within the classroom and school settings. An example of strategic practices towards a diverse learning way is in combining both the conventional and digital ways interchangeably as found in the data. Two of the teachers utilised both ways to create various learning environments for students. Meanwhile, from the aspectof engagement and management, the teachers were mostly applying the online sourcesand materials whether in collecting information particularly for the subject or in interacting with fun games and videos for teaching purposes as another alternative andways of learning in the classroom. Videos from YouTube particularly were one of the greatest strategies as well for engagement and diverse learning applied in the classroom. Furthermore, the essential digital platforms particularly social media such as TikTok, YouTube, WhatsApp, Telegram, Facebook, and Instagram. All these mediums assisted the teachers in reaching out and connecting with their students, information findings and gaining a better understanding of their teaching subjects. Another creative mediumthat has been used by one of the teachers is Canva and Online Worksheets in insertinga sense of creativity as well in shifting students' attention more towards their subject topics for exercises, notes and learning outcomes. Google Drive as mentioned by a teacher helped her compile all the files for syllabus slides or notes and other related subject files in one place for the students to access at any time. All these practices of teaching were effective and allowed greater involvement from the students.

Virtual communication apps such as WhatsApp were the main ones, Telegram for the majority of big groups, Google Drive for students' homework or tasks files and Google Meet for discussion and meetings. These helpful apps and software have become one of the most influential tools for interaction purposes. The teachers, students and parents could interact with each other, purposefully at anytime and anywhere. It also saves a lot of time as it will be conducted virtually regardless of where we are. More discussions can be made with these great software apps of social media through the literacy of digital. According to the findings obtained from the teachers, to stay up-to-date and aligned with the latest educational trends is through the interactive online platforms available like social media or video-based platforms and also online forums provided for teaching purposes. Most of the teachers utilised TikTok as the particular recent platform possessed quite some educational content from various digital content creators. Online materials and inspiring ideas about a subject could be obtained through other social media platforms like Facebook, Instagram, YouTube or even websites. It was observed that these social platforms contain algorithms through the "search bar" which will serve us with similar content that we have searched before. Digital literacy influences teachers by enabling them to provide feedback towards their students' learning outcomes. There were some mechanisms in giving the opportunity of improvisation for their students for them to constantly progress from time to time. Mostof the teachers have utilised the online medium in monitoring as well as assessing their students such as through Google Drive which folders of assigned homework will be provided, the Online Grading System known as feedback software that also comes with an explanation of when their answers were wrong during a quiz and also progressive monitoring with the online ways.

There were many ways of the secondary school from both the daily and boarding schools. Apps and creative websites like *slidesGo* enable one of the teachers to create a powerful PowerPoint for subject notes. Google Meet features such as *Jamboard* were used in the classroom sort of like a whiteboard to jot down anything for the teacher, also

it allows a PDF textbook to be shared and presented. Another teacher finds simple engaging games for students as an introduction to their lesson likeRiddles, Fun Facts and song lyrics activities. The rest of the teachers used engaging and interactive online videos like YouTube or other video platforms for their learning process and classroom lessons. These interactivity processes empower the students' session and their focus to be shifted to experiencing fun learning in their class.

Importance of Digital Literacy
The researcher analysed the data and found that digital literacy through digital platforms and technology has increased the teachers' work efficiency and productivityin keeping any important files or notes, assisted their work and made it easier to handleas well as increased their students' learning performance. Findings that have been discovered by the researcher under the strategy of teaching and learning are the studentspossessed better understanding meanwhile for the teachers, digital literacy has allowed them to get credible information, as well as inculcate a good online etiquette of digital, enable conveying of messages as well in creating a greater masterpiece. For diverse learning, the teachers have noticed a good learning outcome where their students love the colourful and mesmerising sound effects which could have the ability to capture their attention towards the subject that they teach. Also, a diverse way of learning can open a door of opportunity for the students to have their revision at home. Timely feedback of teachers to their students through several helpful and effective platforms drives towards progressive and continuous improvements for the students in their learning lessons. The students' results could potentially increase.

Teaching methods were improved through searching and finding extra, interactive, and effective materials online, it saved their time in getting instant information and research findings. They were also able to practise flexibility in engaging with their students and completing their specific tasks or work at anytime andanywhere. Learning from other experts or even the students themselves is also a good way and one of the ways to improve the teacher's teaching method.

Various improvements have been obtained through digital literacy, especially in differentiating instructional and learning experiences. It could be portrayed that most students have a better understanding of the use of digital and technology be it the combination of both digital and conventional or digital itself alone. The digital effect attracts and captures the students' attention through sound effects, and visual effects as well as exposures of apps and software of technology in digital. Hence, it is notified by secondary school teachers of the effectiveness and interesting facts about these digital technologies and platforms they have possessed. Literacy of digital eased the teachers get more information as they can teach their students how to handle and use technology or any digital platforms. Online materials like worksheets help the teachers access them and enrich the lesson materials as most of the students find digital practices interesting for fun learning hours. And also, it does not involve only one-way communication, instead it involves two-way communication that is between teachers and students.

Discussions

According to the informants, they have utilised various digital platforms that allow them to engage, communicate, and complete their tasks as well as learn various educational materials, information, and content. The most used digital platforms in theirclassroom or even in the school environment the Telegram, WhatsApp, TikTok, Facebook, Instagram, YouTube, online websites or games (*Plickers*, *Kahoot*, *WordWall,Spin The Wheel, Gallery Walk, Jamboard),* online editing platform (*Canva, slidesGo*) and the *'Pencil Board'* a digital device as well as multiple Google sites and Microsoft such as Google Meet, Google Classroom, Google Drive, Microsoft Teams and not to mention the students also possess their educational email. The result has proven that social media has a great influence towards the perceptions of good politics. Meanwhile, this research has proven that all the digital platforms have increased the teacher's skills in technology as well as in handling their classes and students effectively and efficiently.

This research found that the teachers mentioned their schools have multiple infrastructures and digital resources that can be used yet still need some alternatives, initiatives, and immediate actions to fully utilise the digital at its best for the bettermentof a sustainable education state as well as school settings. Digital resources were mostly obtained from the Internet. The infrastructures are the Library, Computer Lab, LCD, Screens Projector and Wi-Fi connection. This has indirectly signalled the importance of good and equipped facilities for the great success of education.

Meanwhile, from the aspect of engagement and management, the teachers were mostly applying the online sources and materials whether in collecting information particularly for a subject or in interacting with fun games and videos for teaching purposes as another alternative and ways of learning in the classroom. Videos from YouTube particularly are one of the greatest strategies as well for engagement and diverse learning applied in the classroom. Next is the teaching practice enrichment and engagement, digital literacy has increased the students' engagement and enriched the teaching practice through multiple essential digital platforms particularly social media such as TikTok, WhatsApp, Telegram, Facebook, and Instagram. All of these mediumsassisted the teachers in reaching out and connecting with their students, informationfindings and gaining a better understanding of their teaching subjects. Another creativemedium that has been used by one of the teachers is Canva and Online Worksheets ininserting a sense of creativity as well in shifting students' attention more towards their subject topics for exercises, notes and learning outcomes. Google Drive as mentioned by a teacher helped her compile all the files for syllabus slides or notes and other relatedsubject files in one place for the students to access at any time. The researcher believed that digital platforms truly impacted the students' learning and teacher's teaching session, and they improved the performances of both the teachers as well the students.

Another finding obtained lies in the latest educational trends and updates. Researchers have analysed TikTok, as an influential, recent, and also one of educational purpose digital platform alternatively, during the pandemic COVID-19. We can observe that TikTok has become a purposeful platform for teachers and students to obtain information and fun learning methods. Other digital platforms like Facebook, YouTube, and Instagram might come in handy. In this research findings, T1 and T2 mentioned the impact of TikTok in getting inspiring ideas based on the "search bar". Meanwhile, T4 mentioned

Facebook and Instagram to find aspiration through the platforms for a great masterpiece of art. Although T5 does not spend a lot of time with digital platforms the teacher believes that there will always be lots of upcoming and updated trends in the near future. However, both T3 and T5 have also interactive videosin their classroom. A previous study was slightly similar to the researcher's findings that is in terms of utilising various media learning like videos and Nearpod which resulted in the creativity in taking the opportunity of media online learning for studentsa greater understanding of materials provided, although it is from a different aspect of literacy (Aulia et al., 2022).

Another two sub-themes under the strategy of teaching and learning are the feedback and learning interactivity of students. Most of the teachers have utilised the online medium in monitoring as well as assessing their students such as through Google Drive which folders of assigned homework will be provided, the Online Grading System known as feedback software that also comes with an explanation of when theiranswers were wrong during a quiz and also progressive monitoring with the online ways.Online mediums have allowed the secondary school teachers in the chosen schools of Penang, Malaysia to ease their work performance as well as their students in achieving good outcomes as well the results. Feedback is one of the effective mechanisms to constantly progress to sustain and manage a great institution performance as well as a good teacher performance because without any feedback both students and teachers would not notice or recognise educational matters that need to be fixed or improved.

Moreover, another finding obtained is to look at several apps and creative websites like *slides Go* to enable one of the teachers to create a powerful PowerPoint for subject notes. Google Meet features such as *Jamboard* were used in the classroom sort of like a Whiteboard to jot down anything for the teacher, also it allows a PDF textbook to be shared and presented. Another teacher finds simple engaging games for students as an introduction to their lesson like Riddles, Fun Facts and lyrics song activities. The rest of the teachers used engaging and interactive online videos like YouTube or other video platforms for their learning process and classroom lessons. These interactivity processes empower the students' learning and their focus to be shifted to experiencing fun learning in their class. The researcher analysed and found that creative and fun, as well as interactive apps or software, have somehow shifted the view of students to be better and more impactful as applied by the teachers.

Limitation

The study focuses specifically on the importance of digital literacy in enhancingsecondary school teachers' work performance in Malaysia. This research focuses on the qualitative study by using in-depth interviews interviewing the informants, the secondary school teachers, who were both experienced practical teachers as well as thesenior teachers, all who came from three different schools in the northern region of Malaysia, Penang.

However, there was some limitation of the study in terms of the in-depth interview. Firstly, this research is conducted within a limited time and capabilities. Dueto the time frame available, the researcher had difficulties in reaching out number of secondary schoolteachers in the specific northern region secondary schools in Malaysiaas was proposed. Yet, the researcher still managed to carry out the data collection process and analysis to fulfil the requirements and objectives of the research. Also, thisresearch is conducted in a specific

geographic area, therefore this might bring an underrepresented research result.

Recommendation

It is recommended, that in the context of Malaysia, interested researchers can carry out research more on the roles of digital platforms in other regions in Malaysia. This is due to little studies have been done in Malaysia compared to other countries. Therefore, with the roles of digital platforms in other regions, we can highlight the effectiveness and efficiency of Malaysian teachers and great literacy of digital in handling any digital crisis or difficulties not just locally but globally too as it will benefitthe education line and management, as we are well-informed that the education is one of the most essential aspects of life.

Conclusion

To sum up, digital literacy is important and has increased the chosen secondaryschool teachers' work performance in the secondary schools of the Northern region of Malaysia, specifically situated in Penang. Various digital platforms have been utilised to create a fun learning and teaching process. Secondary school teachers are always looking forward to improving their skills in digital and seeking knowledge of digital to create a better digital environment in their classrooms and for their subjects. A lot of improvements have been developed with digital literacy, essential digital platforms, and other efforts towards the effective and efficient working performance of our teachers.

Acknowledgement

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Perpetuating iMovie to Invigorate Technology Utilisation of CIDOS LMS Mechanisms Among Freshman Engineering Learners

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Abstract

Grasping the stream of activities as technology utilisation in the Learning Management System (LMS) is pertinent to ensuring smooth learning and monitoring by the instructors. The objectives of this study are to establish a short video pertaining to the learning mechanisms provided in the Curriculum Information Document OnlineSystem (CIDOS) LMS and predict the technology utilisation among freshman engineering learners. For this purpose, iMovie software is applied as basic application to embolden the stream of teaching and learning activities, continuous assessment and subject scoring process throughout the academic session. CIDOS LMS is applied by Malaysian polytechnic institutions as a promising pedagogical education platform thatimproves the method of personal and professional responsibilities. The pertinent video administers a concise annexation about forums, e-quizzes, e-contents, e-assessments, reports of learning system usage, and learners' subject accomplishments in registered courses. The modernization of the crucial video allows reworking of instructional transmittal, active involvement as well as contemplation of hybrid pedagogical strategies. It is synchronous with the requirements of the Fourth Industrial Revolution, which have recommended genuine actual-life competences since the rise of information and communication technology (ICT) and learning contraptions, yielding the civilization of technologically mediated instruction. The findings of the evaluation divulged 84.3% of predominant contributions in technologyutilisation, precisely quality of use in learning adopting CIDOS LMS, and havebenefited educational entities to investigate and generate iMovie as interactive pedagogical mechanisms.

Keywords: Technology Utilisation; CIDOS LMS; iMovie; Pedagogical Materials; Technical Learners

Introduction

The tremendous alteration in educational technology system encourages the positive movement in application of learning material. Since a decade ago, technologyutilisation yields the educational entities to create active learning methods through Web 2.0 tools as systematic learning delivery approach (Hashim & Shuhidan, Anwar, Heriyanto, 2022; Kara, 2023). Most importantly, creation of short movie enhances multimedia skills, especially to undergraduate learners to grasp education content. In addition, continuous assessment needs to be conducted by instructors as compulsory academic grading throughout a semester. Modern notion of gaining knowledge requires appropriate space as foundation platform as well as nurtures the emblematic implementation of self-management skills (Basilotta, Matarranz, Casado, & Otto,2022; Ermetov, Sobirjonov & Maxsudov, 2023). The integration space of various dimensions such as technological, cognitive, intellectual, cultural and physical is pertinent to take into consideration. In order to create innovation-based surroundings, instructors require to prepare learning tools as supporting activities implemented via Learning Management System (LMS).

It is important to highlight the roles of LMS in higher educational institutions (HEIs). This learning platform has been supported as a learning space mechanism, web portal, course management system, and content management system (Al-Mamary,2022). On the other hand, based on multi-features, LMS has the function of allowing educational entities to employ educational contents and yield continuous interaction with learners, whether synchronous or asynchronous (Veluvali & Surisetti, 2022). In addition, some broadly employed learning management systems in the recent situation are Moodle, Sakai and Blackboard (Mbodila & Leendertz, 2020). Instructors can create convenient and flexible online lecture materials for their students by using the LMS. The method for releasing the materials should be carefully studied, even if it can be done regardless of time or location (Bhadri & Patil, 2022). Research on LMS projects conducted by Lyashenko and Frolova (2014) and Sobaih, Palla, and Baquee (2022) in the context of higher educational institutions (HEI) demonstrated an efficient and practical platform for intergenerational e- learning. Additionally, it improves the information and communication technology (ICT) proficiency of educators at higher education institutions. Since it offers training sessions, the technology utilised in LMS projects encourages intergenerational learning collaboration, demonstrating the product's potential to develop into an exceptional virtual platform.

Learning contents and assessments are difficult to grasp by undergraduate learners without the assistance of digital material. Although the formal academic session is crucial to ensuring the fundamental linkage between instructors and students, digital content needs to be applied (Bearman, Nieminen, & Ajjawi, 2023; Chokwe, 2022). In addition, a recent situation has emboldened youngsters and adult learners to employ e-contents as one of their preferred learning options.

Nonetheless, the lack of effort to ensure consistency of use and quality of use of digital content is identified as a vital issue among educational entities (Kohnke, Foung & Chen, 2022; Coskuncay & Ozkan, 2013; Widodo, Musyarofah & Slamet, 2022; Arifin & Setiawan,2022). It is this gap that will influence the actual technology utilisation towards the usage of Web 2.0 tools. These constraints are so worrying and require some approach to overcome. Therefore, in this study, it is important to relate to developing a short video as guidance for learners to understand their educational materials in the LMS.

Research Objectives

The objectives of this study are to develop a short video pertaining to the learning tool yielded in the Curriculum Information Document Online System (CIDOS) LMS and predict the technology utilisation among undergraduate technical learners. As learning tools, CIDOS LMS provides several functions for students' assessment, such as assignment, practical work, end of chapter, lecture notes, quiz, chat, forum, course outline, video, and Android game-based learning. In addition, this short video displays the chronological process of assessment involved in the learning platform. It is important to ensure the learners can grasp the functionality of the provided learning tools to predict the technology utilisation among undergraduate learners, which is related to consistency of use and quality of use.

Literature Review

The progress of a knowledge-based economy combined with the arising technologies and worldwide integration has actuated future growth trends, particularlyin the worldwide demand for skills and expertise (Carayannis, Kostis, Dinçer, & Yüksel, 2022; Haleem et. al., 2022). In order to nurture positive competition in the global arena, it has to have a workforce that has the ability to adapt and adjust to the changing demands arising from technological advances in the knowledge-based economy, specifically in technology utilisation. Digital learning approach has a pertinent role to ensure the aims of knowledge-based economy to be implemented continuously (Kaputa, Loucanova, & Tejerina, 2022). Obviously, various methods have been attempted in teaching and learning session so as they related to enhance theeducational entities' technology utilisation. In addition, such applicable ways as instructional pedagogical strategies have been practiced in the recent HEIs to embolden active involvement among learners, peers and instructors (Salendab, 2023; Roe, Wojniusz, & Bjerke, 2022).

The recent and emblematic pedagogical practice using technology mediated application and Web 2.0 tools have become significant implementation. More importantly, Learning Management System (LMS) has been widely employed by educational institutions universally. With the advent of hybrid learning, LMSs are now becoming more prevalent in the traditional brick and mortar schools. Examples of LMSs used in many online schools include Blackboard, Desire2Learn and Educator 20 (Ascencio, 2023; Ivey & Parrish, 2022). LMS can be explained as "a self-contained webpage with embedded instructional tools that permit faculty to organise academic contents and engage in their learning" (Gautreau, 2011, p. 2). Nevertheless, Munyaradzi, Mildred and David, (2022), Ali et. al., (2023) and Alserhanet. al., (2023) stated the limited use among instructors and lack of standard technology interfaces. The discontinuity of interactions prolongs inconsistency and decreases quality of use among students. Furthermore, the existence of lack in overseeing of LMS implementation adds as worrisome (Muamar et. al., 2023; Mundir & Umiarso, 2022; Argadinata, Timan & Pramudya, 2023). The quality of usage in LMS still does not meet the aims set even though there are many programmes supported by it. This is very worrying and the issue should be resolved in a more understandable way.

One crucial and well-accepted amendment of Technology Acceptance Model (TAM) has been the involvement of social consequence practices in predicting the acceptance behaviour of a contemporary technology by the users (Venkatesh & Davis, 2000). TAM was first developed by Davis (1989) to determine the acceptance of Management Information Systems (MIS). It was later extended to TAM 2 by Venkatesh and Davis (2000) to indicate the results of longitudinal research. The theory has been widely used and accepted in various settings due to its parsimony and explanatory implication (Ashraf et al., 2014). The theory provides support for communication among external variables, belief, attitudes, behavioural intention to use, and the actual behaviour (Davis et al., 1989; Legris, Ingham, & Collerette, 2003) as denoted in Figure 1.
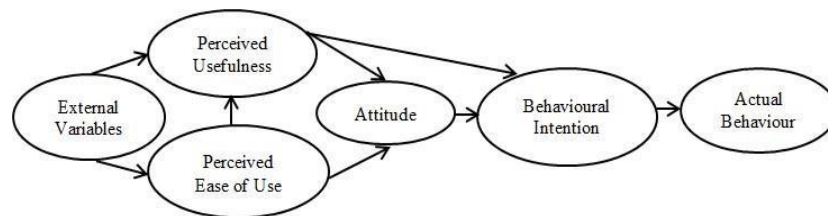
Figure 1. Technology Acceptance Model (TAM) (Source: Davis, 1989)

TAM 3 was introduced by Venkatesh and Bala (2008) to improve classification of user antecedents in the context of technology utilisation. It is known as nomological network that is capable to measure individual level of IT employment. It was originated from TAM, TAM 2, Unified Theory of Acceptance and Usage of Technology (UTAUT) and ultimately, TAM3. With the rapid growth of new and updated technology, novice learners can be assisted to acquire knowledge and appropriate skills. This model explains the importance of using technology for learning processes. Based on Figure 2, the Substitution, Augmentation, Modification and Redefinition (SAMR) Model for technology integration encourages the use of digital technologies effectively in the teaching and learning sessions (Puentedura, 2012).

It encompasses four technology integration stages which are substitution, augmentation, modification and redefinition. In the context of stages of use, SAMR Model can be categorized in enhancement which comprises the first two stages with no functional change as well as embedded with functional improvement. On the other hand, transformation is the second stage of use which highlights the process of task redesign and creation of new tasks (Al-Khalidi & Nizwa, 2021). Although this model measures the incremental of application which involves technology integration use level, it emboldens the assessment of creativity stages. In this situation, there are three phases which refers to reproduction, incrementation and reinitiation. Another essential point, the SAMR Model allows the instructors begin the integration of technology process from surface application to the in-depth application usage during their academic session.
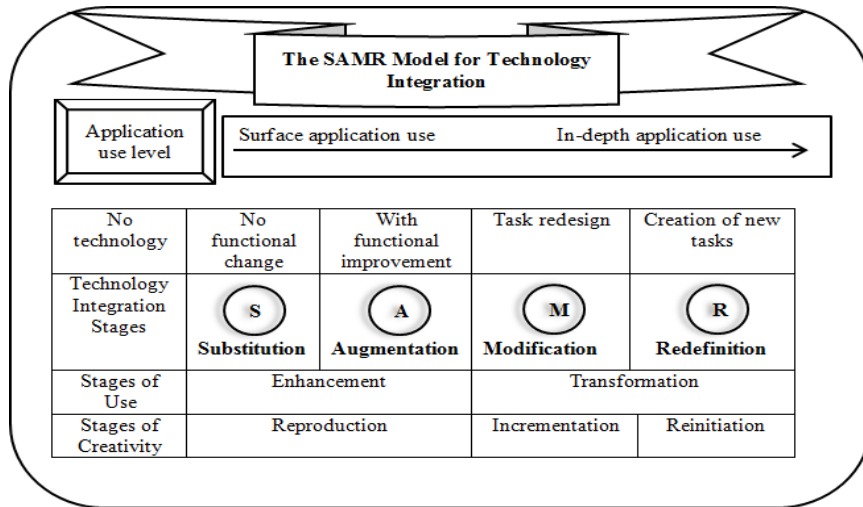
Figure 2. Technology Integration Using SAMR Model (Puentedura, 2012)

The noteworthy shifts in interactivity and multimedia tools together with myriad soaring technologies have also enabled the conception of digital storytelling (Cetin, 2021). The concept relates to developing short video which embedded with features of simplicity as well as fun movie editing. The key aspect discussed encompasses application of iMovie which is a part of Apple's iLife suited for devices such as iPhone and iPad. Based on SAMR Model, in modification stage, a task redesign requires incrementation stage of creativity which in line with iMovie app usage. In the context of pedagogical strategy, it enables the instructors' willingness to adopt short video and virtual reality systems. In order to reach in-depth application use, the influence of transformation use in technology is vital so as it plays the role to inculcate this technology mediated delivery format into the learning process, constraints to technology use and users' prior knowledge in technology (Muller & Wulf, 2021).

In addition, the transformation of technology usage encourages learners' awareness towards their current enrolled subjects, which has improved techniques in English pedagogical strategy in Vietnam. The influence of iMovie as medium of creating digital story is a process of investigating topics, selecting suitable movie scripts and storyboards as well as integrating the final product using the movie editing application or other software such as Adacity (Jannah & Trilestari, 2020). In recent time, the new generations are exposed to digital technology arena since the tremendous changes in the 21st century requirement (Youniss, Bales, Christmas, Diversi, McLaughlin, & Silbereisen, 2022). More importantly, the research of Nasongkhla & Sujiva (2022) has highlighted that technology has almost nurtured in learners' routine, altered the methodology they think, acquire information and surroundings involvement.

The pertinence of task redesign with short video and virtual reality system has established the educational practice towards the Fourth Industrial Revolution. With rapid emergence of ICT and internet of things embolden the industrial drivers to invent new technology that implies to the significant of machine-based, human resources applied satisfactory digital and data literacy (Mischke & Ohge, 2023). Moreessential, various innovations have formed an alternative to create learning surroundings that nurtures personalised learning regardless of time and geographical area. As disclosed in Education 4.0, the Bloom's model is utilised to test the abilities of students throughout the cognitive, emotional, and psychomotor domains. For

instance, the use of big data, social networks, cloud computing, and mobile technology encourages students to develop self-learning skills and highlights the significance of cognitive domains such as complexity of application, analysis, evaluation, and creation.

The adoption of innovation enables educational entities to be more flexible, available and self-manage to cope with the era of breakneck alteration. Therefore, the in-depth understanding of the Fourth Internet Revolution (IR 4.0) requirement and innovation use in the HEIs is important to ensure impressive communication and collaborative skills, specifically to achieve the aims of Education 4.0.

As important to continuous operations as student information systems, financial systems, human resource systems, and email systems, LMS have become mission-critical in higher education. Nearly all (97.5%) United States institutions of higher learning have implemented at least one LMS on their whole campus. Open-source software is within the initial classification and can be downloaded without charge by anyone. The second type, which is typically more expensive, is commercial (Mpungose & Khoza, 2022; Munyaradzi, Mildred, & David, 2022). In the context of Malaysian Polytechnic institutions, the Curriculum Information Document Online System (CIDOS) has been employed to assist educator and learners to gain meaningful information (Razali, Shahbodin, Ahmad & Nor, 2017).

It is a kind of LMS which enables users to download digital material and perform academic assessment through yielded learning objects such as online quiz, online assignment, forum, chatroom or Android game-based learning. As in any progress of knowledge, the functionality of technology use plays an imperative role to ensure learners are capable to face with challenging of appropriate learning platform selection. Since myriad technology mediated strategies introduced recently, the educational entities need to choose less technology complexity features as their pedagogical tools. In fact, technology utilisation is significantly influenced by perceived ease of use and perceived usefulness. This surroundings encompass in the context of learning system is applied to ease digital material distribution in either way of geo-graphical area and period. There are compatibility conditions of content and quantity required to be considered as achievement of blended learning (BL) mode. These included social meeting and e-material, course outline, quiz or practical task, registered learners and each learner's activity. The system of learning management needs to be used on a regular basis for learning task and deployed for future referenceand supplement class (Bradley, 2021).

Similarly, the consistency of use in adopting Web 2.0 tools needs to be improved as the new method to foster students with attractive instructional programmes (Kim & Jang, 2015; Garone *et. al.*, 2019). It is meaningful to investigate determinants of real use and encourage educational entities to be confident in LMS skills such as operating basic features, LMS functions and online learning materials (Al Masaeid, & Alzoubi, 2022; Udin, Maufur, & Riyanto, 2022). Afterward, they will then perceive LMS as a useful technology to embrace and experience reduced technological complexity as a result. Teachers must pay attention to students' choices and preferences for using the system due to high-quality use is regarded as an essential part of providing educational technology use (Aldiab *et al.*, 2019). The adoption of a good platform that includes a few Web 2.0 capabilities, such as wiki, blogs, social bookmarking tools, and media sharing tools, is therefore more appealing to students (Roy, 2023).

Methodology

This correlational study research involved 372 undergraduate students for an engineering course at five Malaysian Polytechnic institutions which has been employing the CIDOS LMS. The samples were selected from the effective users of CIDOS LMS Version 2.5 in laboratory session by using the multi-stage cluster sampling. A survey with questionnaire instrument as well as SEM AMOS was implemented for data analysis to predict technology utilisation among undergraduate learners. The technology utilisation consists of the element of consistency of use and quality of use.

As a preliminary teaching and learning medium, iMovie application is used to develop a short movie to denote important learning tools, assessment categories and distributions, academic progress as well as grading format. There are several important icons involved in iMovie application's interface such as Media Library, Record Sound, Record Video, Select Transition and Time Ruler. This short video is developed to promote interactive learning and employed as a guideline to learners all pertinent learning activities yielded in CIDOS LMS. The respondents' criterion selected in multi-stage cluster sampling is based on institutions' types whether Premier or Conventional and programmed offered in Civil, Mechanical and Electrical.

Results and Findings

The development of short video has assisted the undergraduate technical learners to understand the important icons and functionalities of learning system provided by CIDOS LMS. It covers all steps and procedures of e-assessment encompass online quiz, e-assignment, forum, chat and Android game-based learning. Statistically, the quantitative data was analysed which include descriptive values of means and standard deviation. Some surroundings have been utilised to develop short video using iMovie application which refers to background colours, graphical material, video effects and transition as well as audio selection as shown in Figure 3.
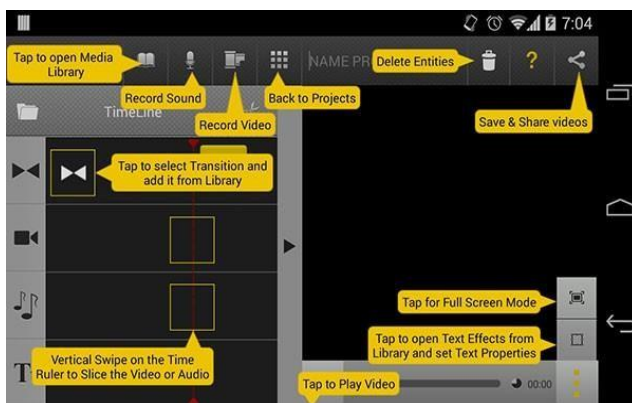
Figure 3. Interface of iMovie Application (Based on the author's interface of iPad)

On the other hand, the short movie is a well-designed, affordable cost and easy to share to Web 2.0, LMS YouTube, Facebook and Vimeo. The features also include the capability of sync ideally through iCloud or iOS devices. Both the variables of technology utilisation consist consistency of use and quality of use were interpreted. The evaluation's results showed that 84.3% of contributions were made primarily by using technology, notably by using CIDOS LMS in their academic session. The findings conceded that the brief video has aided education institutions in their exploration and use of iMovie as interactive teaching resources during academic sessions. The outcomes of the present study's review of LMS adoption indicated that 67.7% of its variance could be accounted for by factors related to the adoption of technology.

Technology utilisation is an endogenous latent construct which has two constructs which are consistency of use and quality of use. The productivity has enhanced due to CIDOS LMS adoption predictors yield 67.7% indicates the complete works without timeliness. In addition, 60.8% of the undergraduate technical learners spend one hour to log in in the CIDOS LMS and 22.6% of the respondents utilized technological devices such as desktop, laptop and smartphone. The modernization of the crucial video allows reworking of instructional transmittal, active involvement as well as contemplation of hybrid pedagogical strategies. It is synchronous with the requirements of the Fourth Industrial Revolution, which have recommended genuine actual-life competences since the rise of information and communication technology (ICT) and learning contraptions, yielding the civilization of technologically mediated instruction. The evaluation's conclusions revealed that 84.3% of technological contributions were the most significant, namely the quality of use in learning when CIDOS LMS was used. These findings have helped educational institutions look into and develop iMovie as an interactive pedagogical tool.

Conclusion

To summarise, there were three enrolled courses in CIDOS LMS per semester has conceded 26.8%, it also denoted the process of teaching and learning strategies' improvement. The findings showed Malaysian Polytechnic institutions influence the concurrent thinking as well as active participation towards hybrid learning strategy using the technology mediated platform. The advancement generates the significant usage of e-assessment which encompasses online quiz, e-assignment and many others. Furthermore, the learning management offers user-friendly interface, fast access linking page as well as easy-files retrieval from the server. In this regard, the educational platform has accommodated the method from the typical approach to blended mode using blended courses design for academic courses, specifically in technical background and hands-on essentials.

The consolidation of the SAMR model (Puentedura, 2012) and the Technology Acceptance Model (TAM) theories (Davis, e*t al.*, 1989) has been endorsed as a relevant influence towards fostering technology use among freshman engineering learners. The different level of technology adoption allows learners to be more extensible and alert to deal with the stage of breakneck changes. The alteration helps educational entities to use the application of education wisely so as they can practice effective communication. Moreover, the rising technology discovery enables the instructors to select the best technology education that suits a way to deliver knowledge and experience to their learners. Therefore, this emerging technology breakthrough in education has inspired educational entities to support

with the requirement of the Fourth Industrial Revolution.

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Co-Construction Writing Medium for Group Project Report: A Preliminary Survey of Student's Perceptions

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Abstract

Group work, such as group projects, is one of the primary forms of academic assessment in many higher education schools worldwide. Aside from individual assignments, group work like report projects has been established and considered an excellent evaluation for teamwork. Such group work requires cooperation and commitment from the entire team members. However, being geographically dispersed and needing a platform to share and support co- construction writing sometimes can deter their full potential in producing good group project reports that meet the standard requirement of a written quality report. Besides, achieving a good group project performance is only possible with an excellent collaborative supporting medium, specifically in report writing tasks. Hence, this paper investigates students' perception of the need for co-construction writing mediums as a supporting tool for their group project reports. A survey and purposive sampling involved 34 students from the Research Methodology class in a public university in Malaysia with group project report-related assessments participating in this study. The result shows that most students raised the importance of having a co- construction medium to support their writing tasks, specifically (1) in enhancing report writing,
(2) allowing bilateral communication between teacher-to-student and student-to-student for discussion, (3) feedback and comments in their group report writing. Therefore, this study's result would contribute to understanding the importance of utilising co-construction writing mediums in supporting students' group project report writing to meet the quality report standard requirement. Nevertheless, this study has limitations, which will be discussed along with the implications at the end of this paper.

Keywords: Co-construction Writing, Group Project, Report Writing, Students, Higher Education

Introduction

In universities, various assignments (e.g., individual assignments, tests, quizzes, final examinations, etc.) were performed as academic evaluations. It includes a group project like report writing, considered one of the learning forms higher education institutions deemgraduation's core requirements to be completed during studies (Bukhari et al., 2021; Burk, 2020). A study indicates that five to six reports are the highest number of students engaged with report writing tasks in a semester (Palpanadan et al., 2021). Almost equal to the number of subjects students take for each semester, which concludes that each course has a report writing task as an academic assessment. Undoubtedly, report writing assignment has become one of the crucial elements or pillars of students' educational performance evaluation (Zabidi, 2020).

Usually, working in a group involves frequent interaction and involvement from all team members to complete the shared task, which entails the team's cooperation and dedication to accomplishing it (Zabidi, 2020). However, regardless of how well the team contributes, achieving a good group project performance is only possible with an excellent collaborative supporting medium (Matthew, 2019). What is more challenging is that group work involves more than one group member's commitment, which is sometimes hard to get without the help of a collaboration medium. On top of that, being geographically dispersed and needing a platform to share and support co-construction writing deters their full potential in producing good group project reports. Accordingly, collaborative writing utility support research started attracting many of today's researchers' attention. Hence, this paper aims to identify the students'perception of the need for co-construction writing mediums as a supporting tool to do group project reports.

Literature Review

Group report writing is a task that requires several people in a group. The job requires a process and a product based on the writer's envisioning, organising drafts, edits, reading and reading feedback, revising, and writing from each team member (Sudirman et al., 2021). In line with Akpan et al. (2020), which mentioned achieving a meaningful learning outcome, a social constructivism process like collaborative form is based on students' interaction with other students and students with teachers; discussion and knowledge sharing are needed. Such interactivity leads to better group report writing performance. Lev Vygotsky (1968) denotes the importance of the Zone Proximal Development (ZPD) principle, which stresses the need for social interaction like peer and lecturer guidance and helps with cognitive development and skill base aside from individual learners. It is an activity of mediated and distributed activity that extends upon the writer's sociocultural perspectives and within a collaborative means.

Moreover, to communicate the report writing effectively, an integrated form of the cohesive writing whole is needed (Schneider et al., 2018). On the other hand, good report- writing skills can be further enhanced by integrating content and language-integrated learning among students (Kusmayadi & Suryana, 2017; Palpanadan et al., 2021). In doing so, helpers like technology-mediated writing improve students' composing processes, writing skills, and knowledge and use of new literacy (Williams & Beam, 2019).

According to Kusmayadi & Suryana (2017) and Palpanadan et al. (2021), writing skill is one of the four basic skills in English, which is used widely in various assessments, including university report writing (Palpanadan et al., 2021). It is such an essential skill that all students should possess to excel.

Despite that, many of them still need help to write effectively because of a need for support from co-construction mediums (Palpanadanet al., 2021). Not only does interactive dialogue and learning happen between student and peer, teacher, and student, but it also entailsusing a digital medium for writing development. With the advancement of technology, teaching writing to students has evolved with time and fused for better writing performance. In contrast, offering the ideal learning tool without knowing students' requirements cannot solve the matter entirely. Merely providing a sophisticated tool without meeting quality and user needs will not be sufficient. The technology must convey a high-quality mechanism and meet learners' needs or expected values (Zabidi, 2020). Undoubtedly, computer-assisted learning, like a co- construction medium, helps make the learning process more effective and meaningful among undergraduate learners in terms of developing their writing and professional skills (Meletiadou, 2021; Jawaid & Tariq, 2018; Kongsuebchart & Suppasetseree, 2018). Therefore, the following is the research question for this study.

1. What is the student's perception of co-construction writing mediums as a supporting tool to do group project reports?

Methodology

For this study, the researchers will conduct descriptive quantitative research using Google Forms as an online survey software to disseminate the questionnaire. The study population was university students, and purposive sampling was applied. A total of 34 studentsfrom the Research Methodology class in a public university in Malaysia with group project report-related assessments participated in this study. Respondents set their answers from the modal options in the interval from 1 'strongly disagree' to 5 'strongly agree'. Apart from that,an open-ended question has also been asked to the respondents to get their opinion and feedback on the importance of the co-construction writing mechanism in performing group research reports. Finally, a descriptive statistical analysis of the survey was conducted to identify the student's perception of co-construction writing mediums as a supporting tool to dogroup project reports.

Findings

The collected data was analysed accordingly to understand better the student's perception of the need for co-construction writing mediums as a supporting tool to do group project reports. Figure 1 shows that 58.8% of students strongly agree that no support from a co-construction medium will lead to difficulties in writing good report content and ensuring coherence
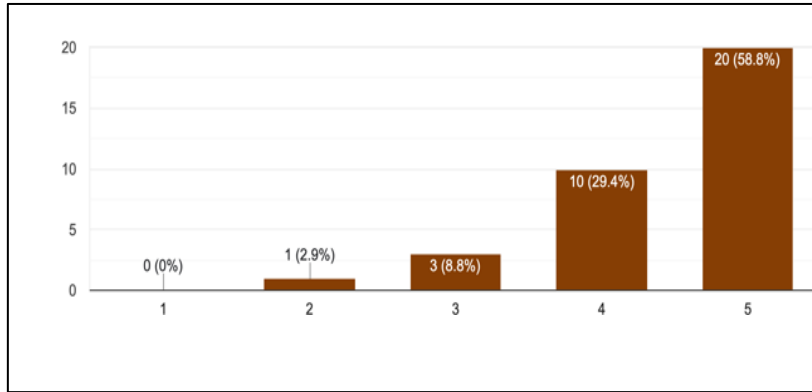
Figure 1. Students' perception that no support from a co-construction medium will lead to difficulties in writing good report content and ensuring coherence.

On the other hand, more than half of the respondents strongly agree (67.6%), and (32.4%) agree that using a co-construction medium will help improve their group report writing to meet the excellent report (refer to Figure 2).
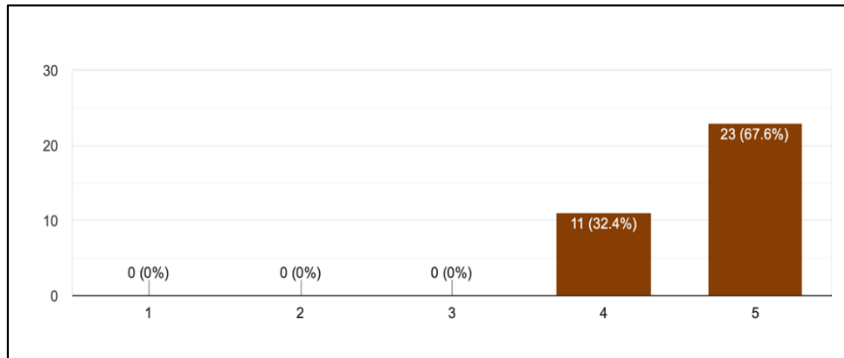
Figure 2. Students' perception of using a co-construction medium in improving their group report writing to meet the excellent report.

The result in Figure 3 indicates that 55.9% of students strongly agree that using a co-construction medium will help them understand the subject better.
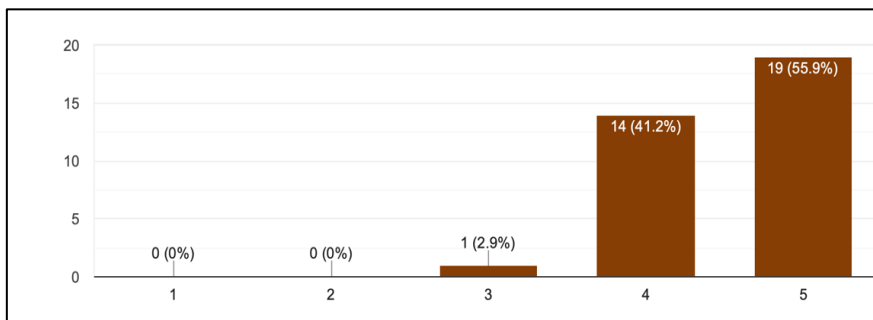
Figure 3. Students' perception that using a co-construction medium will help them to understand better the subject.

More importantly, two dominant results emerge when asking which group work functionality, they need in performing group report writing with 97.1% (refer to Figure 4). (i) Task Management (e.g., distributing group working responsibility/tasks and tracking/monitoring each team member's progress). (ii) Communication (e.g., communicating, interacting, discussing with team members about group projects and receiving feedback from lecturers to improve work). The last group work functionality students perceived as less critical would be sharing (e.g., exchanging resources and information between team members for group projects) with only 79.4%.
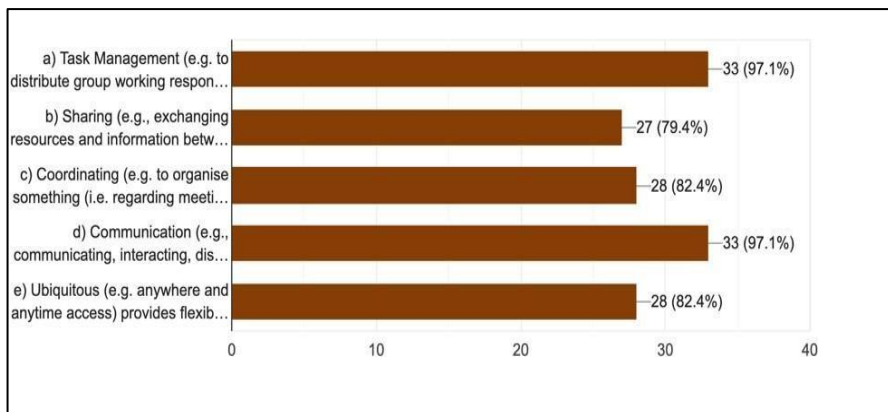
Figure 4. Result of group work functionality needed in performing group report writing.

Apart from that, when asking the students to write their opinion on the importance of having a co-construction writing mechanism in performing group research reports, almost all mentioned 'yes' (refer to Table 1 for some feedback received). Based on the data interpretation, most students perceive the co-construction medium as a necessary element in supporting their groupwork in performing the group project report writing.

