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Editor-in-Chief

Dr. S.K. Bhatia



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International Journal of Teacher Education and Teaching

Bi-Annual Journal

Would like to appeal to the learned readers to send us their views, counter views, suggestions, comments, and observations etc. via "Letters to Editor" (which will be published in the next Issue) on the articles published in this Journal so that an academic discussion may start and our efforts may become more participative and thereby more meaningful and interesting.

Editor-in-Chief

The Themes for the next Issue January-2025

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1. Valuing professionalism and training in Teacher Education courses.
2. Changes in perspectives on areas of research in Teacher Education.
3. Perspectives on how learning in Curriculum and Pedagogy are demonstrated in Teacher Certification Programs.
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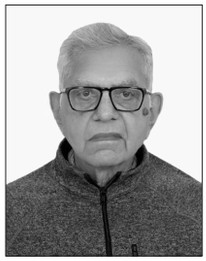
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1. Teachers' Professional Growth
2. Optimising Students' Achievement
3. Holistic Learning
4. Experiments in the area of Experiential Learning.
5. Objective Evaluative Strategies During the Prolonged Closure of schools.
6. Solving School Problems through Action Research
7. Measuring Students' all-round Achievements through Ensemble assessments.
8. Literacy and Numeracy Challenges and their Remedies in schools
9. Integrating the inputs of Arts, Music and Play during the classroom teaching-learning processes
10. Starting Job-linked Courses in Schools at the Secondary Level

Thanks and Regards
Editor-in-Chief
Dr. S.K. Bhatia

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Editorial



Welcome to the July 2024 issue of International Journal of Teacher Education and Teaching. As is evident, this journal invites research papers in the realm of teacher education and school innovative projects. While we're thrilled by the abundance of submissions focusing on teacher education, we've observed a scarcity of reports concerning innovative projects within schools, for which there is a separate section in our journal. We encourage authors to share their experiences and insights from these projects, as they play a vital role in advancing educational practices and enriching our understanding of effective teaching methodologies. While research scholars and teacher educators enrich the discourse with papers on school education research, we prefer firsthand insights from the front-line educators themselves. We seek school project reports straight from the source – the teachers who are actively engaged in shaping the educational landscape.

Most of the contributors develop their papers on the basis of their respective research themes which might have originated on the basis of the suggestions given by their research guides or may be their own areas of interest. Before deciding to develop the theme of a paper, it is imperative for the researcher to consider the potential impact and utility of their findings. It is essential that the research addresses issues relevant to students and teachers' growth, the nation, and the global community. By ensuring that the chosen topic contributes positively to the collective knowledge base, researchers can strive to make meaningful contributions that benefit society at large. The research scholars and the teacher educators may deliberate upon the strategies of effective planning of instructional objectives, proper implementation and competency-based evaluative strategies. They may also keep in mind solving the unemployment problem and thus raising the economy of their country as well as of the world around.

Some of the burning problems in the world today include inequality, climate change, social unrest and ongoing wars between Russia and Ukraine, Israel and Palestine and conflicts at some other places. A question arises - can research in teacher and school education address these issues by equipping educators with the tools to promote inclusivity, critical thinking, and environmental awareness in classrooms. By training teachers to recognize and address biases, fostering empathy and tolerance, and integrating sustainability into curricula, education can become a catalyst for positive societal change. Moreover, investing in teacher development enhances the quality of education, empowers marginalized communities, and cultivates a generation of informed, compassionate global citizens capable of tackling pressing challenges head-on. Our editorial board requests the scholar fraternity to consider any suitable area of research and develop for solving the aforesaid problems.

AI is another innovation that is both a boon and a bane. Our authors can find it as a fertile area for undertaking educational projects in the areas of teaching-learning and undertaking innovative projects in other teacher and school education fields. Papers may also be developed, suggesting how to take the safety steps against its misuse. These are just suggestive areas where our worthy authors may deliberate upon. Otherwise we extend a free hand to the authors to develop papers in any area of teacher and school education. Our only request is that their theses and dissertations should not just become objects of illuminating their book-shelves; these should be used for making teaching-learning more effective and offer solutions for solving the problems that different nations are facing.

It is heartening to note that an increasing number of authors are actively engaging with our journal and submitting their valuable papers for publication. We have tried to accommodate the maximum number of papers on the basis of the merit of each paper. In some cases, due to the limitation of space, we have kept a few papers to include the same in the next issue. Some papers have been returned to the authors to insert improvements as per our guidelines. Whatever action we take on the papers received, is communicated to the concerned authors well in time.

All papers featured in this issue have undergone a rigorous review process by our esteemed referees, whose feedback and approval were crucial in the selection of these publications. Notably, papers such as " Integrating Higher Order Thinking Skills in Teaching, Quantifying the Influence of Gender on Mental Health

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Seeking Attitudes, Competency Training Needs of Business Education lectures on the Usage of Assessment Software Applications in North-East Nigerian Universities, etc. exemplify the high standards and significant contribution to the field of teacher and school education. All the papers and articles, in this issue, have undergone a qualitative review. In some cases a re-review was necessary, prompting the authors to update their contributions and only after this, could find a place in this issue.

Brevity is the soul of wit, and we strive to include as many high quality contributions as possible in our journal. We expect relevant research papers and articles to be approximately 3000 words to maximize the number of contributions we can accommodate. While we are willing to consider longer pieces for exceptional qualitative work, we earnestly ask our authors to adhere to the 3000 word limit and succinctly convey their ideas within this boundary.

A few papers sent back to the authors for updates have not been received by the typesetting deadline. Any such paper received now will be considered in the next issue. Please send your reactions and suggestions to help us enhance the quality of our journal.

Dr. S. K. Bhatia
Editor-in-Chief

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RESEARCH ARTICLES

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Article 1

Integrating Higher-Order Thinking Skills (HOTS) in Teaching and Learning: Malaysia and Singapore in Retrospection

Jill Ling Pei Wah, Fetylyana Nor Binti Pazilah and Ong Sing Ling

Abstract

Despite being neighbouring countries, Malaysia and Singapore differ greatly in terms of educational performance, evident in international comparative tests like TIMMS (Trends in International Mathematics and Science Study) and PISA (Programme for International Student Assessment). In PISA 2022, a decline in Malaysia's performance in all three literacy measures assessing Reading, Mathematics and Science compared to the scores back in 2018 is rather perturbing. Hence, this inter-country comparative study explores the integration of higher-order thinking skills (HOTS) in the teaching and learning with the aim for Malaysia to learn from the best educational policy and practices employed by Singapore in educational planning, implementation and innovation. Through document analysis, as the primary method utilised in this study, it was revealed that there are differences in the academic strategies and activities in Singapore compared to Malaysia due to education system, curricula and assessments, budget allocation and language policy. Based on the interesting commonalities of both countries, it is indicative that the Malaysian education quality can improve by overcoming the challenges in integrating HOTS. Other than promoting international understanding, it is hoped that Malaysian educators will continue to expand, upgrade and reform education by adopting ways to integrate HOTS effectively in teaching and learning.

Keywords: 21st-Century Skills, Higher-Order Thinking Skills (HOTS), Malaysia, Singapore, Teaching and Learning

Introduction

Higher-order thinking skills (HOTS) is an education reform based on learning taxonomies, particularly Bloom's Taxonomy (1956), developed by Benjamin Bloom with his associates. Bloom et al. (1956) classified the learning objectives or outcomes into three learning domains: cognitive, affective and psychomotor. As one of the most recognised taxonomies of educational objectives, it comprises three hierarchical models used to classify educational learning objectives into levels of complexity and specificity. The three learning domains addressed are cognitive, affective and psychomotor. The cognitive domain concerns intellectual or mental skills and abilities. As for the affective domain, emotions, values and attitudes are classified. The third domain, psychomotor, is used for physical skills. The three dimensions categorise different goals for learning based on the assumption that learning objectives are accomplished using different mental processes.

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Bloom's cognitive domain is widely used in education with its list of a person's observable and unobservable intellectual abilities. There are six cognitive levels. The first three levels (knowledge, comprehension, and application) are considered lower cognitive levels. The latter three levels (analysis, evaluation, and creation) are considered higher thinking skills. In the old Bloom's taxonomy (1956), synthesis is the fifth level that comes before evaluation, the sixth level. However, in the revised taxonomy by Anderson and Krathwohl (2001), evaluation comes before creating as it is often a necessary part of the precursory behaviour before creating or synthesising something. Bloom's taxonomy is the backbone of teaching philosophies, a teaching tool for teachers to develop new strategies and balance evaluative and standards-based questions in texts, in-class engagements, and assignments. In line with the developing global focus on multiple literacies and modalities in learning and the emerging field of integrated disciplines, all orders of thinking are exercised in students' learning.

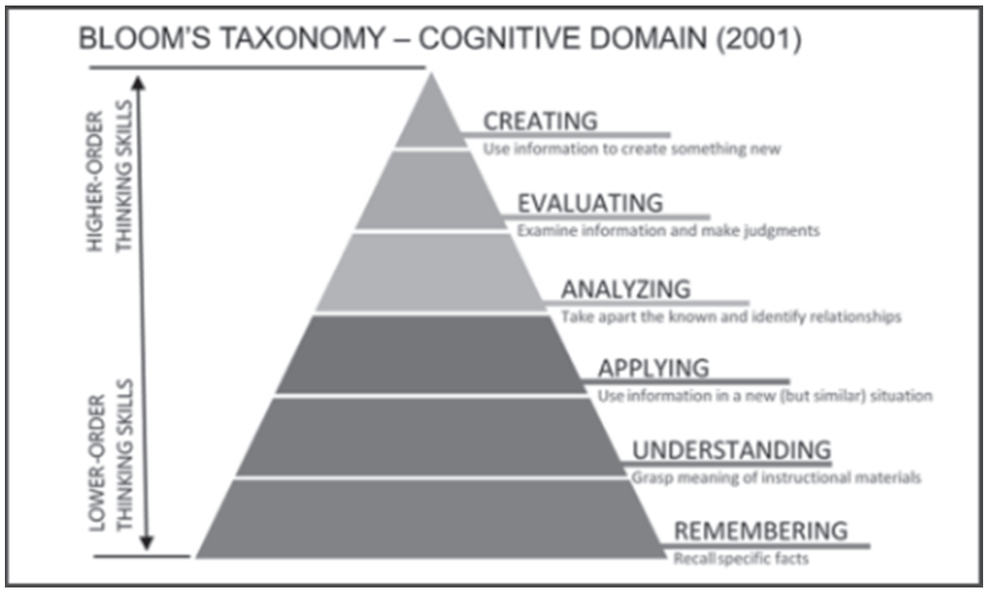


Figure 1. Bloom's Taxonomy (1956, revised by Anderson and Krathwohl in 2001)

Malaysia and Singapore are two countries whose education systems are interesting to study since they are geographic neighbours with some shared history and culture, yet at different stages of educational development. In this comparative study, the integration of HOTS in both countries and its similarities as well as differences will be reported, specifically focusing on classroom teaching and learning. Malaysia seems to be keeping up with the HOTS trend, which further necessitates this study to sustain improvement in the quality of student learning in an environment of rapid change. Through this study, several aspects of Singapore's education system that Malaysia can learn, emulate and implement are presented.