Table 1
Students' voices on the importance of the co-construction writing mechanism in performinggroup research reports

I think it is essential because we can work together at the same time. We can see each other work at the same time. It is also more secure and easy to use.
Yes, because the tools allow all group members to work together, and the process is synced to help each other when facing problems.
Yes, because we are able to see other group members progress when they are doing their work instead of each individual sending a different document.
Very important because we can build teamwork and collaboration with each other to perform research group projects smoothly. It also helps others with some tasks that require a collaborative effort. We can use this opportunity to understand our teammates and decode their work styles.
Yes, because it could help in various aspects like comprehension, brainstorming, generating new ideas, etc., for the group research report writing to successfully get the great results of excellent report for our group.
Yes, because it is easier to know how the other members do their part of the report if everyone can access and edit it in real time. This will ensure no discrepancy in

the report, which can keep the report's content consistent and organized.

Discussion

Most students agreed that using the co-construction medium could support them in performing their group project report writing. Without any support from any co-construction medium, they believe it will lead to difficulties in writing a good report as there is no tool to use. Something that also supported Palpanadanet al. (2021) stated that generating good report- writing skills and writing effectively might be difficult for many students if there is a lack of support for co-construction mediums. This is because performing group writing requires a place where every team can be in one working platform. Besides, Schneider et al. (2018) mentioned that an integrated form of the cohesive writing whole is needed to communicate report writing effectively.

Such a situation can be achieved through an excellent helper like technology-mediatedwriting. In line with Williams and Beam (2019), technology-mediated writing improves students' composing processes, writing skills, and knowledge and use of new literacy. They are aligned with the results stated by students, which mentioned that task management and communication functionalities offered by technology-mediated writing would enable them to distribute group working responsibility/tasks, track/monitor each team member's progress, and assist their interaction and discussion with team members about group projects and receive feedback from lecturers to improve work. More importantly, most students voiced that using aco-construction medium was essential for supporting their group work in the group project report writing.

Limitations and Recommendations

Like others, this study also does hold limitation as follow. The study is conducted on a small sample and only in one subject; hence, the result may need to be more generalisable. Therefore, future research is suggested to carry the study on a larger scale involving more samples of students from various subjects with group project report-related assessments to getan added multifariousness result. It will also show different results when broader courses are selected. In addition, future research is recommended to use the mixed evaluation of quantitative and qualitative to obtain conclusive and in-depth findings by bringing in-depth conclusions and interpretation of students' thoughts on the need for co-construction writing mediums as a supporting tool to do group project reports. More importantly, it is also essential to examine the extent and quality of utilising the tool for collaborative writing. Specifically, further investigation should be taken as it may shed light on the effectiveness of a co-construction writing medium in supporting collaborative writing among students via students'actual group project report writing scenarios, which was the next focus of this study.

Conclusion

In conclusion, most students agreed that a co-construction medium could support them in performing their group project report writing. Not only does it enhance the report writing process to be more effective and efficient with its various

functionalities, they believe that having a co-construction medium allows them to have two-way communication between teacher-to-student and student-to-student for discussion, feedback and comments in their groupreport writing. Conclusively, this study's implication provides insight for instructors (lecturers) and educational institutions to understand the student's needs in supporting their collaborative work (i.e., group project report) by utilising a holistic medium.

Acknowledgement

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Measuring Service Learning Society Malaysia (SULAM) Implementation In Academic Courses For Continuous Quality Improvement

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Abstract

The Service Learning approach and Quadruple Helix concept are integrated into a teaching and learning framework for higher institution learning program in Malaysia called Service Learning Malaysia-University for Society (SULAM). SULAM evolved to the next level when the Ministry of Higher Education Malaysia (MoHE) upgraded the program into Community Resilience Experiential Learning (CARE). This rapid transition requires the university to quickly solve the challenges that occur in the middle of the process. This study aims to investigate the SULAM implementation performance from its beginning year until 2023 to investigate its performance pattern. Later, to suggest a Continuous Quality Improvement (CQI) strategic plan based on the performance factors to improve the implementation of SULAM and to initiate the CARE program in the university. A content analysis from previous SULAM reports in the study university had been conducted to achieve the first aim. Then, S.W.O.T analysis, focus group, and brainstorming were conducted to achieve the second aim. The results from the study show that there are increasing participation numbers in the number of academic programs and the number of students except the number of staff from 2019 until 2023. The strengths, weaknesses, opportunities, and threads have been investigated and analyzed to become guidelines in a strategic plan for better SULAM and CARE implementation in the next years. This is important to ensure the initiatives that will be implemented in SULAM and CARE activities help to achieve the university's key performance indicators (KPIs) for another consecutive two years.

Keywords: SULAM, CARE, KPI Performance, CQI, Strategic Plan

Introduction

Program Service Learning Malaysia-University for Society (SULAM) is at the core of the Minister of Education's 2019 speech, emphasizing 'Schools for the Community, Universities for Society,' with the strategy of incorporating the SULAM element into the undergraduate curriculum program (Department of Higher Education, 2019). At University Malaysia Perlis (UniMAP), the implementation of SULAM began as early as the end of 2019, involving workshops for coordinators and SULAM lecturers at each academic centre (currently faculty) of that year. SULAM initiative in UniMAP evolving into a bigger effort which is towards transforming suitable programs into Community Resilience Experiential Learning (CARE) as one of the

university's Key Performance Indicators (KPIs).

The KPIs for SULAM and CARE in the study university are to support the university's vision, mission, and core values. The related core value is engagement and community development which focuses on knowledge development through high-impact community projects and research. The involvement of staff from responsibility centres and faculties, as well as students in high-impact University Social Responsibility (USR) projects through the implementation of the SULAM program become KPI parameters. In realizing the core of engagement and community development, a strategic objective (SO) related to SULAM and CARE governance has been established i.e. sustainable social responsibility culture development (UniMAP, 2022).

Several issues were raised during the implementation of SULAM for this academic session challenges in transitioning from the e-SULAM approach to physical SULAM, student adaptation from online to physical mode, financial considerations, and information management and reporting. In addition, the challenges in implementing SULAM became bigger when SULAM practice transformed into CARE, where SULAM is only implemented within university course subjects, while CARE involves the implementation of SULAM methods in academic programs with specific criteria and models.

Objectives

This study aims to investigate the SULAM implementation performance in a UniMAP by measuring three KPIs that have been set by the university i.e. the number of academic programs, the number of students, and the number of staff from 2019 until 2023. Next, this study also aims to analyze and propose a strategic plan for Quality Continues Improvement (CQI) effort to improve the SULAM KPIs for the rest two consecutive years and will be the implementation policy to the CARE in the future as well.

Research Questions

1) To what extent has the university achieved its KPIs related to the number of academic programs, students, and staff during SULAM implementation from 2019 until 2023, and what are the key drivers of this achievement or lack thereof?
2) How can the university develop a comprehensive strategic plan for CQI to foster improved performance and growth of the SULAM KPIs for the next two consecutive years and become CARE implementation policy?

Theories

In the era of globalization and technological advancements, the need to produce university graduates who are not only academically qualified but also possess practical skills and the ability to serve the community and industry is becoming increasingly urgent. To meet this demand, SULAM has emerged as an innovative learning approach that can be integrated into the academic curriculum at the university level.

SULAM is an educational approach that combines community service with classroom instruction. It is a structured framework that integrates academic learning with meaningful, hands-on experiences in the community. The SULAM framework typically includes the following key elements (Department of Higher Education, 2019):

1. Academic Objectives: SULAM is purposefully designed to align with specific academic goals and learning objectives. It should reinforce and extend the knowledge and skills taught in the classroom.

2. Community Engagement: Students participate in structured, meaningful service activities within the community. These activities are chosen to address real community needs and issues.

3. Reflection: SULAM includes a reflective component where students have the opportunity to think critically about their service experiences. This reflection can take the form of journals, discussions, or assignments.

4. Reciprocity: SULAM emphasizes a two-way relationship between students and the community. It's not just about what students can give but also about what they can learn from the community and its needs.

5. Evaluation: SULAM programs often have a system for assessing and evaluating the effectiveness of the service and its impact on the student's learning and the community.

6. Integration: SULAM is integrated into the regular curriculum, providing students with the opportunity to apply their academic knowledge to real-world situations and gain practical skills.

7. Civic Engagement: SULAM aims to cultivate a sense of civic responsibility and active citizenship among students by engaging them in community service that addresses important social issues.

After several years of SULAM implementation and its significant impact on students' competencies, academic curriculum, and community enhancement has been reported to the Malaysia Ministry of Higher Education since then, SULAM has evolved again to become a bigger role as Community Resilience Experiential Learning (CARE) framework in education-agencies-industries-community quadruple- helix network.

CARE is the core curriculum that encourages students to learn by addressing community needs and ultimately creating positive social change through SULAM. It serves to enhance student learning, course content, and civic responsibility, and strengthen the community. In the context of Experiential Learning and Competency-Based Education Landscape (EXCEL), the community includes local people, non-profit organizations, the government, and community-based organizations, where the service provided aims to improve the quality of life for community residents, particularly those with low income, or to address specific issues related to their needs (Department of Higher Education, 2021). The foundation of the CARE Development Framework is derived from the Malaysian Higher Education Blueprint, Extension

Future-Focused Curriculum, and Framing Malaysian Higher Education 4.0 Future-proof Talent (myHE 4.0) manuals.

Methodology

Figure 1 illustrates the study methodology flow for this study.
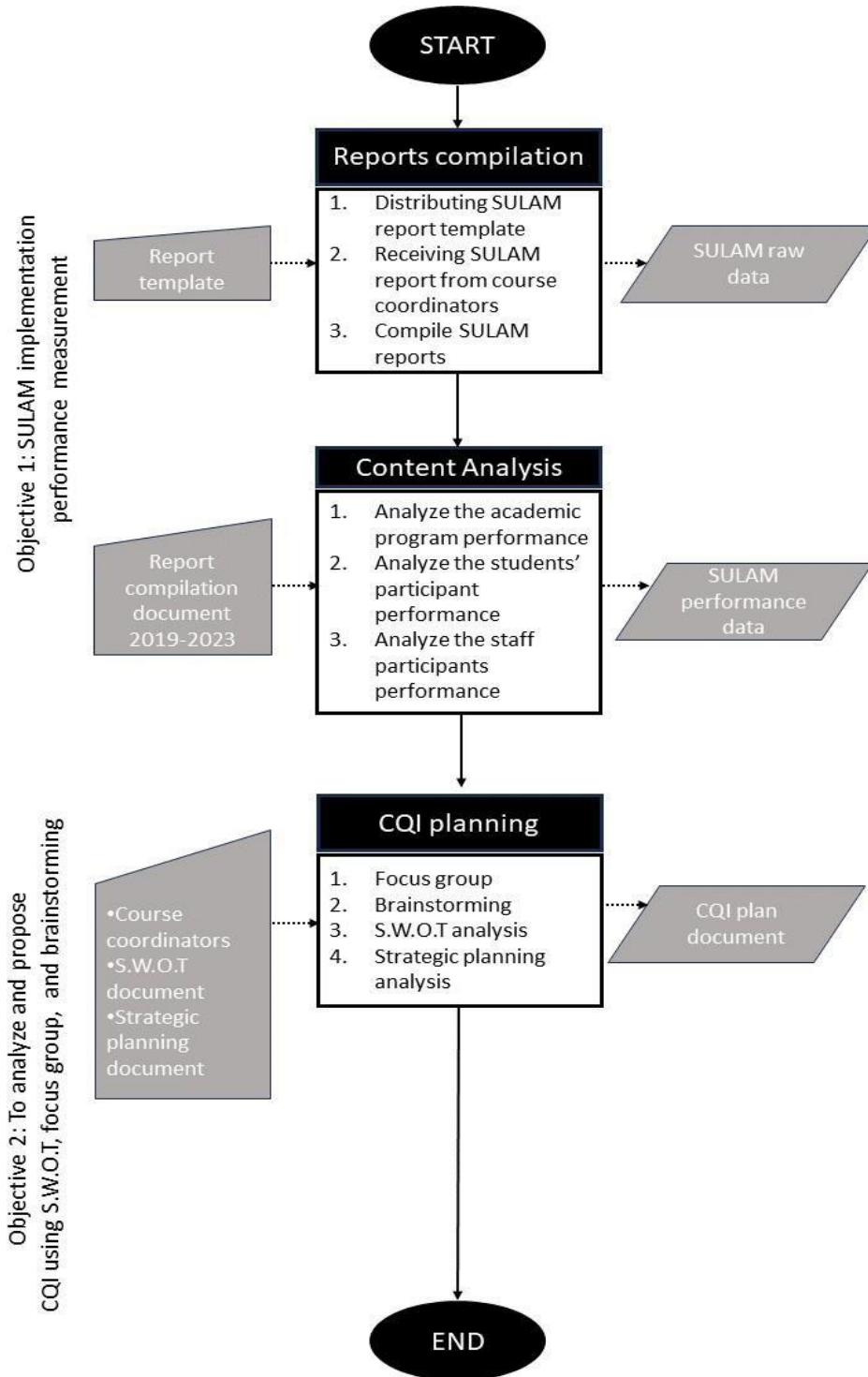
Figure 1. Study methodology flow

This study aims for two objectives. The first objective is to evaluate SULAM implementation performance from 2019-2023 in a UniMAP. To attain the first objective, the study gauged the SULAM implementation performance in a local university based on three KPIs established by the university i.e. the number of academic programs, the number of students, and the number of staff participating. Figure 1 shows the study was initiated with report compilation from 2019 to 2023. The research compiled 57 SULAM reports submitted by course coordinators during the specified period. A content analysis approach (Serafini, F., & Reid, S. F. ,2023) was employed, specifically focusing on data related to university key indicators such as the number of programs, student participation figures, and staff participation figures. The analysis aimed to produce a performance graph pattern representing trends in the targeted KPIs from 2019 to 2023.

The second objective of this study is to analyze and propose strategic planning for Quality Continuous Improvement (CQI) for future implementation. This was accomplished through focus group sessions (Morgan, D. L., 2018), brainstorming (Rawlinson, J. G., 2017), and the application of the Strengths, Weaknesses, Opportunities, Threats (S.W.O.T) method (Perera, R., 2020) as shown in Figure 1. Focus groups and brainstorming sessions were conducted over two days, involving 37 course coordinators who had been actively engaged in SULAM implementation from 2019 to 2023. The S.W.O.T analysis was utilized to identify the strengths, weaknesses, opportunities, and threats associated with SULAM implementation. The expected outcome was the production of comprehensive guidelines for proposing a strategic plan as part of a quality continuous improvement initiative for SULAM implementation in the future. This two-pronged methodology combined quantitative data analysis of past SULAM performance with qualitative methods to gather insights and propose strategic improvements.

Literature Review

SULAM is derived from the service learning method (Department of Higher Education, 2019) as an educational concept that has a long history and has evolved over time, making it challenging to attribute its introduction to a single individual or entity. However, here are some key developments and figures that have contributed to the development and popularization of service learning in education such as John Dewey. He was often considered one of the earliest proponents of experiential learning and community-based education and his educational philosophy laid the groundwork for later service learning initiatives. His ideas about learning by doing and the importance of connecting education with real-life experiences influenced the service-learning movement (Bringle, R. G., & Duffy, D. K. (Eds.)., 2023). While, Robert Sigmon, an American educator, was often credited with coining the term "service-learning" in the 1970s. He played a significant role in promoting the idea of integrating community service with academic learning, particularly at the higher education level (Sigmon, R. L., 1996).

Another figure is Andrew Furco, a scholar and advocate in the field of service learning, who has made significant contributions to its development. He has worked on defining service learning, developing assessment tools, and conducting research on the impact of service learning in education (Virginia M. Jagla, Andrew Furco, Jean R. Strait, 2015). In Malaysia, the service-learning method has been adopted and innovated by the Malaysia Department of Higher Education to embrace both curricular and co-curricular approaches to service and educational opportunities is

named Service Learning Malaysia-University for Society (SULAM) (Department of Higher Education, 2019). The words "service" and "learning" in SULAM strongly suggest a balance between learning outcomes and service outcomes that can be achieved only through an integration of each. SULAM can generally be defined as a form of experiential education in which students engage in activities that address community needs together with structured opportunities intentionally designed to promote student learning.

Service learning approach has proven to improve generic skills in students' communication such as global citizen, scholarship, adaptability and team-working by promoting through the hybrid strategy of service learning that combines both face- to-face and online delivery (Marcus, V. B., Atan, N. A., Talib, R., Latif, A. A., & Yusof, S. M., 2019; McNatt, D. B., 2019), gave positive effect on Chinese college students' transfer of learning and psychological mechanism such as transfer of learning, behavioural engagement and cognitive conflict (Wang, C., Zhang, X., & Yao, M., 2019), improved students' social and sustainability commitment and their curricular development, and had acquired skills that society increasingly demands from future business professionals (Martínez-Campillo, A., Sierra-Fernández, M. D. P., & Fernández-Santos, Y., 2019).

Service learning approach also had been through innovation processes applied together with Utrecht Work Engagement Scale for Students (UWES-S-9) and academic commitment evaluation tools (Rodríguez-Izquierdo, R. M., 2020; e-service-learning method Faulconer, E., 2021; Shek, D. T., Li, X., Yu, L., Lin, L., & Chen, Y., 2022; Dapena, A., Castro, P. M., & Ares-Pernas, A., 2022), devised into a framework to map teachers' conception of reflection onto the service-learning goal of transformative education such as transformative learning, as mindful practice, as evaluation exercise, and as articulated thinking (Camus, R. M., Ngai, G., Kwan, K. P., Yau, J. H. Y., & Chan, S., 2021 and empower cooperative teamwork into service-learning to provide insights into community service sustainability (Zainuri, A., & Huda, M., 2023). All of these previous studies applied different measurement parameters to validate the effectiveness and the impact of service-learning methods among targeted students in multiple learning environments.

Findings and Discussion

Objective 1: SULAM Performance from 2019 until 2023

Figure 2 illustrates the performance of academic program participation numbers in the SULAM program from 2019 until 2023. In 2019, the SULAM initiative commenced with the incorporation of 19 programs, indicating a robust start to its integration into academic courses. Subsequently, in 2020, a slight decrease was observed with 12 programs, suggesting potential fluctuations or adjustments in the initial stages. The year 2021 witnessed a notable decline in 4 programs, reflecting a substantial shift in implementation patterns. The COVID-19 pandemic had significant effects on the SULAM implementation in these two years. However, the trajectory shifted positively in 2022, with 8 programs, indicating a resurgence and adaptability in the SULAM framework. Notably, in 2023, there was a significant rebound to 12 programs, showcasing an upward trend and a renewed commitment to the SULAM initiative. These results highlight the dynamic nature of SULAM implementation, indicating periods of adjustment and growth, ultimately culminating in an expanded and diversified set of academic programs over the observed period.
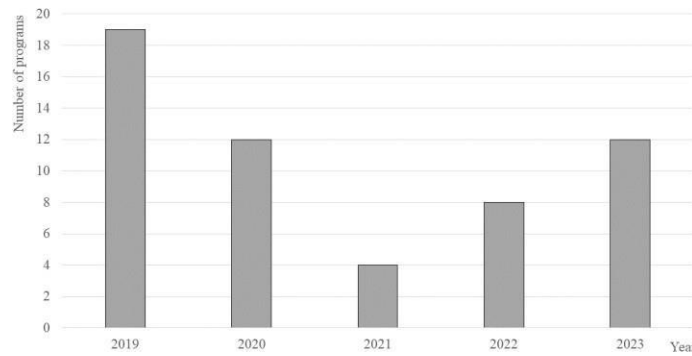
Figure 2. Number of academic programs participated in the SULAM program from 2019 until 2023.

Figure 3 illustrates the performance of students' participation numbers in the SULAM program from 2019 until 2023. In 2019 and 2020, there was a consistent engagement of 766 students each year, suggesting a stable and established participation level. However, a significant surge was observed in 2021, with 1235 students actively involved in the SULAM initiative. This spike indicates a noteworthy increase in student participation, due to e-SULAM implementation and influenced by heightened awareness or program enhancements. Subsequently, in 2022, the number of participating students decreased to 256, reflecting the changing of e-SULAM into hybrid and physical practice impact this year such as the ability to manage big group students in community fieldwork, the ability of the students to be involved in physical project implementation, the nature of project given and financial issue. Notably, in 2023, there was a significant rebound to 12 programs, showcasing an upward trend and a renewed commitment to the SULAM initiative. These results highlight the dynamic nature of SULAM implementation, indicating periods of adjustment and growth, ultimately culminating in an expanded and diversified set of academic programs over the observed period.
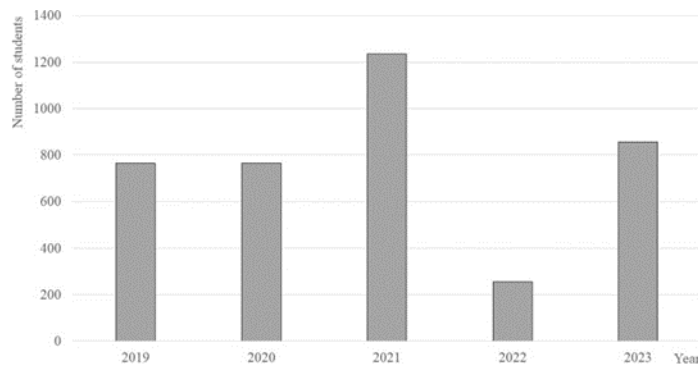
Figure 3. Number of students participated in the SULAM program from 2019 until 2023

Figure 4 illustrates the performance of staff participation numbers in the SULAM program from 2019 until 2023. The study's results illuminate the SULAM implementation performance in a local university across the years 2019 to 2023, with a specific focus on the critical performance parameter of the number of participating staff members. In 2019 and 2020, a consistent engagement of 24 staff members each year indicated a stable and established level of participation. However, a substantial increase was noted in 2021, with 63 staff actively involved in the SULAM initiative. This notable

surge suggests a heightened enthusiasm among staff, potentially influenced by increased awareness or expanded program opportunities. In 2022, the number of participating staff slightly decreased to 61, reflecting similar reasons to students' participation. Notably, in 2023, there was a further decrease to 48 staff members, indicating a nuanced trend in staff participation over the observed period. The declining staff involvement this year is due to the replacement of lecturers for SULAM courses and lecturers' responsible restructuring. These findings highlight the dynamic nature of staff involvement in SULAM activities, showcasing both stability and fluctuations and providing valuable insights into the evolving landscape of SULAM implementation.
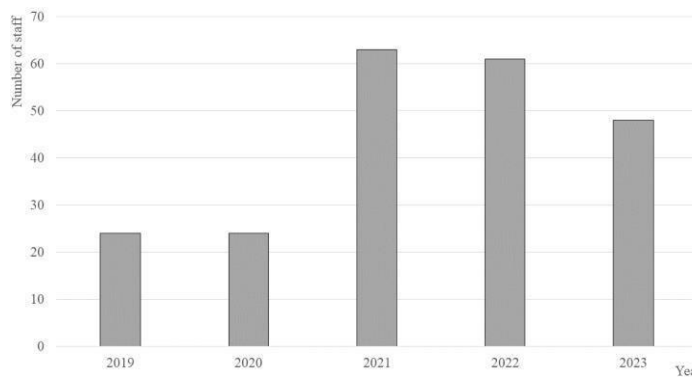
Figure 4. Number of staff participated in the SULAM program from 2019 until 2023.

Objective 2: Strategic Planning for CQI

Figure 5 shows the S.W.O.T analysis results to explain the SULAM performance from 2019 until 2023. The S.W.O.T. analysis reveals a comprehensive understanding of the current state and potential challenges of the initiative. In terms of strengths (A), the project benefits from a wealth of expertise across various fields, bolstered by a well-established external industrial network. The proximity to numerous SMEs in Perlis enhances community engagement, with several courses enjoying community and industry endorsements. Additionally, students' proficiency in product development processes stands out as a notable strength.

However, the initiative grapples with certain weaknesses (B), including the limited availability of local high-tech material suppliers in Perlis. Uneven internet coverage poses an obstacle, impeding seamless project coordination. The constraint of limited budget and resources, coupled with varying levels of student competence, further challenges the initiative. Facility and funding limitations add to the list of constraints.

The analysis identifies opportunities (C) that align with Perlis' 'Go Digital 2025' agenda, presenting a supportive environment for the initiative. The CARE program emerges as a valuable platform, offering avenues for securing funding and marketing opportunities through industry networks. There is a potential for enhancing student employability and fostering industrial commercialization. Additionally, the initiative provides a unique avenue for students to learn and master new technology.

However, the initiative is not without its share of threats (D). The low socio-economic levels in the region pose a challenge, hindering the widespread adoption of technology. Difficulty in marketing new products, obtaining necessary certifications, and navigating unclear and complicated policies adds complexity to the project. Furthermore, the initiative faces competition from short-term courses offered by external agencies, which may divert attention and resources. Recognizing these factors enables a strategic approach to leveraging strengths, addressing weaknesses, capitalizing on opportunities, and mitigating potential threats for the sustained success of the initiative.

A: Strengths
- Sufficient expertise in various fields.
- Well-established external industrial network.
- Abundance of SMEs in Perlis.
- Several courses endorsed by the community/industry.
- Students possess skills in product development processes.

B: Weaknesses
- Limited availability of high-tech material suppliers in Perlis (local).
- Inadequate and uneven internet coverage in Perlis.
- Limited budget/resources.
- Varying levels of student competence.
- Facility and funding limitations.

C: Opportunities
- Supportive of and aligned with Perlis' 'Go Digital 2025' agenda.
- CARE provides a platform to secure funding and marketing opportunities through industry networks throughout the program.
- Enhancement of student employability and industrial commercialization.
- Learning and mastering new technologies.

D: Threats
- Low socio-economic levels.
- Challenges in technology adoption for the majority of the population.
- Difficulty marketing new products.
- Difficulty obtaining certifications (halal, SIRIM, HACCP, GMP, MESTI, etc.) for new products.
- Unclear and complicated policies.
- Competition with short-term courses offered by external agencies.

Figure 5. S.W.O.T analysis results

Finally, Table 1 illustrates the SULAM and CARE strategic planning for the next two years based on 2019-2023 SULAM performance results, focus groups, brainstorming and S.W.O.T analysis. This proposed strategic planning was also developed according to the university mission, vision, and value cores that had been set up. The strategic plan for continuous quality improvement is meticulously crafted to achieve a set of well-defined objectives, drive impactful outcomes, and extend the initiative's reach across diverse realms. The objectives encompass the production of students equipped with effective communication skills, creativity, innovation, and a keen entrepreneurial edge. Additionally, the plan aims to cultivate expertise in building industrial and community networks, instill proficiency in implementing processes for product design, and foster the capability to produce models and prototypes. Demonstrating skills in commercializing products and safeguarding intellectual property stands as a cornerstone of the initiative. The main indicators include a comprehensive evaluation of communication skills through oral presentations, interactions with external parties, and proficient proposal writing. Assessing creativity, innovation, and entrepreneurship involves the generation of new ideas or products, accompanied by the formulation of viable business models. Tangible outcomes, such as Letters of Intent (LOI), Memoranda of Understanding (MOU), Memoranda of Agreement (MOA), rubrics, and both tangible and intangible products, serve as markers of success. The initiative casts its influence on a diverse array of target groups, spanning SMEs, schools, agro-chemical industries, farmers,

research and development institutes, and manufacturers across Perlis, Kedah, Pulau Pinang, and Perak.

To execute this strategic plan, a multi-faceted approach is adopted, involving collaboration with target groups, digital marketing, in-person engagements through visits, meetings, and discussions, practical training programs, studio activities, consultation invitations, and leveraging the extensive reach of social media platforms. The meticulously outlined activities include community engagement initiatives, interviews, surveys, observations, group and individual projects, presentations, year-end project exhibitions, marketing videos covering Perlis, collaborative activities with schools, exhibitions, and consultations with the Intellectual Property Corporation of Malaysia (MyIPO). This holistic strategic plan reflects a commitment to continuous quality improvement, ensuring that the initiative not only meets but exceeds its objectives, fostering a dynamic and innovative learning environment.

Table 1
Strategic plan analysis results

OBJECTIVES	• Produce students with effective communication skills, creativity, innovation, and competitive entrepreneurial values. • Develop the ability to build industrial and community networks. • Acquire skills in implementing processes and techniques in product design. • Possess the ability to produce models and prototypes. • Demonstrate skills in commercializing products and intellectual property.
MAIN INDICATORS	• Communication skills – oral presentations, interaction with external parties, proposal writing (verbal & written). • Creativity, innovation, and entrepreneurship – generating new ideas/products or adding value. Ability to formulate a business model for generated ideas/products. • LOI/MOU/MOA • Rubric, tangible and intangible product • Copyright/Patent/Industrial Design
TARGET GROUPS	• SMEs, Schools, Agro-chemical industries, Farmers, Research and Development Institutes, Manufacturer
TARGET LOCATIONS	• Perlis, Kedah, Pulai Pinang, Perak
STRATEGIC APPROACHES	• Collaboration with target groups • Digital marketing • Visits, meetings, and discussions • Practical Training Program, Practical Activities • Studio Activities, Consultation Invitations • Social Media

ACTIVITIES	- Community engagement activities – talks, USR (University Social Responsibility), CSR (Corporate Social Responsibility), entrepreneurship day, exhibitions/booth sales, online sales, etc. - Interviews, surveys, observations - Group and individual projects, presentations, year-end project exhibitions - Marketing videos covering the entire Perlis, activities with schools, exhibitions, Tik Tok, MyIPO (Intellectual Property Corporation of Malaysia) consultations.

Conclusion

This study commenced by evaluating the SULAM implementation performance in a local university over the period 2019-2023, focusing on Key Performance Indicators (KPIs) such as the number of academic programmes, student participation, and staff involvement. Through an extensive content analysis of 57 SULAM reports, the study illuminated trends and patterns in these key indicators. Furthermore, the research advanced to its second objective, aiming to enhance SULAM KPIs for the subsequent two years. Through the application of qualitative methodologies, including focus group sessions, brainstorming, and the S.W.O.T. analysis, the study engaged 37 course coordinators actively involved in SULAM implementation. The outcomes produced comprehensive guidelines for a strategic plan, facilitating Quality Continuous Improvement (CQI) as part of the future SULAM implementation. The results revealed notable improvements in the numbers of academic programs, and students' participation, except a slight decrease in staff engagement, showcasing the positive influence of SULAM implementation. The strategic plan developed collaboratively through community research initiatives, offers a roadmap for sustained enhancement in the upcoming years. Looking ahead, the study recommends a continued commitment to the Sustainable Development Goals (SDGs) initiatives. By aligning future SULAM activities with these global goals, there is a significant opportunity to contribute to broader societal impact and community development. In essence, this research not only assessed the current state of SULAM implementation but also laid the foundation for a strategic, community-driven approach to continuous quality improvement, fostering a symbiotic relationship between academia and society.

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Service Learning in Higher Education: Experience Sharing of Pilot Kedah

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Abstract

The term 'SULAM' refers to 'Service Learning Malaysia – University for Society' and is an initiative under the Malaysia Education Blueprint 2015-2025 (Higher Education). SULAM is a High Impact Educational Practices (HIEPs) that is credit-bearing and implemented through experiential learning involving students, guided by faculty to solve community problems by applying knowledge and skills from their academic disciplines. This paper discusses SULAM projects that have been carried out for the course of Environment Administration (GMJT3113) group A for the Development Management Program in Universiti Utara Malaysia (UUM) in Semester A221. The projects were conducted together with the community in district of Yan, Kedah. At the end of this paper, the challenges faced during the SULAM projects and the steps taken are also discussed.

Keywords: SULAM, HIEPS, Community Service

Introduction

Objective of SULAM (Service-Learning – University for Society) is to enhance student learning by integrating theory with practice in real-world settings (Maharam et. Al 2019). The program aims to achieve the following objective: Integration of theory and practice: SULAM seeks to bridge the gap between classroom learning and real-world application by providing students with opportunities to apply the knowledge and skills they have acquired in their classes to develop practical solutions for community problems; soft-skills and civic-engagement: SULAM aims to enhance students' soft skills such as communication, teamwork and problem-solving through engagement in community service projects; meeting community needs through volunteerism: SULAM utilizes students' expertise to address the needs of the community through volunteer activities, by leveraging their knowledge and skills, students contribute to the betterment of the community while gaining valuable real-work experience; creating a collaborative environment: SULAM fosters a collaborative environment between students, lecturers and the community. It encourages active collaboration among these stakeholders to promote effective problem-solving and community

development; providing opportunities for external contributions: SULAM offers opportunities for agencies, corporate organizations and NGOs to contribute with the community through Corporate Social Responsibility (CSR), this collaboration between university and external entities promotes long-terms benefits and positive social impacts (Eyler 1999: KPT 2022).

The advantage of SULAM include; practical application of knowledge: students may apply the knowledge and skills they have acquired in their classes to develop practical solutions to community problems; collaboration with local government agencies: SULAM enables students to collaborate with local government agencies to plan and implement service-learning projects. By working together, students and agencies may address community issues more effectively.

The benefits of SULAM encompass; collaboration with the community: SULAM utilizes the expertise of the university to improve the quality of life in the community, by addressing community needs, SULAM creates a positives impact on the local populations; integration of curriculum and real-world experiences: SULAM aligns the curriculum with real-world experiences, providing students with a comprehensive learning environment that combines academic knowledge with practical application; improvement of knowledge and soft-skill: SULAM enhances students' knowledge, skills and competencies in their respective disciplines and also develop soft skills which are highly valued in professional world.

This article focuses on the practice and implementation of Service-Learning in public universities in Malaysia, Universiti Utara Malaysia. It explores various aspects including methods of implementation, evaluation and documentation. The primary objective is to summarize the positive impacts of Service-Learning from the practice of the practitioners and highlight the relationship between these impacts.

SULAM at Yan, Kedah.
SULAM (Service-Learning – University for Society) is a pedagogical approach that integrates community service with academic learning. In recent years, this approach has gained popularity in higher education institutions as a mean to engaged students in real-world problem-solving and foster civic responsibility. The pilot projects at Yan, Kedah serve as an excellent example of service learning in action. Through these projects, students are given the opportunity to apply their knowledge and skills to address social issues in the local community. These projects also tackled a range of community issues such as access to clean water, waste management, air quality and education among students in primary and secondary school and locals' community. In this article, we will explore the experiences and insights gained from these pilot projects and highlight the benefits of incorporating service learning into higher education curriculums.

One of the key advantages of SULAM in higher education is that it enhances students' critical thinking and problem-solving skills. By engaging in real-world problem-solving, students learn how to apply their academic knowledge in practical situations and develop more nuanced understanding of complex social issues. In addition, SULAM provides students with opportunities to develop important soft skills, in example teamwork, communication and leadership.

The SULAM project in this course of Environment Administration (GMJT3113) group A involves four groups. Their targets are to share knowledge about environmental awareness to the community consist of students in primary and secondary school and also locals' public.

Table 1: Group and activity of SULAM projects in Semester A221.

Group	Group Name and Place	Place	Activity
1	Save Water, Save Nature	Sekolah Kebangsaan Sungai Limau, Yan, Kedah.	Water saving awareness among primary school.
2	Reduce, Reuse, Recycle (3R)	Sekolah Kebangsaan Ulu Sedaka, Yan, Kedah.	Reduce, reuse, recycle on solid waste for domestic use among primary school.
3	Keep The Air Clean – Lets Breath Easy	Sekolah Menengah Kebangsaan Dulang, Yan, Kedah.	Understanding of air pollution's sources and consequences on the environment and human health among secondary school.
4	Let's Sustain Our Green Community	Pantai Murni, Yan, Kedah.	Environmental preservation and conservation in their daily life among Pantai Murni communities.

First group (Figure 1) of Environment Administration (GMJT3113) group A class completed SULAM project by focused on knowledge sharing with primary school standard five and six at Sekolah Kebangsaan Sungai Limau, Yan about the importance of clean water in their daily lives, helping them to know how to prevent contaminated water from entering their drinking supplies, and educating them about the risks of infectious diseases brought on by contaminated water. The program name "Save Water, Save Nature" aids and broadens pupils' perspectives on environmental issues, particularly the value of conserving and using water. The programmed also incorporates group activities training so that the students can devote time and attention to the sharing of knowledge that has been accomplished as well as to raise awareness among the students about the importance of maintaining the cleanliness of the environment, particularly the water supply, and applying it in the future.

While, second group (Figure 2) accomplished their SULAM project by introduce the value of environmental education and embedded the responsibility of environmental preservation and conservation to the primary students standard one and two at Sekolah Kebangsaan Ulu Sedaka, Yan. In addition, this group program name "Reduce, Reuse, Recycle (3R)" also sharing the knowledge about waste management, focusing on reduce, reuse, recycle on solid waste for domestic use. The 3R project aims to foster students' awareness and sensitivity to environmental hygiene and the impacts that will occur if they do not take care of the environment. The activities include icebreaking, informal explanations of the 3R, the use of recycled materials, as well as tests and reflections. All of the activities are advantageous and educate pupils on the components of recycling as well as the significance of it in daily life to decrease environmental pollution.

Third group (Figure 3) finished their SULAM project by explain to the secondary school form one and two Sekolah Menengah Kebangsaan Dulang, Yan about air pollution and embedded the roles and responsibility related to the air pollution issues. The program name "Lets Breath Easy" aims to gauge pupils' understanding of air pollution's sources and consequences on the environment and human health.

The curriculum also places a strong emphasis on the actions that pupils should take to lessen the problem of air pollution. The activities in this program includes of informal discussions on air pollution. Other activities are silent action, silent action is an activity where one pupil has to play a given character and the other pupils have to guess the character. The character given is related to air pollution. While 'roken' activity is an activity that required pupils to learn about the effects of air pollution on human health by inserting a cigarette into a bottle that has been punched one small hole, the cotton resembles an impurity-free human lung but become dark-mark because of the cigarette.

The fourth group (Figure 4) done their SULAM project involving the Pantai Murni community in Yan, Kedah. This programs name "Let's Sustain Our Green Community" aims to introduce participants to environmental preservation and conservation in their daily life. The program targeting the Pantai Murni Beach

community, which has had early exposure to environmental awareness and preservation. The group member will take on the effective disclosures and details so that all the involved Pantai Murni communities can cultivate knowledge of their surroundings. The activities have been done in these programs are '*gotong-royong*' to remove trash from the Murni Beach by the group member. Other activities are cleaning the pedestrian area of Pantai Murni and having a friendly conversation with the janitors around the beach area. Survey to several communities present in coastal areas, on the importance of conservation and environmental preservation in their daily lives and provide exposure on sustainable development goals (SDGs) also been done in this programes.

In conclusion, SULAM is a powerful pedagogical approach that has the potential to transform higher education. The pilots' projects of SULAM at Yan, Kedah demonstrate the many advantages of incorporating SULAM into higher education curriculums, including enhanced critical thinking and problem-solving skills, the development of important soft-skills and increased civic responsibility and community engagement among adult students. As such, SULAM should be considered as essential component of higher education in the 21st century.

Figure 1: Group 1 activity
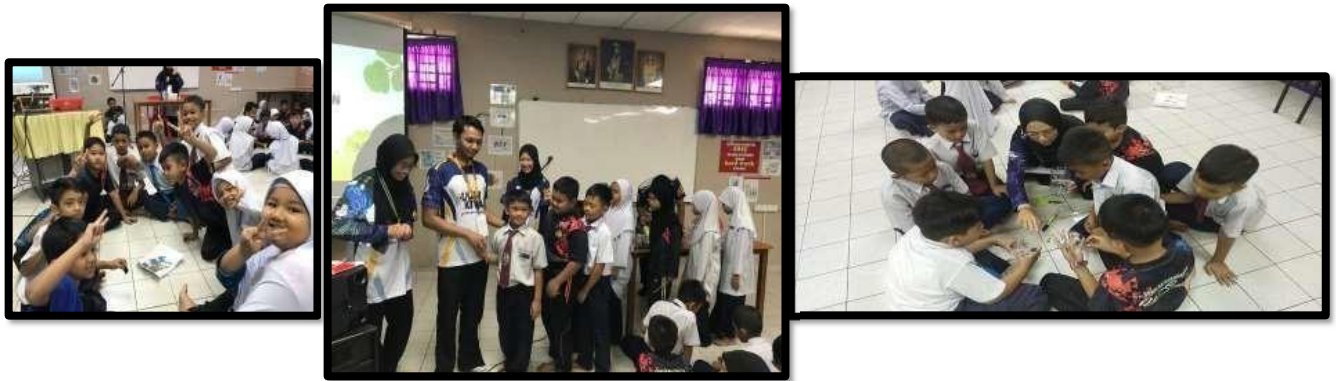
Figure 2: Group 2 activity

Figure 3: Group 3 activity

Figure 4: Group 4 activity

Conclusion

To wrap up, four different groups of Environment Administration (GMJT3113) group A class has successfully completed their SULAM projects, each focusing on different environmental issues and target groups. All the activities would support undergraduates and universities in their pursuit of becoming renowned centers of excellence, enabling them to foster the development of exceptional graduates and responsible citizens.

In addition, SULAM is a powerful pedagogical approach that has the potential to transform higher education to a better move. The pilot projects of SULAM at Yan, Kedah have demonstrated numerous advantages include enhanced critical thinking and problem-solving skills, the development of important soft skills and increased civic responsibility and community engagement among adults' students (Maznah et. al 2018).

By implementing SULAM, higher education institutions can provide a more holistic and effective learning experience for students. The emphasis on critical thinking and problem-solving equips students with the necessary skills to navigate complex challenges in their academic and professional lives. The development of soft skills such as communication, collaboration and adaptability further enhances students' overall competence and prepares them for success in various contexts.

Moreover, SULAM encourages civic responsibility and community engagement among adults' students. By integrating real-world issues and projects into the curriculum, students are not only exposed to practical applications of their learning but also actively contribute to their communities. This fosters a sense of social responsibility and instills values of active citizenship.

Finally, considering these benefits, SULAM should be regarded as an essential component of higher education in the 21st century. It offers a comprehensive approach to education that goes beyond traditional lecture-based instruction, enabling students to develop a broad range of skills and qualities necessary for success in a rapidly evolving world. By embracing SULAM, higher education institutions can better prepare students for the challenges and opportunities they will encounter in their academic, professional and civic lives.

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Desaku Lestari: Impact on Student Development and Community in Yan, Kedah

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Abstract

The "Desaku Lestari" project is a holistic High-Impact Educational Practices (HIEPs) project that designed to test the impact on student development and bring about meaningful engagement within the community in Mukim Singkir Darat, Yan, and Kedah. Although the HIEPs term has been gradually gaining attention in the higher education institutions, it is still way to develop and implement innovative practices that promotes student development is still need a medium to be explored. To realize these objectives, a quantitative and qualitative research approach was employed, involving accessing the student's assessment that was design based on Chickering Theory. These four month projects are centered on a sample group of 20 students enrolled in GMGA1013 Introduction to Public Administration Semester A222 at UUM, specifically participating in the SULAM Project. The outcomes of this endeavour have been significant, manifesting in meaningful student development engagement among learners and they gain extra engagement with the community members and a more positive communal stance on environmental preservation. These findings underscore the value of student development, emphasizing their vital role in advancing the broader objectives of sustainable development and community well- being. In essence, the "Desaku Lestari" initiative serves as a model for positive and lasting change in these regions.

Keywords: Desaku Lestari, SULAM Project, Learners, Student Development, Environmental Sustainability, Chickering

Introduction

Service Learning Malaysia-University for Society (SULAM) constitutes one of the integral components within the framework of High-Impact Educational Practices (HIEPs), which has been accorded significant attention by the Ministry of Higher Education Malaysia. High-Impact Educational Practices (HIEPs) have been observed to stimulate a heightened level of student involvement, leading to enhanced learning outcomes (Rosna Awang- Hashim & Mohammad Noman, 2023, p. 1). Kuh (2008) stated that in order to enhance student engagement, "make it possible for every student to participate in at least two high impact activities during his or her undergraduate program, one in the first year and the one taken later concerning the major field,". This entails Higher Education Institutions (IPT) integrating HIEPs that encompass experiential learning. Notably, service and community-based learning stand out as key facets of HIEPs.

Although the HIEPs term has been gradually gaining attention in the higher education institutions, it is still way to develop and implement innovative practices that

promotes student development is still need a medium to be explored.

Desaku Lestari with the overarching goal of enhancing societal well-being is a community- based service project that involved 20 students from GMGA1013 Introduction to Public Administration for Semester A222 as part of their Research-Based SULAM. This one month project being conducted in Mukim Singkir Darat, Yan get the main collaboration with the community with the help from the committee of Masjid Masjidul' Ula, Singkir Darat, Singkir, led by En. Mohd Radzif Bin Ismail.

The initial idea of Desaku Lestari inspire by the village transformation project done at Kampung Warna Warni, Seberang Ramai, Kuala Perlis. Through first visit at Mukim Singkir Darat, students found that the main entrance to the village is dull and neglected. Adopting the idea in Kampung Warna Warni, Desaku Lestari embark the journey conducted by group of students lead by Nur Iffah Kamilia to transform the main entrance to better and among the initiatives that will be undertaken are aimed at improving the well-being of rural residents. The group of student work hard to strengthen the connection between learners and the local community while advocating for environmental sustainability and beautify the village. They implement a 'quadruple helix' within SULAM's project that lead to fostering collaboration among higher education institutions (Universiti Utara Malaysia), government bodies (Majlis Daerah Yan), local communities (Mukim Singkir Darat), and industry stakeholders (MR. DIY) to provide meaningful engagement within the actors. As the projects mainly involve painting and decorating the entrance, the students use the recyclable items such as tyre and paint them with the appliances sponsored by MR.DIY.

Objectives

These research objectives are:
To implement the Chickering Theory of Student Development to research-based SULAM activity.

Research Questions

These research questions are:
How to implement the Chickering Theory of Student Development to research-based SULAM activity.

Literature Review and Theory

The initial Chickering Theory of Student Development consists of Seven Principles, with a distinction between the principles of Developing Purpose and Developing Integrity. This theory was formulated by Arthur W. Chickering, an American psychologist and educator, in his 1969 book titled "Education and Identity" (Chickering, 1969). Later, in 1993, Chickering collaborated with Linda Reisser to further refine the theory (Chickering and Reisser, 1993).

This theory has exerted a significant influence in the realm of higher education and student development. It offers a framework for comprehending and fostering the psychosocial growth of college students as they navigate the transition from adolescence to adulthood throughout their higher education journey. The original theory encompasses seven principles, and it's important to note that these principles need not follow a strict sequence, as students may simultaneously engage with multiple

principles. These principles include (1) Cultivating competence, (2) Effectively managing emotions, (3) Progressing from autonomy towards interdependence, (4) Nurturing mature interpersonal relationships, (5) Establishing one's identity, (6) Cultivating a sense of purpose, and (7) Fostering integrity. Moreover, the theory recognizes that individuals advance through these principles at varying rates and may encounter challenges or setbacks along their path of development. Based on the theory, the students later being assessed based on the how they write-up their proposal, conduct the project, provide report from the project and lastly provide reflection based on what they had been learn throughout the activity.

Figure 1:

Conceptual Framework
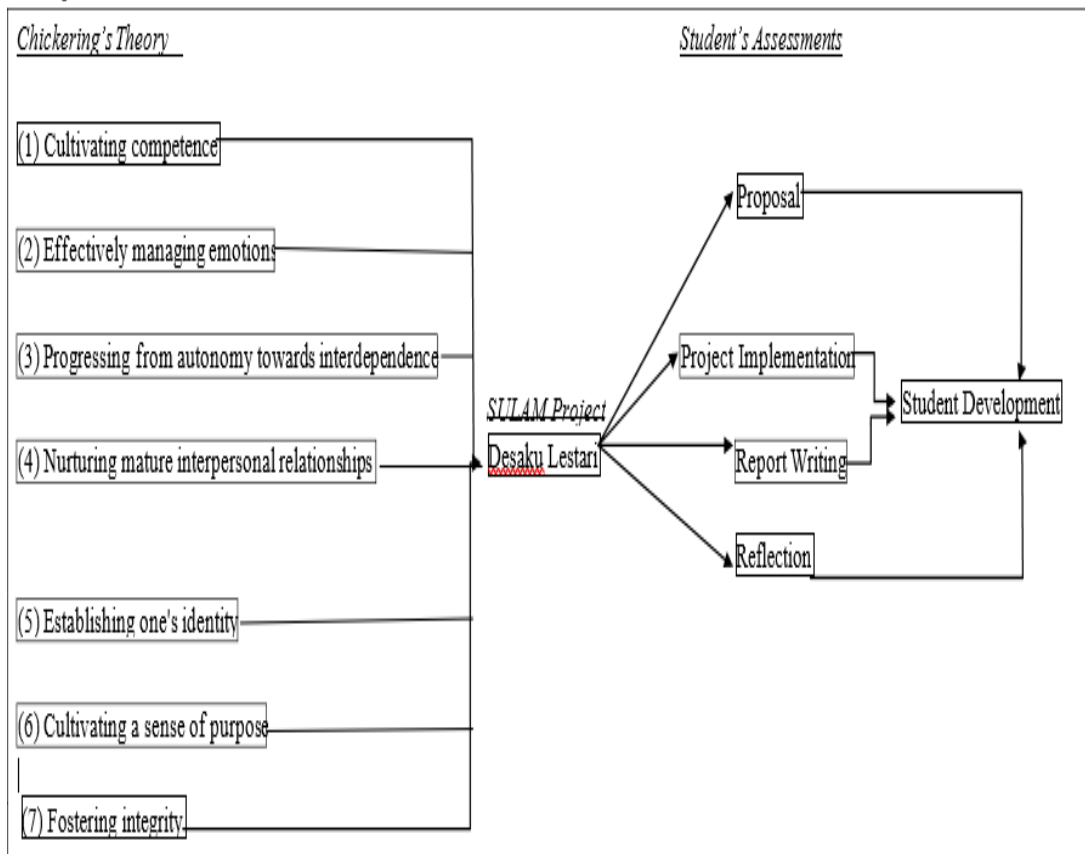
Methodology

This research employs quantitative and qualitative research approach to achieve the objective. Quantitative research involving accessing the student's assessment includes the proposal, project implementation, report writing and reflection. The data is used to relate with the Chickering Theory.

The qualitative research is used during project implementation by qualitative observation. The way the student conducts the activity is being assessed. These four month projects are centered on a sample group of 20 students enrolled in GMGA1013 Introduction to Public Administration Semester A222 at UUM, specifically participating in the SULAM Project.

Scoring below remark the indicator given for each of the component under Chickering Theory that being assessed in student assessment: -

Figure 2: Scoring Indicator

Student's Development Element	Task	Ratings	Range of Marks
(1) Cultivating competence	Proposal (10 Marks)	Very Satisfactory Satisfactory	5-10 marks 0-4 marks
(2) Effectively managing emotions	Project Implementation (20 Marks)	Very Satisfactory Satisfactory	10-20 marks 0-9 marks
(3) Progressing from autonomy towards interdependence			
(4) Nurturing mature interpersonal relationships			
(5) Establishing one's identity	Reflection (10 Marks)	Very Satisfactory Satisfactory	5-10 marks 0-4 marks
(6) Fostering integrity			
(7) Cultivating a sense of purpose	Report Writing (10 Marks)	Very Satisfactory Satisfactory	5-10 marks 0-4 marks

Findings

Figure 3 : Result

Student's Development Element	Task	Ratings	Range of Marks	Number of students
(1) Cultivating competence	Proposal (10 Marks)	Very Satisfactory Satisfactory	5-10 marks 0-4 marks	20 Students
(2) Effectively managing emotions	Project Implementation (20 Marks)	Very Satisfactory Satisfactory	10-20 marks 0-9 marks	13 Student 7 Students
(3) Progressing from autonomy towards interdependence				

(4) Nurturing mature interpersonal relationships				
(5) Establishing one's identity	Reflection (10 Marks)	Very Satisfactory Satisfactory	5-10 marks 0-4 marks	15 Students 5 Students
(6) Fostering integrity				
(7) Cultivating a sense of purpose	Report Writing (10 Marks)	Very Satisfactory Satisfactory	5-10 marks 0-4 marks	17 Students 3 Students

Discussion

These seven concepts can also be related to student development in Desaku Lestari project.

Cultivating Competence: This element is being assessed through the proposal. Based on Figure 3, it can be seen that the entire student is able to cultivate competence and their proposal writing is perfect. In education, cultivating competence refers to the development of students' academic and practical skills. This includes not only subject-specific knowledge but also critical thinking, problem-solving, and communication skills. Students should acquire the competence to excel academically and apply their knowledge to real-world situations. Desaku Lestari urge the student to practice their subject- learned in class with the real-world practise of solving the community problems.

As project implementation carries the highest contributor to the assessment mark, there are three elements that being located under this project.

Effectively Managing Emotions: Emotional intelligence is a crucial aspect of student development. Students need to learn how to manage their emotions to handle the stresses of coursework, exams, and social interactions. Effective emotion management can lead to improved mental health and overall well-being among students. Desaku Lestari project assess the student based on the student's assessment that require them to manage their emotions. Students to the social interactions with the lecturer, the community and also the industries that teach them in term of soft skills.

Progressing from Autonomy towards Interdependence: Like in community projects, students also go through a developmental process from autonomy to interdependence. Initially, they may rely heavily on teachers and parents, but as they progress, they learn to collaborate with peers, work on group projects, and become more self-reliant in their studies. Desaku Lestari is a project that require high skills of autonomy as the student is given their right to decide on the best way to transform the village main entrance. It requires their creativity and also negotiation skills to conduct the project.

Nurturing Mature Interpersonal Relationships: Building healthy relationships is a fundamental part of student development. Students should learn how to communicate effectively, resolve conflicts, and build positive relationships with peers, teachers, and mentors. These skills are not only valuable during their educational journey but also in their future careers and personal lives. Desaku Lestari is a good platform to achieve this.

Based on the result in Figure 3, it can be seen that majority of the students able

to fulfil these element (13/20) yet there are small group (7/20) obtain satisfactory mark. The justification behind this result is some of the student might perfect and excellent in previous component (doing the proposal) yet they unable to manage their emotions, progressing from autonomy towards interdependence nurturing and mature interpersonal relationships. Among the reason this students obtain satisfactory mark are they fail to manage their emotions such as tired or boring during project implementation, unable to be on time with the promise they make with the communities and others.

Establishing One's Identity: During their educational journey, students explore their interests, values, and beliefs. They develop a sense of self-identity and purpose. This self-discovery can help guide their academic and career choices and contribute to their personal growth. For this element, the students is being assess based on their reflection. There are 5 students obtain satisfactory mark as they unable to relate the they learn in class with the activity they conducted in SULAM activity. More even worst the reflection is being wrote with non-academic and less professional.

Fostering Integrity: Integrity is a fundamental aspect of academic development. Students must uphold ethical standards by avoiding plagiarism, cheating, or other forms of academic dishonesty. Fostering integrity in students ensures that they develop strong moral and ethical foundations that will serve them throughout their lives. The integrity part is the most importance and it is quite sad to find some of the student obtain satisfactory mark as they cheat in writing this reflection.

Last but not least is cultivating a Sense of Purpose: Education should provide students with a sense of purpose beyond just acquiring knowledge. They should understand how their education connects to their future goals and how it can make a positive impact on society. This sense of purpose can motivate students to excel in their studies and engage in extracurricular activities that align with their passions. Only 3 Students obtain satisfactory mark when they unable to provide good sense of purpose in doing the task.

Conclusion

In conclusion, in implementing the Chickering Theory of Student Development to research-based SULAM Activity, it is found that not all the element will obtain the full mark. Some of the students provide satisfactory mark due to various issues in implementing the application of the theory.

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Student Service Learning in Applied Science: Undergraduate Student Perspective

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Abstract

This research paper examines the impact of student service learning in the context of applied science education, focusing on its influence on undergraduate students across various disciplines. The study adopts a multidisciplinary approach, encompassing five different applied science programmes that are all bound by the same objective: promoting Science, Technology, Engineering, and Mathematics (STEM) among students. Students from five academic programme conducted STEM activities which involved students from various primary and secondary schools. A survey was conducted with undergraduate students conducting the programme. While a highly engaging STEM curriculum benefited school student, undergraduate students also experienced changes in their academic, personal, and professional development. The survey of the project's impact on these students clearly suggests that it has successfully given numerous positive experiences to the students in terms of engagement, learning and skill development, collaboration and teamwork, and personal growth.

Keywords: Service-Learning, Applied Science, Students Perspective, STEM Programme.

Introduction

Objective
This project focuses on a one-of-a-kind effort encompassing five diverse applied science programmes, each with its own set of expertise and methodology, but all with the same objective: to develop an interest of STEM subjects in school students and to foster the future generation of STEM professionals. While providing school student with highly engaging STEM activities, this study is also designed to examine the service-learning experiences of applied science students, highlighting the wide- ranging variety of projects they engaged in and the benefits they experienced. This research paper aims to provide an overview of how applied science students' involvement in service projects aimed at promoting Science, Technology, Engineering, and Mathematics (STEM) among school students has shaped their academic, personal growth and professional development.

Research Question

The search of complete and interesting learning experiences that go beyond the confines of conventional classroom settings has grown to be of utmost importance in the dynamic educational landscape. Student service learning is one such educational innovation; it is a pedagogical strategy that combines community service with academic instruction, giving students the chance to apply what they learn in the classroom to real-world situations while promoting personal development and a sense of civic responsibility (Shernoff et al., 2016).

STEM became necessary when the demand for STEM-related professional fields outpaced that of other fields. Malaysia is likewise experiencing an increase in the demand for STEM-skilled labour, with more than 1 million STEM-skilled workers needed (MOSTI 2015). The project to strengthen the science curriculum through the integration of STEM is one of 100 initiatives in the Malaysia Education Blueprint 2013-2025 to provide the next generation career opportunities and to prepare the nation for the Fourth Industrial Revolution (Malaysia Education Blueprint 2013-2025).

Unfortunately, students' involvement in STEM has not met the expectations to fulfil the needs of the STEM workforce in Malaysia (Razali, Talib, Manaf, & Hassan, 2018). In fact, students' interest in pursuing STEM has been constantly declining. (Academy of Sciences Malaysia, 2016; Sadler, Sonnert, Hazari, & Tai, 2012). Sadler et. al indicated that students' interest towards STEM drops from the early stage of high school, influencing their choice of career pathways (Sadler, Sonnert, Hazari, & Tai, 2012).

Previous research suggested that, in addition to the interactive planned teaching that incorporates parts of STEM awareness, the need of the environment are required to ignite children's interest in STEM-based careers (Shernoff et al., 2016). Ministry of Higher Education in Malaysia have implemented various initiatives and programs to promote STEM among school students. One of the initiatives to promote STEM education is outreach programs where State Education Department (JPN) collaborates with universities to organize STEM outreach programs for school students. This program exposes students to real-world STEM applications. Given that STEM initiatives and outreach programme have been implemented through student service- learning project, this raised the questions. Do university students benefit from the STEM outreach programmes? How does participation in the STEM outreach program contribute to the development of teamwork and leadership skills and influence students' communication skills, particularly in explaining scientific concepts to diverse audiences?

Methodology

Course design

To support STEM promotion initiative, through student service-learning platform we have organized STEM outreach programme, Gear Up 4 STEM that involved five academic programme from three faculties of applied science in Universiti Malaysia Kelantan, Jeli Campus. These faculties are, Faculty of Bioengineering and Technology, Faculty of Earth Science and Faculty of Agro Based Industry.

Participants

The students involved in service learning were from five different academic programme and the number were summarized in Table 1. The students were divided into groups, each consisting of 5 to 6 members. The purpose of this grouping was to encourage effective engagement and interaction with the school children during our service activities.

They were required to engage to the targeted community which were primary and secondary school from Jeli and Kuala Krai district including underprivileged school (Orang Asli primary school). The age of the school children ranged from 10-17years old. As shown in Table 2 a total of 322 school children participated in this programme.

Table 1

The number of students involved in Gear up 4 STEM programme were from three faculties and various academic programme.

Faculty	Program	Course	Component	Number of Students
Faculty of Bioengineering and Technology	Technology Bioindustry	Microbiology Biodiversity	Core Faculty	141
	Forest Resource Technology	Microbiology Biodiversity	Core Faculty	141
	Materials Technology	Materials In Medicine	Elective Program	27
Faculty of Earth Science	Sustainable Science	Remediation Technology	Core Program	76
Faculty of Agro Based Industry	Product Development Technology	Materials Science Natural Resources	Core Program	40

Table 2

A number of school children participated in Gear Up 4 STEM programme. The school students were from various types of school including boarding school, national secondary school and primary school.

School	Number of students
MRSM Kuala Krai	35
MRSM Jeli	137
Sekolah Menengah Ayer Lanas	20
SK Pendok	20
SK Jeli 1	9
SK Jeli 2	9
SK Gemang	20
SK Ayer Lanas	17
SK Batu Melintang	16
SK Sg Rual	30

Activities

Students from each course were required to conduct activities with school students. The activity conducted by each course were summarized in Table 3 and examples of activities were shown in Figure 1.

Table 3
Name of the activities conducted by students from each course.

Course	Name of the activity
Microbiology	Microbial Arts
Biodiversity	BioD Made Easy
Materials In Medicine	Polymer Pioneers
Remediation Technology	Community zero to hero on activated carbon
Materials Science Natural Resources	production
	Food You Love!

Figure 1: Student conducted the activities with school children including hands on experiment, quiz and etc.

Survey

A survey was conducted among the students themselves to get their feedback on their experience when conducting the programme. The number of students who answered the survey was 280.

Literature Review

During the pandemic, many academic programmes that required hands-on or practical training were halted. The global crisis has had a tremendous impact on the hands-on experience and soft skill development of university students. (Prastya, Sri, & Daru, 2023). These impacts are broad and vary according to discipline. Many students in science and engineering lost access to labs and research facilities. This restricted both practical training and scientific experiments, both of which are necessary for skill growth in these fields. Several studies have been conducted to analyse the difficulties students encountered in gaining practical skills, as well as the potential long-term impacts on their professional preparedness (Green, Henseke, & Schoon, 2022).

Lessons from the global pandemic give a great chance for higher learning institutions to reconsider their strategy for soft skill development and implement innovative approaches that improve the marketability and success of their students (Zawawi, Mazlan, Mastura, & Kamal, 2023). By doing so, they will make sure that a future generation of professionals will be equipped with the skills that are necessary to deal with both the challenges and opportunities of a continually evolving global economic landscape (Bayerlein, Hora, Dean, & Perkiss, 2021).

Service-learning programmes have the potential to be helpful in strengthening post-pandemic education as well as addressing the problems and challenges caused on by the COVID-19 pandemic. Service-learning programmes are able to help students in gaining practical skills as well as offering opportunities for experiential learning in a variety of fields. During Gear Up 4 STEM programme, students were required to conduct interactive activities with school children such as hands on activity, experiment, and quiz. These activities provide a platform to students to apply the theoretical knowledge they've gained in the classroom to practical situations. This bridge between theory and practice is essential for developing practical skills.

Findings

The survey of the project's impact on these students clearly suggests that it has successfully given numerous positive experiences to the students, with all questions scoring over 4 out of a possible 5 points (Table 4-8). This suggested that this programme successfully enhanced the motivation and skills of students in many of aspects including engagement, learning and skill development, collaboration and teamwork, and personal growth.

Impact of the programme on the student engagement and motivation.

Table 4
Survey of the impact of the service-learning in applied science course on student engagement and motivation.

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree)/No. of students					Total score
	1	2	3	4	5	
I felt actively engaged and invested in the service-learning project.	1	2	13	98	166	4.52
I believe my contributions and efforts made a meaningful impact on the project.	3	3	11	98	167	4.53
I was able to overcome challenges and obstacles	1	1	19	89	170	4.52

Service learning significantly enhances student engagement in their coursework (4.52/5.00). They also find personal meaning and fulfilment in their service work (4.53/5.00), which drives their commitment to learning. This suggest that students who engage in service-learning activities are intrinsically motivated to participate.

Impact of the programme on the learning and skill development.

Table 5
Survey of the impact of the service-learning in applied science course on student learning and skill development.

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree)/No. of students					Total score
	1	2	3	4	5	
I feel that my knowledge and understanding of (respected course) and their applications significantly improved through this project.	2	2	9	96	171	4.54
The project provided me with valuable hands-on experience in (respected course)	2	2	14	75	187	4.58
I acquired new scientific and technical skills that are applicable beyond the scope of this project.	2	1	26	83	168	4.48

This programme also contributes significantly to the development of a wide range of skills. These skills encompassed knowledge and understanding (4.57/5.00), as well as practical and technical skill (4.58/5.00 and 4.48/5.00). This indicate that students find this approach valuable. Service learning is a type of experience learning that has been shown to be very helpful in assisting students in grasping complex concepts and developing practical skills (Choi, Han, & Kim, 2023).

Impact of the programme on the collaboration and teamwork.

Table 6
Survey of the impact of the service-learning in applied science course on student collaboration and teamwork.

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree)/No. of students					Total score
	1	2	3	4	5	
I worked effectively with my peers and community partners in a collaborative manner.	2	1	17	86	174	4.53
Teamwork played a crucial role in the success of the project.	2	0	11	67	200	4.65
Any conflicts or difficulties within the team were resolved in a constructive and positive manner.	2	1	11	79	187	4.60

Service-learning has empowered cooperative teamwork among learners (Zainuri & Huda, 2023), (Pazos et al., 2020). From this project it appears that students develop a deeper understanding of the value of collective effort (4.53/5.00) and have likely experienced firsthand how collaboration can lead to better outcomes (4.65/5.00).

Impact of the programme on the student perception to community.

Table 7
Survey of the impact of the service-learning in applied science course on student perception to community.

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree)/No. of students					Total score
	1	2	3	4	5	
I believe that the programme that we developed will have a positive impact on the community.	2	0	11	83	183	4.58
Engaging with community organizations and stakeholders helped me better understand local needs and challenges.	2	0	18	83	177	4.55
This project reinforced the importance of community engagement and the role of science in addressing societal issues.	2	0	15	86	177	4.56

Students that participate in service learning frequently develop a feeling of purpose (Nacional De Psicología & Thabet, 2018). According to the survey, they acknowledge that their activities can have a good impact on their communities (4.58/5.00). This imply that the tudents believe that their contributions to the community have had a significant influence. They believed that their involvement with community organisations and stakeholders helped them better understand local issues and needs (4.55/5.00).

Impact of the programme on the Personal Growth and Reflection.

The majority of students respond that their service-learning experience has had a significant and beneficial impact on their personal development. (4.52/5.00). Students viewed the service-learning initiative as a beneficial and enriching experience that influenced many elements of their personal growth and development (4.55/5.00). According to (Ma Hok-ka, Chan Wing-fung, & Chan Cheung-ming, 2016), service learning participants benefit in the long run in terms of increased civic responsibility, better job exploration, and enhanced whole-person development abilities.

Table 8
Survey of the impact of the service-learning in applied science course on student personal growth and reflection.

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree)/No. of students					Total score
	1	2	3	4	5	
Participating in this service-learning project has positively contributed to my personal growth and development.	2	0	14	98	166	4.52

I found certain aspects of the project to be particularly meaningful and impactful.	2	0	11	97	170	4.55
I can envision applying the knowledge and skills gained from this project to future endeavours or career paths.	2	1	18	89	170	4.51

Since this programme involved various school such as boarding school, national secondary school and primary school including Orang asli school, therefore, student also need to adapt their communication style to suit the age, background, and comprehension level of the school children, which enhances their ability to communicate with diverse audiences.

In addition, prior to the programme, all student from each course also need to produce educational materials in form of video, comics or handbook as part of a service-learning project (see *Figure 2*). Producing videos, handbooks, and comics by students offered a range of advantages both to the students themselves and the school children they served. In a process of producing the video for example, students not only gain practical experience in video production but also leverage their creativity to produce engaging and informative videos. For example, the comics produced by Biodiversity student combined the visuals and text to convey information in a visuallyengaging and narrative way about diversity of plants. In producing these comics, students exercised their creative and artistic talents. The engaging and entertaining nature of comics can motivate children to learn and explore new topics on biodiversity.

Figure 2: Example of educational tools that have been produced from service-learningactivity. a) Youtube video about production of activated carbon used in water treatment by Remediation Technology student. b) Compilation of microbial art produced by Microbiology student. c) Comics on biodiversity produced by Biodiversity student. d) Video and handbook on food testing produce by Materials Science Natural Resources student. e) Youtube video and f) Handbook on polymer hydrogel and step-by-step guide on crafting hydrogel and aerogel produced by Materials in Medicine students.

Discussion

Limitations

Implementing service-learning programmes that involve a large number of students and community can be costly, particularly in terms of materials and logistics. In this project which involved primary school from rural area indeed required a cost for logistic to transport them to the campus. In addition, STEM outreach program also involved hands-on activities that require specific materials and consumables. These limitations have been discussed in detail by (Ashikin et al., 2021) which saying that there were the most critical challenge on implementation of service-learning faced by educators are constraints on finances, inadequate time management and administrativeissue.

Recommendation

Finally, Service-learning in applied sciences courses is a powerful tool to enhance scientific communication with the public and positively influence public perceptions of science. This service-learning programme provided an excellent platform for students to interact with a diverse range of people from the community such as good student from MRSM, young children from primary school and underprivilege student from rural area including Orang Asli. This exposure helps students learn how to communicate complex scientific concepts to individuals with varying levels of scientific literacy. Study by (Neher-Asylbekov & Wagner, 2023) show that active participation, hands-on activities, and preparation for the visit have strong beneficial effects on student interest in science.

Conclusion

In conclusion, the service-learning programme "Gear Up 4 STEM" was successfully conducted by student from multidiscipline field of applied science and was shown to benefit both university students conducting the programme as well as school students who joined the programme. University students can contribute to STEM outreach activities, encourage future generations of scientists and engineers, and acquire significant experience in education and community engagement by utilising Student Service-Learning platforms. This platform provides a structured approach for engaging students with meaningful service programmes and tracking their contributions to STEM education initiatives.

Acknowledgement

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Assessment of the Impact of Service-Learning Malaysia University for Society (SULAM) on Undergraduate Students' Academic Performance in Kota Bharu

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Abstract

Service-learning is a teaching and learning strategy that combines meaningful service in the community with education. Research studies on service learning and teacher education have concluded that one of the major challenges is the lack of assessment studies that document the impact of service learning on students' academic development. Therefore, this study focuses on the impacts of implementing the SULAM program on undergraduate students in terms of functional work skills, including i) presentation and verbal communication, ii) innovative, iii) creativity, iv) potential for social impact, and v) potential for commercialization after they conducted and carried out the service-learning project with the community. This studyexamined 155 students from the Food and Nutrition in Practice Course at Universiti Malaysia Kelantan (UMK) using a rubric-based performance evaluation approach. The findings of this study uncovered that there were positive impacts of implementingthe SULAM program integrated with students' academic curriculum, such as the students were able to utilize the knowledge and have a deeper understanding of conducting service-learning projects under the SULAM program with the community, the students managed to improve and empowered their functional work skills after successfully carrying out the projects involved the community, and lastly, the studentsproudly could facilitate themselves to perform outstanding ethics and professionalism while conducting service-learning projects under the SULAM program. The implementation of the SULAM program was made successful in UMK through the involvement of the service-learning ecosystem consisting of students, lecturers, faculties, communities, agencies, and industries.

Keywords: Performance Assessment, Service-Learning, Functional Work Skills, Student's Project, UMK.

Introduction

Service-learning has been established as a new teaching and learning approach that integrates theoretical in the academic curriculum and practical in real experiences to increase the performance of students in implementing and applying their knowledge and practical skills to meet the needs of the community. Service-learning has been highlighted as one of the high-impact practices in transformativepedagogical learning through the notion of 'learning by doing,' which emphasizes students' cognitive and affective involvement in helping the community become a better society (Brail, 2013;

Department of Higher Education Malaysia, 2019; Felten etal., 2016; and Hoxmeier & Lenk, 2020). Furthermore, service learning has encouraged students to put what they have learned in class to real-world use to become more analytic and creative in their thinking while striving to handle difficulties and challenges in the community (Department of Higher Education Malaysia, 2019; and Yusof et al., 2020).

Service learning has been defined as a type of real-world experiential learning that incorporates a life cycle of action and reflection in which students use theconcepts, they have learned to meet the needs of the community by assisting them in dealing with complicated challenges and problems that have occurred (Department of Higher Education Malaysia, 2019; and Ministry of Education Malaysia, 2015). As a result, the deployment of service-learning in higher education institutions has resulted in the university investing the resources required to engage with industry and agenciesin creating the design and delivery that are compatible with the academic curriculum (Department of Higher Education Malaysia, 2019; and Felten et al., 2016) and engaging with the community to execute service-learning (Felten et al., 2016; Gezuraga and Malik, 2015; Jackson et al., 2018; and Ministry of Education Malaysia, 2015).

Practically, the students will identify and analyze community-related challenges or problems and then collaborate with the community, authorities, and industry to provide potential solutions (Felten et al., 2016). In Malaysia, the Ministry of Higher Education has encouraged public universities to include an initiative of service-learning in their academic programs to provide a rich and comprehensive experience to the students in implementing service-learning. Therefore, the endorsement of Service-Learning Malaysia University for Society (SULAM) in 2019 is to demonstrate a multidimensional concept that embraces the curriculum of pedagogical approaches to service and educational opportunities. SULAM strongly initiates a balance between learning outcomes and service outcomes that can be fulfilled by integrating them effectively. The students will experience the educational activity process as a whole in an ecosystem of engaging community needs along with structured opportunities to promote the student learning process outside the classroom (Ministry of Education Malaysia, 2015).

As of now, SULAM has been recognized as an essential element in academic programs for public universities across the nation, which has encouraged Universiti Malaysia Kelantan (UMK) to implement SULAM for its students. SULAM has been implemented in UMK to support the initiative led by the Ministry of Higher Education to achieve Shift 1 of the Malaysia Education Blueprint 2015-2025 (Higher Education), which is to produce holistic, entrepreneurial, and balanced graduates. Service-learning enhances students' learning time and soft skills through their involvement in community services (Hamzah, et al., 2023; Yusof, et al., 2020). However, as service-learning is a fairly new pedagogical approach, its practical implementation has faced significant challenges, particularly within Malaysian education (Ashikin et al., 2021; Yusof et al., 2020). In the context of implementation Service-Learning Malaysia (SULAM) community projects, limited interest has been dedicated to students' functional work skills in service learning related to nutrition and lifestyle education. Therefore, the purpose of this article is to identify the effects of implementing the SULAM program on undergraduate students in terms of functional work skills such as i) presentation and verbal communication, ii) innovative, iii) creativity, iv) potential for social impact, and v) potential for commercialization after they conducted and carried out the service-learning project with the community in terms of emphasizing their knowledge and understanding of SULAM. The findings of this study are expected to contribute to the development of soft skills among students and enhance the

effectiveness of the SULAM approach in the Malaysian tertiary education system.

Methodology

Participants

As part of the teaching of 14 weeks of compulsory subjects, two lecturers created a project-based learning environment in which 150 second- and third-year students designed service-learning projects in groups of five members (total: 28 work groups). These students were studying for the Food and Nutrition in Practice undergraduate degrees at the Faculty of Hospitality, Tourism, and Wellness, Universiti Malaysia Kelantan. The mean age of the students was 20.8 years (SD = 0.91 and median = 20); 82.6% were female, and the majority were not in employment. The projects were evaluated by two lecturers and three industry players who had 10 and 20 years of teaching experience, respectively. This project-based learning environment was conducted at Sekolah Menengah Pengkalan Chepa 2, involving 500 secondary school children and 20 teachers.

Instructional Settings and Resources

The projects were assessed using an analytical rubric designed by the lecturers of the course. The rubric helped students to understand the learning goals and provided them with useful information for the development of their projects, helped to focus the work sessions and give students in-task guidance, and made it possible to carry out a continuous assessment in which undergraduates and lecturers scored the projects and their oral presentations individually. The rubric comprised the following dimensions: i) presentation and verbal communication; ii) innovative, iii) creativity iv) potential for social impact, and v) potential for commercialization. The assessor attended the oral presentations with the assessment sheets designed for each item which were stored in the course's management system. The assessment protocol required each assessor to take notes on the aspects they considered relevant concerning each criterion in the rubric. The assessment procedure included moderation discussions attended by all the assessors, which were held immediately after each assessment session. In these discussions, students described their impressions of the projects presented and backed up their views with the help of the notes they had taken for each criterion in the course of the oral presentations. The scores were not discussed at the sesessions; later, each rater scored each student individually.

Data Analysis

The data from this rubric were analyzed using the Statistical Package for Social Sciences (SPSS) version 26. Categorical data were summarized using numbers and percentages, despite normally distributed continuous variables being provided.

Literature Review

In Malaysia, SULAM would benefit students, lecturers, the university, and the community by enhancing social responsibility and citizenship abilities such as racial tolerance, collaboration, leadership, and communication skills (Hoxmeier & Lenk, 2020; Jackson et al., 2018; and Jelinek, 2016). In SULAM methods, students are exposed to different complicated challenges and problems within the community that they are unfamiliar with, and service-learning may be a platform for them not only to serve the community but also to comprehend the demands of the community

environment (Jackson et al.,2018; and Jelinek, 2016).

Service-learning is an excellent teaching and learning strategy for stimulating students' knowledge and comprehension of theoretical and practical information gained in lectures in the real world (Ministry of Education Malaysia, 2015; Amran et al., 2018). Aside from that, service-learning may provide students with real-world experience, such as dispute resolution through critical thinking and deep thinking (Jackson et al., 2018; Maharam et al., 2019). Other studies portrayed that promoting service-learning in student's academic courses enables them to develop a deeper understanding of various discipline-specific knowledge that could be used to encounter and meet the needs of the community (Nishimura and Yokote, 2020; and Richard et al., 2016). Most importantly, service learning manages to facilitate student's academic achievement who are positively influenced by participating in the project with the community (Richard et al., 2016)

Students who participated in service-learning reported numerous positive outcomes. Service-learning improved students' job performance, notably communication, leadership, and problem-solving abilities (Richard et al., 2016; and Said et al., 2019). Furthermore, Shook and Keup (2012) revealed that students who participated in the service-learning project demonstrated leadership as border crossers managing borders between the institution and the community. According to Hoxmeier and Lenk (2020), service learning allows students to improve their academic performance, civic obligations, and life skills such as deep introspection and problem-solving (Said et al., 2019). Furthermore, the students' attitudes toward learning have improved as they serve the various communities, allowing them to better comprehend the needs of the community (Shook and Keup, 2012; and Yob, 2014). In addition, students who participated in service-learning have been shown to be more receptive to diversity and diverse viewpoints (Nishimura and Yokote, 2020).

Many students recognized that participating in a community service program helped them improve their academic achievement and their soft skills, as well as gain new experience and information (Yob, 2014). Yusof et al., 2020 stated that the service-learning program helped students acquire a sense of civic responsibility and encouraged ethical and professional involvement with the communities they served.

Findings

As the purpose of this study is to determine the effects of implementing the SULAM program on undergraduate students' functional work skills, the data analyzed in this study used descriptive analysis to discuss the results and findings in order to achieve the study's objective. The results and discussion presented the impacts of implementing SULAM in terms of i) presentation and verbal communication, ii) innovative, iii) creativity, iv) potential for social impact, and v) potential for commercialization in service-learning projects.

Below are the results from the data findings pertaining to the impacts of implementing SULAM to measure students' functional work skills after they carried out the SULAM program with the community related to their academic program. Based on Table 1, the total of the responses of 150 students in groups of five members (total: 28 work groups) to rate the impact of implementing the SULAM program in terms of their functional work skills has a very positive impact. The variable that was measured was the student's ability to effectively utilize the abilities outlined in the rubric and represent the needs of the community.

The rubric comprised the following dimensions: i) presentation and verbal communication, ii) innovative, iii) creativity, iv) potential for social impact; and v) potential for commercialization. Each item in the rubric is given a score on a scale of bad, fair, good, very good, and excellent. No group received a low score. Each item on the rubric is assigned a different score based on each group's ability to present the project that was completed. Students earned a high score of 96.43% in the creativity item, which requires students to be able to produce innovative, creative, interactive, and appealing goods and justify the reason/rationale for generating the product.

Meanwhile, a large percentage of students excelled in the presenting and verbal communication components, earning a score of more than 90%. Several points have been highlighted in this item, including the fact that the team is creative, clear, confident, and convincing when delivering the presentation; the team is professional, highly capable, cohesive, and knowledgeable when presenting the product; and the team can understand and respond to the majority of the questions posed. Meanwhile, products less well-mastered by students have product items with commercialization potential. Students received an assessment on how well they can establish a viable marketing plan to sell the product and estimate the price of the product under this item.

Table 1. Students' assessments on the Rubric for each item towards implementing the SULAM program (n=28).

No.	Items	Poor (20% marks) n (%)	Fair (40% marks) n (%)	Good (60% marks) n (%)	Very Good (80% marks) n (%)	Excellent (100% marks) n (%)	Total score (≥ 60 marks)
1	**Presentation and verbal communication.** • The team is creative, clear, confident, and convincing in delivering the presentation. • The team is professional, highly capable, cohesive, and knowledgeable in presenting the product. • The team is able to understand and respond to most of the questions given.	0 (0)	2 (7.14)	10 (35.71)	10 (35.71)	6 (21.43)	(26) 92.86
2	**Innovative.** • Clearly identified product benefits and value-added. • To what extent is your innovation different and better than what is currently available in the market?	0 (0)	3 (10.71)	14 (50.00)	10 (35.71)	1 (3.57)	(25) 89.29
3	**Creativity.** • Able to generate original, creative, interactive, and attractive products. • Clearly justify the reason/rationale for developing the product.	0 (0)	1 (3.57)	15 (53.57)	11 (39.29)	1 (3.57)	(27) 96.43
4	**Potential for social impact.** • Clearly define health and nutrition issues and give a clear solution to those issues. • Able to describe the product value and explain how the product could positively impact the community.	0 (0)	3 (10.71)	10 (35.71)	13.00 (46.43)	2 (7.14)	(25) 89.29
5	**Potential for commercialization.** • Able to identify a suitable marketing strategy to sell the product. • Able to estimate the price of the product.	0 (0)	6 (21.43)	10 (35.71)	10 (35.71)	2 (7.14)	(22) 78.57

Figure 1 summarizes the impact of applying SULAM on students' functional work skills. Students demonstrate skill in presenting and verbal communication but struggle to explain product commercialization.
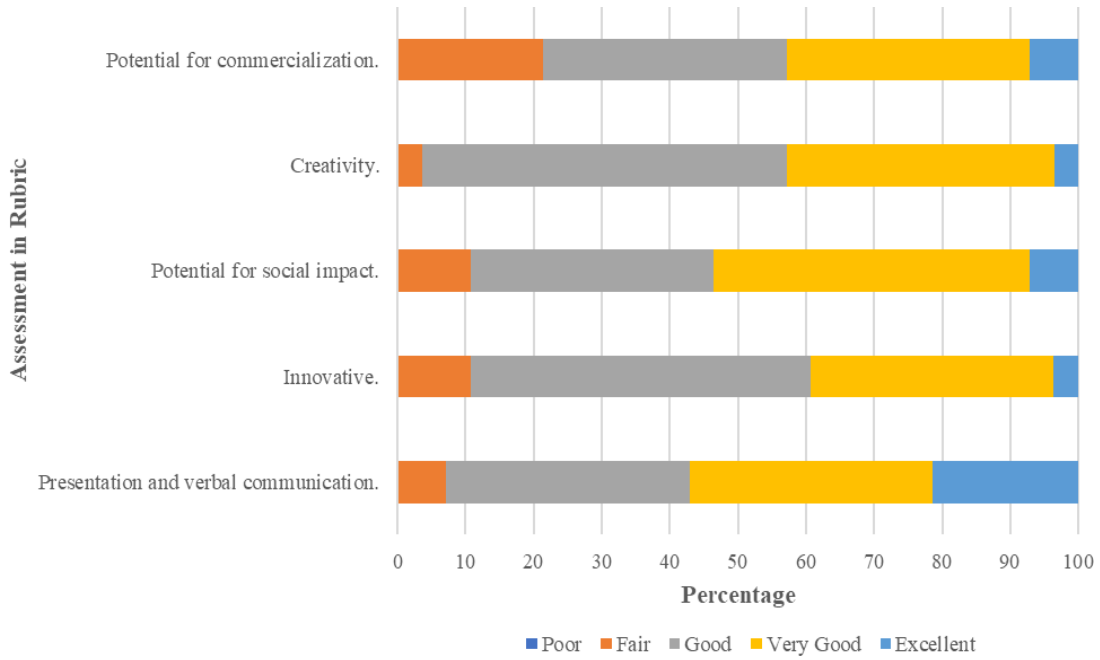
Based on the assessment scores provided by two lecturers and three industry experts (ranging from low 40% to high 90%), the findings in Figure 2 have been categorized into three groups: high, moderate, or low. The distribution is generally distributed throughout the three categories, with as many as 39% of students in the high mark group, 36% in the moderate mark category, and 24% in the low mark category.

Figure 2. The assessor's assessment is based on high, moderate, and low scores (range: 40%-90%).
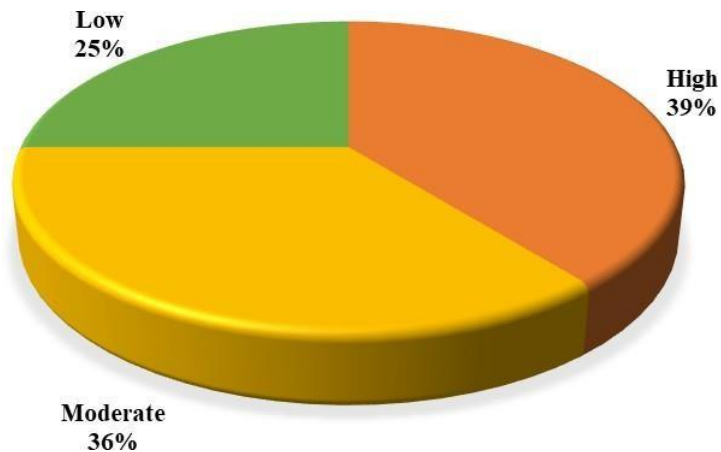
Discussion

Based on the evaluation technique of employing rubric assessment, the current study revealed that the creative item received the highest score of around 96.43% by students. It is shown that students can produce innovative, creative, interactive, and appealing goods and justify the rationale for generating the product. SULAM program is a course-based, credit-bearing educational experience in which students engage in a planned service project that addresses problems in the community and then evaluate the project, utilizing activities and experiences to yield the appropriate learning results, to comprehend the course material more fully, a deeper understanding of the subject, a stronger sense of civic duty, and individual morals. Furthermore, conducting service-learning projects under SULAM programmed in students'academic courses have a very positive and effective impact in terms of student's knowledge and understanding. According to Gezuraga and Malik (2018), service- learning is a teaching and learning methodology that helps students improve their mastery of knowledge and deeper understanding of what they learned in class, adopt and adapt it into practices to help the community solve issues and problems (Ministry of Education Malaysia, 2015).

The idea of creativity is poorly defined, abstract, and challenging to evaluate. While academics from the fields of design research, innovation, philosophy, behavioral psychology, social psychology, and cognitive science may disagree on the precise definition of what it means to be creative, there is a greater degree of consensus on the characteristics and attributes that constitute a creative person. According to Kampylis and Berki (2014), creative thinking is defined as the thinking that enables students to apply their imagination to generate ideas, questions, and hypotheses, experiment with alternatives, and evaluate their own and their peers' ideas, final products, and processes. The justification for the highest score in the creativity item in this SULAM program is probably due to participation in group discussions in the classroom. Working in groups is another great way to encourage creativity. Students can feed off each other. The concept of synergy, when a group has energy, can fuel further creativity. Students gain ideas from each other and come up with something together they could never have apart. This creates an environment that allows students to strive for and target innovation as an objective.