Literature Review

Malaysian Ministry of Education (MOE, 2013) reported that more than sixty per cent of 15-year-old Malaysian students achieved low proficiency levels in thinking skills. Compared to Singapore, the students are lagging in schooling for more than three years. Hence, the Ministry of Education has made various

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efforts to embed higher-order thinking skills (HOTS) through the curriculum, syllabus, teaching strategies and learning activities to master the HOTS. As stated in Malaysia Education Blueprint (2013-2025), every child will master a range of important cognitive skills, including critical and creative thinking, reasoning, and innovation.

Singapore's MOE has identified critical thinking as one of three broad emerging 21st-century competencies to develop in all students (MOE, Singapore, 2014). To prepare for the economic paradigm, Singapore developed a new education philosophy, "Thinking Schools, Learning Nation" (TSLN) in 1997. Instead of simply imparting knowledge to students, thinking schools develop higher-order, critical thinking skills and a passion for lifelong learning. Deliberate curricular and pedagogical shifts move learning beyond content to mastery and application of skills to solve authentic problems in various contexts (Kaur, 2021). In terms of curriculum, Singapore puts a lot of emphasis on 21st-century skills, real-world problem solving and thinking skills while integrating the use of information and communication technology (ICT) in the teaching and learning of HOTS (MOE, Singapore, 2016).

PISA is a study administered by the Organisation for Economic Co-operation and Development (OECD) on 15-year-olds in both OECD and non-OECD countries every three years to benchmark their education systems against international standards and give insights into how well education systems are preparing students for real life challenges and future success (OECD, 2023). It focuses on three domains: Reading, Mathematics or Science. Due to the Covid-19 pandemic, the last round was delayed from 2021 to 2022. By comparing results internationally, policy makers and educators can learn from other countries' policies and practices. In PISA 2022, Malaysian students scored 388 in the reading domain, a drop from 415 points in 2018, with 42% of them reaching the minimum level (Level 2). In mathematics, students scored 409 compared to 440 points, with 41% attained at least Level 2 proficiency, significantly less than OECD average of 69%, and only 1% of students were top performers attaining Level 5 or 6 compared to OECD average of 9%. Meanwhile, the scores for science also dropped to 416 from 438 points with 52% attaining the minimum level (Rajaendram, 2023). In comparison, Singapore has progressively maintained its scores and rankings (MOE, Singapore, 2020), compared to Malaysia which is evidently way behind. Table 1 summarises the PISA scores for Malaysia and Singapore over the years.

Malaysia in Perspective

Malaysia, being an Islamic Southeast Asian country governed by a constitutional monarchy, comprises three federal territories and 13 states, with a population of great cultural, ethnic, linguistic, and religious diversity. To unite such diversity with ethnographic complexity, a standardised Malay, officially known as *Bahasa Malaysia* (formerly *Bahasa Melayu*), is used as the national language and the main medium of instruction in public primary and secondary schools. Since Malaysia was once colonised by the British, English is taught as the second language. A significant portion of its budget is allocated to education, providing free public schooling at the primary and secondary levels. Primary education (six years) is compulsory. For the secondary level (five years), students have the option to enrol in an academic, technical or vocational school before moving on to tertiary institutions with various specialisations: public and private universities, and teacher-training institutions.

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Table 1 Comparison between Malaysia's and Singapore's PISA Performances from 2009 to 2022

Year/Country Domain	2009		2012		2015		2018		2022		
	Malaysia	Singapore	Malaysia	Singapore	Malaysia	Singapore	Malaysia	Singapore	Malaysia	Singapore	OECD
Reading	414	526	398	542	431	535	415	549	388	543	476
Mathematics	404	562	421	573	446	564	440	569	409	575	472
Science	422	542	420	551	443	556	438	551	416	561	485
Rank	55/65	5/65	52/65	1/65	*	1/72	48/79	2/79	47/78	1/78	-

*Malaysia's PISA 2015 results cannot be compared to previous results or other countries due to the potential of bias introduced by low response rates in the original PISA sample (51% instead of 85% standard rate).

The **Malaysian Curriculum Standards** are built on six pillars: Communication, Spirituality, Attitudes and Values, Humanities, Personal Skills, Physical Development and Aesthetics, as well as Science, Mathematics and Technology. These key domains support each other, integrated with critical, creative and innovative thinking to develop a balanced, knowledgeable, and skilled human capital. In collaboration with the Malaysian Innovation Agency (AIM), the Ministry of Education is committed to cultivating thinking skills and lifelong learning in primary and secondary schools by implementing the i-Think programme in 2013 (Tenth Malaysia Plan, 2011). The promotion of HOTs by educators in tertiary education was also emphasised in the Malaysian Education Blueprint (2013-2025) and the National Higher Education Action Plan (NHEAP,

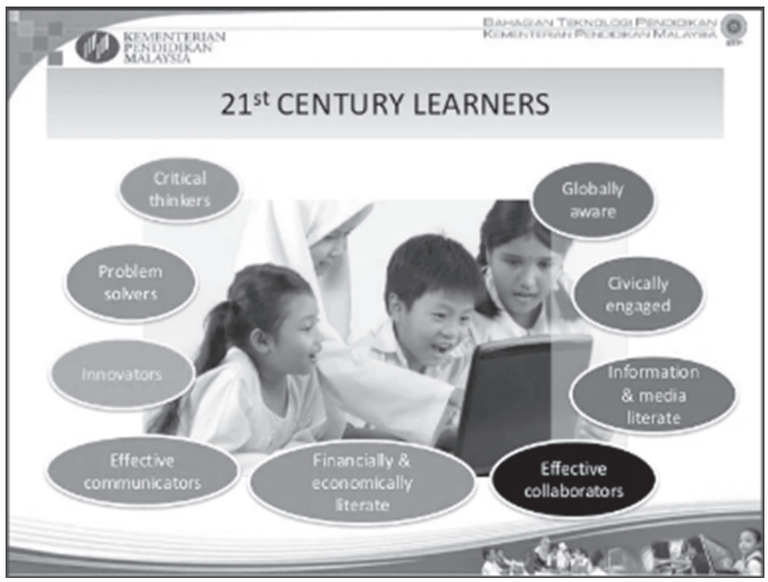


Figure 2. HOTS in Malaysian Education (MOE Malaysia, 2013)

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2007), adopting innovative modes such as problem-based or active learning. Although the mastery of the HOTS is emphasized in the curriculum, the knowledge, engagement and level of readiness of the school, teachers and pupils are still at a low level (Mahmad et al., 2021).

Singapore Leading the Way

Singapore owes its progress and prosperity as the most developed ASEAN country to its focal location. Singapore joined the Federation of Malaysia in 1963 but seceded to be an independent parliamentary republic in 1965. The population is diverse, predominantly Chinese, Malays and Indians with various religious affiliations. Due to this ethnic diversity, four official languages are recognised: English, Mandarin Chinese, Malay and Tamil. English, as the unifying factor, is the primary language of instruction in schools and the main medium for administration, commerce and industry. Besides English, pupils are taught their mother tongue to maintain the nation's identity, culture, heritage and values. Singapore highly values its education, and its system is elaborately structured and organised. Primary education is free (six to eight years). Students at the secondary level are placed into academic or vocational and commercial tracks. Opportunities for higher education are determined by academic performance, usually involving two or three years of pre-university instruction followed by enrolment at a university or technical college (MOE, Singapore, 2020).



Figure 3. Framework for 21st Century Competencies and Student Desired Outcomes (MOE Singapore, 2014)

The **Singapore Curriculum Standards** are built by setting educational objectives to produce highly confident students who can communicate effectively and independently. Therefore, the Programme for Active Learning (PAL) was introduced. In 2008, Singapore introduced Subject-Based Banding (SBB) to replace EM1, EM2 and EM3 (English and Mother Tongue at 1st, 2nd and 3rd language streams) in all primary schools in Singapore. In 1997, the vision of "Thinking Schools" was launched by the Ministry of Education to teach and assess HOTS in Singapore classrooms (MOE, Singapore, 2014). Conventional assessment or paper-and-pencil tests focusing on knowledge reproduction and low-level cognitive processing skills in artificial,

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contrived contexts shift to authentic assessment tasks that underscore knowledge construction, complex thinking, elaborated communication, collaboration and problem solving in real contexts (Koh et al., 2012).

The Integration of Hots in Teaching and Learning

Education System

Similar to other Asian countries, the education system in Malaysia and Singapore is managed by or under the jurisdiction of the Ministry of Education. For primary schooling, the entry age into the first year is seven, and it takes six years for ordinary students in both countries. Students sit for national examinations before they can pursue secondary education: the Primary School Achievement Test (UPSR) in Malaysia (replaced with school-based assessment starting in 2022), and the Primary School Leaving Examination (PSLE) in Singapore. Malaysian students sit for the Malaysian Certificate of Education (SPM) at the end of secondary education, whereas Singaporean students are streamed into three main public secondary education: four years Express, or five years Normal (Academic or Technical) before sitting for Singapore-Cambridge GCE Ordinary Level (O-level) or Normal Level (N-level) examinations (MOE, Singapore, 2020).

In 2021, the Malaysian national examination at the end of the sixth year of primary schooling was scrapped or abolished and replaced with a school-based assessment, enabling all students to progress automatically to secondary school. This raises the issue of students' fluency, language competency in all four skills (listening, reading, reading, and writing) and level of proficiency. Without a summative assessment, students' actual performance cannot be measured or compared with the norms or the whole population. Some people also question the validity and reliability of the school-based assessment. Undeniably, there is no-one-size-fits-all approach, and further research and investigations need to be conducted to study this matter.

In both countries, the education systems are centralised with various initiatives to improve their education quality. However, when the OECD ranked education quality in 2022, Singapore continued to clinch the top spot, while Malaysia ranked 47 out of 78 countries. Despite the continuing efforts of the Malaysian government to improve its performance through the increase in enrolment rates, compulsory schooling years and access to education, Singapore takes the lead by focussing on the development of 21st-century skills amongst all students and the integration of information and communication technology (ICT) productively into teaching HOTS as part of Singapore's Fourth Master Plan.