Besides, another notable finding is that presentation and verbal communication also have the highest score in this program. The highlights in this item are that the team is creative, clear, confident, and convincing in delivering the presentation; the team is professional, highly capable, cohesive, and knowledgeable in presenting the product; and the team can understand and respond to most of the questions given. According to Richard et al. (2016) and Said et al. (2019), service- learning improved students' working skills, particularly communication, leadership, and problem-solving abilities. It is worth mentioning that during class, the students are required to present either individually or in groups. Through this presentation, they have improved verbal communication in direct ways and can understand the questions given. The skills acquired during class have been implemented and applied during this program, and they have increased proportionally. This could be the reason why presentation and verbal communication had the highest scores in this program.

On the other hand, the students have scoreless potential for commercialization. Commercialization is the process of bringing a product or idea to market for financial profit. When commercializing a product, it is important to time the release of a product or idea correctly to maximize profits. The students scored the lowest item because they

were not able to identify a suitable marketing strategy to sell the product and estimate the price of the product. Meanwhile, the students are less exposed to this item and do not know the potential commercialization of the product.

To sum up, the SULAM program is hinged on creative problem-solving. To prepare students for careers, they need more experience and opportunities to learn outside of the classroom and develop skills and confidence in creative thinking. Besides that, service-learning managed to help the students increase their self-confidence, creativity, and enthusiasm for the community, and most importantly, they would understand how to conduct a program with the community and understand the culture and societal thinking (Shook and Keup, 2012; and Yusof et al., 2020). A SULAM program is one of the crucial ways to better prepare students for the demands placed on modern professionals to navigate sometimes competing priorities set by clients, regulatory bodies, environmental groups, and the public at large. A SULAM program connects academia with industry and provides an opportunity for students to gain needed skills in creative problem-solving. Previous research has been conducted about the outcomes of implementing service-learning that involves the participation of the students in engaging with the community and indicates a positive impact on student attributions.

Strengths and Limitations

In this study, the potential limitations were identified. The scope of this research is limited to a post-evaluation of the implementation of the SULAM program only. Therefore, the present study was unable to demonstrate the intervention effect of the SULAM implementation among students in the Nutrition and Food Practice course. Future studies could include gathering input from both students and secondary schools on the assessment's implementation to improve the course's quality over time.

Despite the limitations above, the findings in Figure 2 were classified into three groups based on assessment scores: high, moderate, and low, with 39% of students in the high mark category, 36% in the moderate mark category, and 24% in the low mark category. Two instructors and three industry specialists evaluated this score. This indicates that the interrelationship score was dependable and accurate.

Recommendation

Future research should compare the outcomes before and after SULAM adoption to assess the effectiveness of SULAM. As a result, proactive steps might be implemented to improve the SULAM program's implementation and assessment of the Nutrition and Food Practice course.

Conclusion

The findings of this study indicate the positive benefits of adopting service-learning projects through the SULAM program that are integrated with the students' academic curriculum. The findings suggested that introducing a service-learning program that included students in the community had an impact on undergraduate students' academic performance. This evaluation is very important to measure the effectiveness of the SULAM program conducted at public universities. The Ministry of Higher Education launched the SULAM program with the same goal as the university: to contribute and share knowledge, skills, and expertise with the community through student volunteerism, problem-based learning, project-based

learning, community issue analysis, and multidiscipline service-learning projects. Although the implementation of the SULAM program in public universities is still in its early stages, this study shows that students who participated in and implemented service-learning projects with the community were able to use their knowledge and have a deeper understanding to help the community resolve any issues or problems that arose.

Furthermore, after participating in service-learning projects with the community, the SULAM program strengthened and empowered the students' functional work abilities, such as time management, self-esteem, communication, leadership, and practical and soft skills. Aside from that, the SULAM program enabled students to demonstrate good ethics and professionalism while engaging with the community, to practice social tolerance and social responsibilities, and to manage the sustainability of community service-learning projects. Overall, the SULAM program has good consequences that students engaging in service-learning projects may benefit from, and these techniques would have directly benefited lecturers, universities, communities, agencies, and companies, as well as the country.

In conclusion, this study not only adds to the growing body of literature on service learning but, more importantly, unveils a novel dimension to the educational landscape in public universities, especially in the East Coast region. The Assessment of the Impact of Service-Learning Malaysia University for Society (SULAM) on undergraduate students' academic performance has provided valuable insights into the unique ways in which community engagement initiatives can shape and enhance the educational journey. The distinctive impact observed in our study underscores the significance of incorporating service-learning programs within the academic curriculum, showcasing their potential to not only foster civic responsibility but also contribute substantively to the academic success of undergraduate students.

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Service-Learning Malaysia (SULAM) Project on Environmental Awareness: An Urban Farming Approach to Prevention of Climate Change on Vulnerable Community in Yan, Kedah

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Abstract

Service-Learning Malaysia (SULAM) project on Semester A222 is a project under the subjectGMJT3113 Environmental Administration in collaboration with the School of Government (SOG). This program is a program of community service involving lecturers from the SOG and students from the GMJT3113 Environmental Administration Course. The external participation involved is also from among the students of Sekolah Kebangsaan (SK) Singkir, Sekolah Menengah Kebangsaan (SMK) Seri Badong, Mukim Singkir community, Yan, Department of Agriculture, Yan, and Yan District Office. This is a high-impact program that is carried out to help communities around Yan district, Kedah to create a more sustainable and resilient surrounding area in the face of climate change and other global challenges. Climate change has greatly affected human life and the environment. This happens because continuous human activity has caused ozone depletion. For example, the use of CFCs such as air conditioners and continuous gas production from factories have eroded the ozone layer. Indirectly, sunlight enters the earth's surface without being filtered by the ozone layer. A total of twenty-nine (29) students from the GMJT3113 Environmental Administration Course havejoined this program. Meanwhile, a total of eighty-nine (89) participants, consisting of school students and the Yan community, were involved in this program as well. This program took place on May 16, 2023, May 23, 2023, and June 13, 2023, in Mukim Singkir, Yan, Kedah. This project is not only about environmental sustainability but also includes how this project gives students exposure to the concept and cooperation in the implementation of activities with the outside community. In addition, the efforts to make this project a success bore fruit after going through the knowledge transfer session in terms of theory and practice, as proven by the effectiveness of the activities on the last day of the program.

Keywords: Service-Learning Malaysia (SULAM), Community, Environmental Awareness, Urban Farming

Introduction

The Service-Learning Malaysia (SULAM) project, titled "Environmental Awareness: An Urban Farming Approach to Prevention of Climate Change in Vulnerable Communities in Yan, Kedah," is a project under the subject GMJT3113 Environmental Administration in collaboration with the School of Government (SOG). This program is a community service program involving lecturers from the School of Government

(SOG) and students from the GMJT3113 Environmental Administration Course in Semester A222. The external participation involved is also from the students of SK Singkir, SMK Seri Badong, theDepartment of Agriculture, Yan, the community of Mukim Singkir, Yan, and the Yan District Office. The "Environmental Awareness: An Urban Farming Approach to Prevention of ClimateChange on Vulnerable Communities in Yan, Kedah" program is also a high-impact program that is carried out to help communities around the Yan district, Kedah, to create a more sustainable and resilient surrounding area in the face of climate change and other global challenges. A total of twenty-nine (29) students from the GMJT3113 Environmental Administration Course have agreed to participate in the one semester service-learning project. A total of eighty-nine (89) participants will be involved in this program. This program is scheduled to take place on May 16, 2023, May 23, 2023, and June 13, 2023, in Mukim Singkir, Yan, Kedah. The implementation of this SULAM program is to work on students' skills in terms of personal skills and communication skills, which is to achieve course learning outcome (CLO) 2 related to discussing methods and strategies for the preservation and conservation ofthe environment using a holistic environmental management approach.

Objectives

1. Give awareness to the Yan community about the importance of green planting in their area.
2. Enriching the students with good values in providing community service to the residents of Yan district, Kedah.
3. Giving exposure to students about the concept of cooperation through aspects of the implementation of activities that will be carried out during the program.

Research Questions

1. What actions need to be implemented to enhance awareness in dealing with the problem of global warming in the Yan area?
2. What is the appropriate method for sharing knowledge related to environmental conservation in the Yan area?
3. How do university students connect with the village community in Yan through the SULAM program?

Theoretical Framework

Based on the implementation of this SULAM program, the appropriate theory to be applied in this service learning is Albert Bandura's Social Learning Theory (1977), this theory is also known as Social Cognitive Theory namely a psychological theory that focuses on how individuals learn and develop new behaviors through observation, imitation, and modeling of the behaviors and actions of others in their social environment. This theory has significant implications for understanding how behaviors can be influenced through community-based interventions.

The Social Learning Theory Relates to Community-Based Interventions of firstly on behavior change whereby the community service projects often aim to bring about positive changes in behavior, whether it's encouraging healthier habits, fostering civic engagement, or promoting pro-social behaviors. Social Learning Theory suggests that by showcasing desirable behaviors and providing opportunities for individuals to

observe and practice them, these interventions can effectively influence community members' behavior. Through the transfer of knowledge practiced by university students to School students, it can build a network of relationships that can improve the knowledge of the community itself.

Secondly, Role Modeling. From this perspective, in community service projects, community leaders, volunteers, and mentors can serve as role models. Their actions and behaviors can inspire and guide community members, particularly when they are visible, accessible, and relatable figures. This coincides with the efforts made by university students in guiding the community regarding modern cultivation using fertigation and NFT methods.

The third one is about Peer Influence. Peer interactions are a significant aspect of community life. Social Learning Theory recognizes the power of peer influence in shaping behaviors. Community-based interventions can leverage this by creating supportive peer networks and encouraging positive peer modeling. Corresponds to the method demonstrated by university students where they have taught school students in small groups. This situation has helped a deeper understanding of the science of cultivation.

Fourth, the Self-Efficacy Building. This point explains about the community projects that provide individuals with opportunities to contribute, learn new skills, and see the positive impact of their actions that can enhance self-efficacy. As people gain confidence in their abilities, they are more likely to engage in pro-social behaviors and community initiatives. In the implementation of this project, school students were given the opportunity to make their own pipe installation and were monitored by university students. This will be able to help school students better understand and be alert to every step that needs to be taken related to the concept of modern planting.

Overall, Bandura's Social Learning Theory underscores the importance of a supportive and enabling social environment in community-based interventions. By promoting positive role models, facilitating observational learning, and fostering self-efficacy, these interventions can effectively influence and promote desired behaviors within a community.

Another theory which is related to this research is The Community Development Theory. This theory does not have a single scholar associated with its proposal, as it has evolved over time through the work of multiple scholars and practitioners in the field of community development. However, one of the influential figures in the development of community development theory and practices is Robert D. Putnam (2000). He is known for his work on social capital, community engagement, and the concept of "Bowling Alone," which explores the decline of social and civic participation in the United States. He has contributed significantly to the understanding of community development and the importance of social networks and community engagement in building strong and sustainable communities. While he is not the sole proponent of Community Development Theory, his research has had a significant impact on the field.

Community Development Theory is a multidisciplinary framework that focuses on empowering communities to improve their social, economic, and environmental well-being. Item phasizes the active involvement of community members in identifying and addressing their own needs and challenges. While it doesn't have a single originator, it has evolved through the work of various scholars and practitioners over time. First about Empowerment and Participation. The Community Development Theory places a strong emphasis on community empowerment and active participation. It promotes the idea that residents should have a central role in identifying issues, setting goals, and implementing solutions. By involving the community, it aims to increase a sense of

ownership and responsibility for development initiatives. Second, the Asset-Based Approach. Instead of focusing solely on deficits or problems within a community, Community Development Theory takes an asset-based approach. It encourages identifying and mobilizing the existing strengths, resources, and capacities within the community. This approach recognizes that communities have valuable assets, including skills, knowledge, social networks, and cultural heritage, that can be harnessed for development.

Third, Collaboration and Networking. As is known, community development often involves collaboration with various stakeholders, including local government, nonprofit organizations, businesses, and residents. Building strong networks and partnerships is considered essential to address complex community challenges effectively. Fourth, Sustainability and Long-Term Impact. Community Development Theory promotes sustainability by addressing both immediate and long-term needs. It recognizes that sustainable development requires a comprehensive approach that considers economic, social, and environmental factors. This long-term perspective aims to create lasting positive change. Firth, Participatory Planning andDecision-Making. Decision-making processes in community development should be participatory and inclusive. It encourages open communication, consensus-building, and shared decision-making to ensure that the community's diverse perspectives and needs are considered.

Sixth, Community-Based Solutions. Community Development Theory asserts that solutions to local challenges are best developed and implemented by those who are closest to the issues. By involving community members in the problem-solving process, the theory aims to create solutions that are tailored to the community's unique context. Seventh, Social Capital and Trust.Building social capital, which refers to the networks, relationships, and trust among community members, is a critical element of community development. Trust and cooperation within the community can enhance its ability to address issues and support sustainable development. Eight, Cultural Sensitivity. It's about recognizing and respecting the cultural values and traditions of the community is essential for successful development efforts. Community Development Theory acknowledges that culture plays a significant role in shaping the identity and aspirations of a community.

Ninth, Capacity Building. Community Development Theory emphasizes the importance of building the capacity of community members to lead and sustain development efforts. This may include providing training, education, and resources to empower individuals to take an active role in shaping their community's future. Tenth, Evaluating and Learning. Continuous evaluation and learning are integral to the process of community development. Regular assessments help in adapting strategies, identifying what works and what doesn't, and making necessary adjustments to achieve positive outcomes. Community Development Theory serves as a comprehensive framework for understanding and promoting community well-being and social change. It is applied in various fields, including urban planning, social work, public health, and international development, with the goal of enhancing the quality of life in communities by empowering them to take charge of their own development.

Social Learning Theory and Community Development Theory are guides that are appropriate for this SULAM project. The combination of these two theories can lead to the production of research findings that meet the objectives of the study.

Methodology

This SULAM project was participated in by 29 students who took the subject GMJT3113 Environmental Administration for semester A222 session 2023/2024. In addition, the participation of the external community consists of 30 students from SK Singkir and 30 students from SMK Seri Badong. Total participants are eighty-nine (89) students. Both schools are in Mukim Singkir, Yan, Kedah. University students involved have been given courses related to the planting method. A certified facilitator has been appointed to give a technical course on handling the tools for growing vegetables. In the training, students were exposed to theoretical and practical knowledge. The cultivation training course is carried out twice in 6 hours for each session. In addition to learning theory, students are also given practical exposure. Students are divided into 3 small groups to facilitate the knowledge transfer process.

The fieldwork session began on May 16, 2023, which is on Tuesday, the first visit by university students was conducted. They were asked to gather at the Varsity Mall at 6.45 a.m. At exactly9.45am, the students arrived at SK Haji Nyak Gam, Yan. At 9 a.m., students listened to a briefing and a knowledge presentation session related to the theory of fertigation planting methods in the classroom. At 11.00 a.m., students conducted a practical session on fertigation planting. After the practical session, they were given lunch and dispersed at 2.00 p.m.

The second phase of the SULAM project will be held on May 23, 2023, which is on Tuesday. Students gathered at the same place and time at the Varsity Mall at 6.45 a.m. At 9.00 a.m., students arrived at SK Haji Nyak Gam and continued the theory presentation session related to Nutrient Film Technology (NFT) planting methods in the classroom until 11.00 a.m. Then, students conduct a practical session outside the classroom until 1.30 p.m. and continue to disperse.

The third phase, which is the last visit to make the SULAM project a success, was conducted on June 13, 2023, also on Tuesday. Students gathered and left at the same place and time, which was 6.45 a.m. at Varsity Mall. The visit on the last day was a little different compared to the previous visit, where they carried out projects in two schools, the first at SK Singkir and then at SMK Seri Bidong. In the early morning at 9.00 a.m., they conducted a knowledge transfer session related to fertigation planting and then finished at SK Singkir. The students continued to SMK Seri Badong for Zohor prayer and conducted another knowledge transfer session related to NFT planting. The session ended at 5.00 p.m., and they headed back to UUM.

The research method used in this SULAM project is the transfer of knowledge in the cultivation of green vegetables to the community in Yan. The two cultivation methods used are Nutrient Film Technology (NFT) and Fertigation Technique. One of the best alternatives is to apply and increase planting with the concepts of NFT and fertigation. This technique can help plant operators increase crop production and can even help reduce gases that hover in the air (Rahmawati, Iswahyudi, & Alexander, 2020). This is because plants such as mustard, which have wide and green leaves, can absorb a lot of carbon dioxide compared to other small plants.

The second technique is fertigation system namely the latest technology that combines fertigation and irrigation in one system under plant protection that guarantees crop production (Nordin, 2020). The NFT system is a technology that is used by placing plant roots on a mixed layer of water that flows directly into the system. In fact, the use of NFT and fertigation plant techniques is highly recommended because they are easy to do and handle. With that, if this plant is implemented and practiced in every home, it can increase carbon absorption, which makes the air healthier.

Literature Review

The importance of raising awareness within a community cannot be overstated. Building awareness is a fundamental step in addressing various issues, from health concerns to environmental challenges. For example, via Media Campaigns leveraging traditional and digital media is a common strategy for creating awareness. Effective campaigns often use various channels, such as television, radio, social media, and online platforms (Wakefield et al., 2010).

Besides, Community Engagement which engaging the community directly through workshops, events, and partnerships is a powerful strategy for building awareness. This approach fosters a sense of ownership and empowerment among community members (Vanderpool et al., 2010). Peer-to-peer education and outreach can be highly effective. It is based on the Social Learning Theory, where individuals learn from those they can relate to. Peer educators play a vital role in spreading awareness (Kelly et al., 2008). Health awareness campaigns have been shown to be effective in promoting preventive health behaviors, such as vaccinations, smoking cessation, and cancer screenings (Kreps & Maibach, 2008).

Raising awareness about environmental issues has led to changes in individual and community behavior, such as recycling, energy conservation, and sustainable practices (Nordlund & Garvill, 2002). Besides, Social and Cultural Awareness also explains about the efforts to increase awareness about social issues, diversity, and cultural sensitivity have contributed to greater understanding and tolerance within communities (Hernández et al., 2013). Awareness- building within communities is a multifaceted and essential process. The theoretical foundations, strategies, and key findings discussed in this literature review underscore the importance of creating awareness as a catalyst for positive change within communities. Whether it is health, environmental, social, or cultural awareness, these efforts play a vital role in promoting informed, engaged, and empowered communities.

Collaboration between university students and the community is increasingly recognized as a valuable and mutually beneficial endeavor. Collaboration between university students and the community can lead to tangible improvements, such as infrastructure development, health promotion, and economic development (Smith, 2018). In terms of Educational Enhancement, Students involved in community collaboration gain practical experience, develop critical thinking skills, and enhance their understanding of complex social issues (Jacoby, 1996).

For the Empowerment and Social Change, the collaboration can empower community members to address their own challenges, fostering a sense of self-efficacy and agency (Zlotkowski, 2008). Ensuring the sustainability of collaborative projects can be challenging as well. Long-term commitment, resource allocation, and ongoing community engagement are essential (Lorenz & Kolb, 2009). Ethical considerations, such as respecting community autonomy and avoiding a "savior complex," are crucial in these collaborations (Gelmon et al., 2000). Measuring the impact of collaboration on both student learning and community development can be complex.

The development of appropriate evaluation methods is a critical consideration (Jacoby & Associates, 2014). Collaborative experiences can enhance students' academic performance and career readiness, making them more attractive to future employers (Eyler et al., 2001). Collaboration can lead to community empowerment and the development of community leadership, which can extend beyond the duration of specific projects (Strand, Marullo, Cutforth, Stoecker, & Donohue, 2003). Collaborations between universities and communities can address pressing societal challenges, such as

poverty, environmental sustainability, and health disparities (Bringle & Hatcher, 2002). Collaboration between university students and the community is a dynamic, multifaceted process that offers numerous benefits. The benefits, challenges, and findings discussed in this literature review underscore the importance of this collaboration as a means of enhancing learning, fostering community development, and promoting social change. Recognizing its significance can lead to more effective and sustainable collaborations in the future.

Findings

Based on the project that has been carried out over a period of 8 weeks, the following are the findings that coincide with the three (3) objectives that have been built to answer research questions related to the implementation of the SULAM project.

Give awareness to Yan residents about the importance of green planting in their area.

85

100

50

15 0 0 0

0

Give awareness to the people of Yan.

■ Strongly Agree   ■ Agree   ■ Moderate   ■ Not Agree   ■ Strongly Not Agree
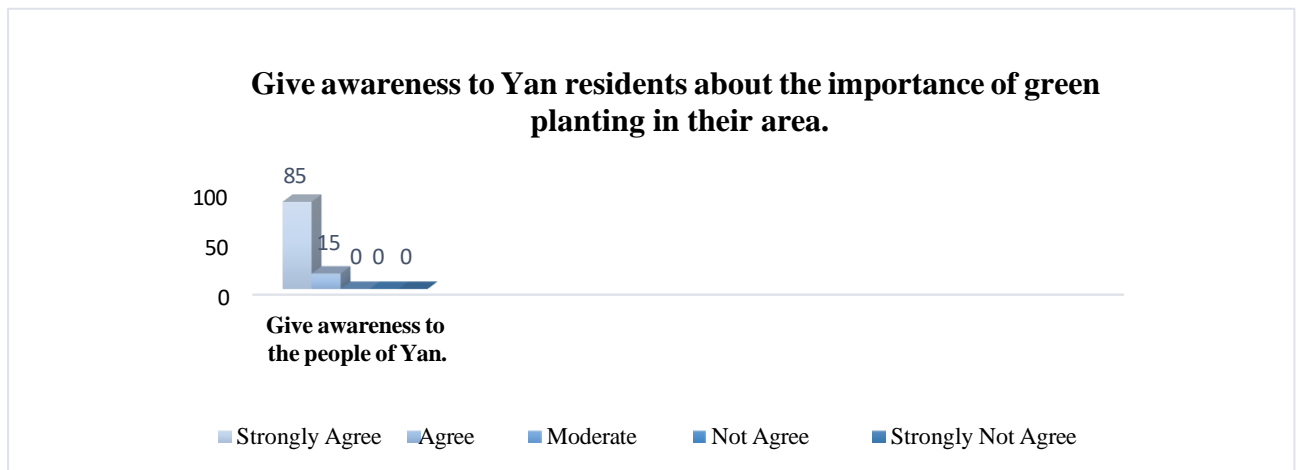
Figure 1: Give awareness to Yan residents about the importance of green planting in their area.

Based on the first objective of the implementation of the SULAM program, which is to give awareness to Yan residents about the importance of planting green in their area, 20 students strongly agree, and the rest, which is 9 people, agree on the objective of implementing the embroidery program in selected areas. Through this analysis, the researcher found that the selected planting techniques were suitable for the terrain of the area, which is in the school area. Planting green plants not only provides a cool and comfortable environment but also serves to stabilize the temperature of the environment. The planting of these trees also aims to reduce the effects of global warming through the absorption of carbon dioxide by raising awareness among the people of Yan that they can indirectly save nature and stabilize the environmental ecosystem. In fact, this awareness can be clearly seen when implementing a practical project before it is presented to Yan residents who live in rural areas. Therefore, this awareness can be conveyed to the villagers through the intermediary of the SULAM Program. This increase in population brings with it the effects of climate change, which is becoming more difficult and needs to be adopted by people all over the world, including in our country. This awareness, to some extent, about fertigation and hydroponic cultivation can be a contributor to the reduction of critical global warming, especially in the northern region, namely Kedah.
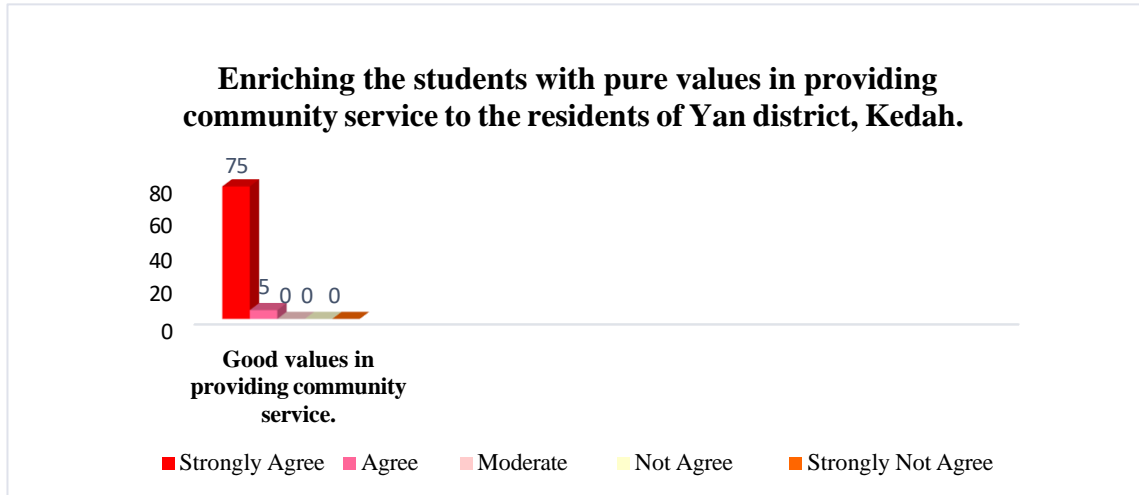
Figure 2: Enriching the students with pure values in providing community service to theresidents of Yan district, Kedah.

Based on the second objective of the implementation of the SULAM program is to be one of the steps in enriching the students with good values and providing community service to the people of Yan. Therefore, a total of 23 students strongly agrees followed by 6 students who agree. This can be proven that the purpose of implementing SULAM is to provide informal community service outside the lecture hall. Therefore, through the findings of this study, a lot of knowledge and pure values can be put into practice in providing community services in Yan, Kedah. Furthermore, this program has revealed to the students especially about the pattern of welfare that can be channeled not only through finances alone. During the implementation process of SULAM pure values can be put into practice which gives awareness to students who need to have a balanced attitude and do not care about an independent lifestyle. This is said to be so because, apart from the opportunities given to them, it is difficult to spread devotion by doing charity work. In fact, the virtues found when carrying out SULAM is the attitude of needing each other. This refers to strong cooperation that needs to be practiced despite living far away but if it can help if that cooperation is mandatory to be realized.
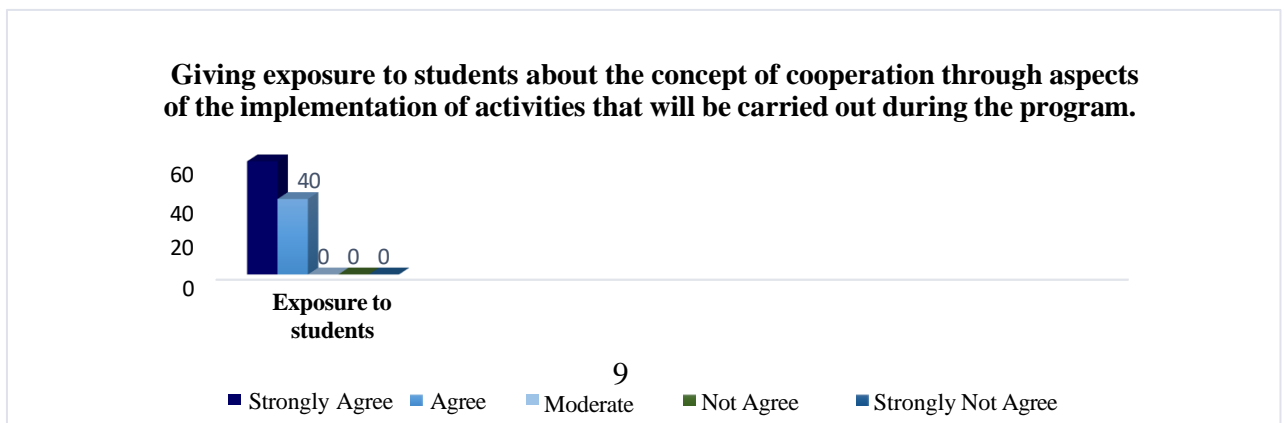
Figure 3: Giving exposure to students about the concept of cooperation through aspects of the implementation of activities that will be carried out during the program.

Based on the third objective of the implementation of the SULAM program, which is to give exposure to students about the concept of cooperation through the implementation aspects of the activities that have been carried out, as many as 21 respondents choose to strongly agree, while as many as 8 respondents choose to agree with this objective. In the researcher's opinion, it can be stated that the exposure given through the implementation of the SULAM program isable to provide education to male and female students in cooperation with each other. For example, the activities of hydroponic plants and fertigation plants carried out through the SULAM program require cooperation between each other in producing a systematic plant project. This SULAM program not only gives exposure to male and female students about the concept of cooperation, but it also gives exposure to the students of SMK Seri Badong becausesome of the students are also involved in the implementation of the hydroponic plant project on June 16, 2023. Next, students who participate in the SULAM program can also establish a cooperative relationship with a few teachers who are involved in the success of fertigation plants (SK Singkir) and hydroponic plants (SMK Seri Badong). Because of that, this exposure can help in developing students' self-development by establishing close cooperation, either through internal programs or external programs, to successfully implement projects.

Discussion

There are three stages throughout the project: before, during, and after the project. Based on each stage carried out, the observation found that students gained a lot of knowledge related to planting on Fertigation and the NFT method. Students can learn about the methods of planting, plant care, and so on. The three stages are the stages that every student goes through to ensure that this project runs smoothly according to the plan that has been set.

Before the Project
To make the Fertigation and NFT planting projects a success, first, the students have had a detailed discussion between the groups related to this project. The discussion has been translated into a proposal paper. Through this discussion, students are also given the opportunity to come up with ideas related to the project's plants. After that, the students divided the task to cover the scope of the committee required. Before the project started, some of the members sought funds for the plant project. The students are looking for funds or donations from various levels, namely individuals, small and large companies, and government and non-government organizations, to make the program a success. Students who are looking for funds are always in touch with the party to whom they applied for a donation to know the follow-upon the decision given. Next, the students keep in touch with the lecturer to get a signature to confirm the donation letter before it is sent to the parties involved. To deal with the parties involved in this plant project, the lecturer consulted with various parties in Yan district. In addition, the students also participated in finding shirt printing shops that offer reasonable shirt prices for this project. Previously, we did not know in detail and depth about fertigation cultivation and NFT.

During the Project

On the day of the project, the first thing the students learned was how to manage the movementof each student from their respective resident to gather at the place that has been notified so that the movement to the place of learning the cultivation method arrives on time, even if thereis a slight delay. Before the planting project was carried out in two schools in Yan district, the students were taught and exposed to planting Fertigation and NFT by a facilitator in a school in Yan district, Mr. Husni. He is a teacher at SK Haji Nyak Gam, Yan. The students were taught about plants twice before the project started, which was on May 16, 2023, and May 23, 2023. They were taught how to plant seeds for the planting project in the selected location. The day for the planting project to be carried out on June 13, 2023, at the beginning of which we arrived at SK Singkir to apply the fertigation method at the school. During the program, the students were able to experience for themselves how to change the pipes that will be supplied to the plants. Then, they moved to the second location on the same day at SMK Seri Badong for the NFT planting method. In this school, the students also had the opportunity to build a place forNFT plants. Next, they were also given the opportunity to install all the necessary equipment for the method. Good cooperation from the students allowed the planting project to run smoothly on the day. Throughout the project, the students have also learned to manage their own negotiations with the teaching staff, teachers, and staff at the two schools. Finally, this project trained the students to learn to assume great responsibility in managing a project and maintain the spirit of cooperation between all from the beginning of the project journey until the end to ensure that the project runs smoothly.

After the Project

The SULAM project that was chosen with the theme of environmental awareness is because the main challenges in Malaysia are food shortages and extreme climate change. Both challenges affect the lives of Malaysians today and in the future. At the same time, this challenge will hinder the development of the country, which will continue to be a developed country in the future. Extreme climate change has had many effects on the country in various aspects, including agriculture and human life. Climate change has also caused many natural disasters that occur suddenly, such as floods, storms, El Nino, and La Nina, which are uncertain (Hassni, 2023). Natural disasters like this have had an impact on crop production and reducedthe supply of basic food to Malaysians. Indirectly, the demand for basic supplies becomes higher, and there will be an increase in basic goods. By doing so, it will further complicate thelives of Malaysians in the future. One of the best alternatives to overcome this problem is to take advantage of the technology available in agriculture. An approach based on science, technology, and innovation (S&T) can not only protect people from the adverse effects of disasters, but it can also drive the national economy and improve people's quality of life (Nordin, 2020). The disclosure of the NFT and Fertigation system needs to be publicized to Malaysians to overcome this problem. With campaigns and workshops related to this system like SULAM project, it can give new light to the people, and there will be no more food shortage problems due to extreme climate change. This system is very effective, cheap, and easy to implement and develop by individuals. With the knowledge given, individuals can have this system in every home. At the same time, if this system continues to be used and adapted by Malaysians, then the natural ecosystem will recover little by little. This is because this system uses plants that have wide, green leaves. The plant works well to absorb a lot of carbon in the air and release oxygen. Try to imagine if people had this system in every house. Dense and

hot urban areas will be cool and comfortable because of the plants working well to maintain the ecosystem. Indirectly, through this SULAM project, the issue of global warming can be remedied. At the same time, this NFT and Fertigation system works to re-green areas that are hot. This is because the use of green plants and their large capacity can provide a green view after months of the plant process. This system is an important step in re-greening the area and caring for and providing peace to the ecosystem that is increasingly damaged by human actions. Not only that, but this system can also stabilize the damage done because of human activities such as illegal logging, rapid manufacturing, and non-stop aviation activities. This is the main cause of the environmental ecosystem deteriorating. To some extent, the use of this system has a positive impact on the environment by controlling the temperature and even stabilizing the national economy.

Conclusion

This SULAM project aims to conserve environmental sustainability in the Yan area. What canbe seen after the completion of this program is that planting activities using NFT andFertigation methods can foster the interest of students and teachers involved and raise awareness among Yan residents about the importance of green planting in their area. Not only that, but this matter can also indirectly achieve the objectives of the program where there is a space for collaboration between university students and the parties involved in the program. This project is not only about environmental sustainability but also includes how this project gives students exposure to the concept and cooperation in the implementation of activities. In addition, the efforts to make this project a success bore fruit after going through the knowledgetransfer session in terms of theory and practice, as proven by the effectiveness of the activitieson the last day of the program. Students and parties involved in this program successfully performed activities according to what was taught by the instructors. Not only that, but this program provides new knowledge and additional knowledge to all parties involved. However, this program is not without its challenges. Among the challenges that occur is when there is a slight error in planting activities using the NFT method. However, the matter can be handled very well by the students and the parties involved. Next, it is hoped that this program will not only stop here but can be expanded from time to time and in other areas. Programs that are carried out in schools involving such students have many benefits that can be obtained. Indirectly, this program not only gives exposure to others but also fosters interest in school students.

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Impacts of Malaysia Service Learning in Co-curriculum Courses towards Student's Employability Skills

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Abstract

Employability skills are important in determining an individual's career advancement opportunities and must be constantly developed through lifelong learning. It has also become a critical component of career success in today's job market. Generic skills which are employability skills that consist of components of communication skills, leadership skills, thinking skills, teamwork skills, adaptability skills and global community skills not only improve individual employability but also provide prospects for career advancement and leadership. Previously, on average, there is a mismatch between the quality of graduates and the needs of the labour market, especially in terms of employability skills and knowledge possessed by graduates in this country. For this reason, this study was conducted by the researcher to find out the results of student learning outcome in employability skills through the implementation of service learning. The research conducted is in the form of a survey using a set of questionnaires. The results of the analysis found that the majority of students showed positive responses to the effectiveness of service learning implementation on the formation of employability skills. This is proven by the study sample where majority of respondents agree and are positive that employability skills are acquired through service learning. Therefore, students who follow the service learning program can enhanced employability skills in themselves. In conclusion, employability skills need to be applied in students at the university level to ensure the marketability of graduates in the field of employment.

Keywords: Employability Skills, Communication Skill, Leadership Skill, Thinking Skill, Teamwork Skill, Adaptability Skill, Global Citizen

Introduction

Employability skills have existed as a crucial aspect for those who want to develop a career in today's competitive job market. Although academic qualifications and technical knowledge are still important, the job market is increasingly emphasizing soft skills or complex qualities that allow individuals to adapt, collaborate, and succeed in various work situations. Various personal qualities, behaviors, and competencies possessed and demonstrated by individuals to prospective employers are referred to as employability skills. Employability skills are important in determining individuals' career advancement opportunities. Workers who excel in communication, problem-solving, and leadership are often considered for promotions and leadership roles [1]. The challenge related to employability skills among students is the discrepancy between the skills desired by employers and the skills possessed by fresh graduates. A study conducted by the National Association of Colleges and Employers (NACE) found that employers place high emphasis on generic skills such as communication, problem-solving, and collaboration [2]. However, many students often lack proficiency in these areas after completing their studies.

SULAM marks a pivotal shift in how we approach career development and success in the modern world. In a world characterized by rapid technological advancements and ever-changing industry landscapes, the significance of SULAM cannot be overstated. SULAM acknowledges the intrinsic value of qualities that shape individuals into well-rounded professionals capable of thriving in diverse roles and scenarios. The relationship between SULAM and employability skills is a significant one, as both play a vital role in shaping an individual's success in the modern job market. They encompass a wide range of interpersonal, communication, cognitive, and behavioral abilities that enable individuals to effectively navigate the complexities of the workplace and collaborate successfully with others. These skills are considered essential for career advancement, job retention, and personal growth. By focusing on these aspects, individuals can enhance their professional development, contribute effectively to their workplaces, and position themselves as desirable candidates in the competitive job market.

Method

In this study, a quantitative research design has been employed. A type of educational research known as quantitative research requires the following steps which is determining the subject to be studied, formulating appropriate questions, narrowing down the topic, gathering measurable participant data, applying statistics to the data, and completing an unbiased objective survey. Descriptive, specific, measurable, instrument-defined, numerical data, involvement of numerous respondents, and a more unbiased assessment are characteristics of quantitative research [3]. In this study, the questionnaire is divided into two sections, which is respondent demographics and research questions. The software "Statistical Package for Social Science" (SPSS) is used to analyze the collected data by the researcher to obtain several necessary values for this study, such as frequency and percentage values for each provided questionnaire item. A likert scale is used in the data analysis.

Result and Discussion

The total number of questionnaires received by the researcher is 600 respondents. To facilitate the process of analyzing the data, the researcher will present the data in the form of tables.

Results

Employability refers to an individual's ability to secure and maintain employment [4]. It doesn't just pertain to graduates obtaining jobs, but it indicates graduates' ability to perform their functions in the chosen job and consequently retain that employment throughout their lives. Table 1 presents the statistical data of the study sample's completion regarding the components of employability skills among students towards service learning.

Table 1: Analysis Component of Employability Skills

No.	Item	Totally Agree (%)	Mean	Standard deviation
1	Communication Skills	63.29	3.57	0.45634
2	Leadership Skills	64.73	3.61	0.45071
3	Thinking Skills	59.26	3.54	0.52613
4	Teamwork Skills	72.88	3.71	0.41974
5	Adaptability Skills	65.48	3.63	0.46048
6	Global Citizen	65.74	3.64	0.43736

Table 1 presents a summary of the descriptive data analysis regarding the level of mean scores for all types of items. This study found that the highest mean value was for teamwork skills, with a score of 3.71 and a standard deviation of 0.42. This was followed by global citizen, which had a mean score of 3.64 and a standard deviation of 0.44, and adaptability skills with a mean score of 3.63 and a standard deviation of 0.46. The mean score for leadership skills was 3.61 with a standard deviation of 0.45. Additionally, communication skills showed a mean score of 3.57 with a standard deviation of 0.46, followed by thinking skills with a mean score of 3.54 and astandard deviation of 0.53.

Discussion

1. Communication Skills

These communication skills are crucial, and students must be proficient in these skills before attending any interviews. This is because an employer's initial impression of graduates will determine whether they are accepted as employees or not. The study sample indicates that the average percentage for this component is at a high level, specifically at a positive level. The study sample also reveals that more than 50% of the respondents strongly agree that they acquire communication skills through implemented service learning. This indicates that the conducted service learning can impact the level of communication skills possessed by students. Proficient communication reduces misunderstandings, conflicts, and inefficiencies, resulting in increased productivity and job satisfaction [5].

To help students respond to their environment and maintain self-control when facing difficulties, effective communication places significant emphasis on social

skills. This assists students in achieving and enhancing self-excellence. Encouraging open debates and constructive feedback enables students to build their own ideas and generate unique solutions [6]. The researcher argues that engagement in learning processes beyond the classroom, such as community activities, encourages students to communicate more effectively and meaningfully. Communication theories and practices are two distinct concepts. Only through real-life experiences or conversational interactions with individuals will students learn how to communicate effectively in a practical manner, differing from theoretical understanding in the classroom.

2. Leadership Skills

An individual requires leadership abilities as a tool to enhance motivation and their capacity to train others. The qualities of transformative leadership empower individuals to take ownership of their responsibilities and realize their full potential. In this study, the researcher found that leadership skills can be cultivated through the implementation of service learning programs, with the highest average percentage indicating strong agreement at a score of 64.73%. This is attributed to the fact that service learning significantly contributes to honing leadership talents among students. Consequently, it can be asserted that programs providing service learning can blend essential knowledge retention with the involvement of participating student groups, and this combination holds potential to assist students upon entering the workforce. Ethical leadership abilities foster a culture of trustworthiness and integrity, promoting well-being and ethical behavior in both individuals and organizations [7].

The researcher contends that the outcomes of this study demonstrate that students participating in service learning programs exhibit better team management compared to non-participating students. Students might inadvertently learn from this that good leadership qualities can guide others appropriately and fairly. Inclusive leadership abilities foster an environment where individuals feel respected and included, leading to increased creativity and innovation [8].

3. Thinking Skills

The process of using the mind to comprehend something, form opinions and decisions, or solve problems can be defined as thinking skills. An individual student's thinking capability can influence how they learn and how quickly and effectively they grasp new things. The researcher asserts that through the creation of new concepts and testing those concepts, students can continuously enhance their knowledge. This is due to the fact that service learning is a form of education that provides students with opportunities to develop their abilities through participation in community-based activities.

4. Teamwork Skills

The skill of working as a team requires a combination of mental, physical, and emotional resilience, and it is these abilities that will determine the success of an organization. Each team member will collaborate closely with others, exchange information, make decisions, and share responsibilities to complete tasks at hand. According to the researcher, the study's obtained results are due to students' involvement in service learning, which instills a spirit of teamwork among students and indirectly enhances and reinforces their teamwork skills. Teamwork abilities generate a dynamic and encouraging team environment, leading to greater job

satisfaction, reduced conflicts, and increased dedication to team goals [9].

These skills require involvement and interaction with others, inspiring them, and aiding in problem-solving. Strong collaborative skills foster contributions, creative problem-solving, and the generation of novel ideas [10]. These strengths cultivate an innovative culture, driving progress and adaptation to the ever-changing demands of the modern world. As a result, graduates can swiftly secure employment and forge strong bonds with each other.

5. Adaptability Skills

The ability to adapt to new environments or to modify existing behavior to fit new situations is an example of adaptability. Respondents believe that there is always room for improvement in terms of their potential. This is because children are capable of adjusting to any situation, whether it presents new or familiar challenges, easily. Individuals who actively adapt seek opportunities for continuous learning and professional development [11]. Consequently, students possess various interpersonal skills that will aid in their ability to adapt and learn in the university environment as students and in the workplace environment as employees.

According to the researcher, students should be able to adapt themselves to follow this wave of change and align themselves with the existing technology, as society in the industrial revolution is characterized by various modern technologies. Allowing individuals to adjust their problem-solving approaches in response to changing circumstances results in more effective and efficient outcomes [12]. Adapting to technology is crucial, as modern life is saturated with increasingly advanced technology. All tasks in daily life can be completed more swiftly, easily, and efficiently by possessing this skill.

6. Global Citizen

Students who view themselves as global citizens within also demonstrate a nuanced understanding of knowledge, a dedication to the common good, and a willingness to connect with individuals who think differently from them. The ability of global citizenship enables individuals to navigate cultural differences with respect and empathy, fostering harmonious relationships in diverse societies [13]. Students should not confine their understanding of cultures and the unique aspects of a particular culture or country. Instead, they need to comprehend and uphold values of purity, justice, equality, fairness, and equal opportunity as the primary objectives in understanding the skills of a global society.

According to the findings of this study, students need to practice a responsible attitude. This is a priority given above other factors in creating individuals who are humane and professional. This is claimed to occur because, logically, one must take responsibility for their actions after making mistakes in any situation. Global citizenship skills empower individuals to make educated and ethical decisions in their daily lives [14]. Furthermore, students should consistently update their knowledge about contemporary global challenges. This demonstrates students' concern for the current state of the world. It is important for students to realize global challenges, whether recent or historical. They will enhance awareness of major global issues and attempt to influence laws and practices that establish a more just and inclusive world.

Conclusion

This study was conducted to examine the level of employability skills among students pursuing a Bachelor's degree at selected universities. The primary objective of this study is to identify employability skills that can be learned through service learning. In conclusion, the study findings indicate that students are highly proficient in the employability skills integrated into the courses offered at the university level, ensuring the employability of graduates in the job market. The study results also demonstrate that a variety of employability skills emphasized by the university ensure that the aspects of employability required by graduates can meet the current industry needs in both the private and government sectors. The researcher hopes that employability skills can be mastered by all students, regardless of whether they are from public or private higher education institutions, to ensure that the quality of graduates continues to improve. This ensures that the quality of graduates is excellent in terms of both generic and interpersonal skills.

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Inculcating Food Insecurity Empathy among University Students via Service-Learning: The Free-Meal by Bunga Lawang Project

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Abstract

The issue of food insecurity (FI) among university students has become a significant concern in recent years. Food insecurity is the state of having limited or uncertain access to sufficient and nourishing food as a result of financial limitations. University students are a susceptible population to experiencing food insecurity which has substantial consequences for their academic and health outcomes. Exploring food insecurity empathy through a service-learning project aimed at cultivating empathyfor food insecurity can be a powerful educational experience that not only raises awareness about the issue but also encourages active engagement and understanding. This paper focuses on the ongoing implementation of a Free-Meal by Bunga Lawang project within the faculty. Starting in 2017, students who registered for food-related courses offered by the School of Education (SHPL1112 Basic Food Preparation and Nutrition and SHPL 2142 Foodservice Operations) have been working together with the Free-Meal taskforce of the Faculty of Social Sciences and Humanities UTM to implement the Free-Meal by Bunga Lawang Project. Thus far, approximately six (6) cohorts of students have involved in this project, with approximately 1000 students benefiting from the Free-Meal by Bunga Lawang initiatives. This Free-Meal by Bunga Lawang project allows participants among university students to gain a deeper understanding of the challenges faced by individuals and communities dealing with food insecurity while actively contributing to alleviating this issue. The findingsindicate that the Free-Meal Project by Bunga Lawang is an excellent example of how service-learning can be a transformative educational experience, fostering empathy and empowering university students to make a positive impact on their communities.

Keywords: Free-Meal Project, Food Insecurity, Campus, Hunger, Service Learning

Introduction

University life can be challenging. Apart from placing academic pursuits at the forefront of their minds, university students must adeptly manage accommodation, personal necessities, and food. Nevertheless, certain university students find it challenging to effectively handle their food needs. As a result of poverty or other circumstances, not all university students are capable of securing food and sustenance. A significant number of students face the issue of 'food insecurity', which refers to the inadequate access to and availability of food in their lives. Food insecurity, is agrowing concern among university students globally. The inability to acquire food signifies a scarcity of food security, characterized by inadequate physical, social, and economic access to sufficient food, resulting in hunger and a lack of a nutritious diet (Nazmi, et al., 2019). Food insecurity can have a detrimental impact on students' physical and mental health, as well as their academic performance. Inadequate food availability can consistently impact a student's capacity to fulfil their academic requirements, including attending classes, completing assignments, and achieving high scores on tests and examinations.

The higher rates of food insecurity among college students can be attributed to several factors. These include the increasing number of low-income college students, the high costs of college education and inadequate financial aid, greater financial difficulties faced by low- and moderate-income families, a limited job market for part-time workers, diminishing per capita college resources, and policies of the Supplemental Nutritional Assistance Programme that specifically exclude many college studentsfrom receiving assistance (Freudenberg, Goldrick-Rab, & Poppendieck, 2019). In Malaysia, the national nutritional rehabilitation programmes, such as the School Milk Programme and Food Supplementary Programme, are exclusively provided to school children under the Ministry of Education. The RMT *(Rancangan Makanan Tambahan)* Supplementary Food Plan (Eligibility & Allocation) RMT has been managed, supervised and fully implemented by the Malaysian Ministry of Education since 1979. In 2019, the government has expanded the Food Bank Malaysia programme to 20 local universities. The effort is taken in light of the recent revelations about B40 university students being unable to afford more than one meal per day; supermarket franchises have agreed to provide food surplus from outlets across the country in support of the programme.

Several studies, however, have shown that initiatives other than the establishment of food banks in university settings must also be initiated. University and related organizations should provide meal plans for their students who are unable to purchase food due to financial constraints, such as in Ramli, et al (2021). Addressing this issue is crucial to ensure that all university students have access to the nutritious food they need to thrive during their educational journey. Thus, assisting vulnerable university students in addressing campus food insecurity is a multifaceted challenge, but withthe right mechanisms and ongoing commitment, institutions can make a meaningful difference in the lives of their students (Adamovic, Newton & House, 2022; El Zein,et al., 2019).

Campus Food Insecurity Interventions

To address campus food insecurity among vulnerable groups, such as university students, it is necessary to implement supportive mechanisms and programmes. These mechanisms should strive to offer immediate alleviation, foster self-reliance, and establish a sustainable setting where students can obtain nourishing food, as shown in Figure 1.
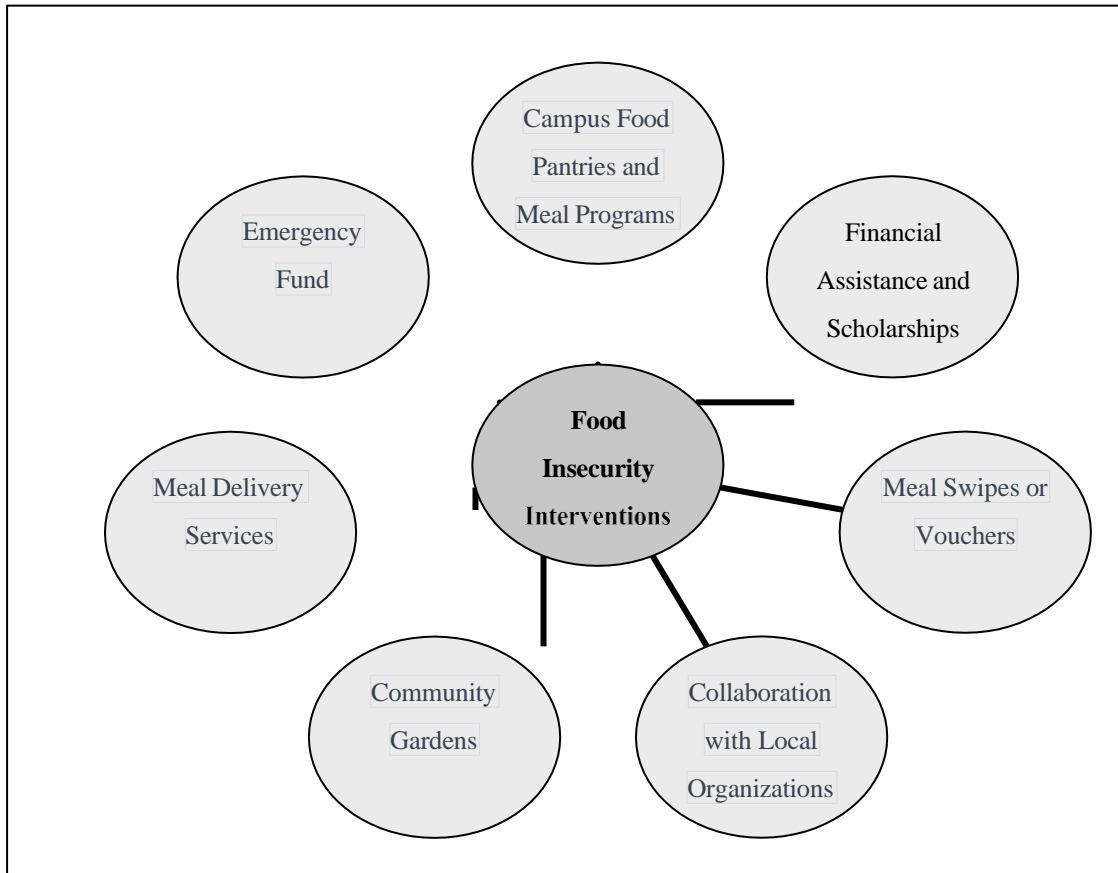
Source: Goldrick-Rab (2020)

Figure 1
Examples of Campus Food Insecurity Interventions

Prior research and studies have consistently emphasised the manifold positive effects that interventions targeting food insecurity on university campuses have on the lives of students, their academic careers, and the university community at large. A study conducted by Adamovic, Newton, and House (2022) reveals that university students proposed various measures to combat student food insecurity, including the implementation of on-campus food assistance programmes, educational initiatives,and off-campus food assistance programmes, while Goldrick-Rab (2020), as shown inTable 1, emphasizes the importance of selecting appropriate actions and interventions,which have significant effects not only in the short term but also in the long term. These interventions are not only important but also essential for supporting the well- being and success of students in higher education.

Table 1
Campus Food Insecurity Interventions

Interventions	Details
Campus Food Pantriesand Meal Programs	• Establish and maintain on-campus food pantries that supply students in need with fresh produce and nonperishable food items. • Establish meal programmes that provide studentsexperiencing severe food insecurity with cost- effective or complimentary meal alternatives.
Financial Assistanceand Scholarships/ Emergency Funds	• Provide immediate assistance or short-term loans to students who are unable to purchase food due to unexpected financial circumstances. • Provide vulnerable students with scholarships orgrants designated for accommodation or food assistance.
Meal Swipes orVouchers	• Collaborate with dining services to create a programthat allows students to donate unused meal swipes or offer meal vouchers to fellow students in need.
Community Gardens	• Establish community gardens where students can grow their own produce on campus. In addition tooffering freshly prepared meals, this promotes thedevelopment of a communal spirit.
Meal Delivery Services	• Establish meal delivery services for students whoencounter difficulties with mobility or transportation, ensuring their access to nourishingmeals.
Collaboration with Local Organizations	• Collaborate with local food banks, community organisations, and nonprofits to expand food assistance on campus, exchange resources, and create referral systems for students experiencing food insecurity.

Other interventions encompass organizing educational workshops on budgeting, meal planning, food preparation skills, and nutrition. These workshops possess the capacity to empower students to make judicious choices concerning food and finances. Additionally, the promotion of awareness campaigns aimed at diminishing the social stigma surrounding the act of seeking food assistance is highly valued. This will incentivize students to utilize the accessible resources. Interventions targeting campus food insecurity are essential as they directly tackle a pressing issue that significantly impacts numerous university students (Glik & Martinez, 2017; Bruening, et al., 2017; Payne-Sturges, et al., 2018; Ahmed, et al., 2023).

Academic Service Learning

Academic service learning is an educational approach that integrates meaningful community service with academic instruction. It is a pedagogical strategy that combines learning objectives with service to the community, fostering civic engagement, personal growth, and an enhanced understanding of course content. According to previous studies, academic service learning has the potential as a platform for educational institutions in achieving civic outcomes, academic connection, career preparation, and personal growth in students (Choo, et al., 2019; Salam, et al., 2019). The Free-Meal by Bunga Lawang initiative is accomplished by students who are enrolled in two food-related courses offered as part of the Bachelor of Technology with Education (Living Skills) with Honors programme. These courses are SHPL1112 Basic Food Preparation and Nutrition, and SHPL 2142 Foodservice Operations.

a) SHPL1112 Basic Food Preparation and Nutrition

This course offers students a comprehensive understanding of fundamental principles in food preparation and nutrition. The students receive training in technical content to acquire proficiency and expertise in culinary activities, which are conducted on a weekly basis, following different cooking themes. Each cooking theme incorporates principles of food sanitation, food safety, time management, food cost control, strategic menu planning, and visually appealing food presentation techniques. The students will also acquire knowledge about fundamental concepts in nutritional intake, as well as the nutritional aspects involved in food preparation. This course focuses on instructing students in the creation of proficient procedural text by utilizing a recipe recognition process. Table 1 and Table 2 shows the mapping of theCourse Learning Outcomes (CLO) to the Programme Learning Outcomes (PLO), Teaching & Learning (T&L) methods and Assessment methods for these twocourses:

Table 1
Mapping for the SHPL1112 Basic Food Preparation and Nutrition

No.	CLO	PLO (Code)	*Taxonomies& **generic skills	T&L methods
CLO1	Demonstrate understanding on the principles and fundamentalsof foodpreparation and nutrition	PLO 1 (KW)	C4	Lecture, Active Learning
CLO2	Demonstrate skills in food preparation with good time management, modern kitchen utensilhandling, food safety and sanitation application, and product evaluation	PLO 2 (AP)	P5	Active Learning -Weekly Practical Cooking

| CLO3 | Demonstrate ability to perform afood project by indicating capability in practicing the knowledge, skills andapplying concepts in food and preparationand nutrition | PLO 3(PS) PLO 5 (TH) | P5 TH3 (ability to lookfor alternativ eideas and creative solutions) | Food Preparation demonstratio n]Project-based Learning (Group) |

b) SHPL 2142 Foodservice Operations

This course provides students with a comprehensive overview of the process of planning, initiating, and running a successful catering business. This course offers students comprehensive knowledge and practical experience in the field of food service operation. The student will acquire essential skills ranging from culinary proficiency to managerial expertise, regardless of the location, be it on premise, off-premises, mobile, within a hotel, as part of a restaurant, or even operating from a homekitchen. The focus is placed on the various categories of food service, the implementation of professional work principles, and the utilization of entrepreneurial principles in overseeing and managing food service operations. Students are provided with hands-on experience in food preparation, marketing strategy, menu planning, and food costing for the food service operation, in accordance with a written business plan. Upon completion of the course, students will possess the ability to effectively manage and operate food-related business ventures.

Table 2
Mapping for the SHPL2142 Foodservice Operations

No.	CLO	PLO (Code)	*Taxonomies & **generic skills	T&L methods
CLO1	Distinguish basic principles of foodserviceoperations precisely	PLO 1 (KW)	C4	Lecture, Active Learnin g
CLO2	Demonstrates skill in food serviceoperations management	PLO 2 (AP)	P5	Active Learning – Catering Operations
CLO3	Design a food service operationcompletely and profitably	PLO3 (PS) PLO1 0 (ES)	P4 Enterprising	Case-based Learning

CLO4	Discuss and evaluate industry trends as they relate to career opportunities and thefuture of the industry	PLO 6 (SC)	Scholarship	Lecture, Case-based Learning

Research Objective

The purpose of this study was to explore the service-learning experiences of students from various cohorts and to identify food insecurity empathy through a service-learning project named as Free Meal by Bunga Lawang.

Research Questions

1. What is the service-learning experiences of students from various cohorts on their learning outcome?
2. Is it possible to develop food insecurity empathy through a service-learning project named as Free Meal by Bunga Lawang?

Methodology

The researcher conducted this study to determine the impact of service learning on student learning outcomes, particularly the SULAM project; the Free-Meal by Bunga Lawang. The qualitative research undertaken involves administering a face-to-face interview and analyzing the reflective journal. The analysis revealed that most students exhibited favorable responses regarding the efficacy of service-learning approaches through the Free-Meal by Bunga Lawang project in fostering food insecurity empathy and other positive generic attributes.

Results and Discussions

Data collection was carried out through the process of obtaining input from the sample participants in person during interviews, and by analyzing the individual written reflections from the project report.

Findings for Research Question 1: What is the service-learning experiences of students from various cohorts on their learning outcome after participating in SULAMproject?

For this research questions, students shared their conceptions about food insecurity issues within their university campus.

Conceptions of Food Insecurity within University Campus
Food insecurity on university campuses pertains to the state in which individuals within the university community, including students, faculty, and staff, do not have regular access to an adequate amount of nutritious food to maintain a healthy and active lifestyle. Understanding the nature, causes, and consequences of food insecurity is essential (Djan, 2023) when examining this issue within university campuses (Park, et al., 2020). The following findings indicates several fundamental elements in the conceptualization of food insecurity within the university setting.

One of the emerging themes is the students' awareness of the current situation faced by their peers who experience food insecurity.

> *"We came to understand that there were those among us who lacked a sufficient monthly stipend for food."*

> *"Our friend is incredibly frugal when it comes to saving money. Right now, food prices are skyrocketing. We had no choice but to be frugal with our money..."*

Furthermore, students shared their conceptions of SULAM projects' impact on their personal and professional development. Indeed, volunteering for a food assistance program can have a profound impact on both the volunteers themselves and the individuals. Food insecurity on university campuses requires a comprehensive understanding of the complex interplay of financial, social, and academic factors. To ensure the well-being and success of all members of the university community, approaches to addressing this issue frequently necessitate a multifaceted, collaborative, and empathetic response.

Direct Engagement with Food Insecurity
Volunteering provides individuals with a firsthand experience of the difficulties encountered by those who are facing food insecurity. Engaging with individuals and families who depend on food assistance can cultivate empathy by offering direct understanding of their hardships and the obstacles they encounter in obtaining nourishing meals (Barton, 2020 and Tsobanoglou, 2019).

> *"Not everyone can have the same experience that comes with providing a free meal. Even though I was tired, I felt very happy when I handed out the food to the people. When you see other people happy, your tiredness fades."*

Implementing the Free Meal by Bunga Lawang project is indeed an exclusive experience for the students as not all individuals have the capacity to partake in the same encounter associated with offering a free meal. Upon distributing the food to the individuals, students experienced immense joy, despite feeling slightly fatigued due to the course fulfilment. The key phrase - fatigue dissipates when one witnesses the joy of others, demonstrating how much they care and feel for others. It is that genuine concerns and empathy towards others that matters.

Reducing stigma
The majority of students concur that individuals from a B40 socio-economic background are the primary beneficiaries of this programme. Nevertheless, a few students expressed unease with the categorization. The findings are consistent with previous research, such as in McKay, McKenzie & Lindberg (2022); Bruckner, et al., (2021) and Bowe, et al., (2019) that found shame, stigma, and social exclusion to be associated with the use of charitable food programmes.

> *"When we prepare food for friends, the spirit of togetherness is apparent, andI believe they are less hesitant to take the free food..."*

This programme has the potential to be inclusive and accessible to all students. Engaging in volunteer work has the potential to dismantle preconceived notions and diminish the negative perception surrounding the issue of inadequate access to food. Through engaging with various demographics confronting these difficulties, volunteers are prone to questioning and dispelling misconceptions and prejudices, resulting in heightened empathy and diminished judgement.

Personal Connection
Engaging in volunteer work with food-insecure individuals and families can foster a more profound emotional bond such as highlighted in studies by Ahmed, et al., (2023). Their studies indicate that the student-led food insecurity intervention have impacted diverse community college students positively, particularly in order to bolster students' activism and understanding of food insecurity. Volunteers frequently listen to personal narratives, exchange anecdotes, and cultivate a more profound comprehension of the factors that contribute to food insecurity. Initiatives such as the implementation of the Free Meal by Bunga Lawang project successfully foster a stronger connection between students and contemporary matters.

> *"This free meal exposure is viewed as a positive initiative that allows students to enjoy delicious and free food prepared by SPPH (Living Skills Education program) students.*

> *"As one of the SPPH students, I feel so proud to be a part of this initiative to provide free meals."*

Personal Growth
Participating in volunteer work frequently promotes self-awareness and personal development. Volunteers may consider their own advantages and the part they can play in resolving social issues; this can result in a more compassionate perspective and a dedication to social justice (Soldavini & Berner, 2020), as among the highlighted responses,

> *"...as a student and future teacher, I recognise the importance of being constantly mindful of the prevalent issues in my surroundings, such as the problem of food insecurity."*

> *"This initiative can assist students in being courageous in public when they graduate."*

> *"We are pleased to have been able to successfully implement the free meal programme, despite some flaws that must be addressed. We accept criticism with open arms and learn from our mistakes."*

Professional Development Related to the Course

Findings for Research Question 3: Is it possible to develop food insecurity empathy through a service-learning project named as Free Meal by Bunga Lawang?

The research findings demonstrate that engagement in voluntary activities, such as participation in this Free Meal by Bunga Lawang project, can cultivate the quality of empathy.

Increased Awareness for Random Act of Kindness
Engaging in volunteer work allows individuals to gain firsthand exposure to the underlying systemic factors contributing to food insecurity, including poverty, unemployment, and insufficient social support systems. As mentioned by Rondeau, Stricker, Kozachenko & Parizeau (2020), this consciousness can result in an enhancedcapacity for understanding and sharing the feelings of those impacted, as well as a realisation of the necessity for fundamental and comprehensive transformation. As highlighted in the interview responses and written self-reflection,

> *"This free food distribution programme excites me because it allows me tofeed many people with food that my friends and I produce ourselves."*

> *"...it's the food that unite us."*

> *"I am pleased and proud to have completed all of the assigned menus and to be able to serve our meals to the public.*

Inspiring Others

> *"Friends from other programmes were pleasantly surprised to learn that weSHPH students could prepare free meals, and they enjoyed them very much."*

> *"I hope that this programme can be continued in the future to foster the virtuespirit as well as the nature of appreciating what people give to one another."*

Volunteers have the ability to motivate individuals in their communities to develop greater empathy and actively participate in efforts to combat food insecurity. The narratives and firsthand encounters of these individuals have the potential to inspire and motivate friends, family members, and peers to actively participate in the movement, thereby magnifying the effectiveness of their endeavours. Additionally, studies by Armour & Barton (2019) and Veludo-de-Oliveira, Pallister & Foxall (2015) demonstrates that firsthand exposure to the welfare system underscores the importance of narratives focused on social justice, as well as common values and social bonds, in relation to one's psychological well-being. The researchers propose that engaging in volunteering and service-learning activities may effectively cultivate empath.

Motivation for Advocacy

Volunteering can foster empathy, which can then be a strong driver for advocating and effecting social change. Volunteers who acquire a profound comprehension of food insecurity are likely to become more fervent proponents for policy reforms, heightened assistance for susceptible populations, and initiatives aimed at diminishing hunger at the community level. Previous studies indicated that major reasons for volunteering and involvement in social or community works include requirement, social life, altruism and career advancement, whereby campus students should be encouraged to participate in food distributions (Mousa& Freeland-Graves, 2017; Schichtl, Carroll& Sartain, 2022).

Volunteering for a food assistance programme can profoundly influence individuals by cultivating empathy and inspiring them to more efficiently tackle the issue of food insecurity. This capacity for empathy, when coupled with heightened consciousness and individual development, can result in a dedication to societal transformation and a more sympathetic and knowledgeable strategy to mitigating hunger and poverty in localities.

Conclusion

Volunteering for a food assistance program can have a profound impact on both the volunteers themselves and the individuals or communities they serve. One significant aspect of this impact is the development of empathy, which can play a crucial role in addressing food insecurity and related social issues. The service learning experiences, along with other chances for profound learning, should be considered for incorporation into food-related and humanity-related courses at the university level. This will be advantageous for students as they transition into the workforce and throughout their professional growth at any stage of their career. The conditions of the experience can be adjusted to enhance effectiveness, based on the target audience, circumstances, and desired learning outcomes. Service learning is an impactful educational method that brings advantages to both students and the communities they assist. It has the potential to be applied in various academic fields and educational environments, and it has a significant impact on the development of socially cognizant and engaged citizens.

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Fostering Future Leaders: Embarking on the Smart Leadership Journey to Knowledge

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Abstract

In the rapidly evolving landscape of contemporary leadership paradigms, the importance of continuous learning and adaptive skills has become increasingly apparent. The program "Smart Leadership: Journey to Knowledge Program "(SLJTK) explores the concept of smart leadership, explaining its essence as a dynamic and knowledge- driven approach to leading in a complex environment. Addressing various theoretical frameworks and empirical studies, this paper explores the multifaceted dimensions of intelligent leadership, emphasizing its interaction with cognitive agility, emotional intelligence and strategic thinking. The core focus of the paper is the innovative concept of "SLJTK program" which includes a structured program designed to foster and enhance intelligent leadership capabilities. Through rigorous educational synthesis, experiential learning, and technology integration, the program aims to empower leaders with the ability to navigate uncertainty, foster innovation, and drive organizational success. Practical insights are provided into program implementation, including design, curriculum components and expected outcomes. Additionally, this paper outlines the symbiotic relationship between intelligent leadership and knowledge acquisition. It explains how leaders who engage in continuous learning, embrace multiple perspectives and leverage cutting-edge insights are better prepared to effectively steer their teams and organizations. Concepts of organization and learning are explored as key enablers of sustainable smart leadership, where knowledge flows seamlessly and fosters a culture of collective intelligence. Overall, the "SLJTK program" contributes to the contemporary leadership paradigm discourse by presenting a comprehensive framework for cultivating smart leadership capabilities. This paper advocates a proactive approach to leadership development that integrates cognitive, emotional and strategic skills, thus equipping leaders to navigate the complexities of today's rapidly changing world. Through "SLJTK program", communities and organizations can foster a culture of innovation, adaptability and continuous growth, ensuring their leaders are prepared for continued success in an ever-evolving landscape.

Keywords: Leadership Program, Experiential Learning, Teamwork, Social Responsibility, Practical Application, Holistic Development.

Introduction

Leadership plays an important role in all segments of society, as the absence of capable leaders poses a threat to political stability on a domestic and international scale. Malaysia also needs exceptional leaders to outline the country's future vision and mission. Leadership development should start from an early stage, even during elementary school, when children begin to understand the importance of leadership in their daily lives. Although not everyone is a perfect leader, leadership qualities can and should be cultivated.

An effective approach involves inculcating the characteristics of quality leaders from an early age. By integrating traits such as honesty, dedication, practicality, listening skills and decision-making abilities into a child's personality early on, it becomes easier to cultivate the qualities required for exceptional leadership. These attributes should become integrated habits as children grow physically and in age, ensuring that they embody the qualities, attitudes, and identity of leaders capable of making significant contributions in various aspects in the future.

In line with this philosophy, a leadership program was designed and implemented on 20 June 2023, at Sekolah Kebangsaan Ahmad Tajuddin (SKSAT), Jitra, Kedah. The implementation is based on outlining the guidelines as set. the context and rationale of the study, introducing the concept of the "Smart Leadership: Journey to Knowledge (SLJTK)" program as a way to foster leadership skills among school students. The program described, "Smart Leadership: Journey to Knowledge Program," serves as a guide for individuals and organizations interested in organizing leadership camps for elementary and junior high school students. The suitability of this module is demonstrated by its successful implementation at SKSAT, Jitra, Kedah, with the same name on 20 June 2023. The participants consisted of supervisors of students in years 4,5 and 6. This service learning is a platform for students to cultivate their leadership qualities. In this service learning, students can gain more knowledge and experience to become good leaders by engaging directly with the facilitator. In addition, this program will also benefit students academically and professionally because it will indirectly reveal their latent potential in leadership to school and university participants.

This study will focus on the Dynamic Smart Leadership (DSL) model. The flow of this model can be started by focusing on the attitude and nature (values) of a person. All input, whether positive or negative, is used as a basis in the formation of personality as a leader. The input gained will be identified and used as an advantage and something they can hold on to. The information obtained will be researched and analyzed as unique criteria that can be refined in the future. The results of the analysis of strengths and advantages will be given space to develop leadership qualities that need to be strengthened and existing potential polished. The results are output from the analysis and referred back to in the process of synthesis and reflection. This process does not stop there but will see the reaction from the environment and society. If the criteria shown by the leader's personality are found to be inappropriate, then this smart leadership process will continue to identify and inject appropriate elements along with the changing times and technological development of society.

Cooperation Program with Schools

Students of the "GFPP2403 (A) Organizational Leadership" class at Universiti Utara Malaysia, Sintok, were given the task of designing and implementing this SKSAT student leadership camp. Collaboration with schools has been initiated to address the need to train appointed student supervisors. The objectives of the program are as follows:

1. **Training Student Leaders** : The main objective of the leadership program is to train student leaders at SK Ahmad Tajuddin, Jitra. This training aims to equip them with important leadership skills and qualities.

2. **Improving Leadership Quality** : This program aims to improve the leadership quality of participating students, foster a sense of responsibility and identity. Through this training, students are prepared to face the challenges that come with their role as student leaders.

3. **Increasing Awareness of Leadership Responsibilities** : This program also aims to increase awareness among student leaders about the importance of their roles and responsibilities, in the present and for their future endeavors.

4. **Developing Facilitators and Critical Thinkers** : In addition to student leaders,the program trains 12 facilitators. These facilitators are taught to think creatively and critically when solving problems and handling situations. This training also contributes to the development of their interpersonal skills.

Basically, the "SLJTK Program " aims to foster leadership skills and qualities among student leaders, promoting responsibility, self-awareness and critical thinking. By involving both student leaders and facilitators, the program offers a comprehensive learning experience that goes beyond the traditional classroom setting. The success of its implementation at Sekolah Kebangsaan Ahmad Tajuddin demonstrates the potentialeffectiveness of such a program in improving student leadership ability.

Purpose of the Study

The purpose of the study is to investigate and emphasize the importance of cultivating dynamic smart leadership qualities from childhood. This research aims to highlight the importance of inculcating important leadership qualities, such as honesty, dedication, practicality, attentive listening and decision-making skills, during primary education. This study aims to emphasize that although not everyone may possess natural leadership qualities, these qualities can be cultivated and developed. Through this research, the intention is to encourage the formation of proactive leaders from an early age, contributing to the creation of capable and outstanding leaders who excel in various aspects of their lives.

Gifted students, because of their exceptional intellectual ability, may have gifted leadership qualities or may be expected to take on leadership roles. Just like potential capabilities, leadership skills should be nurtured and developed. This book goes beyond existing definitions and examples of leadership, presenting a framework for developing leadership skills and capabilities tailored to the needs of leaders in today's era. Boswell (2021), explains that the curriculum is deliberately designed to foster leadership potential among low-gifted students. It achieves this through a series of lessons and mini-activities that revolve around the four leadership frameworks conceptualized by Bolman and Deal, leading researchers in the field of organizational leadership. The point is that gifted leadership is not simply an inherent trait; it can also be nurtured and developed through the right educational approach.

In an era characterized by rapid and disruptive change, traditional leadership skills are proving inadequate in a VUCA (Volatility, Uncertainty, Complexity, Ambiguity) world. Futurist Bob Johansen argues that these traditional skills are failing.This paper takes the view of the Institute for the Future, a pioneering future think tank known for its record of outperforming its own predictions. It delves into the external forces reshaping leadership and introduces ten essential new leadership skills. These new skills include dilemma reversal, the ability to turn intractable problems into opportunities. Additionally, cultivating bio-empathy, which involves learning and applying principles from nature to leadership, is important. The same goes for deep learning, diving into diverse physical and online realms to gain knowledge. Johansen not only outlines these skills but also provides role models, tools and guidance to help individuals develop them, along with seven important future leadership skills.

Furthermore, this study discusses two influential forces that shape the future. First, it discusses "digital natives," individuals fifteen years of age or younger who have grown up in a digital-centric world. Second, it explores cloud-based supercomputing, enabling new forms of connectivity, collaboration and commerce. In this extensively updated and expanded second edition, Johansen collaborates with the respected Center for Creative Leadership (CCL). CCL's contribution helps readers understand these new leadership skills by linking them to existing ones and offers analysis and exercises to facilitate skill development (Johansen, B. (2012).

Objectives

In general, it can be said that the objective of this program is to run this leadership program to train student leaders at SKSAT, Jitra, Kedah. With this training, it is hoped to improve the quality of student leadership for the school as well as the nature of responsibility by building self-identity to overcome all obstacles or challenges experienced as student leaders. Realizing the importance of focusing on the responsibility and leadership of leaders for their future. In addition, this program also trains facilitators consisting of 32 people and students to think creatively and critically in solving or handling a problem faced as well as improving their soft skills. It can be concluded that the objective is as follows:

1. **To Assess the Importance of Early Leadership Development:** Determine the importance of instilling leadership qualities at an early age and its long-term impact on individual growth and societal progress.
2. **To Identify Key Leadership Qualities:** Identify and prioritize key leadership qualities such as honesty, dedication, practicality, attentive

listening, and decision-making skills that need to be nurtured from childhood.
3. **To Assess the Feasibility of Integrating Leadership Training in Primary Education:** Examine the feasibility of integrating leadership development activities into primary education to ensure that children are exposed to and can practice these qualities from an early age.

Through these objectives, this study seeks to shed light on the need and effectiveness of cultivating dynamic smart leadership qualities from childhood, ultimately contributing to the growth of capable leaders who can shape a better future. This objective emphasizes the expected results of the research, focusing on the evaluation and effectiveness of the "Smart Leadership: Journey to Knowledge" program.

Theoretical Framework

The theoretical framework for this study is drawn from several key concepts and theories related to leadership development, educational psychology, and human growth.

1. **Experiential Learning Theory:** Kolb's Experiential Learning Theory emphasizes learning through practical experience. Applying this theory, this study emphasizes the importance of hands-on activities in cultivating leadership qualities during primary education.
2. **Trait Theory of Leadership:** Trait theory states that effective leaders have certain characteristics. This study uses this theory to identify important leadership qualities such as honesty, dedication, practicality, attentive listening, and decision-making skills for cultivation.
3. **Theory of Cognitive Development:** Piaget's Theory of Cognitive Development suggests that children's cognitive abilities develop as they grow. Applying this theory, research adapts instructional approaches that are appropriate for different developmental stages in instilling leadership qualities.
4. **Transformational Leadership Theory:** Transformational leadership focuses on inspiring and motivating others to achieve higher goals. This study combines these theoretical aspects to emphasize the role of inspirational leadership qualities in nurturing young leaders.

By combining these theories, this study produces a holistic theoretical framework that guides the design, implementation and evaluation of a model to foster dynamic intelligent leadership qualities among young students.

Dynamic Smart Leadership (DSL)
The Dynamic Smart Leadership (DSL) model, is a leadership approach that emphasizes the continuous development and adaptation of leaders' qualities and attributes based on their attitudes, values and input. This model is designed to foster effective leadership by focusing on individual characteristics and leveraging both positive and negative experiences as a foundation for leadership development.
This study focuses on the (DSL) model, which starts with a person's attitudes and values. All inputs, whether positive or negative, are used to shape the

personality of the leader. These inputs are identified and used as strengths for future refinements. Analysis of strengths and advantages is important to improve the quality of leadership and refine existing potential. The results of this analysis are integrated and reflected on an ongoing basis, taking into account feedback from the environment and society. If the leader's personality criteria are deemed insufficient, the intelligent leadership process adapts to identify and incorporate the appropriate elements in response to changing societal and technological dynamics.

Figure 1 : Dynamic Smart Leadership (DSL) Model
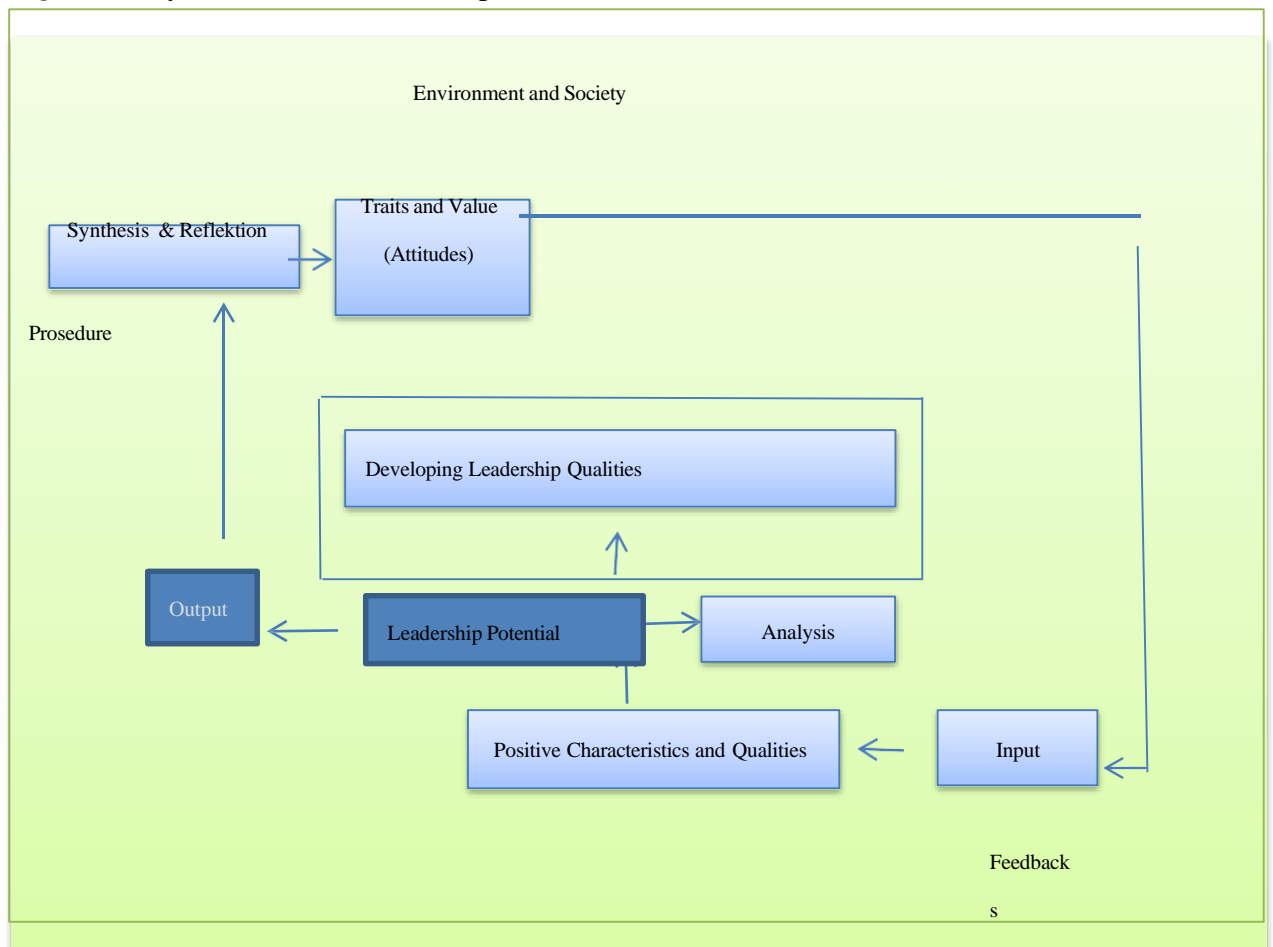
(Modified from Ismail, R (2023) Conflict Management Flow Model (CMF)Here is a breakdown of the main components of the model:

1. **Attitudes and Values** : The model begins by evaluating the leader's attitudes and values. This basic aspect of an individual's personality becomes the basis for forming their leadership style.
2. **Use of Input** : This model recognizes that both positive and negative experiences and inputs contribute to the formation of the leader's personality. These inputs are identified and transformed into strengths and guiding principles.
3. **Information Examination** : The information obtained from this input is examined and analyzed to identify unique criteria that can be honed in the future. This analysis aims to understand the potential of leaders and areas that need to be improved.

4. **Strength Development** : Strengths and qualities identified through analysis are nurtured and further developed. The leader's existing leadership qualities are refined and enhanced through a deliberate development process.
5. **Synthesis and Reflection** : The results of analysis and strength development are integrated through the process of synthesis and reflection. This step ensures that the leader's growth is holistic and comprehensive.
6. **Environmental Adaptation** : This model recognizes that effective leadership is dependent on the leader's ability to adapt to environmental changes and societal shifts. If the identified criteria are found to be incompatible with the evolving context, the model incorporates appropriate elements in line with changing times and technological advances.
7. **Continuous Evolution** : This model operates on a continuous cycle of self-evaluation, development and adaptation. It recognizes that leadership is not a static trait but rather a dynamic quality that needs to evolve in response to changing circumstances.

In essence, the "Dynamic Smart Leadership" model focuses on leveraging individual attitudes, values and experiences to develop a leadership style that is adaptable, effective and responsive to changing environmental needs. It emphasizes the importance of self-awareness, continuous learning, and the ability to evolve one's leadership approach to remain relevant and impactful.

Methodology

This section will explain in detail the method used. This includes the study design, participants (respondents), and how the study was conducted. The section explains the selection of SKSAT and UUM students, as well as the implementation of the program and data collection procedures. The research methodology uses a mixed methods approach, combining quantitative and qualitative techniques to comprehensively investigate the cultivation of dynamic intelligent leadership qualities from an early age. This program will be implemented using a combination of Learning and Development Circles (LDK), activity sessions, and motivational components. This multifaceted approach ensures a comprehensive and engaging experience for all participants. The combination of LDK discussions, interactive activities and motivational elements will create a dynamic and immersive learning environment. This approach is designed to meet diverse learning styles and ensure participants are engaged, motivated, and equipped with practical leadership skills. By bringing together students from both schools and UUM, this program promotes intergenerational learning, fostering a spirit of collaboration that transcends traditional boundaries. Through hands-on experience and meaningful interaction, participants will gain a deeper understanding of leadership concepts and their practical application. The proposed implementation approach reflects the program's commitment to foster well-rounded, adaptable and motivated leaders.

Literature Review

The literature review encompasses a range of studies examining various facets of education, leadership, and attitude change. These studies shed light on important aspects of these domains, contributing to our understanding of how they intersect and influence each other. Winterbottom and Schmidt's (2022) research introduces the concept of service learning in early childhood education. They investigate its potential to foster character development and social-emotional growth among young students. This study underscores the significance of service learning in bridging academic curriculum with authentic community needs, benefiting a wide range of students, including those with challenging behaviors and exceptional needs.

In a complementary vein, Williams (2015) offers a comprehensive guide for parents and individuals interested in cultivating leadership qualities in children. Drawing on his extensive experience in sports and leadership, Williams outlines a structured approach involving seven key steps. These steps emphasize the importance of instilling vision, effective communication, character development, competence, courage, and a sense of service in children to nurture effective leadership skills. In the context of the contemporary organizational landscape, Príncipe's (2023) research delves into the advantages of integrating a third culture building approach. This approach is aimed at enhancing management practices and individual leadership skills. It particularly focuses on individuals known as "third culture children" who have grown into working adults. These individuals have been influenced by diverse international dynamics, contributing to the development of a strong personal identity enriched by various life experiences. In a post-pandemic era, there's a growing demand for leaders with global skills and a capacity to manage cross-border business operations effectively, making this perspective especially relevant. Building upon this theme, De Waal et al. (2020) explore the distinction between third culture children (TCKs) and non-TCKs in terms of their multicultural personality traits and intercultural competence. TCKs exhibit higher intercultural sensitivity and a preference for transformational leadership. This preference is positively influenced by their open-mindedness but negatively affected by their flexibility and emotional stability. These findings illuminate the unique qualities and leadership preferences of TCKs, highlighting their potential in multicultural organizational settings.