Singapore was among the first few countries that initiated HOTS in their education system in the 1980s, while HOTS only made its debut by the Malaysian education ministry in 2013 through shifts in the curriculum, pedagogy and evaluation. With a population six times more and a size of about 330 times larger than Singapore, the implementation of education policies, plans, strategies and activities in Malaysia will not be as easy. Furthermore, with a per capita income of almost seven times that of Malaysia, Singapore has a higher human development index (World Data, 2024). Another major difference between these two countries is their study aids, especially book ownership and the use of ICT. The digital divide between urban and rural schools, and developed and less developed states in Malaysia varies, while this is non-existent in Singapore. Asia Society's Centre for Global Education reported that top students are recruited as teachers to educate Singapore's future generation, a policy that Malaysia can adopt.

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Curricula and Assessments

To enhance HOTS development in the learning process, MOE Malaysia has revised the curricula: KSSR for primary school and KSSM for secondary school. In 2012, the i-THINK programme was launched to inculcate higher-level thinking processes whereby teachers and students are trained to use effective strategies and tools, such as Thinking Maps, Habits of Mind, Thinking Hats and Q-Matrix Charts (Abu Hassan et al., 2020). In addition, the ministry has refined the standard of assessment in evaluating HOTS among students from preschool to secondary levels by incorporating it in both school-based assessments and national examinations such as SPM. The percentage of HOTS questions has increased gradually across the years. In addition, the ministry also provided a manual and guidebook to assist teachers to construct HOTS questions. Tiew and Ng (2019) found that the practices that promoted the teaching of HOTS were brainstorming, constructivist learning, inquiry teaching, thinking map, and problem-based learning whereas practices that inhibited the teaching of HOTS were teacher-centred learning and teaching lower-order thinking skills. A structured teaching method is required to assimilate both content and thinking skills (Ganapathy et al., 2017).

In teaching and learning HOTS, students in Singapore are expected to master real-world problem-solving skills and thinking skills. This is emphasised through each component of the problem rather than incorporating the problem directly into the formula. Students think actively as they solve problems. Other than that, the Singapore curriculum only focuses on several key concepts for each school year. By 2023, mid-year examinations for all primary and secondary school students will be scrapped in an ongoing move to shift the focus from academic grades and tests. Streaming will be abolished by 2025. Some countries have shifted from summative examination orientations of conventional assessments to formative and authentic ones.

Budget Allocation

In Budget 2024, Malaysia allocated RM58.7 billion for the education ministry compared to RM55.2 billion in 2023 proves that education remains a national priority to empower its citizens. Although education gets the biggest allocation, it is only 15% of the total budget of RM393.8 billion. **Meanwhile, Singapore has continually invested about 20 per cent of the country's annual budget in the Ministry of Education, second to the budget for the Ministry of Defence (Tang, 2016). From the budget allocation, we can see the emphasis put on education** as a key development sector. The standard of education is a powerful predictor of the wealth that countries will produce in the long run (OECD, 2020). Investments in education contribute to the growth of human capital.

Language Policy

Bilingualism is a key component in Singapore's single-stream education system, which uses English as the main language of instruction as opposed to the vernacular system, a subject of a long debate in multiracial Malaysia. Singaporeans can leverage their bicultural edge and reform education in their favour (Tang, 2016). Malaysia has witnessed a shift from one language to another, specifically a long debate on the use of *Bahasa Melayu*/Malaysia (BM) or English as the medium of instruction. In 2003, English was introduced as the medium of instruction for two subjects namely, science and mathematics for all schools, but this policy was reverted to BM in 2012. Under the government's initiative to 'Empower *Bahasa Malaysia* and Strengthen English' policy, the Dual Language Programme (DLP) was introduced in 2016 but only at selected schools (School Advisor, 2021). Similar to a bilingual programme, it allows students the opportunity to use

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either English or BM in Science, Mathematics, ICT, and Design and Technology. The DLP is expected to boost English proficiency in government schools and enhance students' future employability opportunities. Unfortunately, the DLP is optional and has to meet four criteria: Adequate school resources; headmaster and teachers' collaboration, parental demand and support; and above-average school achievement in BM. In 2020, the High Immersive Programme (HIP) was implemented where English is used widely in an encouraging environment for students to practice their English in all schools throughout the country. Nevertheless, these programmes cannot escape the backlash from academicians, activists, and the general public due to various agendas.

While it is good to use BM to maintain the national identity and unite the linguistically diverse groups in Malaysia, it will cause some difficulties when the students move to international schools or proceed to the tertiary level, especially in private or foreign universities which mainly use English as the main language of instruction. Most resources including online references are written in English whereas sources in BM are rather limited. Relying on translation with most BM words borrowed from English with their spellings slightly changed may confuse the learners. Some international schools like ISKL and Taylor's acknowledge the advantage of being multi-lingual and offer a variety of additional languages such as BM, Mandarin, French and Spanish (School Advisor, 2021). A child learning another language will not affect his or her mastery of the mother tongue. Instead of playing the language card and engaging in this debate of which language is above the other, we should look at the broader picture and prepare the young generation for the 21st century.

Challenges in the Implementation of HOTS

There are challenges in the implementation of HOTS in schools. In Malaysian settings, various researches have been done about HOTS. One fundamental factor found to foster the development of thinking skills among students is the competency of educators in planning and executing suitable approaches, techniques, and strategies (Othman & Mohammad, 2014). However, educators lacked an understanding of the requirements for teaching critical thinking skills in classrooms (Choy & Cheah, 2009; Yusoff & Seman, 2018), having basic knowledge only (Singh et al., 2018) or with low self-efficacy (Rosnani & Suhailah, 2003; Ganapathy et al., 2017). Abu Hassan et al. (2020) identified a lack of knowledge and skills as well as resistance to change on the part of the teachers as the internal factors, whereas student diversity, large class size and time constraints as the external factors. Due to the traditional concept of learning being sequential and linear, students never get to the point where they have the opportunity to engage in HOTS (Zohar et al., 2001). Thus, Chittleborough et al. (2008) suggested that educators need training via professional development programmes to promote HOTS and situate technologies within their pedagogical repertoires meaningfully (Ganapathy et al., 2017). To enhance HOTS, Wu et al. (2024) suggested incorporating Computational Thinking (CT) into academic courses with the possibility for the students to develop critical thinking skills through CT when students work on projects (Ong et al., 2023).

Conclusion

The integration of HOTS has its fair share of obstacles along the way. To optimise learning for students, teachers need to overcome the challenges of utilising HOTS. Although the implementation of HOTS activities in the lesson plans takes a longer time, it is worthwhile in inculcating HOTS among students. Students' learning will improve significantly through a variety of HOTS activities made possible by ICT

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usage that enhances their cognitive thinking processes. Potentially, learning HOTS through ICT promotes positive learning outcomes and benefits. Therefore, further investigations on the integration of HOTS in teacher training education and how it affects students' performance specifically on the issues, concerns and challenges are recommended.

Starting out on the same footing, Singapore has been progressing steadily up the ranks in the development of education while Malaysia struggles to maintain its rankings in measurements of students' ability. Despite various efforts made by both countries, education reform remains a constant challenge. Curriculum reformations and innovation in teaching and learning should be continued to produce students who are well versed in HOTS. Definitely, it requires a lot of planning, resources, teacher training and also continuous support from different levels of the community. Other factors with regards to the implementation of HOTS such as budget allocation, the use of ICT in bridging the digital gap, the credibility of teachers and bilingualism need to be addressed. It is necessary for Malaysia to catch up and follow the footsteps of Singapore to change the approach of the education system to prepare students who are ready for the real world and capable to compete in the international arena.

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Article 2

Quantifying the Influence of Gender on Mental Health Seeking Attitudes

Dennis A. De Jesus

Abstract

This study explores the influence of gender on mental health seeking attitudes, acknowledging the critical yet overlooked role of mental health in society. Utilizing a quantitative correlational research design, the study focuses on 60 grade 12 students from Dalubhasaang Politekniko Ng Lungsod Ng Baliwag. The research instrument, a Likert-scale questionnaire, delves into gender-related societal issues affecting mental health seeking behaviors. Analysis employs descriptive statistics, independent sample t-tests, and Pearson's R correlation coefficient using SPSS. Findings indicate that male students exhibit more negative attitudes toward mental health seeking than their female counterparts, aligning with societal expectations related to gender norms and masculinity. The study establishes a significant relationship between gender and mental health seeking attitudes, highlighting the need to address gender disparities in mental health support. The results prompt recommendations for future research to include a more extensive participant pool, refined survey questions, and the exploration of evolving attitudes over time. Additionally, the study suggests the inclusion of diverse gender identities in future research and advocates for educational initiatives to raise awareness about mental health issues and offer support avenues for students, especially males. Overall, this research contributes valuable insights for mitigating the impact of gender disparities on mental health seeking behaviors, emphasizing its significance for individuals, communities, and mental health practitioners.

Keywords: Gender Differences in Mental Health, Gender Inequality, Gender Stereotypes, Gender Stigma, Mental Health, Mental Health Seeking Behavior, Mental Health Stigma

Introduction

One of the most neglected aspects of health in the world is mental health. Kovacevic (2021) states that nearly 1 billion people worldwide suffer from a mental illness today wherein nearly 3 million people lose their lives to drug misuse each year. Suicide occurs once every 40 seconds, and by the age of 14, over 50% of mental health illnesses already begin developing.

Apparently, mental health being one of the greatest issues in the society, it is scandalous that 35-50% of people with severe mental health disorders in the Global North still receive no treatment and that figure roughly doubles to 76-85% for people living in the South (Roberts, 2018). There are a number of reasons why mental health is still disregarded in modern society: associated stigma, the belief that mental health disorders are "luxury goods" rather than illnesses, the fragmented and outdated service model that places the majority of mental health services in psychiatric hospitals, and severe lack of preventative mental health services and human resources. In spite of all that, one reason that prevalently prevents mental health seeking behaviors is the thing that people would and would not expect at all—gender.

Gender related societal issues such as gender stereotyping, gender inequality, sexual discrimination, misogyny, toxic masculinity, and many more have continuously affect a variety of aspects on people's lives particularly

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behavior, education and job access, ambitions and attitudes about relationships, freedom, and fundamental human rights. Unfortunately, even in mental health, issues in gender difference have made their way to cause a problem. Coveney (2022) articulates that socially constructed differences in roles and responsibilities, status, and power between men and women contribute to differences in mental health, health-seeking behavior of those affected, and responses of the health sector and society as a whole.

The first step into an effective treatment for mental health problems is the ability of the affected to come forward and seek help for him/herself. According to Velasco et.al (2020), mental health seeking behavior referred to the individual's searching or actively looking for help with their concerns in their mental health; it included informal help, which is from family or close friends, and formal help from those practitioners of the field such as psychologist, guidance counselor, etc. However, willingness to seek help may be related to factors, such as perceived gender stereotypes and help-seeking stigma or whether the individual sees the act of seeking help as a form of taking control or a form of giving up control to someone else (Farrimond, 2019). As Everett (2017) emphasizes, there are several factors that can be related to negative attitudes towards help-seeking including stigma, lack of resources, lack of knowledge about mental health, but the notorious one is the belief in gender stereotypes.