Furthermore, Boswell et al. (2009) delve into the dynamics of leadership styles and power in shaping attitude change among students. They discover that rewards and punishments are effective tools for inducing public compliance, with participative leadership particularly successful when combined with neutral or reward-based power dynamics.

In alignment with this research, Kipnis (1958) explores the effectiveness of leadership styles, specifically participative and lecturing, in influencing attitude change among students. This study also investigates the impact of rewards and punishments in the process. The findings emphasize the potency of participative leadership and underscore the role of power dynamics in shaping attitudes and behaviors.

Collectively, these studies contribute to a nuanced understanding of leadership, education, and attitude change, highlighting the various factors and strategies that influence these processes.

Findings

This section will discuss the findings of the study and the results from the program as a whole, summarizing the results of the "SLJTK" program in terms of improving leadership skills, teamwork, and social responsibility. The findings of the study will contribute to refining the proposed model and offer practical strategies for researchers,educators and institutions interested in fostering dynamic intelligent leadership traits from an early age. In addition, this study will shed light on the broader implications of early leadership cultivation for community advancement and the development of future leaders.

1. Identification of Essential Leadership Qualities
2. Feasibility of Integrating Leadership Training
3. A Pedagogical Approach to Early Leadership Cultivation
4. Developmental Appropriateness of the Model
5. Impact on Long Term Development
6. Effectiveness of the Proposed Model
7. Recommendations for Future Research
8. Wider Community Implications

Ultimately, the expected findings of your study will contribute to a deeper understanding of how dynamic intelligent leadership qualities can be fostered in children from an early age, providing valuable insights for educators, researchers and policy makers.

Construction of Smart Leadership Model
By using the book "Constructing Grounded Theory" by Charmaz, K (2014: 16-18), as the basic guide of the book, a researcher has developed a leadership training model that aims to foster strong character and personal development in children. develop an initial model that includes key elements that influence character and personal development in children through leadership training. This model may still need improvement. The developed model needs to be validated through empirical testing. This may involve conducting leadership exercises using models with children and measuring their impact on their development. Based on the validation results, the model can be improved and elaborated. This can include refining the training design, emphasizing certain elements,or adjusting the objectives for better results.

Finally, the model was used to create detailed guidelines and training materials for implementing leadership training for children. Throughout this process, the researcher adheres to the principles of Grounded Theory outlined by Kathy Charmaz, such as continuous data collection and the development of theories rooted in the data. The Dynamic Smart Leadership (DSL) model is based on strong empirical evidence and is aligned with the objectives set. This produces a model that uses the results of the study and the approach that has been used to make this program a success. This model can be used as a reference in developing a series of leadership exercises for students that are suitable for the proposed age of 10 to 12 years in the future.

Recommendations and Recommendations

The formation of a quality leader's image and personality for school students in carrying out their responsibilities as entrusted leaders. It is also an added value to them in producing students who are disciplined, cooperative (teamwork), responsible and brave to take on challenges in dealing with existing challenges. The basis of the module offered is arranged in such a way as to meet the basic needs as a leader as can be seen in the Kids Leadership lecture slot. Reciprocal presentation gives space and opportunity for participants to voice their opinions and views while the speaker conveys knowledge about leadership. Participants were also directly involved when asked to list their negative and positive traits and attitudes.

The interaction between the speaker and the participants can provide more understanding and effective input because they also play a role in the talk activity. Speakers always ask how well they understand and relate to themselves so that participants feel part of the process. Criteria to be a good leader such as serving, leadership by example, effective communication, cooperation, decision making, negotiation, tolerance, vision and planning are important characteristics to be a good leader. A commendable personality and noble morals are also characteristics that are applied indirectly to the participants. The use of presentation slides also needs to be more interesting, interactive and close to their situation. Appropriate planning and activities are also designed to complement the needs of this leadership camp for them. In conclusion, this study contributes to the discourse of leadership development by emphasizing the importance of early leadership culture. Aligned with educational theory and practice, the proposed model offers a potential pathway to foster skilled and adaptable leaders for the future.

Discussion

In this section will discuss and interpret the findings of the study in the context of the study objectives and theoretical framework. It describes how program components contribute to the observed outcomes and aligns with the existing literature and has been cited in the previous section. All the activities carried out in this program are also listed and the results and reflections of the students involved can be seen. It turns out that they really appreciate and can improve skills such as communication skills, maximize the advantages and qualities they have, cooperate in completing tasks and be more confident in themselves. The same goes for the assigned facilitator. All the theories learned in class can be fully applied and the experience gained can improve their knowledge and enrich their decision-making skills.

SLJTK Program Activities

The following are the activities carried out in forming cooperation and communication between participants. The activity is: pass the balloon, seat fight, signal chain messages,rubber band relay, lead the blind, blind drawing and hulahoop relay.

Academic Learning and Community Service Experience

Service Learning is an educational pedagogy that aims to forge connections between academic learning and community service experiences. Its significance lies in utilizing content-related skills and knowledge resources to address pertinent societal issues. However, there's no universally accepted definition for Service Learning, as institutions may interpret and implement it differently, leading to diverse objectives and outcomes.This diversity stems from the complex interactions between students, service activities,curriculum content, and learning outcomes, making it challenging to generalize findings from one course to another. Consequently, predicting results and experiences in Service Learning remains intricate, with the lack of a common definition being a significant obstacle (Furco, 2003).

One widely recognized definition, proposed by Bringle (2006), emphasizes the integration of service experiences into courses, with clearly defined learning objectives that align with the needs of the community partners. This definition has gained popularity in the field. Coelho and Menezes (2021) delve into the concept of University Social Responsibility (USR) within European higher education institutions (HEIs). They highlight the evolving role of HEIs beyond knowledge production, emphasizing their contribution to societal well-being and the cultivation of active, inclusive, participatory, and democratic citizenship among students. HEIs are grappling with a changing landscape characterized by novel learning methods, climate change concerns, population mobility, and increasing student diversity. In this context, HEIs are being called upon to address global challenges, nurture socially responsible students, and enhance the overall welfare of society. The study underscores the importance of empirical research to assess the impact of USR initiatives on various facets of student development.

Recommendations and Implications

The findings of the study will contribute to refining the proposed model and offer practical strategies for researchers, educators and institutions interested in fostering dynamic intelligent leadership traits from an early age. In addition, this study will she delight on the broader implications of early leadership cultivation for community advancement and the development of future leaders. Among the recommendations that are highlighted:

1. Enhanced Cross-Contextual Validation
2. Longitudinal Study
3. A Mixed Methods Approach
4. Teacher Training and Support
5. Cultural Adaptation
6. Technology Integration
7. Parental Involvement
8. Evaluation Framework
9. Dissemination and Cooperation
10. Continuing Professional Development and
11. Resource Allocation

Learning Outcomes and Soft Skills

Student involvement in this program has yielded encouraging results. Mainly, it has instilled a sense of social responsibility among the students taking the Organizational Leadership course (GFPP2403), as they shared knowledge with 49 participants from grades 4, 5, and 6. The program has provided a platform for students to develop skills in management. situations, improve communication skills, and use leadership principles as a facilitator. Moreover, it is expected that this initiative will contribute to cultivating more well-rounded and dynamic individuals in the future. Service learning has served as a valuable channel for students to cultivate their leadership qualities. Through engagement with local community students who need their services, participants have gained practical knowledge and experience that can shape them into effective leaders.

In addition, the program can provide indirect academic and professional benefits by revealing students' latent leadership potential. The process of planning and implementing projects in this program has also led to the improvement of soft skills, including organizational management, communication, and confidence building among participants. Furthermore, it has sparked the interest of school students to develop their own knowledge and leadership skills. Overall, the program not only gives students the opportunity to discover their leadership talents but also imparts basic leadership principles, preparing them for future leadership roles. It fosters a sense of identity among facilitators and encourages cooperation in program management. Clearly, all parties involved benefited collectively from the success of the program.

Conclusion

In conclusion, this study sheds light on the importance of early leadership culture through the lens of a dynamic smart leadership model. These findings underscore the importance of cultivating qualities such as ethical decision-making, effective communication, adaptability, and collaborative skills from an early age. Alignment of these qualities with educational theory and practice emphasizes the potential of the proposed model to shape individuals into skilled and versatile leaders. Research exploration of the properties of the model and its integration into the primary education curriculum demonstrates the potential of transformative changes in the education system. By emphasizing constructivist pedagogical strategies and interdisciplinary collaboration, educators can contribute to the development of ethical, capable and adaptable leaders who are well-equipped to navigate the complexities of the modern world.

While acknowledging the inherent limitations of single-site studies and qualitative approaches, the validation received from experts reinforces the credibility of the dynamic intelligent leadership model. As educators, policymakers, and researchers continue to collaborate and refine the model, its broader implementation has the potential to influence not only educational settings but societal progress as well.The impact of early leadership cultivation extends beyond the classroom, fostering skills that contribute to political stability, a skilled workforce and an engaged citizenry. This study invites further research to explore the cross-cultural applicability of the model, its long-term sustainability, and its integration with evolving educational technologies. In essence, the journey to inculcate dynamic smart leadership qualities ata young age is an investment in the future. By equipping individuals with the skills and attributes essential for effective

leadership, can contribute to the creation of a society that values ethical behavior, innovation, collaboration and adaptability to a society that is ready for transformation and positive progress.

Smart Leadership: An Analysis of the Journey to Knowledge Program
"SLJTK program," serves as a guide for individuals and organizations interested in organizing leadership camps for elementary and junior high school students. The suitability of this module is demonstrated by its successful implementation at Sekolah Kebangsaan Ahmad Tajuddin (SKSAT), Jitra, Kedah, on 20 June 2023. Involvement ofstudents in the class "GFPP2403 (A) Organizational Leadership " at Universiti Utara Malaysia, Sintok, which has been given the task of designing and implementing this SKSAT student leadership camp. This program trains Student Leaders and aimed at equipping them with essential leadership skills and qualities. This can improve the leadership quality of students who participate, foster a sense of responsibility and identity. Through this training, students are prepared to face the challenges that come with their role as student leaders. The program also aims to raise awareness among student leaders about the importance of their roles and responsibilities, now and for their future endeavors. In addition, facilitators are also taught to think creatively and critically when solving problems and handling situations. This training also contributes to the development of their interpersonal skills and critical thinking.

Basically, the "SLJTK Program " aims to foster leadership skills and qualities among student leaders, promoting responsibility, self-awareness and critical thinking. By involving both student leaders and facilitators, the program offers a comprehensive learning experience that goes beyond the traditional classroom setting. The success of its implementation at Sekolah Kebangsaan Ahmad Tajuddin demonstrates the potential effectiveness of such a program in improving student leadership ability.

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Bio-D Made Easy: Enhancing Learning in Biodiversity Through Creative Medium Service-Learning Project

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Abstract

Biodiversity (EFT1023) is a subject taught at the Faculty of Bioengineering & Technology. Based on the previous cohort, the course learning outcome for cognitive domain was poor. Thus, this study aimed to explore the effectiveness of a unique learning approach that involves students of the current cohort creating their own children's books or comic books to learn about biodiversity, which then used in the service-learning project. The study investigates how this approach enhances students' understanding and acquisition of knowledge in the subject. The independent variable used in this study learning approach involving the creation of children's books or comic books focused on biodiversity. Students were provided with guidance and resources to develop their own narrative-driven materials. The dependent variables are students' learning outcomes and overall understanding of biodiversity, assessed through survey questionnaire. The questionnaire was designed to gauge students 'perceptions of the learning approach, including their opinions on its effectiveness, relevance, and overall satisfaction. In addition, demographic information and students' prior knowledge of general science was collected to explore any variations in perceptions based on these factors. The findings showed that more than 80% of the students responded agree and strongly agree to the survey questions. This demonstrated the positive impact this project has made. The findings of this research contributed to the field of education by providing insights into the effectiveness of the creative mediums, such as children's books and comic books, for teaching and learning biodiversity especially when combined with the service-learning activities.

Keywords: Service-learning, Biodiversity, Creative Medium, Knowledge Transfer

Introduction

Cognitive domain is one of the main domains that attributes to the knowledge acquisition on any subject learned at higher learning institutions. Students' learning state can be measured through learning performances, and this provides the platform to improve their learning efficiency (Guay et.al., 2018). After jam-packed lectures, tutorials, assignments, projects and practical, it is crucial to measure the success of the knowledge acquisition through tests and exams. These activities are curated to ensure students will be able to comprehend the subject matter in the span of 14 weeks every semester. Therefore, lecturers have put forth extra efforts to ensure the

students will obtain the maximal knowledge for each subject taught. However, in certain cases, intervention is needed to strengthen knowledge acquisition. Knowledge transfer and service-learning are two of the activities invented to inject an extra boost to the learning experience of these students.

Purpose of the Study

This study was made to increase student learning outcome in the Biodiversity subject, EFT 10123 through implementing knowledge transfer theory during service- learning project.

Objectives

The objective of the study was to observe the enhancement of learning biodiversity through the creation of creative medium (children's book or comic book) based on the topics of the biodiversity subject, which then used in the service-learningproject involving school students.

Theoretical Framework

Course learning outcome for cognitive domain is an important index to measure the effectiveness of students' learning. In the previous cohort of students undertook Biodiversity EFT1023, the outcome for the cognitive domain was very poor. Thus,this study was conducted based on the knowledge transfer theory, which was carried out to complete a full circle of learning process. Students need to understand the subject matter then transfer it in a simplified version of either children' book or comicbook, then later deliver it through the service-learning project with school students.

Methodology

The implementation of this project took 11 weeks of the 14 weeks semester. It involved 138 students taking the EFT1023 Biodiversity subject offered at the Faculty of Bioengineering & Technology, University Kelantan. Students were briefed at the first class about this project which will be part of their project assignments. Students were instructed to choose a topic out of the course outline, turn it into their creative medium of choice, either children's book or comic book. Students need to consult the course coordinator from time to time to discuss about their books. Once the books were completed, the students presented it at a program held in UMK that involved 8 primary school students around Jeli district, Kelantan. The university students need to show and explain to the primary school students about their books and engage with the school students through activities. A reflection survey was collected from the university students to assess their feedbacks about this project. Course learning outcome for cognitive domain was also analysed from their tests and exams results to identify the impact of this approach in enhancing their knowledge and understanding this course.

Table 1: Summary of the project details

Subject	Biodiversity EFT1023
Number of students taking the course	138
Number of members per group	4 or 5
Number of groups	34

Number of books produced	34
Number of schools participated in SULAM	8 (primary schools)
Collaborator	Kelantan State Department of Eduction
Course Learning Outcomes for the assignment	Discuss current issues related to the biodiversity, ecosystem, environment and human life

Literature Review

Active learning can be associated with various types of teaching approaches that incorporate the learner's active participation in the learning process. These include teaching cases, problem-based learning, simulations, and business games. Other teaching approaches, such as the use of films, comic books, conceptual maps, seminars, discussion forums, and symposia, can all help enhance the learning process. Most active teaching practices in the context of administration education aim to assist students in becoming protagonists of the learning process, and its epistemological basis is related to experiential learning (Merriam et.al. 2013; DaSilva 2016) and action learning (Raelin 2020; Marquardt et.al. 2009) in order to make the learning process more reflective.

In principle, comics are a visual storytelling medium that blends written and spoken language. They construct their own form of communication by combining speech balloons, font styles, and visuals. This combination of textual and visual aspects enables comics to convey not just the words said by characters, but also the tone, emotion, and actions conveyed by those words. Comics are a diverse and entertaining medium for both authors and readers because they are a dynamic and expressive method to tell narratives. Comics are a way to clarify complex concepts, make the learning process more fun, and enable students to actively engage in the development of learning materials (Yu & Sumayao 2022). It will entail sharing their own opinions, ideas, and emotions, as well as learning more about the issue. Overall, comics provide an active and effective approach for students to learn and express themselves creatively (Akcanca, 2020).

Comics as a resource can serve a wide range of educational objectives. They can be used to register, document, and summarise information, to deliver knowledge in an engaging and accessible style, and even for the creation and dissemination of scientific knowledge. Because there is a need for concentration, the encoding and decoding processes that students go through when creating and interpreting comics become learning enhancing elements. The research included comments and clarification questions about the usage of comics in a range of contexts, as well as the impact of such use (Liberto, 2012). However, it is difficult to find examples of research that demonstrate the use or development of comics by learners.

Findings

Books Created
A total of 34 books were created at the end of this project. Details of the books are presented in Table 2. Examples of the books created are as shown in Figure 2.

Table 2
Details of the books that were produced.

No	Book title	Topics covered
1	Glowing Goblin: The Fungi Friends	Fungi
2	Animal Extinction	Conservation
3	Water Cycle	Biogeochemical Cycle
4	Bacteria	Monera
5	The Lifecycle of Earthworm	Animalia
6	Save Our Forest	Conservation
7	Oh! My Farm	Ecosystem
8	Mushroom Tragedy	Fungi
9	Avians (Class of Birds)	Animalia
10	What is Fungi?	Fungi
11	Aquatic Ecosystem	Ecosystem
12	Capybara	Animalia
13	Global Warming	Conservation
14	Kappy The Capybara	Animalia
15	Crying Ocean	Conservation
16	Why Cloud is Sick?	Conservation
17	The Tale of Sungai Kim Kim	Current Issues
18	Can You See Me?	Biotic Adaptation
19	Air Pollution	Conservation / Biogeochemical cycle
20	Bob The Bacteria	Monera
21	Felis	Animalia
22	Marine Ecosystem	Ecosystem
23	Willow Project	Current Issues
24	Orca's Life	Animalia
25	Let's Get to Know Microbes	Monera
26	Classification of Fungi	Fungi
27	Monera	Monera
28	Global Warming	Conservation / Current Issue
29	Mimosa Pudica	Plantae
30	What is Prostista?	Protista
31	Reptiles	Animalia
32	Protista	Protista
33	Eyhan's House is Destroyed	Conservation
34	Honeybee	Animalia

Figure 1: Example of the books created

Service-Learning Activities

The implementation of service-learning took place at Dewan Utama,Universiti Malaysia Kelantan. About 121 primary school students from 8 schools around Jeli district Kelantan joined this activity. Primary school students were dividedinto small groups and each group was entertained by different goups (UMK students). Then, these groups moved in rotation. Example of how this activity was done is shown in Figure 2.

Figure 2: The implementation of service-learning

Survey Feedbacks Post Service-Learning Project

Out of possible 138 students, 112 students have given their feedbacks, which represents 81% of students. Majority of the feedbacks were leaning to the higher scoreof 4 and 5. These findings suggested that the students were able to assimilate well in this knowledge transfer activities and service-learning project.

Table 3

Demographic Data

Gender	67% Female, 33% Male
Previous Education Level	72.3% STPM, 17.9% UMK Asasi, 4.8% Others
Previous Formal Science Education	83% Learned Science during STPM or equivalent 17% Not in Science Stream

This demographic data was collected to look at the science background of these students. Some of these students did not have formal science (basic, biology, chemistry, physics) at the pre-university level (STPM and equivalent).

Table 4

Impact of service-learning project engagement

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree) in percentage (%)				
	1	2	3	4	5
I felt actively engaged during the making of the comic book for service-learning project.	0	0	5.4	38.4	56.3
I believe my contributions and efforts made a meaningful impact on the project.	0	0	4.5	39.3	56.3
I was able to overcome challenges and obstacles encountered during the project.	0	0	6.3	29.5	64.3

This data suggested that students more than 90% were fully engaged during this project. The students also believe they have made a meaningful impact on the project and able to surpass the curveball challenges faced during the project.

Table 5

Student's learning and skill development

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree) in percentage (%)				
	1	2	3	4	5
I feel that my knowledge and understanding of Biodiversity significantly improved through this project.	0	0	3.6	23	71

	1	2	3	4	5
The project provided me with valuable experience in transferring the knowledge in the making of the comic / children's book.	0	0	6.3	22.3	71.4
I acquired new scientific and technical skills that are applicable beyond the scope of this project.	0	0	15.2	25.0	50.8

By immersing themselves with this project, 94% of the students believe that their knowledge and understanding of biodiversity has improved. They believed that this project has helped to understand more by transferring the knowledge and create the book. However, about 15.2% feeling neutral that they have acquired new scientificor technical skill that is useful beyond this project.

Table 6
Student's evaluation on collaboration and teamwork

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree) in percentage (%)				
	1	2	3	4	5
I worked effectively with my peers and community partners in a collaborative manner.	0	0	6.3	33.9	59.8
Teamwork played a crucial role in the success of the project.	0	0	5.4	22.3	72.3
Any conflicts or difficulties within the team were resolved in a constructive and positive manner.	0	0	4.5	26.8	68.8

Collaboration, partnership and teamwork are part of the elements needed in this project. Sudarman (2008) in collaborative learning model, every member of the group contributes to the project in terms of ideas, skill, opinions, information, abilities, and experiences. Students are actively participate in the project that will help them to understand the concept and make them retain specific knowledge long term. The data suggested that the students agreed that teamwork is crucial for the project to succeed and they managed to resolve any arising conflict and issues.

Table 7
Student's evaluation on community impact

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree) in percentage (%)				
	1	2	3	4	5
I believe that the comic / children's book that we made had positive impact on the community (school students).	0	0.9	5.4	29.5	64.3
Engaging with community organizations and stakeholders helped me to better understand the community (school students) needs and challenges.	0	0	6.3	32.1	69
This project reinforced the importance of community engagement and the role of science in addressing societal issues such as enhancing the biodiversity knowledge.	0	0	4.5	26.8	68.8

0.9% of the student which is one student did not believe that these books had a positive impact on the targeted community, while 5.9% were neutral and the majority of more 90% agreed that this project had a positive impact. During the service- learning the students believe that they understood the need of the community and how science can be strengthened among the community of school students from primary schools in Jeli.

Table 8
Student's evaluation on personal growth and reflection

Attributes	Scale (where 1= strongly disagree and 5 is strongly agree) in percentage (%)				
	1	2	3	4	5
Participating in this service-learning project has positively contributed to my personal growth. and development.	0	0	7.1	33.9	58.9
I found certain aspects of the project to be particularly meaningful and impactful.	0	0	5.4	37.5	57.1
I can envision applying the knowledge and skills gained from this project to future endeavours or career paths.	0	0	8.9	37	58

More than 90% of the respondents believe that service-learning has positively impacted their personal growth and they can apply the knowledge and skill obtained in the future,
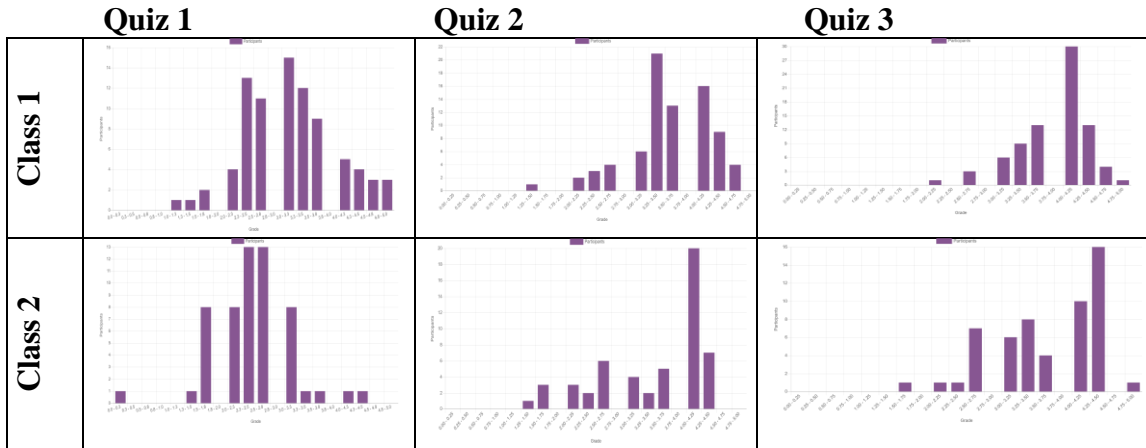
Impact on Cognitive Domain Analysis

Figure 3: Quizzes performance by both classes in Biodiversity EFT1023
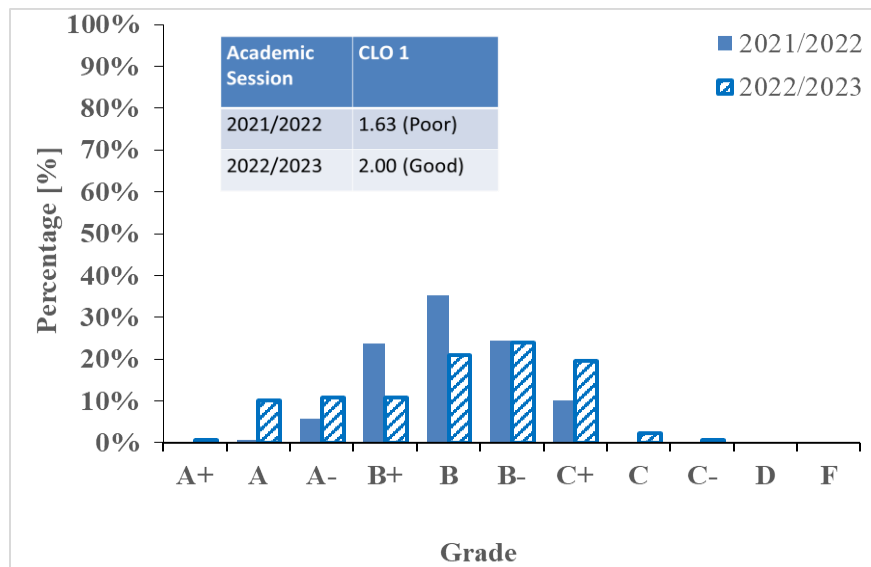

Figure 4: Final results obtained by students in Biodiversity EFT1023 and the CLO (Course Learning Outcome – Cognitive domain) analysis comparison between two academic cohorts.

Figure 3 and 4 demonstrated the improvement of the cognitive domain. Quiz 1in Figure 3 was done before the completion of this project and Quiz 2 and 3 were done after the completion of this project. It can be seen that the graph bars are shifted towards the right suggesting that the students scored better in Quiz 2 and 3 compared to Quiz 1. In Figure 4, it could be seen that the CLO1, which represents the cognitive domain, has improved from poor to good between two cohorts. CLO analysis is generated once all marks are keyed in and averaged among the students.

Discussion

Creation of creative medium such as children's book or comic book is an effort put forward to enhance learning among undergraduate students in the biodiversity subject. Biodiversity is a subject that comprises of a lot of information that covers everything on earth. From things that cannot be seen with the naked eye to the biggest animal on planet. Besides, biodiversity also covers topics on ecosystem, conservation, adaptation, and environment. Therefore, biodiversity education is a challenge to ensure that students are able to comprehend each topic well. Thus, this project was designed to ensure students will understand the topic well enough and to transfer it into a popular creative writing in the form of children's book or comic book.

The effectiveness of this approach can be seen by the improvement of the first course learning outcome (CLO1) that focuses on their cognitive domain. It is believed that the repetitive style of reading to comprehend a topic were applied to the whole Biodiversity subject that have enhanced their learning experience overall.

Pike et.al. (2012) reported that learning is a process done through activities or experience, and assessed by an evaluation related to the curriculum, combines with teachers and peers' interaction. In pedagogical learning theory, the collaborative approach was applied in this study. Students worked together in a team to understand the topic and translate it into a creative medium of choice either children's book or comic book. Through this learning process, the students adapted to work collaboratively to understand their topic of choice. The understanding part is important to ensure the information is passed on precisely and correctly for the children's book or comic book. To achieve this, each group needed to maintain constant consultation with the subject instructor. Students were given free will on how they want to create the book. Once the book is done, the students need to do service- learning by presenting their books to groups of primary school students. This process happened through multiple cycles depending on how many groups visited their booths during the service-learning activity. Repetitive cycle of explaining helped the undergraduate students to grasp strong understanding of the topic.

Among all learning theories, transformative learning theory is one of the recommended approaches for young adult education. Transformative theory focuses on changes of the learners to adjust their thinking based on new information. This theory is based on Mezirow's theory of transformative learning (Schnepfleitner 2021). University undergraduate students are adult's students and they have the ability to transform knowledge based on their past experience. By creating the children or comic book, the students took the complex information on the biodiversity topics and transformed them into a simplified version suitable for school children to understand. Take one of the topics for example "The Tale of Sungai Kim Kim" which talks about the pollution case happened at Sungai Kim Kim, Johor. Transforming these details into a children's book help to deliver better awareness about pollution to young children, if not this information is only available on hardcore news. Based on the findings, it is believed that the process of knowledge transfer has occurred and has helped the undergraduate students to have better understanding of the subject matter. During service-learning, the students were not only having the opportunity to present their work, but also learned through their peers work as well.

The effectiveness of this approach can be seen by the improvement of the first course learning outcome (CLO1) that focuses on their cognitive domain. It is believed that the repetitive style of reading to comprehend a topic were applied to the whole Biodiversity subject that have enhanced their learning experience overall.

Limitations

Creating creative medium was not an easy task. Among the limitation of this project was on the creative part. Not all students were able to create beautiful books with attractive layouts and drawings. Some relied heavily on the pre-made templates available on design platforms such as Canva. Some opted to draw by hand on their tablets and some just chose the traditional method of drawing on paper and scanned onto the hard drives. Besides that, not all students worked well in groups and for task like this it totally needs collaborative work among team mates. Another limitation of this project is to close monitor all groups in terms of progress and content. Therefore, there were some groups that score just above the passing mark for the assessment and one group need to redo their work because of plagiarism. Finally, on the task for service-learning, it were difficult to collect feedback from primary school students as their attention span would not last long.

Recommendation

For future implementation of incorporating creative medium such as children's or comic book as task, it would be better if detail guidelines are made. For example, number of pages, software to be used, type of final product, theme of the content and stricter close monitoring to all groups. Close monitoring could be done by using software such as Microsoft® Planner or any other that is equivalent. For service learning, although it was quiet challenging, perhaps for future services, these students can take turns to visit schools with their books and present there, or online platforms can be used to get access to more students located further away from this district.

Conclusion

The outcome of this project has shown that the creation of comic or children's book have successfully fulfil the knowledge transfer and completed the learning cyclewith the service-learning project. The undergraduate students have successfully understood a topic, transformed it into their creative medium of choice, then presentedit during service-learning activities. Based on the aim, the course learning outcome score for the cognitive domain was successfully improved from 'poor' (1.63) to 'good' (2.0).

Acknowledgement

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The Impact of Sulam Innovations on Tertiary Learners and Society

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Abstract

Recently, many universities have promoted community service learning program by making it as part of the learning process; therefore, students participate in community service learning program as part of their course requirement. Moreover, after completing the community service learning program, they see themselves as more socially responsible citizens. This qualitative study aimed to explore the impact of SULAM on the social skills of students and was carried out by a group of students from a public university in Malaysia. The results revealed that the SULAM community service learning program has a positive impact on the social skills of the students. Besides, students also had a positive learning experience. The findings of the study indicated that the awareness to encourage community service learning in tertiary level is grounded on the acceptance that it does not only give students extra credit points, but serving others or one's own community also makes them better citizens. Based on the advantages and positive experiences of students, the study recommends to include a more inclusive model of service learning in the curriculum.

Keywords: Public Engagement, Community Service Learning, Social Skills

Introduction

Digital educational materials were developed, utilising online systems, to ensure their accessibility across various devices. In the formulation stage, feedback from all team members was amalgamated, leading to the refinement of the resources, with a primary focus on enhancing student learning achievements. Recognising the need to understand the expectations and proficiency levels of the intended users, a comprehensive study was undertaken. Coupled with in-depth content scrutiny, this ensured the materials were tailored to resonate with the abilities and inclinations of students. Insights from the "Materials Development for Language Classroom" course, which is a course instructed that includes principles from Tomlinson and research by Howard and Major, were instrumental. Platforms like Canva, Nearpod, and YouTube emerged as the primary tools for material creation. This rigorous methodology ensured the content was not only relevant but also met the intended learning objectives.

In the quest for a foundational bedrock, the "Introduction to Literature" a course taken by the respondents of study emerged as a beacon. This course, teeming with diverse literary narratives, became the central content linchpin. By immersing students in the rich tapestry of literary narratives, the aim was to harness the power of storytelling, allowing learners to navigate complex linguistic

and cultural terrains, thereby fostering deeper engagement and comprehension. Significantly, the richness of the course content was further embellished by integrating characters from classic fairy tales and revered local folklore. The rationale behind this integration was rooted in familiarity; these characters, often embedded in the collective consciousness of the students, served as effective bridges to enhance relatability and understanding.

Recognising the criticality of material assessment, an intensive phase of testing was embedded within the process. Before these materials saw the light of day, they underwent rigorous evaluations to ensure accessibility, functionality, and relevance. This holistic assessment phase, encompassing both technical vetting and user feedback, was deemed essential to identify any latent issues and rectify them, ensuring a seamless and enriching user experience upon final launch.

The integration of digital educational material and knowledge gained in the classroom with practical application has lead to the program of community service learning which has been incorporated into teaching and learning pedagogical techniques in universities. In order to produce graduates who are holistic and balanced, the Ministry of Higher Education introduced Service Learning Malaysia University for Society (SULAM) in 2019. This was done to demonstrate a multidimensional concept that embraces curriculum and co- curriculum of pedagogical approaches to service and educational opportunities through Malaysia Education Blue Print 2015–2025 (for Higher Education). Hence, student participation in service-learning activities helps to promote students' social skills in order to enter any field for the future prospect to produce skilled learners in terms of academics and character. Social skills which are to be discussed here include collaboration, team-work, relationship-building, leadership and communication. Strengthening social skills is important because it has a positive effect on building positive relationships among students. Participating in community service learning activities outside of class allows students to connect with teachers and peers and to some degree act as a driver of social skills development for a student. The second shift of the MEB (Malaysia Education Budget) emphasizes the learners development process. Participation in service learning activities leads to students interacting with the environment, social life and learning both in and out of class to ensure excellent student growth. It also promotes the development of talents, creativity and student potential to the fullest extent.

The purpose of carrying out this research was to explore the impact of community service learning on the social skills of students. Thus, the research question to guide the study was: What is the impact of service learning program on the social skills of students and society?

Methodology

The purpose of this study was to explore the impact of service learning program on the social skills of the students and how it affected the society as a whole. The qualitative research method was applied to carry out the research study. In order to develop an understanding of the importance of service learning, reflective method was carried out with the students and community who participated in the service learning program. The procedure for this research study was where critical reflection of the self was carried out and provides examples of approaches which

prioritize and focus on improving social skills. This study shares the research method employed to engage university students and the society, where ongoing critical reflexivity of the self and co-creation process was central. It begins with an overview of reflection as a research method, and follows with examples of how this method worked in practice with the local community across diverse cultural contexts, offering approaches to engaging with society that prioritise and focus on respect and co-constructed ways of knowing.

Results and Discussion

Comments from students and community involved in the service learning project indicate how this activity contributes to improvement of social skills. The service learning program engages students in such manner that addresses community needs while improving the students' educational skills and social skills.

Community service learning as a source of collaboration and good teamwork. This theme includes students' perceptions about the service learning experience. Students were certain that it gives them real life experiences that enable them to learn many things, for example how to work with their class fellows, how to manage time for voluntary work and their studies, how to teach others, how to help others and above all to do something for humanity. Both groups had almost the same views while defining community service learning.

> *"This activity was a great way to set the scene and get everyone in the right mindset for the next collaboration. One thing that stood out was the amount of laughter and the overall spirit of the activity." (community member)*

> *"I really enjoyed our analysis and discussion of the group dynamics at the end. I think it was a really good representation of real life teamwork. Someone mentioned the concept of competition and I think it was really interesting to see how competitive we are as a group - how the teams complete tasks, even though the activity wasn't declared a competition." (student)*

Increased sense of relationship. Overall, building relationships was the most common learning outcome among students from the reflective comments acquired. The most common learning outcome was an increase in getting to know each other, which was accompanied by a strong sense of responsibility as well as a strong social skill (see the following quote from one of the study participants).

> *"The community service learning program taught me how to help others, how to lead by example, and what it means to be a good member. It helped me understand that even one person, like me, can make a difference."*

As shown in the above extract, students found high self-esteem, as well as the feeling that being a socially responsible person could make a difference. Students reported that community service supported their values, which in some cases also led to an improved sense of accountability. Another change that students reported as a result of community service learning experience was an

increased student's awareness of the people and society around them. Similar outcomes are seen in the research study conducted by Astin & Sax (1998), where many students discussed how community service learning influenced the way they perceived less fortunate people in their society, which led them to re-evaluate their prior beliefs.

Increased communication skills. Another benefit of the service-learning students reported in the reflective comment is increased communication skill. Both community and student expressed similar views on the importance of learning social skills through the program to help them become responsible and sociable citizens. For example, the student mentioned how the community service learning experience changed her attitude towards understanding social skills.

> *"This experience changed my way of thinking about communication skills. I learned how to respect others.It motivated me to be kind to everyone, to help others, and to volunteer more and see it as my moral obligation."*

In the reflection comments, it was found that service-learning helps students break stereotypes and understand that before being judgemental, they should look for more information and reality. For example, one student said that sheused to think that less fortunate people were just being lazy and had no intention of improving themselves for the better but now she can see and understand the reasons for such behaviour. Many students said the program was interesting and helpful in a way it brought them to realised that working with others made them more humble and helpful.

Service-learning and leadership. A question was asked if they thought this experience helped them to improve their leadership skills. Some students stated that there is a great deal of connection between community service learning and leadership. A student confirmed:

> *"Whatever we learn in classroom, we get a chance to teach and direct others; by this we also understand many things and we also get an opportunity to understand our community issues."*

Based on this study, the students consider community service learning to be important; it enhances social skills, makes students more socially responsible, increases their understanding of diversity, and increases their understanding of societal issues. A handful of students reported that community service helped them to comprehend the concepts that they learned in class. However, the students also reported that they learned a lot from the program as they enjoyed it and developed strong relationships with fellow students and the society as a whole.

Conclusion

According to the study, community service learning programs increase students' understanding of the value of community work, diversity, social skills, and a sense of personal responsibility. Recommendation: Service- learning should continue to be an integral part of the curriculum. Parents' participation should be mandatory. After study completion, students should be encouraged to continue

engaging in community service learning on their own. The shift from traditional teaching and learning methods to more modern innovative ones that involve students in real-life learning to equip them for the careers of tomorrow in the age of the industrial revolution 4.0, is a thrilling challenge for students and educators alike. Service learning, on the other hand, is an innovative teaching and learning method that invites students to collaborate with the community to solve the problems they face. Above all, the students will gain a better comprehension of the various problems facing society and will learn from this priceless opportunity in community involvement.

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Early Age Robot Learning System for Kids – From Perspective of Usability Evaluation of RERO Foldbot (FoRo)

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Abstract

The aim of this study was to propose Robot Learning System for Kids aged five to seven years old. The kids still relying on traditional face-to-face learning method whereas kids are having hard time to focus and have to follow other's learning pace. Robot Learning System for Kids is proposed to enhance their learning ability. Hence, this study will result in producing robot tutor and tutorial video on how to perform simple chores as this contributes to children development. This study used RERO standard set robotics that was manufactured by Cytron Technology Malaysia. Quantitative methodology was implemented where data collection has been performed to evaluate this study objectives. An online survey questionnaire comprised of three sections including the 5points Likert Scale was developed for usability evaluation. The population of this study was kids aged five to seven years old with only 31 valid responses has been analyzed. The result of the evaluation shows positive responses as most of the participants were satisfied with this study. This study will contribute in understanding the robot tutor modelling structure. It can be new reference model for other developers and researchers as Internet of Things (IOT) involving robotics and Bring Your Own Devices (BYOD) is trending currently.

Keywords: Visual Learning, Robot Tutor, IOT

Introduction

Technology revolution dramatically changing the way human live, work, think and transformed the society [1]. The emerging of Internet of Things (IOT) and artificial intelligence brings new challenges on many fields such as industrial field which included drone flight, virtual reality and robotic process automation [2]. Industrial robots often designed to perform repetitive tasks that are not suitable to be facilitated by a human-like construction. Robot also potentially to be remotely controlled by a human operator, sometimes from a wide range distance. The use of robots is quite new in the education field. But there are some believes that robot has the potential to make the most positive impact and significantly improving learning processes [3].

Human keep implementing traditional / convention learning method where it is face – to – face school learning. Teachers would carry some published text book and carried it into the classroom as teaching materials. This learning method has been practice for quite a long time. Nowadays kids are tending to get bored as they are born in digital media era where they would prefer visual learning with trending technology. The technology provision changed rapidly since computers were first introduced in school. These changes can be seen as the shift from learning institution computer laboratories to mobile technologies [4]. As example, high level learning institution encourages BYOD (Bring Your Own Devices) learning styles to suit the blended learning style [4].

Kids learning is crucial for their children's development. Kids learning can be defined as the people act of who gain knowledge or skill from teaching session or study. As the kids grow and learn, it is very obvious that each kid has their own learning way. Kids learn best through visual learning as they watch, learn and do what they watched [5]. Nowadays the STEM approach (science, technology, engineering, and math) is a new rising concept that blends in the process of kids learning in education. Visual learning is an alternative method that can applied to kids learning.

Visual learning is much attracting because the kids can relate the learning tools to the information that the teachers trying to reach out. Kids are able to experience how the logic works as they use their senses to see, touch, smell, hear and figure the way out.

As the world revolutions is getting real fast, various innovative learning strategies had been introduced for this modern digital life. Robotic is known for the new IT technology that might replace human resources. By implementing robotic as a teaching tutor, the robot can repeat performing same task, at most 24/7. This helps to overcome the convention's limitation on time aspect. Hence, learning from robot is not only a way to develop kids learning but also a way to develop their self-care skills. They will learn the skills they can use in their growing process such as cleaning or organizing. The kids can help out with chores and parents have less to do when the chores get done sooner. Thus, Robot Learning System (RLS) is one of innovative learning strategies for kids which the robot will become a role model or instructor so that the kids can learn through the robot motion and being able to perform certain task by their own even at such young age.

This paper acts as the documentation of this study. This study aims to develop a robot with motion so that it can perform fold t-shirt chore and tutorial video on steps to fold t-shirt for kids aged five (5) to seven (7) years old. This study contributes the understanding of RLS and could be reference model for any future work to improve the evolution of traditional learning method to visual learning method involving IOT.

Background

This section described the background of traditional learning method of face – to – face school learning and related studies of applying robot as alternative tutor. Traditional method of face – to – face school learning was reported potentially causes anxiety to learners [15]. Having face – to – face learning in class means that there are diversity of learners in limited space. Learners [14] stated that teacher (instructor) could only overhear limited voice of learner at a time. This reflected that face – to – face learning limited the interaction and expressing of numbers of learners. Thus, losing the opportunity to discover new branch of knowledge and caused bury of potential brilliant idea of learners.

Learning face – to – face also means that all the learners in the same session are moving at the same pace. Learners that possesses faster learning ability have to slow down their pace and waiting for others instead of they can moving forward to maximize the learning content and fully utilize the time.

Applying robots as tutor is a huge benefit for learners as learners are able to customize their own study field matching with their own learning pace [13]. It can maximize the efficiency and effectiveness of learner's learning ability as they can study when and where they want, compared to being tied into specific venue and schedule [13].

This study involved the Reconfigurable Robot (RERO) which was manufactured by Cytron Technology Malaysia. This robot construction kit is easy to use hardware design as there were online courses for this robot construction. This robot is designed for young generation or non-technical categories individuals as basic start up with robot technologies. The Foldbot (FoRo) was assembled and configured via C Programming for the motion part. This FoRo can be navigated either through the RERO Controller or Remote application. RERO Remote application needed to be download on Android or Apple smartphone and can be used as remote controller via Bluetooth features.

Fig. 1. Cytron Technology RERO Standard Set

Methodology

This study was conducted using Agile – based Robotic Process Automation (RPA). Agile methodology is used as this studyhas higher chances of frequent change. Agile methodology best suits shorter project life cycles and it comply with the time limitation for the project is around eight (8) to nine (9) months only [6]. Agile methodology allows frequent changes of project details and this matched with this study as this study has many uncertainties that requires changes according users.

RPA is being said as umbrella terms for tools which operate on user interface in the human way. RPA is different from classic approach [7]. RPA has its own operate way where it maps the process to tool language so that the software robot can follow. Where else the runtime is allocated to execute all those scripting by a dashboard controller [8]. By using the RPA methodology, this project will go through six (6) phases – discovery, analyse, design, develop & execute, improvise and documentation. All these six (6) phases will come out with a result of assessment report, project plan, shortlisted RPA tool, workflow design documents, log report and enhancements list.
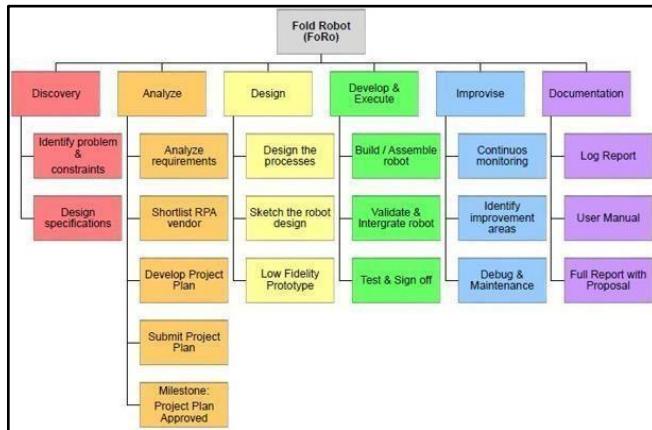
Fig. 2. Robotic Process Automation (RPA) Structure of Fold Robot (FoRo)

Design & Development

This section describes the design and development of RLS. The section included list of requirements, use case diagram, state machine diagram and class diagram for the robot tutor of RLS; a robot tutor that performed the actions upon receiving user's instruction.

Table 1. List of Requirements of Robot Learning System for Kids

ID	Requirement Description	Priority
1	Switch On	
1.1	User can power on the robot.	Mandatory
2	Select Instruction	
2.1	User can view motion menu.	Mandatory
2.2	User can select motion to perform.	Mandatory
3	Initiate Start	
3.1	User can start the motion.	Mandatory
4	Select Pause	
4.1	User can choose to pause the motion.	Optional
5	Select Continue	
5.1	User can choose to continue the motion.	Optional
6	Perform Stop	
6.1	User can choose to stop the motion.	Mandatory
7	Switch Off	
7.1	User can power off the robot.	Mandatory

The requirements presented in Table 1 were visualized using the appropriate modelling method and tools. Unified Modelling Language (UML) [9] was used to visualize three behavioral diagrams use case diagram, state machine diagram [12], and class diagram [10], [11] that represent the structural components of the robot. The diagrams were drawn using Star UML application.
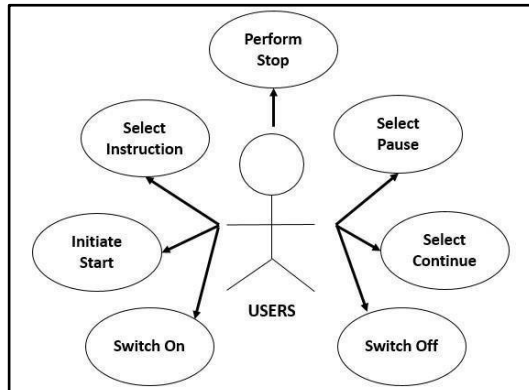

Fig. 3. Use Case Diagram of Robot Tutor

The use case diagram shows the dynamic behavior of the robot tutor. Hence, the operations involved during the robot motion are illustrated in the state machine diagram of Fig. 4.
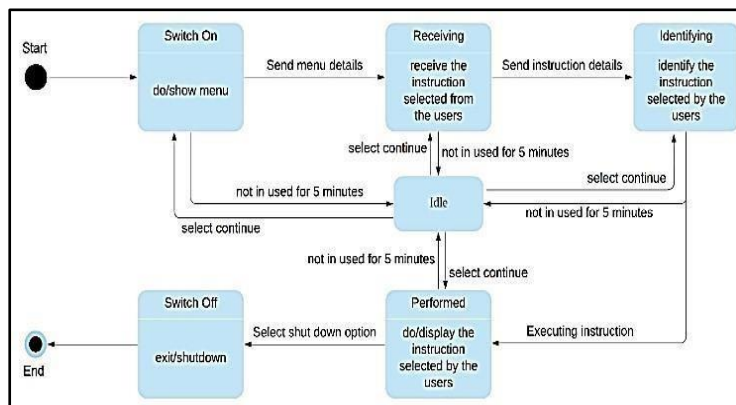

Fig. 4. State Machine Diagram of Robot Tutor

The structural components of robot tutor are represented in a class diagram as illustrated in Fig. 5. The class diagram shows the attributes and operations of the robot tutor. The interactions between five (5) main classes are illustrated clearly in the diagram below.
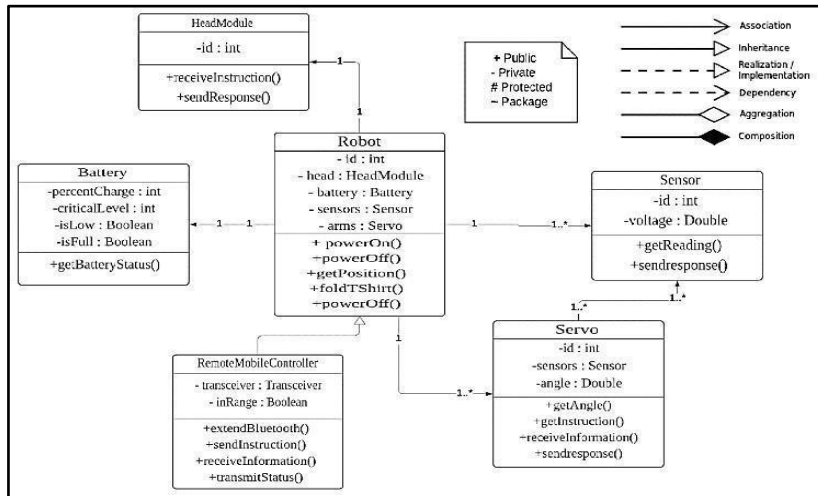
Fig. 5. Class Diagram of Robot Tutor

The three behavioral diagrams have been modelled into high fidelity prototypes and produced into the final product of robot tutor that can perform fold t-shirt chore.

Fig. 6. Top view of FoRo with output folded t-shirt

Figure 6 is the picture of the folding robot that had been program to fold t-shirt chores and it can be follow by kids in the age group of 5 to 7 years old and evaluation is done in the selected group of respondents. The result s is discussed in findings and results.

Evaluation

A. Evaluation Setting

Quantitative methodology was practiced in this study as it can result more accurate data for analyzing purpose. An online usability evaluation was done by distributing invitation email with instruction, consent form, proposed video of Robot Learning System for Kids and Google Form URL as questionnaire to the participants.

B. Participants

Thirty-one (31) participants of both male and female kids aged five (5) to seven (7) years old has been selected based on referral of colleagues or friends as the representative sample of this study. Parents or their elder siblings are allowed to assist them to get a better and accurate result since kids aged five (5) to seven (7) years old might not be able to express their thoughts accurately.

C. Instrument

Headings, to solicit essential information from participants, a survey questionnaire based on the study objectives was drafted in English. This questionnaire initially pilot-tested on fifteen (15) kids aged five (5) to seven (7) years old and the questionnaire's validity and reliability was proven. The survey questionnaire is conducted via online Google Form. The survey questionnaire contained three sections to gather information regarding participant's demographics, daily chores information and usability of Robot Learning System for Kids.

D. Data Collection and Analysis

The final survey questionnaire was administered to thirty-one (31) kids aged five (5) to seven (7) years old. In total, all the distributed questionnaires were completed and returned resulting in all thirty-one (31) valid questionnaires for analysis. Microsoft Excel was used to verify the dependability of the collected data.

Findings & Result

Sample Demographics

Of the 31 survey questionnaire participants, 45% were female and 55% were male. Most of the participants (90%) claimed to be parents' group as parents / siblings were allowed to assist the kids.

There are three questions related to participant's status during their face – to – face learning session in daily life. Table 2 summarizes the remaining responses in demographics Section A. The result of usefulness, ease of use and satisfaction of participants on RLS is described correspondingly in Table 3, 4 and 5 as shown below

Table 2. The Participant's Responses on The Demographics

Items	Yes (%)	No (%)	Not Sure (%)
Do you feel hard to catch up or sleepy with face – to – face learning method?	25 (81%)	2 (6%)	4 (13%)
Do you feel more attractive to the visual – learning method such as video (watch and learn)?	26 (84%)	0 (0%)	5 (16%)
Do you prefer to have visual – learning that you can learn at your own pace without being left behind?	26 (84%)	0 (0%)	5 (16%)

Table 3. The Participant's Responses on The Usefulness of RLS

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
RLS enhances my learning ability.	0 (0%)	0 (0%)	2 (6.45%)	10 (32.26%)	19 (61.29)
RLS enables me to learn more quickly.	0 (0%)	0 (0%)	2 (6.45%)	10 (32.26%)	19 (61.29)
RLS enables me to understand better.	0 (0%)	0 (0%)	0 (0%)	11 (35.48%)	20 (64.52%)
RLS saves my time when I use it.	0 (0%)	0 (0%)	0 (0%)	13 (41.94%)	16 (58.06%)
RLS meets my needs.	0 (0%)	0 (0%)	2 (6.45%)	10 (32.26%)	19 (61.29)
RLS does everything I would expect it to do.	0 (0%)	0 (0%)	6 (3%)	11 (35.48%)	14 (45.17%)
RLS is useful in overall.	0 (0%)	0 (0%)	0 (0%)	13 (41.94%)	18 (58.06%)

Table 4. The Participant's Responses on The Ease of Use of RLS

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
RLS is easy to use.	0 (0%)	0 (0%)	2 (6.45%)	10 (32.26%)	19 (61.29%)
RLS is user friendly.	0 (0%)	0 (0%)	2 (6.45%)	9 (29.03%)	20 (64.52%)
RLS is easy to learn how to use it.	0 (0%)	0 (0%)	2 (6.45%)	11 (35.48%)	18 (58.07%)

I can use RLS without written instructions.	0 (0%)	0 (0%)	4 (12.90%)	13 (41.93%)	14 (45.17%)
I don't notice any inconsistencies as I use RLS.	0 (0%)	0 (0%)	4 (12.90%)	15 (48.39%)	12 (38.71%)
I can use RLS successfully every time.	0 (0%)	0 (0%)	4 (12.90%)	14 (45.17%)	13 (41.93%)

Table 5. The Participant's Responses on The Satisfaction of RLS

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am satisfied with RLS.	0 (0%)	0 (0%)	4 (12.90%)	3 (9.68%)	24 (77.42%)
I would recommend RLS to my friend.	0 (0%)	0 (0%)	2 (6.45%)	4 (12.90%)	25 (80.65%)
I feel I need to have RLS.	0 (0%)	0 (0%)	4 (12.90%)	7 (22.58%)	20 (64.52%)
RLS is wonderful and pleasant to use.	0 (0%)	0 (0%)	1 (3.23%)	9 (29.03%)	21 (67.74%)

The result of the usability evaluation shows that 77.42% of the participants were satisfied with the RLS and 80.65% of them would like to recommend this RLS to their friend. The participants from parent category stated that the robot tutor that performschores is valuable as it can helps in chore which they would not need to laundry and this resulting in improving financial statusas it is cost-saving. Analysis showed that participant's response on all three aspects of usefulness, ease of use and satisfaction of RLS reflected as positive since most of the item gathered more than 50% on agree and strongly agree scale. The participantsreported that they would like to have expanded features of this RLS to fulfill their higher expectations such as auto-sensor of robottutor and more interactive so that the learners can explore more.

Conclusion & Recommendations

Based on the findings and result of this paper, it can be seen that the participants seems to satisfy with RLS. This proven that RLS can contribute to the children development especially in enhancing their learning ability. This paper has examined the usability of RLS on kids and it achieved the study's objectives. Besides, this paper points out the potential of robotics to better deliver of knowledge and make significant impact on children development.

From the analyze result, it is recommended that future research should look more deeply into expanding features of robot tutor and producing better feature of tutorial video related on various field such as scientific or kids art and craft.

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The Togetherness Initiative Project 2022-2023 (TTIP) 20-23): Mental Health Awareness

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Abstract

The Togetherness Initiative Project 2022-2023 (TTIP 22-23): Mental Health Awareness represents a collaborative endeavor jointly undertaken with Universitas Negeri Semarang (UNNES), harnessing the potential of a previously signed Memorandum of Understanding (MoU). This initiative addresses a shared concern within the kindred communities of Malaysia and Indonesia: mental health issues prevalent among students. Given the strikingly similar cultural backgrounds of these communities, the project endeavors to facilitate the exchange of solutions to mental health challenges between these culturally interconnected nations. Hechanova and Waelde (2017) assert that shame plays a pivotal role in Asian individuals' reluctance to seek professional assistance for mental health matters. This hesitance often stems from the significant influence of family within Asian cultures, particularly in the lives of those grappling with mental health concerns. Consequently, this project extends an invitation to students from both universities and local communities, offering them the opportunity to enrich their understanding of mental health issues through the activities it entails. TTIP 22-23 encompasses various activities, including: i) International cross-stitching, focusing on SCE523 (Science, Technology, and Society), with a particular emphasis on the intersection of Technology and Mental Health in society. ii) Collaborative teaching for SCE523. The significance of this project lies in its potential to combat the stigma associated with mental health issues, reach a substantial population, contribute to global mental health initiatives, have economic and cultural ramifications, promote prevention and early intervention, influence policy decisions, advance research endeavors, and, most importantly, enhance the quality of life for individuals and communities across Asia. Such an endeavor aligns seamlessly with the third thrust of the Sustainable Development Goals (SDG) - ensuring healthy lives and promoting well-being for all, regardless of age.

Keywords: Collaborative Teaching, Mental Awareness, Communities

Introduction

Higher education students constitute a demographic particularly susceptible to mental health issues. This vulnerability is attributed to the heightened pressures stemming from academic transitions, social dynamics, the campus milieu, and the overall

atmosphere. To illustrate, students grapple with adapting to an environment vastly distinct from their prior educational experiences, while simultaneously shouldering a profound commitment to meet key performance benchmarks within their academic institutions. This challenge stands as a paramount factor contributing to mental health concerns among students. Former Health Minister Khairy Jamaluddin highlighted that suicide ranks among the top 10 global causes of death, ranking fourth among individuals aged 15 to 29. Significantly, this age group predominantly grapples with mental health challenges, underscoring the critical issue of mental well-being faced by students in Malaysia.

In response to the increasingly global concern of mental health among students, authorities must take swift action. Prompt discussions and implementation of preventive measures are essential, alongside comprehensive community education regarding the underlying factors and their remedies. Collaboration between higher education institutions and experts is crucial to effectively address this issue. Therefore, the Faculty of Education at UiTM, in partnership with their MoU counterparts at UNNES, has assumed the responsibility of organizing various initiatives under the TIPP 2022-2023 one of project, aimed at addressing mental health challenges within the student body and the broader community.

Figure 1 Project Poster

Objectives

The Togetherness Initiative Project 2022-2023 (TTIP 22-23): Mental Health Awareness is a collaborative project that combines the SULAM (Service-Learning Malaysia - University for Society) project, which was conducted in international communities. In addition, TTIP 22-23 also involves collaborative teaching. Among the objectives of TTIP 22-23 are:

i) To expose students and the local and international community to the importance of technology and mental health in society.
ii) To raise community awareness about mental health.
iii) To integrate local and international expertise in delivering lectures to students in the involved institutions.
iv) To broaden the minds of students and the community regarding solutions to address technology-related issues, mental health, and the impact of technology on mental health.

Figure 2 Dr. Sharifah Muzlia's session (UiTM)

Figure 3 Prof. Dr. Ari Yuniastuti's session

Methodology

An assessment of the TIPP project's effectiveness was carried out among its participants. A total of 622 responses were gathered, encompassing UiTM students, non-UiTM students, UNNES students, and members of the public. The findings are summarized as follows.
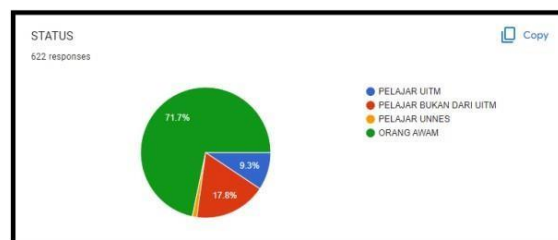

Figure 4 Participants' Demographic

As depicted in the chart above, it outlines the composition of participants in the program. The responses reveal that 71.7% of the participants represent the general public, indicating a strong interest in the program among individuals seeking information about their mental health. Additionally, the chart illustrates that 17.8% of participants are non-UiTM students. Furthermore, 9.3% of UiTM students and 17.8% of UNNES students actively participated in the program. In conclusion, the program has received an encouraging response from participants of diverse backgrounds.

Through feedback reflections, we conducted a comprehensive evaluation encompassing participants' post-webinar knowledge, the program's schedule, audio quality, platform usability, video quality, speaker presentations, and overall program opinions. Firstly, concerning participants' knowledge post-webinar, approximately 71.4% acquired insights into managing mental health. Additionally, feedback revealed that around 60.7% of participants were content with the program's scheduling. Transitioning to audio quality, the data indicated that 57.1% of participants were satisfied with the audio quality during the webinar sessions. Similarly, for platform usability, including platforms like YouTube and Google Meet, approximately 60.7% of participants found it satisfactory.
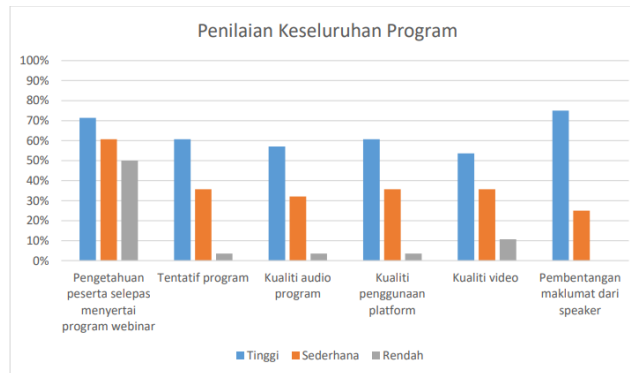

Figure 5 Participants' evaluation on the program

Regarding video quality, 53.6% of participants expressed satisfaction, while a significant 75% were content with the information presented by the speakers. Lastly, more than 70% of participants, specifically 78.6%, provided a positive response and expressed satisfaction with the overall program. This underscores the contentment of the participants involved with the program.

Based on the feedback we received, participants have expressed that they gained various new knowledge during the program. Firstly, participants stated that they acquired knowledge on how to manage stress. Additionally, participants also mentioned that they learned how to manage their emotions effectively. Furthermore, participants were able to identify healthy nutrition practices to reduce stress in their daily lives. Lastly, participants also learned about the causes of stress related to their dietary habits.

Based on the feedback and reflections obtained from the respondents, several benefits have been highlighted in the feedback forms. Among these benefits are the acquisition of new knowledge related to emotional management and mental health. Furthermore, some of the respondents indicated that their confidence levels increased after participating in the program because they were able to interact with the speakers and enhance their critical thinking skills. Additionally, through the implementation of this Mental Awareness Webinar program, the organizers were able to strengthen their relationships with each other. They also gained new experiences in managing online programs, such as making critical decisions, comprehensive program scheduling, and utilizing various platforms like YouTube, Google Meet, and Stream Yard. The implementation of this program received very positive feedback from respondents and all of them agreed to participate in future programs. This statement is supported by the statistics shown in the pie chart below.

Figure 6 Respondents' feedback on the future program

Project Outcomes

The outcomes of TIPP 22-23: Mental Health Awareness are in accordance with UiTM's Key Performance Indicators (KPIs):
Generating outstanding graduates with strong mental well-being and proficient stress management capabilities, enabling them to effectively navigate job demands while maintaining a harmonious work-life balance. This outcome contributes to achieving a high percentage of graduates on time (GOT) for undergraduates and promotes short-term inbound and outbound student activities.

The project aligns with academic programs that incorporate credited service-learning activities, and it has yielded several benefits as evidenced by the feedback received from participants (refer Figure 5 and Figure 6).

Project Impacts

TTIP 22-23 is expected to fulfill UiTM's aspirations under UiTM2025, which aims to make UiTM a world-leading university. UiTM2025 focuses on three strategic cores: quality education, global excellence, and value-based performance.

i) TTIP 22-23 emphasizes the 5.0@UiTM element within the context of education, emphasizing the importance of moral values in education.
ii) TTIP 22-23 involves smart collaborations with International University and Community.
iii) It aims to nurture and unearth talent among students and staff from UiTM and UNNES to establish a robust academic collaboration network.

Conclusions

SULAM is a method of teaching and learning (T&L) that combines the course learning outcomes with community service, where the credit value and service hours are counted towards the total learning hours for the related course in Higher Education Institutions (HEIs).

International SULAM, on the other hand, involves teaching and learning (T&L) based on SULAM conducted within the international community. The identified community includes lecturers, students from institutions (UiTM and UNNES), as well as the local communities in Malaysia and Indonesia. Regarding issues and improvements in the program, we received only a few responses from participants. Participants provided satisfactory feedback, except for some technical problems that we could not avoid during the program. However, as organizer, we value all the feedback provided for the purpose of enhancing future programs. One of

the improvements we need to address is providing more time for speakers' presentations. This is because the time constraints set by the organizers have made it difficult for speakers to continue their presentations in our program. Additionally, the organizers need to improve the way they lead the program to ensure smoother execution.
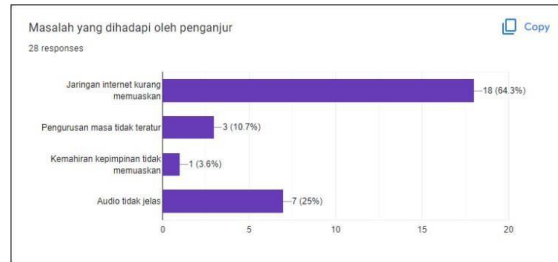

Figure 7 Respondents' feedback on the future program

Acknowledgments

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Community Empowerment through the Implementation of Service Learning: The Establishment of a Sustainable Community Garden

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Abstract

This study set out to assess the service-learning experiences of students from different cohorts as well as the crucial stages of planning and executing a service-learning project related to community gardening. Urban gardens or community gardens are an initiative that aims to foster the practice of growing, processing, and distributing food in or around or within city limits. State government and local authorities have planned and carried out various efforts to support community garden projects. Although various organizations provide assistance and support to the community, many community gardens encounter many obstacles and are unable to sustain. Universiti Teknologi Malaysia together with local authority (MBIP) have partnered to support local community gardens in the Iskandar Region. New community gardens and unsuccessful community gardens were assisted through service-learning project. Establishing a service-learning project in a community garden involves several key processes and will be explained in this paper. Data are collected through focus group discussion session with students enrolled in agricultural courses in the School of Education UTM after completing a service-learning community garden project. Both focus group discussion and report analyses listed several key processes which include
a) identifying need, b) develop a project plan, c) implantation and project monitoring and d) evaluating the service-learning project. In addition to gaining useful agriculture knowledge and abilities, students who participate in service-learning programs in community gardens also get a deeper appreciation for environmental sustainability and social responsibility. The overall purpose of this study is to improve the implementation of service learning.

Keywords: Community Garden, Service Learning, Key-Process

Introduction

Urban agriculture or community gardens is an initiative that aims to foster the practice of growing, processing, and distributing food in or around or within city limits (Mougeot, 2000). Urban agriculture also holds the potential to sustain a

society's food system over the long haul. A food system's ability to maintain itself is a key sign of its health and sustainability, particularly in light of the COVID-19 pandemics and the need for communities to find new sources of fresh food.

In order to encourage urban agriculture, the Malaysian Central and State governments have developed and carried out a number of programs. The Urban Agriculture Program which includes community gardening is one of the initiatives implemented; it assists urban households in lowering their cost of living by producing some of the food ingredients required in urban and suburban areas on their own (Department of Agriculture Malaysia, 2020). In addition, the National Agrofood Policy 2.0 promotes and develops wasteland initiatives and 'Home Garden Produce' items in an attempt to safeguard Malaysia's food supply (MOA, 2011). Furthermore, activities related to community gardening have received assistance and support from local authorities, including the City Council and District Council.

The Iskandar Puteri City Council is among the municipal bodies in Johor that actively supports community garden initiatives. However, according to information from Iskandar Puteri City Council's Town and Country Planning Unit, over 50% of community garden initiatives are non-active. Among the main problems is lack of support and collaboration. Since 2018 the School of Education, UTM and the Iskandar Puteri City Council (MBIP) have collaborated closely on a number of sustainability-related projects, such as community gardening initiatives. The collaboration is aimed to empower local community gardens and provide assistance to the local gardeners. This collaboration has provided a unique and valuable opportunity for service-learning projects. Since the collaboration between UTM and MBIP began in 2018, community garden-related service learning has been incorporated into the agricultural curriculum for technical and vocational education. Students enrolled in agricultural subjects in the school of education are primarily expected to apply the knowledge they have learned in the classroom to the community through service-learning in community gardens. In an organized learning environment, students work in a community garden to solve recognized community needs by applying their skills and knowledge (McLeod & McLeod, 2014).

To ensure that a service-learning project is effectively run and meets the needs of both the community garden and the students, planning is essential. According to Zhang et al. (2011), service-learning initiatives frequently involve numerous take holders and seek to address the needs of both service providers and community partners, making their planning, implementation, and assessment phases challenging tasks.

Design & Implementation of the Service-Learning Project

Together with multiple stakeholders the School of Education, UTM has launched a number of initiatives to assist the expanding community garden through the medium of service learning and with a dedication to ecological sustainability. The learning outcome of this service-learning project, is to develop a new community garden or to assist existing community garden. This project enables students to explore their own abilities for finding resources, coming to conclusions, and carrying out their project. Throughout the course, students collaborated in groups and were allowed the freedom to experiment and come up with original ideas for a sustainable garden and meet the needs of the community. Activities include Students identifying stakeholders, resources including financial support, material and others. Their participation would involve three main visits to the community and additional meetings or visits when necessary. Table 1 shows the list of community garden

service-learning projects from 2021-2023.

Table 1
Community Garden Service-Learning Projects

No	Project Location	Sustainability & Special Component	Year
1	Tanjung Kupang, (Kelab Alami):Community Garden	Composting Hugel Culture Technique	April 2021
2	Sekolah Rendah Kulai 1: School Community Garden	Hugel Culture Technique Educational Elements	June 2022
3	Sekolah Menengah Jalan Kebun Klang: School Community Garden	Hugel Culture Technique STEM Elements	June 2022
4	Kenari Kangkar Pulai: Community Garden & Preschoolers	Educational Program (exploring community garden)	July 2022
5	Pulai flora Residents: Community Garden	Composting Hugel Culture Technique	October 2022
6	Sekolah Menengah Puteri Wangsa: School Community Garden	Fertigation Composting	December 2022
7	Kompleks Penghulu Benut: Community Garden	Composting Hugel Culture Technique Rain water harvesting	May 2023
8	Tadika Kemas Sri Pulai: School Community Garden	Hugel Culture Technique Rain water harvesting	June 2023

Objective

The purpose of this study was to evaluate the service-learning experiences of students from various cohorts and to evaluate the critical phases involved in organizing and carrying out a service-learning project. By reflecting back at the SL programs that were completed, the goal is to explore and identify the stages that go into planning and executing a community garden service-learning project using the CIPP Model (Context, Input, Process, and Product Evaluation).

Research Questions

What are the activities involved in organizing and carrying out a community garden service-learning project based on the CIPP Model (Context, Input, Process, and Product Evaluation)?

Theoretical Framework

This study was guided by the Context, Input, Process, and Product Evaluation Model (CIPP). This model is a widely used framework for program evaluation in various fields, including education. It was first developed by Daniel Stuffle beam in the late 1960s (Zhang et al., 2011) to improve accountability and effectiveness of programs, particularly in inner-city school districts. This model focuses on four key components: context, input, process, and product evaluation.

The CIPP approach has been found to be useful in assessing service-learning initiatives by numerous research. These programs aim to give students real-world experience and give back to the community by combining academic curriculum with community service. According to Alkin (2004), the CIPP evaluation model emphasizes "learning-by-doing" to identify corrections for problematic project features.

In the context of service learning, the CIPP evaluation model can provide valuable insights into the effectiveness, relevance, and impact of these programs on both students and the community. In 2020, one study carried out a mini-systematic review that looked at various frameworks and methods for curriculum evaluation (Gross, Ling, & Richardson, 2022). The CIPP model was highlighted as one of the seven models reviewed, emphasizing its widespread use in evaluating educational processes and outcomes. In a different study, the CIPP model was particularly utilized to evaluate an assistance program (Niehues, Gerlach, Wendeborn, & Sallen, 2022). This review suggests that the CIPP evaluation model is not only applicable in educational settings but also in service-learning programs. Several studies have highlighted the value and applicability of the CIPP evaluation model in evaluating service-learning programs (Borges & Hartung, 2007; Bringle & Kremer, 1993; Driscoll, Holland, Gelmon, & Kerrigan, 1996). Service-learning programs often have complex contexts, involving multiple stakeholders and community partnerships (e.g., faculty and community members and students) and according to (Zhang et al., 2011) CIPP is a suitable method of assessment, evaluation, and reporting that can adequately capture the complexity of a service learning project.

Methodology

This study applied qualitative approach of data collection and data analysis. Data collection was carried out via Focus Group Discussion sessions with participants representing five cohorts consisting of a total of 81 students. Purposive sampling was applied in the selection of the sample participants with the following criteria:

1. Involve in one or more community garden related service learning.
2. Enrolled in any agricultural subject offered by the school of education.
3. Represent students from different cohorts.

Data collection was conducted by soliciting input from the sample participants in Focus Group Discussions (FGD). The FGD sessions were held on in July 2023. The participants were divided into 8 FGD groups with composition of the groups as shownin Table 2.

Table 2
Composition of Focus Group Discussion Participants

Focus Discussion group	Group (FGD)	Involve in one service Learning	Involve in more than one service Learning	Total
FGD 1		3	7	10
FGD 2		4	7	11
FGD 3		4	7	11
FGD 4		3	6	9
FGD 5		3	6	9
FGD 6		4	7	11
FGD 7		4	6	10
FGD 8		4	6	10

Literature Review

Community Garden

Urban agriculture has been widely practiced by communities in rapidly developing urban areas (Bellows, Brown, & Smit, 2003). Suryandari and Abdullah (2012) reported that urban farming activities have been introduced to reduce and overcome environmental, economic and social problems. Thoreau (2010) defines urban agriculture as the process of producing food crops or livestock that is carried out in urban areas or around the city centre with the aim of generating income. In the Malaysian context, urban agriculture is often referred to as urban agriculture or community gardens. Community gardens activities are beneficial for the community, especially the urban community to help reduce the problem of food shortages and limited space for agriculture (Giedych, 2015; Smith, 2005). Community gardens is also seen as a sustainable practice because it benefits the social, economic and environmental aspects of the city such as reducing the city's 'ecological footprints', using and recycling urban waste and generating job opportunities and supporting the food needs of urban residents. Community gardens or non-profit gardening activities that are practiced in developed countries are now being welcomed by urban communities in Malaysia (Fatimah, Nurzaidah, & Noratikah, 2020). The success of community gardens programs is closely related to community perception and awareness of the benefits of the activity (Yusoff, Hussain, & Tukiman, 2017). In Banning's (2015) study shows that the practice of urban agricultural activities is linked to the commitment and awareness of the urban community towards the conservation of natural resources for future sustainability through community education programs.

Community Garden Service Learning

In recent years, service-learning has gained recognition as a valuable educational approach that combines academic learning with community engagement. Through service-learning projects, students have the opportunity to apply their classroom knowledge to real-life situations while also making a positive impact in the community (Keselyak, Simmer-Beck, Bray, & Gadbury-Amyot, 2007).

One specific area where service-learning has proven to be effective is in community gardens. Community gardens provide a unique and valuable setting for service-learning projects. Students who engage in community garden service-learning programs acquire not just real-world agricultural knowledge and skills but also develop a deeper understanding of social responsibility and the importance of environmental sustainability. Additionally, service-learning in community gardens promotes civic engagement, strengthens communities, and enhances the overall learning experience for students (Brown-Fraser, Forrester, Rowel, Richardson, & Spence, 2015; Miller, Lee, & Berle, 2012). According to Bagdasarov, MacDougall, and McIntosh (2021), service-learning projects in community offer opportunities for students of all ages to develop skills in leadership, sustainability practices, community organizing, cultural competency, and program planning, implementation, and evaluation. Additionally, Bordelon and Phillips (2006) contend that service learning is one of the most significant ways that community- campus relationships thrive. This partnership will benefit both the community and the institution.

Community- Institution Collaboration
Community gardening is a valuable activity that brings people together to cultivate and grow plants, fostering a sense of unity and connection within the community. However, the success and impact of community gardening can be enhanced the success and impact of community gardening can be enhanced through collaboration with universities. Collaboration with universities can bring several benefits to community gardening initiatives (Ward, Truong, & Gray, 2022). To begin with, academic institutions possess an abundance of knowledge and proficiency across several disciplines such as environmental science, horticulture, and agriculture. In order to guarantee that community gardeners have access to the knowledge and tools required for effective gardening practices, this expertise can be extremely helpful in guiding and supporting them (Bahng, 2015). Furthermore, universities often have access to advanced technologies and equipment that can be utilized in community gardening projects.

Additionally, collaboration with universities can provide community gardeners with opportunities for education and skill-building (Lavid, 2013). Universities can offer workshops, seminars, and training programs on various gardening techniques and practices, empowering community gardeners with the knowledge and skills needed to become successful in their gardening endeavours. Moreover, universities can serve as a bridge between community gardeners and other stakeholders in the field of agriculture and environmental conservation (Bahng, 2015; Zlotkowski, 1996). For instance, universities can facilitate partnerships between community gardeners and local farmers, allowing for knowledge sharing and the exchange of resources. This collaboration can lead to increased economic opportunities for community gardeners, as they can learn about marketing strategies and sales channels from experienced farmers. Furthermore, collaboration with universities can also contribute to the research and development of innovative and sustainable gardening practices (Brown-Fraser et al., 2015.

Findings

Finding was analysed based on CIPP Model which include the identifying a) Context evaluation or needs assessment, b) Input evaluation aids in recommending a project to address the demands that have been identified, c) Process evaluation offers continuous oversight of the project's implementation procedure d) Product evaluation finds and evaluates the results of the project (Stufflebeam & Shinkfield, 2007). Table 3 represents the major findings of this study.

Table 3
Context, Input, Process, and Evaluation for Community Garden Service Learning

Component	Activities
Context	**Identifying needs** · Identify communities' needs (interview community/coordinator) · Establish partnership. · Understanding community background/diversity · Prepare a needs assessments survey/question. · Identify learning goals from the course information. · Examining the area/garden /land
Input	**Develop a project plan (paperwork) that meets the need of the community and the course.** · Examining the suggested budgets/cost · Reaching out to stakeholders/expertise · Visit model community garden project. · Identify elements of sustainable agriculture · Develop milestone chart/timelines/ work schedule. · Examine the suggested solution options. · Examine available material and human resources. · Examining suitable method/ procedure/task · Identify knowledge transfer component. · Anticipated challenges and alternative solution
Process	**Project's implementation and monitoring process** · Develop relationship with the community. · On-going assessment of the project progress (interview, survey, observation of the SL project) · Keeping account of expenses · Documentation (photos, videos, activities log etc.)
Product	**Measure, interpret, and judge a project's outcomes** · Conduct assessment of the project progress & post project assessment (interview, survey feedback, observation) with community · Staying in touch with community via social media/communication platform · Self-reflection sessions with group members · Final reports

Discussion

The CIPP evaluation model provides a comprehensive framework for evaluating the effectiveness and impact of service-learning programs, taking into account the contextual factors, input resources, implementation processes, and outcomes or products. By considering these different aspects, the CIPP model allows for a thorough examination of how service-learning programs contribute to student learning and development, as well as their impact on the community (Stufflebeam & Shinkfield, 2007). An impactful service learning starts with the process of planning and collaboration between the students and the community garden. It is crucial to involve the community in the planning process. Once a community garden has been identified, the next step is to establish a partnership or collaboration. This can be done through open communication and discussions between the educational institution or class and the community garden coordinators. Both parties should agree on the goals and objectives of the service-learning project and determine how they can mutually benefit from the collaboration (Driscoll et al., 1996). Once the collaboration is established, students start to develop the project plan which includes comprehensive project details. It is essential that students create a project that enables them to use what they have learned and developed in practical ways in the community garden. This involves carrying out a particular gardening project or workshop, such coming up with a strategy for composting or constructing a sustainable irrigation system. During this phase it is very important to identify and reach multiple stakeholders and expertise. This is to ensure students receive proper guidance and support throughout the service-learning experience. Regular meetings with course lecturers or community mentors, as well as opportunities for reflection and feedback on the project progress is very important during the project implementation. This is related to the process evaluation component in CIPP model which allows opportunities to periodically evaluate the degree to which the project is being executed correctly and efficiently (Zhang et al., 2011). Finally, it is necessary to establish a system for assessing and evaluating the service-learning project. This can be done through various methods such as student reflections, evaluations from community garden coordinators, and assessment of the impact of the project on the community.

Limitations

The study's limitation pertains to the total number of students participated in community garden service learning, as some cohort members had already graduated at the time the study was conducted.

Conclusion

Important activities leading to the completion of eight service-learning projects completed between April 2021 and June 2023 were documented during the focus group discussion. The focus group discussion was guided by CIPP assessment model components which include context evaluation, input evaluation, process evaluation and product evaluation. Through introspection on the service-learning experience, participants were able to identify the primary activities involved in community gardenservice learning.

Therefore, by carefully gathering assessment data at every stage of the project, educators using service-learning as a teaching method may find it beneficial to use the CIPP evaluation model so that they may decide the best way to proceed in order to maintain or advance in the project. The results of the study demonstrated the great value of an evaluation model in the execution of service- learning initiatives. The data obtained from this study will be crucial in helping to carry out service-learning initiatives in the future.

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Revitalizing Service Learning: A TRIZ-Powered Model for Sustainable Community Impact and Enhanced Engagement

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Abstract

Service learning (SL), a pedagogical approach intertwining classroom learning with community service, holds significant potential for personal growth and societal advancement .However, its true transformative power often remains untapped due to challenges in creating sustainable community impact and fostering deep engagement. This paper presents a ground breaking initiative which introduces a model to revitalizing SL sustainability community impact and enhanced engagement. This improvement model based on the current SL implementation in Faculty of Computer Science and Information Technology (FCSIT), Universiti Malaysia Sarawak. Leveraging the analytical tools of TRIZ (Theory of Inventive Problem Solving), this paper conducts a rigorous analysis of conventional SL models, laying the groundwork for a more effective and sustainable approach. This analysis bridges the provide paths to sustain theproject creation with the community. We hope that this new model will inspire a transformative vision for SL, positioning it as a dynamic force capable of creating lasting community impact while enriching engagement. By doing so, it seeks to reshape the landscape of educational practices and community development, ushering in a new era of profound personal and societal growth.

Keywords: Service Learning, Project Sustainability Model, TRIZ, Community Impact

Introduction

In our rapidly evolving, interconnected society, the pressing need to equip students with a comprehensive skill set and foster a strong sense of civic responsibility cannot be overstated. Within the realm of experiential education, SL stands as a powerful tool with a well- documented history of delivering substantial benefits to undergraduate students. Notably, a growing body of literature, as demonstrated by the insightful studies conducted by (Miller et al., 2020), (Manegold et al., 2020), and (Bringle et al., 2022), consistently underscores the remarkable outcomes achieved by students immersed in SL (Criss & Gore, 2020). However, despite the demonstrated value of SL, a notable gap persists in its integration, particularly within the context of bridging academia with the real world to tackle sustainability projects. This gap presents a significant challenge and a compelling area for further investigation, highlighting the need for research that explores innovative ways to harness the potential of SL in the realm of sustainability initiatives, thereby creating a more engaging and impactful

educational experience.

The current tapestry of SL initiatives weaves a rich and diverse narrative. Researchers delve into various facets, including the lasting impact of students' experiences on their teaching practice post-graduation (Anderson et al., 2020) and the transformative power of study abroad programs infused with service-learning components (Abu-Mulaweh & Oakes, 2021). In this intricate pattern, a work-in-progress paper offers a glimpse into student reflections on service-learning challenges, leaving room for the unfolding exploration of outcomes (Singer et al., 2021). However, within this vibrant tapestry, a notable gap remains—a lack of comprehensive measurement of SL's broader impact on society. This uncharted territory presents an exciting opportunity for future research to illuminate the profound societal effects. Amidst the threads of innovation, initiatives like gender-conscious service-learning projects (Kumar et al., 2022; Pena-Castro & Martínez, 2021) and tailored interventions to rekindle engagement among engineering students (Patterson, 2021) stand out as beacons of change. At the forefront, visionary service-learning systems like the EnSer, poised to transcend boundaries and broaden impact (Jamil, 2023), interlace seamlessly with traditional and online courses (Weitl-Harms, 2022). Together, these threads form a complex yet compelling narrative of SL, inviting us to explore not only its vibrant present but also the untapped potential of its influence on society at large.

This paper introduces a ground breaking approach to SL, redefining it as a potent instrument for sustainable community impact. Leveraging TRIZ methodology, we meticulously dissect the conventional SL model through tools like Cause and Effect Analysis, Function Analysis, and Engineering Contradiction analysis. This rigorous examination serves as the foundation for our innovative model, which pivots towards fostering sustainable engagement with local communities. By infusing sustainability principles into SL, our model promises to not only enrich students' learning experiences but also empower communities through meaningful, lasting collaborations. This visionary approach stands poised to reshape the landscape of SL, forging a path towards enduring societal benefits.

The paper makes significant contributions in advancing the field of SL in several key ways:

1) Innovative SL Model: The paper introduces a pioneering SL model specifically designed to foster sustainable community projects. This novel function model redefines the role of SL in education, emphasizing its potential for creating lasting impacts on local communities.

2) TRIZ-Driven Analysis: Leveraging TRIZ tools, the paper offers a structured and rigorous analysis of traditional SL models. By dissecting the existing paradigm, it lays the groundwork for the development of a more effective and sustainable model,bridging the gap between theory and practice.

3) Enhanced Engagement: Through this work, the paper provides practical strategies to elevate SL as a powerful tool for boosting community engagement. It underscores the potential for SL to become a dynamic force in bridging academia and local communities, yielding benefits that extend far beyond the classroom.

These contributions collectively represent a significant step forward in harnessing the potential of SL to create positive and lasting impacts on community, making it an invaluable resource for educators, researchers, and community builders alike.

Related Works

In a study conducted by Anderson (Anderson et al., 2020), the enduring impact of service- learning participation on the instructional practices of post-graduate mathematics educators was examined. To investigate this, the researchers employed the Qualtrics web-based survey tool to collect data from both project participants (PPs) and matched controls (MCs). The survey results illuminated notable disparities in the self-reported classroom practices between PPs and MCs. These findings provide compelling evidence supporting the notion that reimagined service-learning experiences have the capacity to shape the beliefs, teaching methodologies, and global perspectives of undergraduate students, even as they transition into roles as mathematics instructors. Furthermore, the study implies that engagement in innovative service-learning programs as part of undergraduate teacher preparation holds the potential to yield significant advantages for early career educators. The research underscores the need for further investigation into these potential interactions, with the aim of identifying which individuals stand to gain the most from service-learning opportunities.