As we all know, the societal stigma regarding gender states that men are often told to act stronger, less vulnerable, and less emotional, while women are typically viewed as more emotional, sensitive, and dependent Dekin (2020). When weaved with the concept of mental health seeking behavior, there comes the fact that men have more negative views towards help-seeking because needing support, especially for emotional concerns, is not consistent with masculine stereotypes (Hunter, 2017). In this case, the infamous gender divide in the practice of seeking help for mental health problems has only made mental health to be more elusive to manage.

Erazo (2020) in his study found out that gender role beliefs were the most significant predictor of mental health attitudes and norms. The more traditional gender role beliefs the more stigmatizing mental health attitudes held. The less traditional gender role beliefs the more likely to feel there are stigmatizing norms. Thus, the stigma surrounding mental illness can be worsened when combined with the stigma surrounding gender and gender identity.

In addition, Kohoe (2022) states that mental health stigma is one thing, but another is stigma related to gender and stereotypes. Men show emotions less frequently than women, are reluctant to admit vulnerability, and seek professional assistance far less frequently. The way that men approach the subject of mental wellness has been negatively impacted by gender norms. Many people think that emotional and physical toughness are intertwined. Therefore an "unbreakable" and "strong" facade must constantly be present, even in the face of internal challenges. Men may be reluctant to talk openly about their depression, anxiety, or other mental illnesses because they feel they should "be a man" and "man up."

Lastly, Pattyn et.al (2018) asserts that seeking help for mental illness may constitute a gendered role conflict among men since help seeking is associated with femininity. It is expected that men will recommend reliance on self-care options to other men, and in cases in which professional treatment is recommended, they will prefer medication to psychotherapy. It is also concluded that men will report greater stigmatizing attitudes. Men rate tranquilizers as more helpful for other males than that women do for other females. Furthermore, males seem to ascribe more shame and blame to the situation. The gender gap in mental health service use is

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due not only to men and their negative attitudes toward help seeking, but also to structured social norms that are reconstructed in interactions.

For this reason, in order to understand what actions should be taken to encourage people who are experiencing emotional distress to seek the help they need, it is important to understand the relationship between gender and psychological help-seeking attitudes. Hence, the influence of gender on the mental health seeking attitudes was investigated in this work. This study provided significant knowledge to alleviate the distressing effects of gender disparities that continue to serve as a hurdle in the rehabilitation of mental health. Therefore, the study was of great benefit for society especially for the people experiencing mental health problems and the people around them who hope to help them.

Research Questions

This study centered on the influence of gender on the mental health seeking attitudes among students. The researcher settled upon answering the following questions:

1. How may the socio-demographic profile of the respondents be described in terms of sex?
2. Is there a significant difference between the mental health seeking attitudes of male and female respondents?
3. Is there a significant relationship between gender and mental health seeking attitudes of the respondents?

Methodology

Research Design

This study utilized a quantitative research design specifically correlational design to evaluate the relationship of gender towards the mental health seeking attitudes of CLSU students. According to Cherry (2022), a correlational study is a type of research design that looks at the relationships between two or more variables without the researcher manipulating or controlling any of the variables. A correlation refers to a relationship between two variables. Correlations can be strong or weak and positive or negative. Sometimes, there is no correlation.

Research Respondents

The respondents of this study were collected through the process of stratified sampling, in which the population was divided into two subgroups: male and female. The researcher then used random sampling techniques in each subgroup whereas thirty (30) male and thirty (30) female grade 12 students of Dalubhasaang Politekniko Ng Lungsod Ng Baliwag were selected with a total of sixty (60) respondents.

Research Instrument

This study used a 10-item close-ended researcher-made survey questionnaire to determine the relationship between gender on the mental health seeking attitudes of students. The scale utilized in the questionnaire

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was the Likert Scale, a scale used to measure opinions, attitudes, or behaviors (Bhandari and Nikolopoulos, 2020). The questionnaire included a 4-point Likert scale wherein the respondents chose between (1) Strongly disagree; (2) Disagree; (3) Agree; and (4) Strongly agree in stating their answers and opinions about the questions or statements in the questionnaire regarding the influence of gender on mental health seeking attitudes.

Data Gathering Procedure

The researcher employed an online surveying method for data collection in order to be able to carry out this study, The URL of the survey questionnaires run via Google forms was sent through email or messenger to the target respondents. In order to confirm that they are the intended respondents, it was necessary for the respondents to sign in and respond in the survey using their individual email accounts. The survey form also came with instructions to assist respondents in filling out the questionnaire for clarity, consistency, and completeness. The researcher guaranteed that all data and responses collected from respondents were handled in the most confidential manner and privacy.

Scope and Limitations

The study was conducted to assess students' attitudes when it comes to mental health seeking. The researcher randomly chose 30 male and 30 female respondents who are students of Dalubhasaang Politekniko Ng Lungsod Ng Baliwag. The main parameter of the study was to determine the influence of gender on mental health seeking attitudes.

As for the limitation of the study, the researcher run into one difficulty upon conduct. The researcher had trouble collecting a larger data due to time constraints, which resulted to only having a total of 60 respondents to answer the questionnaire.

Data Analysis

The researcher applied descriptive statistics to calculate the mean and standard deviation of the respondents' socio-demographic characteristics in order to process and analyze the data. To compare the difference of the score of the male and female respondents, independent sample t-test was used. The researcher also utilized Pearson's R correlation statistics to measure and assess the influence of gender on mental health seeking attitudes. The Statistical Package for Social Science (SPSS) with the significance level set to 0.05 was also employed to process, analyze, and facilitate the collected data and to look for any potential logical inconsistencies within the dataset and the data per se, as well as to perform any necessary data cleansing.

Results

This chapter contains the results yielded from the study. It presents the gathered data on the socio-demographic characteristics of the respondents, the difference between male and female students' attitudes on mental health seeking, and the relationship between gender and mental health seeking attitudes. Tables with corresponding analysis and interpretation regarding those data were provided to address the posed objectives of the study.

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Table 1	Socio-demographic Characteristics (Sex)	
Sex	**N**	**%**
Male	30	50.00%
Female	30	50.00%
Total	60	100.00%

Table 1 shows the number of respondents which consisted of 30 Male and 30 Female respondents, both accounting 50% with a total of 60 respondents (100%).

Table 2	Statistics of the Scores Between Groups (Male and Female)			
	Gender	**N**	**Mean**	**Std. Deviation**
Mental Health	Female	30	21.3667	5.74446
Seeing Attitude	Male	30	24.7667	6.26255

Table 2 shows the group statistics between the total scores of Male and Female. According to the data, the mean score for females is 21. 37 with 5.74 standard deviations, while the mean score for males is 24.77 with 6.26 standard deviations. The results showed that males have higher scores than females which means that males have more negative attitudes on mental health seeking than females.

Table 3	Independent Samples T-test of Male and Female Students' Scores on Mental Health Seeking Attitudes			
	F	***t*-value**	**df**	**P**
Mental Health Seeking Attitude	0.192	-2.191	58	0.032

Table 3 shows the results of the independent samples t-test on male and female. The results included the test statistic derived from Levene's test (F), as well as the t-value, degrees of freedom (df), and P-value (P). After adding up the scores of the male and female students, an independent sample t-test was run in SPSS to determine which group scored higher. The statistical result indicated t (58) =2.191, and the p-value was 0.032 suggesting that there was a statistically significant difference between the scores of male and female students.

Table 4	Correlations between Gender (Male, and Female) and Mental Health Seeking Attitudes	
		Gender
	Pearson Correlation	1
	Sig. (2-tailed)	
	N	60
	Pearson Correlation	0.277*
Mental Health Seeking Attitude	Sig. (2-tailed)	0.032
	N	60

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Table 4 shows the relationship between gender and mental health seeking attitudes. The Pearson's R correlation statistics, denoted by the letter r, is 0.277, and its p-value is 0.032, as seen in the table (r (60) = 0.277, p=0.032). The fact that the p-value for gender and mental health seeking attitude is 0.032, which is lower than the 0.05 confidence level, implied that there was a statistically significant relationship between gender and mental health seeking attitude.

Discussion

This chapter provides the discussion of problems relative to the study, implications for the interpretation of the results, conclusion, and recommendations. The outcomes of the study have provided insights about the influence of gender on mental health seeking attitudes.

Difference Between Males and Females' Attitudes Toward Mental Health Seeking

Based on the acquired data on descriptive statistics, males appeared to have higher scores (M=24.77, SD=6.26) than females (M-21.37, SD=5.74) in terms of their attitudes toward mental health seeking. Male respondents answered 'strongly agree' and 'agree' more than female respondents on the survey. This signifies that male students prefer not seeking mental help and they have more negative attitudes on mental health seeking than female students. On the other hand, female respondents answered 'strongly disagree' and 'disagree' more than male respondents on the survey. This indicates that female students prefer seeking mental help and they have more positive attitudes on mental health seeking than male students.

In support of this, Oliver et.al. (2020) suggests that male students are less likely to seek mental help as compared to female students. Moreover, Wendt and Shafer's (2018) study suggested that men are less prone than women to display positive help-seeking attitudes, particularly related to common mental health issues as men often express less emotion than women do, are hesitant to express weakness, and seek mental health help much less frequently than do their female counterparts.

In addition, the statistical result on the independent sample t-test of male and female' scores on mental health seeking attitudes (t (58)=2.191, p=0.032) suggested that there was a statistically significant difference between the scores demonstrating that male and female students certainly have different attitudes in terms of mental health seeking.

Relationship Between Gender and Mental Health Seeking Attitudes

The influence of Gender and the Mental Health Seeking Attitudes of the students appeared to have a statistically significant relationship (p=0.032) based on the acquired data. Female students have more positive mental health seeking attitudes while male students have more negative mental health seeking attitudes. As suggested in the study of Otten et.al. (2021), it is stated that mental health seeking attitudes of people is attributed to gender differences wherein mental health seeking between males and females depends on gender roles, gender identity, gender relations, and institutionalized gender. These results further implied that the students' willingness to seek mental help certainly depends on their gender.

Conclusions

Based on the results of the study along with the researcher's comprehensive analysis, it is concluded that:

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1. There was an equal number of respondents for the male and female population achieved in the study; 30 male and 30 female grade 12 students of Dalubhasaang Politekniko Ng Lungsod Ng Baliwag with a total of 60 respondents. The accuracy of the number of respondents assisted the researcher in more proportionate results corresponding to the specificities of the study and to achieve their desired findings.
2. There was a significant difference between the mental health seeking attitudes of male and female students. Using descriptive statistics and independent sample t-test, the researcher concluded that male students have more negative attitudes on mental health seeking than female CLSU students who have more positive attitudes on mental health seeking.
3. There was a significant relationship between gender and mental health seeking attitudes of the students. Using the Pearson's R correlation coefficient test, the researcher determined that gender certainly influences the mental health seeking attitudes.