Abu-Mulaweh and Oakes (Abu-Mulaweh & Oakes, 2021) conducted a study focusing on evaluating the perceived learning outcomes of students who engaged in a study abroad program integrated with a service-learning approach. The primary objective was to provide insights to service-learning practitioners on effective strategies for delivering enriching educational experiences that better equip students for the complexities of the real world. This pedagogical approach holds significant promise, particularly within the fields of engineering and computing, offering solutions to various pertinent educational challenges. Moreover, it emerges as a potent tool for addressing the needs of both local and global communities. Through an examination of the perceived impacts resulting from study abroad experiences incorporating service-learning components, this research illuminates the potential of this educational approach to facilitate comprehensive student development and address critical issues on multiple fronts.

Singer and colleagues (2021) present preliminary findings from a study that explores the impact of SL on engineering education. Specifically, the research delves into student reflections on the Engineers Without Borders Australia Challenge during its inaugural year at Midwestern technical institution. Through the utilization of Likert scale questions and open-ended reflection prompts, the study gathered insights from students, employing convergent coding techniques to identify emerging themes. The preliminary results are strikingly positive, revealing a significant enhancement in students' grasp of contemporary engineering principles and a deepened appreciation for the relevance of these skills within the engineering profession. Significantly, this study emphasizes the need to carefully consider individual course design and supplementary learning content and objectives to further enhance the educational outcomes of SL initiatives in engineering education. In essence, it highlights the transformative potential of SL as a means to equip future engineers with not only technical knowledge but also a profound understanding of the practical and societal dimensions of their roles, fostering a new generation of socially responsible engineering professionals.

Service-Learning, as outlined in Pena-Castro and Martínez's (Pena-Castro & Martínez, 2021) study, plays a pivotal role in the recognition and revalorization of women as informants in oral tradition music. This transformative educational approach emphasizes equal opportunities for both genders, aligning with universities' commitment to building an equitable society. The core of this innovative teaching project revolves around service-learning, aiming to elevate students'social conscience and gender awareness. Through the project's integration of students specializing in Intangible Musical Heritage, a service-learning framework is established. Students engage in the research technique of semi-structured interviews with elderly female informants. This hands-on experience not only revitalizes the musical heritage but also fosters conscientious citizenship from a gender perspective. It bridges the gap between theoretical knowledge and practical application, imbuing students with a profound understanding of the social and ethical dimensions within their field of study.

Kumar, James, and Case (Kumar et al., 2022) conducted a study on an innovative engineering course utilizing project-based learning within a service-learning framework. In this educational experience, students engaged in organized service activities to address community needs while reflecting on these activities to enhance their understanding of course content and cultivate civic responsibility. The data for this study was gathered from the instructor's reflective narrative and a class discussion transcript. Students shared their expectations for the course and their experiences with it. They were surprised by the high level of open-endedness in the engineering process, emphasizing intrinsic motivation over grades. Communication skills emerged as crucial, with substantial in-class discussions. The study provided insights into the challenges of designing and delivering service-learning courses in engineering. While alignment existed between the instructor's intentions and students' expectations, challenges arose due to the course's open-ended nature, demanding higher intrinsic motivation and increased communication with peers and the instructor. This research highlights the unique dynamics of service-learning within engineering education.

Patterson's (Patterson, 2021) study stands as a compelling testament to the positive impact of SL, particularly within the context of engineering education. This paper addresses a concerning trend of disengagement in public welfare among engineering students. By incorporating pre- and post-surveys alongside qualitative analysis, it demonstrates how SL can serve as a powerful antidote to this disengagement. SL not only rekindled students' engagement in public welfare but also nurtured empathy. Patterson's findings suggest that students appreciated the experience of SL, which provided them with a genuine audience and a tangible connection to public welfare issues. This underscores the potency of SL in bridging the gap between theoretical knowledge and real-world application. The study's call for more in-depth analysis to explore the relationship between disengagement, empathy, and apathy highlights the potential for SL to not only re-engage students but also deepen their understanding of societal issues. In essence,this research underscores SL as a valuable tool in engineering education, fostering active citizenship and a renewed commitment to addressing pressing community needs.

SL, as exemplified by the proposed EnSer (Engineering Service) system, offers a transformative educational approach that aligns academic objectives with community needs. This pedagogical strategy not only enhances student learning but also addresses pressing societal challenges. As highlighted by Jamil (Jamil, 2023), EnSer, an expanded e-Service Learning (eSL) system integrating face-to-face and online components, has the potential to bridge the gap in educational resources for resource-constrained schools. SL, with its community engagement focus, offers a

powerful tool to combat the retention crisis in computer science education, particularly for disadvantaged and minority communities. By involving students in meaningful service projects, EnSer not only fosters a deeper understanding of academic concepts but also instills a sense of social responsibility. Moreover, its adaptability makes it equally valuable for emerging data science programs, catering to diverse student backgrounds and promoting abstract thinking skills. Incorporating EnSer into educational ecosystems worldwide can inspire a new generation of socially conscious and academically adept individuals, fostering both community development and the advancement of STEM disciplines.

SL in computer science education offers a dynamic approach to bridge the gap between academic knowledge and practical skills demanded by today's job market. Weitl-Harms (Weitl- Harms, 2022) emphasizes the importance of experiential opportunities for computer science students, acknowledging that traditional classroom learning is no longer sufficient to meet the evolving demands of employers and graduates. Integrating service-learning projects into courses, such as the upper-level/graduate-level database systems course described, provides students with invaluable hands-on experiences. These projects empower students to analyze, design, and implement real-world solutions, ensuring they are well-rounded and job-ready upon graduation. The overwhelmingly positive assessment by clients, with 91%-99% agreement on meeting project objectives, underscores the effectiveness of SL in delivering tangible results for community partners. Moreover, SL fosters a sense of social responsibility and pride among students, as they contribute to computing for social good. It instills confidence and a deeper understanding of the societal impact of their skills. Measuring the long-term impact of such projects on both clients and students underscores the enduring value of SL in computer science education, making it a valuable pedagogical approach.

SL Methodology in FCSIT

In the Faculty of Computer Science and Information Technology (FCSIT) at UNIMAS (Universiti Malaysia Sarawak), Nadia and her colleagues (Musa et al., 2017) have formulated a well-structured SL methodology, which is divided into three distinct phases. Phase 1 involves the crucial initial steps of planning, analysis, and design. During this phase, the SL project is carefully conceptualized, and the specific goals and objectives are outlined. This planning stage sets the foundation for a purposeful and impactful community engagement.

In Phase 2, the SL project is actively delivered. This is the stage where students, under the guidance of their SL supervisor, put their plans into action, engage with the community, and work on projects that contribute to the betterment of society. This practical application of knowledge is a hallmark of SL, allowing students to bridge theory with real-world experiences.

Phase 3 encompasses evaluation, reflection, and monitoring. Here, students and SL Supervisor assess the outcomes of the project, reflect on their experiences, and monitor the project's effectiveness. This critical reflection phase fosters a deeper understanding of the impact of their actions on the community and personal growth.

However, as noted, one challenge faced by the FCSIT SL methodology is the limited continuity of projects. The projects are typically tied to the duration of a semester, which can hinder the sustainability of their impact on the community. This temporal limitation may be addressed by considering independent agent or self-sustainable agent to maintain ongoing initiatives that endure beyond a single semester,

ensuring a more lasting and meaningful contribution to the communities served. Figure 1 visually represents this comprehensive SL methodology introduced by Nadia and her team (Musa et al., 2017).
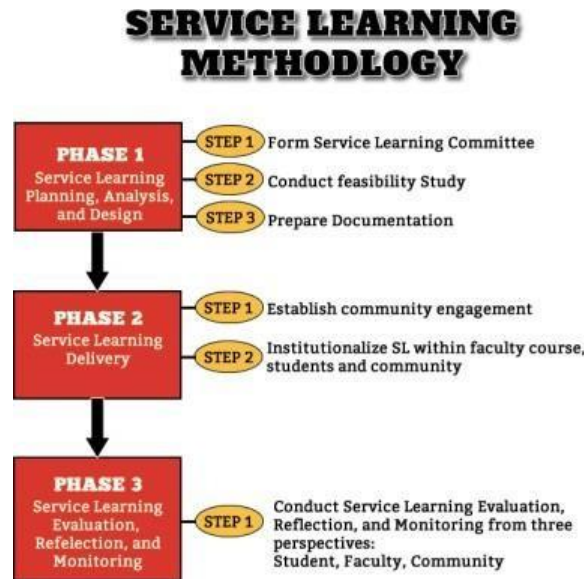

Figure 1: FCSIT SL SL Methodology (Musa et al., 2017)

Theory of Inventive Problem Solving (TRIZ) Analytical Approach

TRIZ has been effectively applied in various problem-solving domains (Sauli et al., 2019),(Kim et al., 2015),(Gupta et al., 2021).The infusion of TRIZ into this paper represents at ransformative leap in enhancing SL within the Faculty of Computer Science and Information Technology (FCSIT). TRIZ, renowned for its versatile analytical tools, is the cornerstone of this endeavour. Three pivotal TRIZ tools—Cause and Effect Chain Analysis (CECA), Function Analysis (FA), and Engineering Contradiction (EC) —have been strategically harnessed to illuminate the intricate web of the current SL methodology.

These tools are a beacon of innovation, shining light on the path toward progress. CECA dives deep into the roots of issues, exposing their core causes and offering a foundation for meaningful change. FA dissects component relationships, optimizing functions within the SL system. EC leads the way in inventive problem-solving, resolving contradictions and paving the road to breakthrough solutions.

Through the systematic application of TRIZ, SL is reinvigorated, poised to make a lasting impact on communities. TRIZ's structured and innovative framework breathes new life into SL, transforming it into a dynamic force for sustainable community growth and enriched engagement. This integration is not merely beneficial; it's a crucial evolution for SL, aligning it with the needs of our ever- changing world.

Cause and Effect Chain Analysis(CECA)
Cause and Effect Chain Analysis (CECA) is a powerful analytical tool used to methodically identify the root causes of a given problem. Its structured approach begins with evaluating the ideality of the problem at hand. Subsequently, the primary objective is to negate this ideality, effectively uncovering the hidden disadvantages or

root causes. CECA achieves this by systematically asking "why" for each branch of possible causes, delving deeper into the underlying factors contributing to the issue. This methodical and recursive process helps researchers and problem solvers trace the problem back to its origins, facilitating a comprehensive understanding of the issues at play and laying the foundation for effective problem resolution and improvement strategies.

Function Analysis (FA)

Function Analysis (FA) is a robust tool that enhances our comprehension of the intricate relationships among the components within any given system. Its structured approach initiates with a comprehensive component analysis, systematically listing all the elements involved in the system. Subsequently, in the interaction analysis stage, FA delves into understanding how each component interacts with others. This process is crucial for uncovering potential bottlenecks or inefficiencies in the system. Finally, through the construction of a function model, FA helps identify relationships between components that may be causing issues or requiring improvements. FA's strength in SL lies in its ability to provide a clear roadmap for optimizing system dynamics, thereby contributing to the enhancement of SL methodologies.

Engineering Contradiction (EC)

Every daily life challenge can be distilled to the essence of solving contradictions. Often, we settle for compromise solutions because we lack training in effectively addressing contradictory problems. Take, for instance, the classic dilemma of wanting to reach a destination quickly by car while conserving fuel. The compromise is driving at a moderate speed, not too slow but not too fast. However, this approach is suboptimal.

The power of Engineering Contradiction (EC) lies in its ability to transform such dilemmas into opportunities for innovative solutions. EC, coupled with the 40 Inventive Principles, enables us to dissect and resolve these contradictions systematically. It encourages us to think beyond compromises and discover inventive approaches that optimize both speed and fuel efficiency. By viewing everyday problems through the lens of EC, we unlock a wealth of creative possibilities, paving the way for more efficient and effective solutions in various aspects of our lives.

CECA Analysis on FCSIT SL

The Cause and Effect Chain Analysis (CECA) method serves as a central framework for delving into the factors that contribute to the underachievement of SL in its mission to enrich communities. As illustrated in Figure 2, the CECA analysis has exposed a complex web of root causes that lie at the heart of the challenge faced by SL projects in their pursuit of community enrichment. These root causes do not exist in isolation; instead, they are intricately interconnected, creating a domino effect that reverberates throughout the sustainability and effectiveness of SL initiatives.

Outlined below are the selected primary root causes identified through the CECA analysis, which merit focused attention and strategic interventions to drive meaningful change:

SL Course Requirement:
The root cause of "SL Course Requirement" identified through the Cause and Effect Chain Analysis (CECA) reveals a significant weakness within the SL (SL) methodology. The insistence on SL as a course requirement, closely synchronized with the academic calendar, presents a formidable challenge to the long-term sustainability and community impact of SL initiatives.

This root cause weakens the essence of SL by constraining projects within the confines of a single semester or term. As a result, SL projects often revolve around short-term objectives, rendering them insufficient for addressing the broader and enduring needs of the community. The community, which should ideally benefit from continuous and comprehensive support, ends up with limited, piecemeal interventions that barely scratch the surface of its multifaceted challenges.

Furthermore, the temporal alignment with academic terms places undue pressure on students, educators, and community partners to rush through projects, leaving little room for in-depth needs assessment, relationship-building, or the development of sustainable solutions. This weakness highlights the urgency of reevaluating the role of SL within the academic calendar and shifting toward more flexible and community- centric models that prioritize long-term community development and enrichment.

Limited Engagement Planning:
The root cause of "Limited Engagement Planning" uncovered through the CECA underscores a critical weakness within SL initiatives. This weakness primarily stems from the insufficient attention given to comprehensive community engagement planning, and it has significant implications for the effectiveness and sustainability of SL projects.

At the heart of this weakness lies the absence of strategic foresight and planning beyond the immediate course requirements. SL initiatives often prioritize the completion of tasks within the constraints of academic semesters, leaving little room for in-depth and thoughtful engagement with the community. As a result, the projects may in advertently reflect a short-sighted perspective, driven more by student-centric goals than by the long-term sustainability and enrichment of the community.

Moreover, the limited engagement planning deprives SL initiatives of the opportunity to forge enduring and meaningful partnerships with the community. Instead of co- creating solutions that genuinely address community needs, SL projects may become transactional in nature, focusing solely on completing coursework requirements. This shortcoming underscores the necessity of shifting toward a more community-centered approach, emphasizing comprehensive engagement planning that foster lasting positive impacts and community development.

Limited Exposure to Evaluation of Feedback:
The root cause of "Limited Exposure to Evaluation of Feedback," as revealed by the CECA, highlights a critical deficiency within SL initiatives. This weakness revolves around the inadequate incorporation of feedback evaluation into the SL framework, resulting in missed opportunities for continuous improvement and responsiveness to community needs.

Within the current SL methodology, feedback evaluation is often sidelined or restricted to assessing student performance rather than comprehensively evaluating project impact and community satisfaction. This approach limits the ability of SL initiatives to gauge the true effectiveness of their endeavors in meeting community needs.

Moreover, by neglecting robust evaluation frameworks and feedback loops, SL projects risk operating in isolation from the evolving dynamics and priorities of the communities they serve. This limitation impedes adaptability and prevents projects from aligning with the changing needs and aspirations of the community.

In essence, the weakness represented by limited exposure to feedback evaluation not only inhibits SL initiatives from realizing their full potential but also hinders the fulfillment of their core mission: *to create sustainable and meaningful positive impacts within the community*. It emphasizes the pressing need to integrate comprehensive feedback mechanisms that prioritize community voices and drive continuous improvement in SL initiatives.

The interconnectedness of these root causes becomes apparent when viewed through the CECA analysis. The requirement of SL as a course creates a short-term focus and tight timeframes, limiting opportunities for comprehensive engagement planning and sustained community involvement. Additionally, the lack of exposure to feedback evaluation prevents participants from gaining insights into the effectiveness of their actions and their contribution to community enrichment.

Figure 2: Cause and Effect Chain Analysis on FCSIT SL

Function Model Analysis on FCSIST SL

To comprehensively grasp the dynamics of an SL system, it is imperative to model the ongoing interactions among its various components. These interactions symbolize the intricate flow of information, serving as a critical gauge for determining whether the system fulfils its intended purpose. Moreover, a transparent and well-defined relationship between these components facilitates the infusion of novel elements to enhance the system continually. In Figure 3.1, we delineate the functional model of the FCSIT SL, while Figure 3.2 presents a novel FCSIT SL function model meticulously crafted to sustain and amplify its impact on the community. This innovative model is poised to ensure the lasting relevance and effectiveness of SL in positively influencing the community it serves.
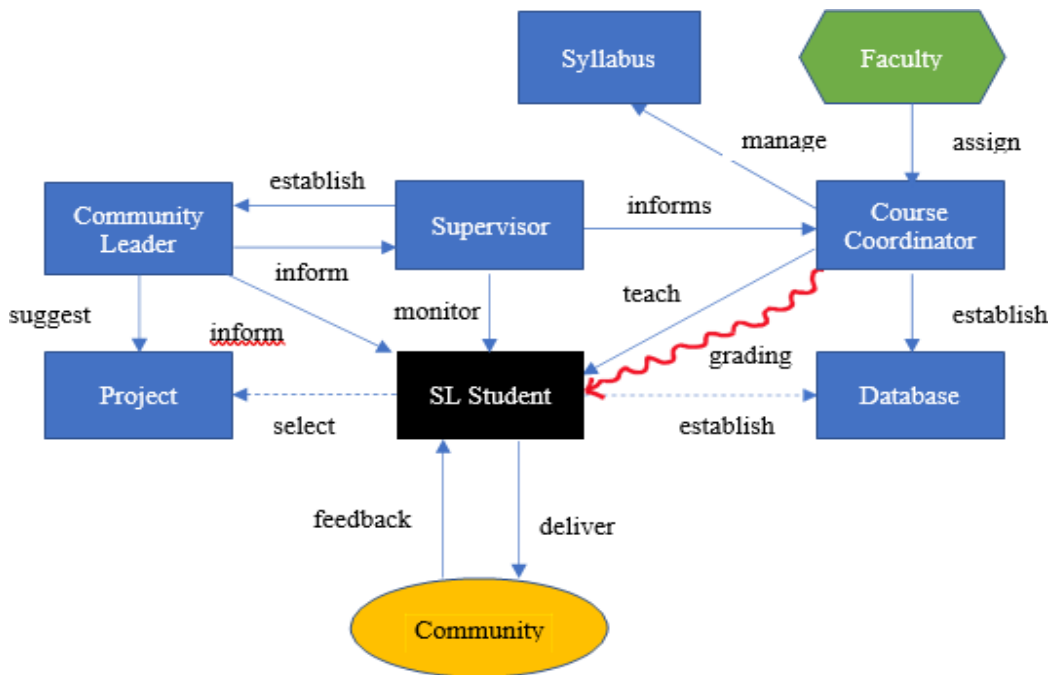

Figure 3.1: FCSIT SL Function Model Analysis

Analyzing Figure 3.1, we discern a detrimental relationship between the "Course Coordinator"and the "SL student." This dynamic often subjects students to undue pressure, diverting their focus from community-centric service delivery. The dotted line signifies an inadequate connection between components. Notably, the "SL student" lacks sufficient information to select appropriate projects proposed by community leaders due to time constraints imposed by the academic calendar. Another weak link surfaces between the "SL student" and the "Database." While students collect community feedback at project completion, it tends to center on training satisfaction rather than project sustainability. Consequently, the feedback input into the database falls short in evaluating the overall project's enduring impact.
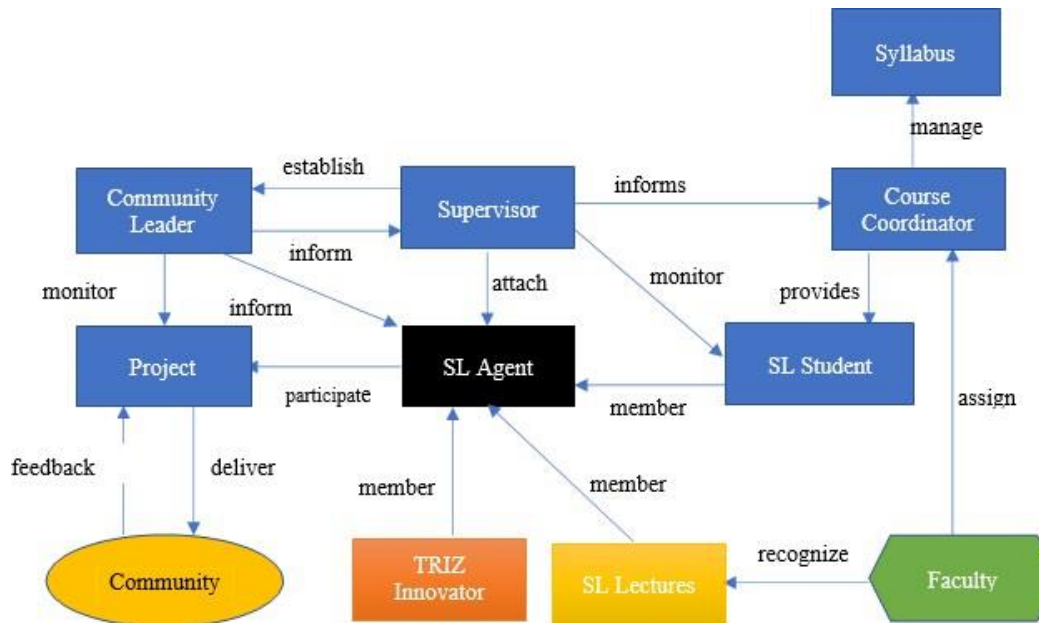
Figure 3.2: A Proposed Function Model for FCSIT SL

Figure 3.2 presents a significant improvement in addressing the main root cause, namely SL Academic requirements, through the introduction of the SL Agent. The primary role of the SL Agent is to efficiently coordinate all team members, ensuring their active participation in the most relevant ongoing community projects. This strategic shift eliminates the need for students to initiate their individual projects and, instead, allows them to align their efforts with larger, community-monitored initiatives. This approach empowers students to concentrate their energies on projects that can make a real impact on the community. Furthermore, the inclusion of the SL Agent offers the advantage of continuity. In the event that a student is unavailable, other members, including TRIZ innovators and SL instructors, can step in to ensure the seamless progression of community projects, preventing disruptions and maintaining project momentum. This holistic approach not only enhances the student experience but also fosters a more robust and sustainable community impact.

Engineering Contradiction Analysis of FCSIT SL

Engineering Contradiction Analysis (EC) is a potent problem-solving tool employed when encountering contradictions within a problem statement. In reality, complex problems often encompass numerous inherent contradictions. Regrettably, due to a lack of familiarity with contradiction resolution methodologies, individuals often resort to heuristic approaches, leading to compromise solutions that lack systematic problem-solving rigor. In the context of our faculty's SL implementation, we have devised two specific Contradiction Matrices to facilitate our discussions. These matrices enable us to explore potential solutions systematically, drawing inspiration from Alsthuller's Contradiction Matrix (Contra, 1954), a foundational work in the field of inventive problem solving. By leveraging EC and these specialized matrices, we aim to uncover innovative and precise resolutions to the challenges at hand, transcending conventional heuristic practices.

Table 1: Engineering Contradiction for Case 1

Condition	Situation	State	Parameter	Inventive Principle
IF	Students deliver projects based on the Academic calendar			
THEN	Marking student Performance is easy.	Improving	#27: Reliability	#5: Merging #11:Beforehand cushioning#1: Segmentation #23: Feedback
BUT	The project is short-term And does not address community needs.	Worsening	#25: Measurement accuracy	

In Table 1, we have identified four potential inventive principles that can offer solutions to the SL project, which is currently not addressing the needs of the community:

1. **Merging:** This involves identifying similar projects implemented in different communities and adopting those approaches for different communities. By doing so, it becomes easier to measure the performance and impact on the community.

2. **Segmentation:** This principle suggests dividing SL students according to the project stages. This means that SL students will strive to match their skills with the current project stage, ensuring a better fit for the task.

3. **Beforehand cushioning:** It is important to prepare other parties to anticipate situations where SL students may not be ready for the project. In such cases, SL supervisor or other TRIZ innovators can step in as replacements.

4. **Feedback:** To improve the SL project's alignment with community needs, we propose creating a channel or platform that allows SL supervisors, SL coordinators, and community leaders to list all available projects along with their status and requirements.This platform will facilitate the collection of information necessary for measurement and impact evaluation."

Table 2: Engineering Contradiction for Case 2

Condition	Situation	State	Parameter	Inventive Principle
IF	Students SL are well-trained			
THEN	Any community project can be successfully completed.	Improving	#9: Speed	#6: Universality #18:Mechanical vibration
BUT	Students are suffering from a high workload.	Worsening	#11: Stress and pressure	#38: Strong oxidant #40:Composite material

In Table 2, we explore potential inventive principles aimed at ensuring the successful delivery of community projects without increasing the burden on students. Among the listed principles, we have found that only Principle #6 and #40 are relevant to addressing this specific problem.

1. **Universality:** One approach is to establish a multi-skills workshop within the faculty that offers short training tailored to the SL needs in the market. This will equip our students with a wide range of skills, ultimately enriching the community.

2. **Composite Material:** Another strategy involves forming different layers within the SL faculty team, with each layer having its predefined function, making it easier to align with the community project requirements.

By focusing on these inventive principles, we can develop effective solutions to ensure the successful execution of community projects while maintaining a manageable workload for students.

Discussion

Based on the analysis, we divided out discussion into three major topics on how to strengthen the FCSIT SL project impact to the community. The discussion here if mainly focus on methodology that we believe can improve the SL for community in the future. We anticipate that other methods also can be applied to improve the SL enrichment to the community.

Enhancing SL through TRIZ Method Analysis

Our approach to enhancing SL involves the strategic application of TRIZ analytical tools, which have played a pivotal role in reshaping the conventional SL model. Through these methodologies, we've embarked on a journey to dissect, refine, and innovate SL, with a primary focus on fostering sustainable community impact.

By utilizing the TRIZ problem-solving methodology, we conducted a meticulous examination of the existing SL model. This process allowed us to identify the root causes of its limitations,pinpoint functions that could be enhanced, and unravel the intricate interactions within the system.

Specifically, CECA provided invaluable insights into the complex relationships among various components of SL, shedding light on why SL may fall short of truly enriching the community.Function Analysis helped us pinpoint the core functions that required improvement, leading to the proposal of an SL Agent in our new FCSIT SL model. This agent facilitates sustainable project development within the community, addressing a critical need for continuity.

The EC principle opened the door to numerous solutions for making SL more sustainable from the community's perspective without sacrificing the motivation behind SL.

Potential Impact on Students

The proposed SL model holds significant potential for enriching students' learning experiences in multiple ways. First and foremost, it offers a unique platform for skill development. By infusing sustainability principles into SL, students can gain practical experience in applying these principles to real-world challenges. This not only enhances their problem-solving skills but also equips them with a valuable set of competencies that are increasingly relevant in today's job market.

Moreover, the proposed model encourages personal growth among students by mixing them with different members in the SL Agent. Designed SL with sustainability in mind, promotes empathy, critical thinking, and a broader understanding of social issues. It challenges students to think beyond traditional classroom boundaries and cultivates a sense of social responsibility.This can result in increased self-awareness, adaptability, and a deeper connection to societal needs.

Increased community engagement via real project involvement is another substantial benefit. The new model, designed to ensure meaningful and lasting collaborations with local communities, encourages students to become active, empathetic participants in community development. This hands-on experience can foster a sense of belonging and commitment, leading to increased community engagement not only during the SL project but also in the long term.

Community Empowerment

The proposed SL model not only benefits students but also holds great promise for empowering local communities through meaningful and lasting collaborations. By infusing sustainability principles into SL, we can establish a two-way street where communities become active partners in their own development.

First and foremost, the model encourages the community's active involvement in shaping the projects. By working closely with community members, their unique needs and perspectives can be integrated into the SL initiatives. This involvement fosters a sense of ownership and empowerment among community members, as they play a central role in defining the projects that will directly impact their lives.

Additionally, the infusion of sustainability principles ensures that the projects are designed with long-term benefits in mind. These projects aim not only to address immediate needs but to leave a lasting, positive legacy in the community. Whether it's environmental sustainability, economic empowerment, or improved social infrastructure, the focus on sustainability enhances the value of SL for the community. Moreover, fostering enduring collaborations with local communities goes beyond the duration of a single project. It builds trust and rapport between educational institutions and the communities they serve, potentially leading to ongoing partnerships, resources, and support for community development.

Challenges and Considerations

While the proposed SL model offers substantial benefits, it's essential to acknowledge and address potential challenges, limitations, and drawbacks. Several factors need to be considered in the implementation of this innovative approach.

Scalability is a crucial consideration. While the model may work effectively in specific contexts, it may face challenges when scaling up to accommodate a larger number of students or expanding to different educational institutions or community. Maintaining the same level of community engagement, quality, and sustainability as the program grows can be complex and requires careful planning.

Resource requirements are another concern. Implementing SL with a sustainability focus may demand additional resources in terms of faculty and staff training, community partnership development, and project support. Ensuring adequate funding and resource allocation is essential to the model's success.

Adaptability to different community contexts is a challenge as well. Communities have diverse needs, cultures, and expectations. The proposed model may need to undergo adjustments to fit within the unique context of each community. Flexibility and open communication with community partners are vital to address this challenge effectively.

Need to be aware that there is also the potential for *student burnout*. Balancing academic responsibilities with community engagement can be demanding. Institutions must provide the necessary support systems, such as counselling and time management resources, to prevent student exhaustion.

Conclusion

The innovative SL model introduced in this paper represents a ground-breaking shift in the realms of education and community development. Rooted in the amalgamation of TRIZ methodology and sustainability principles, this model has the potential to elevate SL into a dynamic and influential catalyst for societal progress. Its impact spans across multiple dimensions, with students standing to benefit immensely. This new approach enriches their educational journey by imparting practical skills, nurturing personal development, and instilling a profound sense of community engagement, creating a generation of socially conscious, academically proficient, and socially responsible individuals poised to make meaningful contributions to their communities. Equally significant is the model's potential for community empowerment. Through the active involvement of local communities in project development and its emphasis on sustainability, it forges lasting partnerships, converting SL into a reciprocal, mutually empowering endeavor, wherein communities become active agents in their own betterment. While challenges like scalability and resource allocation must be addressed, the model's potential advantages far outweigh these hurdles, offering a transformative shift in education and community development that enriches engagement and promises lasting societal impact. In conclusion, this pioneering SL model, anchored in TRIZ methodology and sustainability principles, heralds a new era, revolutionizing education, community development, and personal growth, and paving the way for a brighter future for all stakeholders involved.

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Developing An English for Specific Module for Airline Cabin Crew

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Abstract

The project entitled "Development of English Language Module for Malaysian Airline Cabin Crew" was undertaken in conjunction with the Service Learning Malaysia, University for Society (SULAM) project for the course 'English for Specific Purposes' (BIP 3063). The primary aim of the project which was executed as one of the assignments in the course is to prepare the English language learning module in relevance to the airline industry. As the project was research-based with a qualitative approach, the respondent selected was an experienced cabin crew with the Malaysia Airlines. Several interview sessions were conducted with the respondent to gain insights for the development of the language module. A group of 30 students were involved in this project. The SULAM project has had a noteworthy influence on students' capacity to cultivate creative and critical thinking abilities. This initiative offers students an avenue to actively participate in the creative and analytical development of novel educational resources. Furthermore, the individuals exhibited proficient time-management skills and teamwork spirit during the process of preparing and finalising the task. The project also facilitates the development of good communication skills among students, as they actively participate in discussions, diligently prepare for assigned duties, and proficiently conduct the activities. The collaborative approach also facilitates the students' ability to effectively acknowledge and overcome obstacles that arise throughout the course of the project's development. The respondent has expressed that the project is helpful and valuable in terms of improving his comrades' English language command as evidenced by the feedback obtained. The project has also functioned as a catalyst for individuals to develop their English language skills through engaging and interactive approaches that foster meaningful educational encounters. The project has significant global potential for commercialization as a community service endeavor.

Keywords: English for Specific Purposes, Airline Cabin Crew, Language Module, SULAM

Introduction

The aviation industry holds significant importance within the global economy, as airlines serve as a vital means of transportation for a substantial number of individuals worldwide. In the contemporary era characterized by rapid change and continuous development, the significance of proficient communication cannot be overstated, particularly within the aviation sector. Within this industry, good communication plays a pivotal role in guaranteeing the safety of passengers. The paramount significance is in guaranteeing that airline cabin crew members possess the requisite linguistic abilities to properly engage in communication with passengers across a diverse range of

circumstances.

The project titled "Development of English Language Module for Malaysian Airline Cabin Crew" was conducted as a component of the Service Learning Malaysia, University for Society (SULAM) initiative, specifically for the course 'English for Specific Purposes' (BIP 3063). The objective of the project was to develop a module aimed at enhancing the English language proficiency of Malaysian airline cabin crew members. The study employed a qualitative research methodology, wherein interviews were performed with a seasoned cabin crew member from Malaysia Airlines. The purpose of these interviews was to get valuable insights and subsequently design a language module that is both pertinent and efficacious. The study featured a cohort of 30 students, wherein the SULAM initiative played a prominent role in enhancing their creative and critical thinking capacities, as well as promoting effective communication and teamwork proficiencies (Hanum et al., 2021). The scope of the initiative extends beyond the confines of the Malaysian aviation industry, demonstrating its potential for global applicability. The aviation industry is a globally interconnected sector, wherein airline personnel hailing from several nations engage with passengers originating from various regions across the globe. Hence, the creation of this English language module tailored for Malaysian airline cabin crew holds substantial worldwide prospects.

The project has underscored the significance of proficient communication abilities within the aviation sector. Furthermore, it has helped the cultivation of vital competencies such as collaboration, efficient allocation of time, analytical reasoning, and innovation, which are important for achieving success in various professional domains. The assignment also adopted a collaborative approach, wherein students actively participated in discussions, teamwork, and problem-solving activities throughout the entirety of the process. The implementation of this methodology has resulted in the creation of a linguistic component that pertains to the field of aviation, while also cultivating an environment that promotes ongoing education and the pursuit of enhanced performance.

The initiative has garnered favourable response from the participant, who conveyed the project's efficacy and value in enhancing the English language proficiency of his fellow cabin crew members. The dynamic and engaging method employed by the initiative has facilitated the development of language abilities among cabin crew members, while also cultivating a climate that promotes meaningful educational interactions.

Despite the importance of effective communication skills in the aviation industry, there is a research gap in the literature concerning the specific language skills required by cabin crew members to communicate effectively with passengers in diverse situations. This project has attempted to address this research gap by studying a set of guidelines for the creation of an English language module that is tailored to the needs of Malaysian airline cabin crew.

Literature Review

Methodology

Developing a set of guidelines for the creation of an English language module that is tailored to the needs of Malaysian airline cabin crew involves several processes that must be executed correctly to bring about a successful outcome. These processes include needs assessment, curriculum design, material development, and evaluation of the effectiveness of the module. Below is a detailed overview of each of these processes.

1. Needs Assessment: The first step in developing an English language module is to carry out a needs assessment to identify the specific language needs of cabin crew members. A needs assessment involves obtaining information from a respondent who was a cabin crew member with the Malaysian Airlines through a series of interviews. This information is used to understand the skills, knowledge, and language abilities that cabin crew members possess, as well as their gaps. By identifying these gaps, a m can be designed to focus on the areas where cabin crew members require the most support. Examples of language abilities that may be assessed include communication during emergency situations, handling passenger complaints, and delivering announcements.

2. Curriculum Design: After identifying the specific language needs of cabin crew members, the next step is to design a curriculum. The curriculum must be focused on the identified needs while being tailored to the cabin crew members' work environment. To create an effective curriculum, it is necessary to determine the specific language structures and vocabulary that need to be integrated into the program. For instance, a curriculum may include units on instructions for take-off and landing or handling emergencies in different languages. Additionally, it is essential to determine the optimal delivery method, which may include online courses, classroom sessions, or a combination of both.

3. Material Development: With a careful analysis of the language needs of cabin crew members, the next step is to develop appropriate materials and resources that align with the established curriculum objectives. Materials can include textbooks, learning activities, and assessment tools such as quizzes and written examinations. However, the materials used must be tailored to the working environment, experience level, English ability, and learning needs of the cabin crew members. Developing materials that are engaging, relevant, and interactive can help to improve language retention and educational outcomes.

4. Evaluation of module Effectiveness: The final step is to evaluate the effectiveness of the English language module to ensure that it successfully meets the established objectives. This involves the use of a series of interviews and feedback from the respondent who was a cabin crew. Feedback is important to help modify and refine current learning modules, resources, or program directions by taking into account concerns expressed by the respective respondent to ensure that the program is providing perceived value while achieving the desired goals.

The development of an English language module tailored to the needs of Malaysian airline cabin crew involves a series of critical processes that must be executed accurately for a successful outcome. The processes include carrying out a needs assessment, designing a curriculum based on the assessment, developing materials, and ensuring that the curriculum is effective through consistent evaluation. By following these processes, it is possible to ensure that cabin crew members' English language skills are enhanced, which can contribute to improved communication between cabin crew and passengers, thereby enhancing safety, efficiency, and customer satisfaction.

Results

The complete English language module that is tailored to the needs of Malaysian Airline cabin crew includes four units designed to improve the English communication skills of cabin crew members. The units are designed to address specific areas of language need identified by the needs assessment process. They are emergency communication, interacting with passengers, completing cabin announcements, and handling complaints.

Unit One – Welcome on board!

Unit 1: Welcome on Board involves several steps for ensuring the passengers have a pleasant and safe flight experience. The key steps are as follows:

Step 1: Welcoming Passengers
The first step involves welcoming passengers as they arrive on the plane. Cabin crew members welcome passengers with a warm smile and assist them with their carry-on luggage. This step is essential in providing a friendly and welcoming atmosphere to the passengers.

Step 2: Settling Passengers in their Seats.
The second step is to help passengers find their seats and to ensure they are comfortable. Cabin crew members guide passengers to their seats and assist with any special requests they may have such as special needs, dietary requirements, etc. This step provides an excellent opportunity for cabin crew members to interact with passengers and create an atmosphere of friendliness and comfort.

Step 3: Demonstrating Safety Procedure and Checking before Take-off
The third step involves demonstrating the safety procedures on the plane and checking that passengers have fastened their seatbelts correctly. This step is essential in promoting safety onboard and instilling confidence in passengers about their safety during the flight.

Step 4: Case Study Activity
The last step is the Case Study Activity, which is designed to help cabin crew members improve their communication skills, assess whether they are following the airline's protocol, and identify areas for improvement. This step involves a practical activity that cabin crew members can practice to polish their communication skills and provide optimal customer service to all passengers.

Unit Two - Passengers' Safety and Welfare

Unit 2: Passengers' Safety and Welfare aims to ensure the safety and comfort of the passengers throughout the flight. The following are the essential steps involved in this unit:

Step 1: Making the First Announcement
The first step involves making a clear and concise announcement to passengers about the duration of the flight, the expected weather conditions, the cruising altitude, and the estimated time of arrival (ETA). The announcement should also explain the safety

procedures and emergency protocols on the airplane. It is vital to ensure that passengers understand and follow these procedures, which can help prevent potential airline mishaps.

Step 2: Helping to Settle Passengers
The second step is to ensure that all passengers are comfortably settled in their seats. This may involve providing assistance to passengers with infants, the elderly, or those with special needs, by helping them secure their luggage, providing additional blankets and pillows, and assisting with seat belt fastening.

Step 3: On-board Minor Problems
In-flight problems such as malfunctioning electronic gadgets, mild aircraft turbulence, or minor issues with the air conditioning system, can cause some degree of discomfort among passengers. In such instances, the cabin crew members must quickly resolve the problem, ensure that passenger safety is not compromised, and quickly return to normal operations.

Step 4: Apologizing
Given that mishaps can happen even under the best of circumstances, it is important for the airline staff to apologize professionally and sincerely when things go wrong. This can include delays due to air traffic, turbulence, equipment malfunctioning, or other unforeseen situations that may cause inconvenience to passengers.

Step 5: Case Study Activity
The last step involves a case study where cabin crew members can practice communication skills, assess whether they are following the airline's protocol and identify areas for improvement. This step involves practical exercises that cabin crew members can carry out to ensure optimal customer service, even in difficult situations.

Unit Three - Food and Drink

Unit 3: Food and Drink is primarily focused on providing food and beverage services to passengers during the flight. The steps involved in this unit are as follows:

Step 1: Giving a Choice
The first step involves providing passengers with a variety of meal options and giving them the opportunity to choose the one that best suits their dietary needs. Cabin crew members should ensure that the passengers' preferences are noted down and prepared accordingly so that they are not disappointed by the food served on board.

Step 2: Serving Drinks
The second step is to provide passengers with a wide range of drinks to choose from, such as tea, coffee, water, and soft drinks. Cabin crew members should ensure that these are regularly offered to passengers and should be attentive to any requests for additional beverages.

Step 3: Duty Sales Free
Another important part of the unit is duty-free sales. Cabin crew members should explain the various items that are on sale and answer any questions that passengers may have about the products available. They should ensure that all sales are handled in a

professional and courteous manner.

Step 4: Case Study 3
The last step is the Case Study 3, which is aimed at helping cabin crew members to improve their skills in managing the catering demands during the flight. It provides an opportunity for cabin crew members to practice their communication skills and identify areas for improvement.

Unit Four - Complaints and Disruptive Passengers

Unit 4 - Complaints and Disruptive Passengers aims to teach cabin crew members how to handle passengers' complaints and manage disruptive passengers on board. The steps involved in this unit are as follows:

Step 1: Responding to Passengers' Complaints
The first step is to acknowledge and respond to passengers' complaints in a prompt and professional manner. Cabin crew members should listen actively to what the passenger is saying, empathize with their situation, and offer solutions to resolve the problem where possible.

Step 2: Dealing with Complaints about other Passengers.
In some instances, a passenger may make a complaint about the behavior of another passenger. Cabin crew members should handle these complaints discreetly and professionally, ensuring that the other passenger's rights are not violated while resolving the issue.

Step 3: Managing Disruptive Passengers
It's essential to identify and defuse potential situations that may lead to disruptive behavior on board. Cabin crew members should maintain a calm and professional demeanor when dealing with disruptive passengers and be aware of the airline's policy on dealing with these types of situations.

Step 4: Case Study Activity 4
In the final step, cabin crew members are presented with a case study that deals with hypothetical situations that may arise on a flight. The case study activity enables cabin crew members to practice and develop their skills in managing complaints and disruptive passengers.
        The English language module has been designed to be delivered over a ten-week period. It includes materials such as a curriculum guide, learners' workbooks, audio files, and presentation slides. The curriculum guide provides the teaching objectives, lesson plans, suggested materials, and assessment rubrics to guide trainers in delivering the curriculum. The workbook provides cabin crew members with activities, exercises, and tasks that they complete during and outside class time. The audio files contain listening and speaking exercises which cabin crew members can use to practice their English skills. The presentation slides support trainers to deliver the lessons effectively.

Conclusion

The complete English language module that is tailored to the needs of Malaysian airline cabin crew has been designed to provide cabin crew members with essential English communication skills needed to perform their job roles effectively and efficiently. The curriculum covers four units, which include emergency communication, interacting with passengers, completing cabin announcements, and handling complaints. The module includes materials such as a curriculum guide, learners' workbooks, audio files, and presentation slides. This module provides cabin crew members with targeted language instruction that they can apply in their day-to-day work, ultimately improving communication, and enhancing customer satisfaction.

References

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