Recommendations

In light of the data and inferences drawn from the results, the researcher came up with the following recommendations:

1. Future researchers should aim to have a higher number of respondents in order to gather more accurate results.
2. Future researchers should provide a better set of questions in the survey to derive more accurate answers and responses from the participants.
3. The researcher believes that further study should be carried out on the topic in the years to come in order to determine and evaluate whether or not the results shift with time.
4. The inclusion of various gender identities, such as those of members of the LGBTQIA+ community, is something that researchers of the future may want to consider in order to broaden the scope of their studies.
5. As an effort to raise people's consciousness of mental health issues, the university may hold an online seminar and program at the beginning and end of each semester.
6. Students, particularly male students, who are afraid to seek mental health care should be offered the opportunity to participate in free online consultations.

Compliance with Ethical Standards

The researcher followed ethical standards such as informed permission, privacy, and debriefing when collecting the responses and identities of the participants. Since they had the option to participate or not in the study, participants were not compelled to take part. Those who consent to participate in the study were sent a survey questionnaire along with information about the study's objectives and methods. However, the participants were informed by the researcher that they have the option to withdraw from the study or refuse to participate, and that doing so will not compromise their confidentiality, even if they have already completed the informed consent form. Moreover, the participants were given the assurance by the researcher that whatever information they submitted would only serve the purpose of the study and would remain anonymous.

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Breaking Generational Trauma: Transforming Students' Behavior through Positive Discipline

Ma. Concepcion M. De Rueda

Abstract

This article investigates the contrasting approaches to school discipline, focusing on the opposition between corporal punishment and positive discipline. It examines the disadvantageous effects of corporal punishment on children, emphasizing the harsh treatment and perpetuation of social norms associated with such practices. In contrast, the article highlights the transformative potential of positive discipline in enhancing students' self-esteem and behavior. It gives importance to prioritizing safety in the classroom environment and advocating for approaches that foster a sense of security while enforcing rules. While corporal punishment may produce immediate results, the article emphasizes alternative methods prioritizing long-term behavioral changes and emotional well-being. Moreover, it explores how cultural context and educational philosophy influence the implementation of discipline programs in schools, acknowledging the need for culturally responsive approaches and sensitivity to students' diverse needs. By navigating the connection between tradition and progressive practices, this article provides insights into effective discipline strategies that promote a nurturing and conducive learning environment for all students.

Keywords: Classroom Management, Corporal Punishment, Discipline, Education, Positive Discipline, Teachers, Pupil's Well-Being.

Maintaining the standards of excellence for learners is a challenging task for teachers. Instilling discipline inside the classroom can help change and improve behaviors to achieve academic goals in pursuing excellence. Throughout history, discipline has been a battle in the education system on how to develop acceptable behaviors of learners, significantly affecting their performance as learners and as teachers in delivering quality education in the classroom. Various discipline techniques have been employed to effectively ensure that misbehaviors are corrected and taught to avoid committing them repetitively. It has been a debatable issue whether punitive discipline is more effective than avoiding inflicting pain. There are points of view why others resort to punishment to change a behavior, but from adeeper perspective than others, discipline can be effective in non-punitive ways.

Discipline is a deliberate action—or lack thereof—taken to regulate one's behavior. It is the application of rules and regulations, cultural norms and values, and the capacity to control oneself or others, particularly under trying circumstances. Teaching appropriate behavior and helping maladaptive behaviors unlearned with guidance, support, and direction in controlling behavior are all parts of the discipline. It involves setting limits, outlining roles and responsibilities, establishing mutual expectations, and creating a secure, predictable way of life. In the classroom, anti-social behaviors such as not following rules, bullying, truancy, tardiness, cultism, drug and alcohol abuse, sexual harassment, insulting and assaulting, stealing, rioting,

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striking, starting school fires, "gassing of students," and many more can be found. Such indiscipline will show up later in life if it is not checked.

Conversely, establishing discipline early in life aids in bringing order to other facets of an individual's life, such as our security or armed forces (Bodo, 2020). Reprimanding children is not the only method of discipline. Instead, it guarantees that children acquire the skills they need to become responsible people. (Morin, 2020)

When a student's behavior disrupts an ongoing educational activity or violates a school rule, teachers or school groups may take disciplinary action against him/her. Discipline can help children learn to properly care for themselves, others, and the environment by guiding their conduct or setting limits. School systems establish rules, and pupils who break them face consequences. These norms define the expected standards of school uniforms, punctuality, social conduct, and work ethics. (School Discipline, n.d.)

The importance of discipline in a student's life cannot be overstated. In school, it is critical to adhere to the rules. Students must learn discipline in addition to education since they can only be adequately educated with it. Discipline is a student's ability to execute something or complete a task within a certain amount of time. Discipline refers to maintaining control so that students can achieve their goals. Discipline in a student's life attracts all of the good things, and as a result, students succeed in all aspects of their lives. Discipline is always used to guide a student's life to keep them focused on their objectives. Success, efficiency, and betterment are characteristics of a disciplined existence (Singh, 2020).

According to Khatun and Siddiqui (2018), discipline is a moral trait and the strongest virtue required for success and achieving life's objectives. It is also the process of aligning our body, mind, and soul to obey rules. A disciplined individual does everything correctly and can achieve significant personal and professional achievements. Not a single task can be completed correctly in a lack of discipline. As a result, discipline is necessary for all aspects of life. Discipline is necessary to create a positive learning environment at school. If a child is not disciplined, he will never be able to put his plans into action in real life, which will cost him much later. Children are free to do whatever they want without discipline in school. Establishing a learning environment in the school requires discipline. It helps students grow into strong people. It is a method of setting limits for children so that they understand what is right and wrong. It strengthens the pupils' character, making them stronger and more self-reliant.

Moreover, discipline also improves kids' analytical abilities. As a result, they can apply their knowledge to real-world problems when they are older. It provides a lifelong lesson that children can be moulded in any way when young. Children will continue to practice discipline throughout their lives if they start early. When a youngster learns discipline at school, he/she retains it for the rest of his life. Students who understand the value of discipline adhere to it in school and consequently develop the habit of doing so, as it promotes a child's social development by fostering deeper ties between students, students, and parents, as well as valuing the boundaries of relationships.

The State must protect and advance every child's right to a readily available, excellent primary education, according to the 1987 Constitution. In addition to granting them this right, the state must support and uphold their holistic development by advancing their social, intellectual, moral, spiritual, and physical well-being. Children are granted some rights to enhance their overall well-being under the United Nations Convention on the Rights of the Child and other national and international laws. In addition to the right to be shielded

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from violence, abuse, neglect, brutality, exploitation, and mistreatment in any form, children in primary education also have the rights to education, health, protection from discrimination, participation and voice-making, religion, and the freedom to rest and play. The Department issued Dep. Ed Order No. 40, s. to uphold the child's right to special protection and to reaffirm its zero-tolerance stance for any act of abuse or violence against children. The Policy Guidelines on Protecting Children in Schools from Abuse, Violence, Exploitation, Discrimination, Bullying, and Other Forms of Abuse is another name for the DepEd Child Protection Policy, which was released in 2012.(Department of Education, 2021)

Citing the World Health Organization's World Report on Violence and Health, Save the Children Philippines Child Protection Advisor Wilma Banaga made it clear that corporal punishment inflicts suffering on children. "It kills thousands of children and injures and physically impairs many more," sheadded. The group noted that in the Philippines and throughout the world, corporal punishment remains the "most prevalent form of violence against children" and that 87 percent of the world's children are "notprotected from corporal punishment by law." (Hernando, 2021)

The primary justification for using physical punishment in schools is when a teacher tries to assist a student in abstaining from bad behavior or motivate them to do well on their assignments (Alsaif,2015). Furthermore, some teachers, such as cruel people, suffer from neurosis or mental disease or lack the essential characteristics of a teacher, such as patience and forbearance. Some folks have religious reasons as well. Some experts believe that biblical passages support the use of the cane. If they are employing the cane to enforce a religious text, they must either reinterpret their religious texts or omit their religious beliefs from the classroom.

Corporal punishment is an appropriate discipline for confident children when used in moderation. Critics attribute the detrimental effects of corporal punishment to its prolonged and excessive application. According to Chigbo (2004), occasional use for significant behavioral difficulties is appropriate because timeout or taking away a toy may not change behavior in a particularly obstinate or hyperactive child.

Corporal punishment establishes clear limits and encourages students to conduct themselves well at school. When children realize that the consequence they experience for misbehaving is comparable to their deeds, they can better decide their conduct, show self-control, and be responsible for their activities.(Williams, 2019).

The role of the teacher goes beyond simply giving instructions to children. Teachers must also manage student behaviors to ensure a fair and effective learning environment. When administered appropriately, punishment has advantages. As a form of conditioning, positive punishment imposes a detrimental consequence right after an undesirable behavior. Short timeouts and losing privileges are common forms of positive punishment (The Advantages of Punishment in the Classroom, 2020).

Zachos et al. (2016) present research data relating to exploring teachers' attitudes, beliefs, and practices concerning school "discipline" in Greek schools. A case study is conducted, and an in-depth semi-structured interview is utilized to collect data. The primary conclusions show what the research participants' teachers believe to be the root causes of discipline issues in schools, how they connect these issues to the broader social reality that students encounter, how their own positive and negative behaviors influence students' behavior, the strategies they employ to prevent and address "discipline" issues, and how they assess their retraining and foundational coursework in order to effectively manage their classrooms.

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According to supporters of corporal punishment at school, the spanking or paddling performed by qualified teachers, administrators, or coaches deters misconduct. The use of intimidation has a significant impact on student conduct. Supporters of corporal punishment feel that spanking or paddling provides a powerful incentive for students to keep in line. The procedure for corporal punishment is quick and efficient. It does not entail lengthy after-school detentions or lengthy in-school suspensions. Principals, teachers, and coaches can give the punishment in a couple of seconds without including pre- and post-punishment dialogues to remind students of the policies that apply to their transgression. As a result, kids do not have to worry about punishment for days or hours. (Tucker, 2017)

Child maltreatment occurs in a variety of settings and locations around the world. (Benbenishty etal.,2021). Everywhere in the world, children are more at risk of being abused, violent, or neglected. The effort to give children a safe environment is making slow and uneven progress. How cutting-edge, locally driven interventions might address socio cultural norms that harm children's growth should be understood. Preventing harm to children is a complex process that is often anchored in a community's sociocultural and religious life, and child protection interventions must be purposeful in identifying and tackling ingrained sociocultural practices that maintain child maltreatment. (Doh et al., 2021)

The findings showed that school physical punishment is common worldwide, including in countries where restrictions are in place, and does not appear to decrease with time; measuring variations prevents conclusive conclusions. For children, it is linked to physical, intellectual, mental health, and behavioral issues. Boys, black kids in the United States, and students who were exposed to domestic abuse were the most vulnerable to corporal punishment. It is unclear whether a student's impairment puts them at risk. The likelihood of corporal punishment was lower in schools that employed a mental health professional and trained staff in safety procedures. Schools that employed a mental health professional and trained staff in safety procedures were less likely to use corporal punishment. Teachers' attitudes about corporal punishment, as well as their use of violence in other situations, put students at risk. Low socio-economic position (of the student or the school environment) raised risk, whereas high levels of state social capital decreased risk. (Heekes et al., 2020)

According to Cuartas (2021), internal validity disputes over the existing data have largely obscured the question of whether spanking is detrimental to socio-emotional development (SE). This longitudinal study examined the impact of spanking on the social and emotional development of Bhutanese children (N + 1377; M age + 50.5 months; 50% girls). He evaluated the internal validity of estimates using robustness checks and conservative methods (i.e., child-fixed effects and lagged-dependent variables), adhering to best-practice recommendations for reducing selection bias concerns in observational development research.

Even after correcting for all time-invariant covariates and baseline levels of SE skills, spanking predicted declines in SE skills of.09-.17 SD across all approaches. These data support the theory that' spanking can affect young children's social and emotional development.

In another study conducted by Cuartas et al. (2021), the researchers expressed that despite research relating corporal punishment to adverse child outcomes, spanking is still widely used around the world. The researchers compared children who were spanked (N = 40) to children who were not spanked (N = 107) to see if spanking affected brain function in response to cues that suggested the presence of environmental danger.

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Children who were spanked displayed increased activity in several areas of the medial and lateral prefrontal cortex (PFC), including the bilateral frontal pole, dorsomedial PFC, dorsal anterior cingulate cortex, and left middle frontal gyrus in response to frightening versus neutral stimuli. These findings imply that spanking, like more severe kinds of abuse, may change brain responses to environmental dangers.

Moreover, Vltelll (2017) stated that there has been extensive research into the effects of physical discipline on children, and the results have been mixed. Despite this, the general agreement appears to be that corporal punishment can contribute to later issues, such as aggressive behavior and acting-out episodes in children as young as two or three years old. Other factors, however, appear to have a more substantial impact on how children who have been subjected to corporal punishment develop later in life. The quality of parenting children receive is one of the most crucial aspects. Children who have had positive parenting experiences, such as positive verbal encouragement, positive demonstrations of affection, and positive physical touch, are less likely to be affected by corporal punishment than children who have been raised brutally. There can be significant gender disparities as well, with warm maternal care typically overcoming the challenges that boys might otherwise face as a result of harsh discipline from their father (though this can be the other way around for girls). The influence of corporal punishment on whether a child develops later behavior issues has been linked to early exposure to rejection, antagonism, or neglect from one or both parents. Even after accounting for a child's age, gender, and social background, children who are disciplined by parents who can control their emotions appear to be more likely to become violent themselves than children who are disciplined by parents who are unable to control their emotions.

Based on the results of the research conducted by Sichon and Guhao (2020), how was punishment for pupils implemented? For the 2016-2017 academic year, 13 school heads from both elementary and secondary schools in Sarangani Province Division were interviewed using a qualitative phenomenological technique. Focus groups and in-depth interviews were conducted to gather information. The interview results were transcribed, translated, and coded to create themes. The experiences of school leaders revealed the following themes: parental engagement and involvement (on the one hand); parental indifference and non-engagement (on the other hand); adoption of a child protection policy by the entire school; varying degrees of teacher acceptance; teacher inadequacy and inconsistency; and continued student indiscipline. In response to their difficulties enforcing student discipline, the following themes were created: parental involvement and collaboration; teacher guidance and support; use of "positive discipline," varying degrees of instructor acceptance; and use of creative methods. The following themes emerged from their discussions: parental engagement is critical to student discipline; schools should be steadfast in their execution; be positive and constructive; teachers require knowledge and support; and discipline should be current and relevant.

Positive discipline, rather than punishment or rewards, is a more effective technique to manage unruly pupils in the classroom. It enables kids to learn and change their behavior to match classroom standards while teaching them how to make better choices as they mature. Positive discipline is the process of training or instructing a pupil to follow a set of rules or a code of behavior over time. Rather than managing kids' conduct, teachers can utilize constructive discipline to help children develop self-control and make positive choices. Punitive punishment toward children—suspensions, forceful policing, and reactionary measures—goes against human rights, according to Teachers Unite, a movement of public school teachers working for social justice.

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On the other hand, positive discipline approaches provide a positive school environment while teaching children dispute resolution and behavior skills. Finally, positive discipline can assist in the shaping of a child by employing encouragement rather than meaningless and even unpleasant consequences such as punishment. (Aken, n.d.)

In a Philippine high school, this study by Banzon- Librojo et al. (2017) looked at how students' experiences of harsh teacher discipline are related to their experiences of bullying victimization. 401 first-through fourth-year high school students from an urban public school in the Philippines participated in the survey. Structural equation modeling was used to investigate a model hypothesized to have direct links between harsh punishment and bullying victimization, as well as an indirect link via students' perceptions of teacher support. The data fit the model well, showing that severe teacher reprimand was linked to an increase in bullying victims and a negative perception of teacher support among kids. No- significant indirect effects were observed. The results highlight the significance of teachers modeling and defining norms for students, as school punishment policies may impact students' behavior and relationships.

According to a different study, receiving praise had a positive effect, while physical punishment in school hurt children's chances of receiving higher cognitive scores. Furthermore, the absolute impact of corporal punishment and praise varies dramatically across caste groups, with both factors having a more significant marginal effect on children from disadvantaged castes than those from advantaged upper castes. (Kumar et al., 2022)

This qualitative study, driven by the interpretive paradigm by Sibanda & Mathwasa (2020), looked at how secondary schools in Bulawayo Metropolitan Province, Zimbabwe, use the modelling good behavior technique to instill positive discipline among students. The elimination of corporal punishment, exclusion due to delinquent behavior, and the implementation of constructive, inclusive discipline measures to maintain school order thrilled the researchers. Four school heads, twenty disciplinary committee members, four school counsellors, two education officials, four School Development Committee chairpersons, and forty prefects engaged in a case study design. Data were analysed thematically using focus group interviews, semi-structured interviews, and document analysis. Accordingto the findings, secondary schools used the modeling positive behavior technique to instill positive discipline in students. The orientation for new staff members focuses on conducting and modelling positive behavior whenever teachers, students, and parents meet throughout various activities in the school environment. The survey also discovered that prefects could lead assembly sessions as role models. Despite a few instances of wrongdoing, the study indicated that modeling positive behaviour methods achieved positive school consequences. The study suggests that more research should be done into ways schools could preserve positive discipline, particularly in remote schools.

School corporal punishment is a reality for millions of children around the world, and much more work has to be done to educate teachers about alternatives to corporal punishment so that it is no longer used in schools. Legislative change, activism, and education are all necessary to ensure that corporal punishment in schools is permanently outlawed. (Dubanoski et al., 2017).

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Enhancing Mathematics Learning Through Instructional Humour

Dr. Amit Ahuja and Ms. Babita

Abstract

Mathematics is often associated with stress and frustration. Many people find it challenging to learn mathematical concepts, especially when learning on their own. This feeling of isolation can make the learning process even more difficult. However, incorporating humour into Mathematics education can help alleviate some of these challenges. Humour can potentially engage learners, reduce anxiety, and foster creative problem-solving skills. By exploring the intersection of humour and Mathematics education, this paper aims to uncover ways to empower learners in their mathematical journey and enhance their learning experiences. The objectives of the study are to examine the efficacy of instructional humour in Mathematics education, explore effective methods for integrating humour into Mathematics teaching practices, and analyze the influence of humour on student learning outcomes, while also investigating prevalent mathematical myths. This study suggests that educators are urged to creatively and purposefully incorporate humor into their teaching methods to boost student involvement and improve learning results. Such an approach can transform the learning environment, making Mathematics more accessible and enjoyable for all students. The educational implications have been made for the stakeholders in educational practices.

Keywords: Instructional Humour, Learning, Mathematical Myths, Mathematics Education, Problem Solving

Introduction

"A good laugh is a mighty good thing, a rather too scarce a good thing."

— Herman Melville

When, if ever, have you had an opportunity to grin in a Mathematics lesson? These days, humour might be a profoundly socially esteemed characteristic and could be found in uncountable settings of human activity. Humour is distinctly displayed in exciting activities like theatre, cinema, radio, internet, etc., therefore there is no question that it plays a vital role in releasing the pressure caused by the problems and issues of our lifestyle (Menezes et al., 2019) Within the commerce world, humour was used as an efficiency enhancer (Scheel et al., 2017). But what about the field of education? And particularly what about Mathematics education? Was there any way to utilize humour in the Mathematics classroom as an instructional value? Instructional Humour, in the context of education, involves the deliberate and strategic use of humour, including jokes, anecdotes, puns, and playful elements, to enhance the learning experience and promote engagement among students or learners (Walshaw et al., 2008). It aims to create a positive and enjoyable learning environment that fosters creativity, reduces anxiety, and facilitates the retention and application of knowledge (Garner, 2019). Even

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though laughter and smiling have been linked to a variety of health advantages, humour has remained one of the most misused strategies in education (Harrison, 1995). This research paper explores the potential benefits of integrating instructional humour into Mathematics learning experiences, examines how the deliberate use of humour as an instructional strategy can enhance the Mathematics learning journey of learners, and seeks to furnish self-learners with practical recommendations and strategies for effectively using humour in their mathematical pursuits. This research paper may offer valuable insights to educators and instructional designers finding it hard to engage and support learners in Mathematics.

Throughout history, different viewpoints or opinions on the meaning of humour used at different stages were given by many philosophers/ psychologists. Humour theories (in the broadest sense) are attempts to address these different ideas (Morreall et al., 2009). Superiority theory, Incongruity theory, and Relief theory are the three primary categories which have been discussed here:

Table 1 Theories of Humour

S. No.	Theory	Assumptions
1.	Superiority Theory	• Humour emerges when one person feels superior to another. • Humour often involves belittling the subject of the joke, leading to a sense of superiority in the one who laughs.
2.	Incongruity Theory	• Humour arises from perceived incongruity or mismatch between expectations and reality. • The unexpected or accidental contrast elicits a comedic response.
3.	Relief Theory	• Laughter serves to alleviate tension between individuals. Humour arises from situations that trigger tension. • Humour acts as a release valve, defusing stress and fostering a sense of relief.

Essentially, humour acts as a release valve, defusing stress and fostering a sense of relief (Atkinson, 2006). These theories offer valuable insights into how humour operates, providing a framework for understanding its role in educational settings and beyond.

Review of Related Literature

Humour can help overcome obstacles, enhance attention, boost cognitive abilities, and foster creativity (Powell et al., 1985; Bryant et al., 1989). It also improves self-esteem for both students and teachers, creating a more enjoyable classroom environment (Ellingson, 2018). Students respond positively to humour-infused educational activities, with a strong relationship between humour perception and engagement in learning (Masek et al., 2018). This is particularly relevant in Mathematics, where humour can make the subject more enjoyable and enhance understanding (Shmakov et al., 2010). However, the effectiveness of humour in the classroom may vary among students, with diverse tastes and perceptions (Warwick, 2009). When used appropriately, humour can uplift and engage students, foster open communication, and help them reflect on challenging topics (Ellingson, 2018). It is found that humour increases focus and interest in the

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subject, particularly when used interactively by teachers (Gorham et al., 1990 & Hackathorn et al., 2011). Also, humour serves as a scaffold for learning, influencing various factors like student engagement, teacher interaction, task relevance, and subject matter comprehension (Matarazzo et al., 2010). Humour plays a crucial role in education, particularly in developing collaborative problem-solving skills and maintaining student interest (Civikly, 1986; Korobkin, 1988; Lamminpaa et al., 2018). It can reinforce learning, make tasks less laborious, and create a sense of group identity (Korobkin, 1988; Lamminpaa et al., 2018). Humour can also regulate negative emotions and contribute to collaborative decision-making (Lamminpaa et al., 2018). The effectiveness of humour in education depends on the establishment of a relational base (Civikly, 1986). The review of related literature shows that humour within Mathematics education includes the need to determine optimal integration strategies, considering frequency, timing, and types of humour work well. Research should extend beyond engagement to examine the impact of humour on critical thinking, problem-solving skills, and conceptual understanding in Mathematics.

Research Questions

This research paper addressed the following as supported by the review of related literature:

1. How do teachers effectively select and utilize mathematical teaching resources to incorporate humour into their lessons?
2. How can educators design tasks that humorously convey mathematical concepts to enhance student engagement and comprehension?
3. How do humourous riddles, trick problems, paradoxes, and brain teasers bridge the gap between humour and Mathematics, and contribute to students' mathematical understanding?
4. What implications does humour have for students' perception and attitude toward Mathematics?

Research Objectives

The following research objectives were supported by the research questions:

1. To examine the efficacy of instructional humour in Mathematics education at secondary level.
2. To assess secondary students' attitudes towards mathematical myths and their readiness to debunk them.

Delimitations of the Study

The study had the following delimitations:

1. The study was delimited to explore the effect of integrating instructional humour and Mathematics learning because it had been mostly neglected in Mathematics subject.
2. This study was delimited to explore the effect at secondary school level because of the significance of the developmental stage where their cognitive abilities, including abstract reasoning and understanding of humor, rapidly developed.
3. The study was delimited to be conducted in Delhi-NCR to have better control over the resources.

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Research Design

The study employed a descriptive research design to gain insight into the role of humour in Mathematics education. This design helped in examining the relationship without manipulating variables and provided valuable insights into how humour impacts learning outcomes in Mathematics.

Sample

The sample selection involved random sampling of 20 TGT Mathematics teachers and 200 secondary level students from private and government secondary schools in West Delhi and North-West Delhi districts. This approach ensured a diverse representation of teachers and students over varied perspectives and experiences within Mathematics.

Research Tools

Research tools include Structured-interview and a 5-point Likert scale. Data analysis employed descriptive statistics for quantitative data and content analysis for qualitative data has been done.

Findings and Outcomes

i. To examine the efficacy of instructional humour in Mathematics education structured interview of Mathematics teachers at secondary school level was conducted. To effectively teach fundamental mathematical concepts and foster problem-solving skills by incorporating humour, teachers suggested employing appropriate resources and strategies, encouraging resilience and experimentation among students. It is crucial to ensure that humour is relevant to the content and strategically employed to maximize its educational benefits. Positive and inclusive humour should be prioritized, avoiding negative jokes or stereotypes that may hinder learning and create a negative classroom environment. Respondents often opt for recreational Mathematics approaches, as they find motivation in humourous puzzles, diversions, and contradictions, rather than traditional classroom methods. Teachers suggested certain fundamental elements to create or choose humourous mathematical activities. These elements include maintaining academic and intellectual quality, working in groups, long-term commitment, various ways for students to approach problems and find solutions, catering to different learning styles and abilities, connection to the curriculum, and multi-representational to convey mathematical concepts. The comprehensive table displaying the data is provided below. It's important to note that in some cases, the total percentage may exceed 100% due to respondents providing multiple responses.

While most students supported humour in the classroom to enhance learning and social interaction, they stressed the need for cautious implementation to avoid distractions. Overall, humour serves as a valuable tool in teaching and learning, fostering teacher-student rapport, relevance, and ultimately, academic success.

ii. To analyze and disprove mathematical myths at the secondary school level a 5-point Likert scale was employed to collect data from students. The majority of respondents find Mathematics boring but this is an incorrect notion as it is often presented in schools as an isolated, context-less subject, taught as a rigid set of information progressing along a predetermined complexity ladder. This approach restricts critical thinking, exploration, and the potential for future progress, as everything is presented

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Table 2 Efficacy of Instructional Humour in Mathematics Education

Aspects	Sub-aspects	Percentage of Respondents
Perception of Instructional Humour	Sarcasm in Classroom	75%
	Humour Related to Course Material	45%
	Humour Simplifying Teachers' Instruction	35%
Preferences for Classroom Strategies	Making Strategies	75%
	Creating Learning Targets	70%
	Clarity of Thoughts	60%
Strategies for Harnessing Instructional Humour	Sharing Real Life Funny Stories	75%
	Relating Funny Examples to Mathematics	70%
	Recreating Movie Scenes	35%
	Social Play	20%
Impact of Mathematical Tasks with Humour	Eases Subject/Reduces Stress	80%
	Boosts Learning	65%
	Increases Creativity	50%
	Makes No Difference/Disrupts Class	15%
Perceived Benefits of Humour in Learning	Learning and Having Fun Simultaneously	85%
	Makes No Difference	15%

as already known and beyond critique. The lack of attribution to historical or personal contexts further disconnects students from the subject. Students suffering from math anxiety often bear misconceptions about the subject, which serve to justify their fear and dissatisfaction. Some respondents believed that math ability is inherited, there are things like math brain or math ability. Although the reality is that some individuals may show natural talents in specific areas, mathematical ability is not determined by genetics in advance. Another common misconception is that computational ability defines mathematical proficiency, leading some students to feel ashamed of doing finger counting. However, such methods are perfectly valid, similar to using a Chinese abacus. The belief that math relies only on logic and not imagination is another myth. While logic is fundamental, Mathematics also thrives on creative thinking and problem-solving. The misconception that accuracy is paramount overlooks the importance of understanding concepts over rote memorization.

The overall interpretation of 5-point Likert scale about including instructional humour in Mathematics teaching is little more than seven-tenth (71.5%) of the respondents had a positive attitude, little less than three-tenth (28.5%) of the respondents had a neutral attitude and no respondent had a negative attitude (0%).

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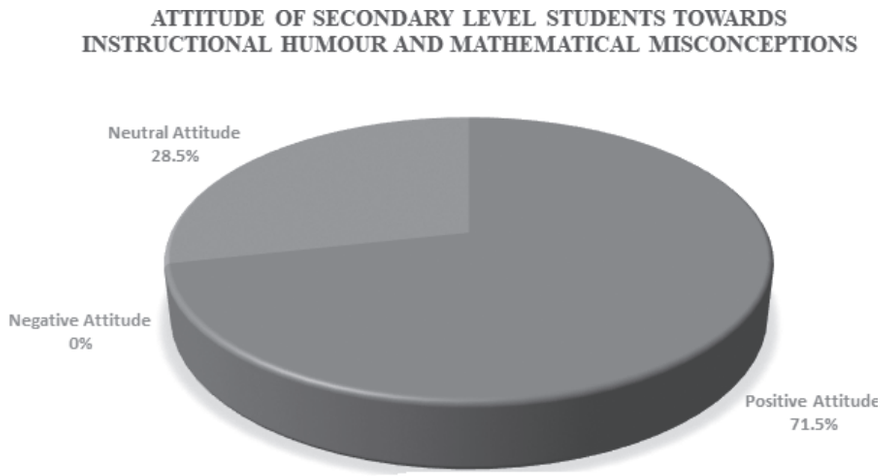


Figure 1. Relation between Instructional Humour and Students' Attitude towards Mathematical Misconceptions

The investigator utilized a chi-square test to validate the data presented in Figure 1 and determine if the prevailing attitude among students towards instructional humour was merely coincidental. Table 3 illustrates the results of the chi-square test regarding the attitude of students.

Table 3 **Chi-square Test for the Attitudinal Score of Students towards Integrating Instructional Humour in Mathematics Learning to Eliminate Mathematical Myths**

	Positive Attitude	Neutral Attitude	Negative Attitude
F_o	143	57	0
F_e	66.6	66.6	66.6
(F_o-F_e)	76.4	-9.6	-66.6
$(F_o-F_e)^2$	5836.96	92.16	4435.56
	87.642	1.384	66.6

Total Chi-squares values = 87.642 + 1.384 + 66.6 = 155.626

Degree of freedom= 3-1 = 2

The obtained chi-square value 155.626 for 2 degrees of freedom is significant at 0.01 level of significance, the chi-square test indicates that there was a strong association between students' positive attitude and the use of instructional humour in teaching Mathematics, and this association was not a coincidence. The positive attitude towards instructional humour in Mathematics teaching likely stems from its ability to enhance engagement, understanding, and enjoyment of the subject, as well as its role in creating a supportive and inclusive learning environment. There is a three-way dynamic interplay between students' perception (P) of Mathematics, the instructional environment (I) they experience, and the beliefs (B) they hold about the subject.

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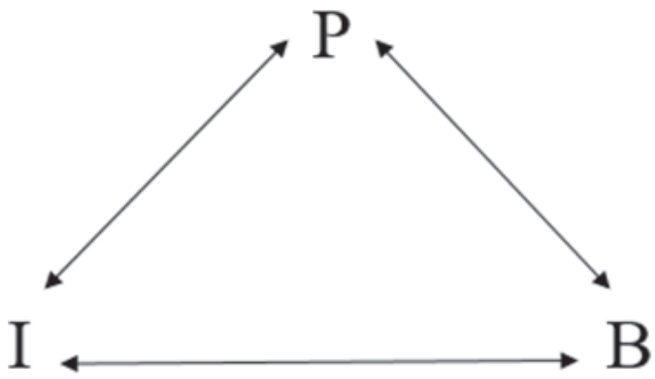


Figure 2. Three-way relationship of Perception (P), Instructional Environment (I) and Belief(B)

These factors collectively contribute to the formation of mathematical myths in students' engagement, motivation, and understanding of Mathematics which highlights the importance of addressing misconceptions and promoting effective teaching practices to enhance mathematical learning experiences.

Educational Implications

- Students: Bringing humour into the classroom can transform the learning environment into a lively and effective space, easing tension and encouraging active participation. It cultivates a welcoming atmosphere where students feel at ease and motivated to engage in discussions and activities. Teachers believe that humour strengthens the bond between students and educators, enhancing the enjoyment and accessibility of learning.
- School Administrators: This research highlights the interconnectedness of education, emphasizing the significance of collaboration and integration across various subjects and teaching methods. Schools should develop comprehensive, long-term strategies to tackle challenges and enhance teaching practices effectively.
- Teachers: Teachers help in nurturing students' comprehension and mastery of subject matter, particularly in Mathematics. They must possess diverse pedagogical skills, including the effective use of humour in the classroom. Teacher training programs should prioritize the development of these skills, preparing educators for the complexities of student learning.
- Future Teachers: Pre-service teachers should receive training in pedagogical approaches that incorporate humour, ensuring they can create engaging and effective learning environments. Teacher education programs should be grounded in empirical research and best practices, emphasizing continuous professional development.
- Curriculum Designers: Curriculum design plays a crucial role in promoting deep student learning and comprehension. It should prioritize the acquisition of subject matter knowledge through a deeper understanding, moving beyond mere syllabus coverage to emphasize conceptual learning. This necessitates a shift in the educational paradigm, highlighting the importance of innovative teaching strategies and student-centered pedagogies.

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Conclusion

The study of instructional humor in mathematics education demonstrates its potential for effectively teaching key ideas and improving problem-solving abilities. Teachers highlight the significance of using proper resources and tactics while maintaining relevance and a positive attitude in order to maximize educational gains. Despite students' general acceptance for humour in the classroom, vigilance is suggested to avoid distractions. The attempts to study and refute mathematical myths uncover prevalent misunderstandings that impede students' interest and knowledge of Mathematics. These findings emphasize the need of addressing misunderstandings and promoting good teaching approaches in order to improve mathematics learning outcomes. Humour is an effective strategy for creating teacher-student connection, relevance, and academic performance, emphasizing the necessity of a dynamic interaction between students' perceptions, teaching environment, and views about the subject. By prioritizing positive and inclusive humour, educators can create engaging and supportive learning environments conducive to student success. Through these efforts, educators can enhance mathematical learning experiences and cultivate a more positive and effective educational landscape.

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Article 5

Filling the Gaps: Unlocking Teachers Skill Acquisition in Research Mentorship

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Abstract

Teacher-provided research mentorship is essential for developing students' scholarly abilities. However, limited training results in skill gaps, presenting challenges for educators guiding student projects. This phenomenological study aimed to elucidate how teachers independently strengthen mentorship capacities when formal development opportunities are scarce. Semi-structured interviews were conducted with eight secondary school teachers actively engaged in mentoring. Data analysis identified four key themes on self-directed skill improvement strategies: pursuing professional development, building collaborative partnerships, engaging in self-learning, and adapting approaches. Findings provide insights into teachers' intrinsic motivation to address competency deficiencies without structured training. Participants demonstrated commitment through informal learning channels like conferences, reading, collaborations, and reflective adjustments. The study offers a conceptual model to inform training interventions and communities promoting sustainable mentorship growth. By highlighting informal pathways, it furthers understanding of how teachers continuously cultivate expertise and advance student support amidst constraints. Ultimately, this suggests the importance of facilitating professional empowerment for optimized research learning.

Key Words: Research Mentorship, Teacher Training, Professional Development, Self-Directed learning, Skill Acquisition

Introduction

Teacher-provided research mentorship is crucial for developing students' research abilities and passion for scholarly inquiry. Studies highlight the importance of research mentorship in academic and career development (Agricola et al., 2018; Walkington & Rushton, 2019). Mentorship proficiency enhances student academic experiences and significantly contributes to developing research skills, critical thinking, and preparedness for future roles (Ahmad et al., 2021; Balandya et al., 2022). Due to the complexity of researches, teachers must acquire diverse mentorship skills to address various challenges.

Effective student research mentorship under teacher guidance requires abilities beyond standard educational development. Fundamental skills include clearly conveying concepts, providing constructive feedback, and nurturing open discussion (Eby et al., 2013). Equally important is a thorough understanding of the full research process, from methodology to dissemination. When done correctly, mentorship benefits both mentors and mentees, emphasizing the importance of meaningful relationships (Vater et al., 2022). Successful mentors also demonstrate expertise such as emotional intelligence, empathy, humor, and patience (Caruso et al., 2019; Xu & Payne, 2013). For instructors, continuously refining mentoring skills in the long-term is dynamic, necessitating periodic self-assessment and lifelong commitment to professional growth. The goal is to optimize the advisory abilities of student researchers.

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Limited mentorship training among educators has resulted in widespread skill deficiencies, highlighting the need for professional development to strengthen research guidance competencies. Educators sometimes lack specialized training in mentoring student research, which can lead to noticeable gaps in their skills and limit their ability to provide high-quality guidance (Brown et al., 2009). Common deficiencies include scaffolding the process, delivering constructive feedback, and facilitating independence (Overall et al., 2011). Without addressing these issues, teachers struggle to assist mentees in refining topics, rigorous methods, data analysis, and reporting (Cutillas, 2023; Fongkanta et al., 2021).Consequently, there is a lack of support for the core research aspects. Bridging shortfalls through focused training and professional growth is paramount for teachers to successfully coach exploration and maximize learning experiences, necessitating commitment to ongoing mentor competency development (Johnson & Gandhi, 2014; Sood et al., 2016).

Previous studies have highlighted the key practices for training teachers in research mentoring. Fragkoulis and Michalou (2018) advocated continuous programs to help teachers acquire mentorship skills to guide student research. An important focus in professional development is scaffolding the research process (Zachary & Fain, 2022). Training prepares mentors to assist students in each stage, from forming hypotheses to analyzing data and presenting findings. Effective programs outline strategies, such as helping frame questions, designing experiments, interpreting results, and navigating ethics (Pfund et al., 2012; Rowe-Johnson, 2018). Training also fosters reflections among mentors. As proposed by Schön, reflective practice comprises reflection-in-action and on-action to adjust styles over time (Farrell, 2012). Educators undergo preparation to routinely examine approaches, interactions, and results to enhance these approaches. Mentors evaluate successes and require adjustments to continuously improve through experience (Faisal et al., 2023). With reflection, training equips educators with dynamic support for students' growth (Naicker & Van Rensburg, 2018).

The literature suggests effective mentorship training, involving connecting mentors-mentees, standardized evaluations, and evidence-based curriculum development (Steiner, 2014). However, challenges can hinder faculty training (Straus et al., 2013). Additionally, there is a gap between digital tools in mentorship education (Haynos et al., 2021) and lack of explicit skills training. Training emphasizes communication skills, particularly constructive feedback, which influences student development significantly (Ambrose et al., 2010). Feedback is most useful when personalized and constructive, guiding individual growth (Burns et al., 2019). Exchanging constructive feedback bridges differences between current and expected standards (Orsini et al., 2022).

While existing research acknowledges the importance of developing educators' research mentorship skills (Kpokiri et al., 2022), knowledge gaps remain regarding teacher-driven competency growth. Specifically, literature lacks insight into self-initiated strategies teachers use when formal training is limited (Gandhi et al., 2019). Previous studies focused on core competencies and structured interventions without exploring informal development (Huang & Lai, 2020). In addition, minimal research examines how teachers address specific skill deficiencies mentoring students without support. Thus, this study answers: How do teachers address their own skill gaps in providing research mentorship to student researchers?

This study addressed these gaps by investigating how educators independently cultivate mentorship skills when formal training is limited. Findings provide novel insights into self-directed techniques teachers use to expand abilities. Results will inform future training program designs and assess informal strategies' effectiveness. By elucidating independent skill-strengthening, this research meaningfully contributes to enhanced student-teacher guidance across educational contexts.

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Methodology

Research Design

The study employed a qualitative phenomenological approach to investigate how educators address gaps in mentoring student researchers. Phenomenology seeks shared understandings and personal experiences with a phenomenon (Wilson, 2015). This method provided insights into educators' experiences and views concerning shortfalls in abilities and interactions' importance (Bliss, 2016).

Setting and Participants

The study occurred at a secondary school in northern Philippines offering a student research program. Using purposive sampling (Tongco, 2007), eight teachers were selected who could provide insights into the phenomenon. Phenomenological sample sizes typically range from 5-25 (Oteifa et al., 2023). Qualifying teachers had to oversee a minimum of four student research projects in the past two years at the secondary level. They also had to acknowledge their role as advisers and recognize aspects of mentoring requiring improvement.

Instrumentation

Data were collected through semi-structured interviews. Questions were developed based on an a priori coding structure from reviewing relevant literature (Fereday & Muir-Cochrane, 2006; Gioia et al., 2012). This qualitative method allowed collection of detailed information through open-ended, theoretically guided questions aligned with the study focus (Lewis, 2015). Participants could choose English or Filipino for responses, to build trust and freely share thoughts and experiences. The validated interview protocol specifically addressed how teachers independently address mentoring skill gaps, endorsed by three experts.

Data Explication and Analysis

Data were collected primarily through face-to-face interviews with participants at their convenience. Prior to interviews, comprehensive information about the study and consent was provided to foster rapport between researchers and participants (O'Sullivan et al., 2021), guaranteeing confidentiality and privacy of teacher narratives. Researchers also summarized the study goals, context and interview process at each start.

On average, interviews lasted 30-90 minutes and were recorded to facilitate analysis and understanding of discussions. While no strict minimum exists for qualitative interview duration, comprehensive exploration of research topics and participant experiences is essential (DiCicco-Bloom & Crabtree, 2006). To ensure transcription accuracy and credibility, a rigorous counter-verification and data cleaning process was undertaken. Field texts were returned to participants for review and confirmation as part of this meticulous approach (Creswell & Creswell, 2017; Mero-Jaff, 2011).

Braun and Clarke's thematic analysis model examined datasets to discover patterns and themes relevant to exploring teachers' professional experiences and integration in research (Braun & Clarke, 2013).Researchers followed steps: familiarizing with data, creating initial codes from transcriptions; grouping codes into categories; establishing codebook hierarchy; connecting categories to develop overarching themes.

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Results and Discussion

The analysis of the teacher interviews revealed four primary themes: pursuing professional development, fostering collaborative partnerships, engaging in self-directed learning, and adjusting mentorship approaches.

Theme 1: Pursuing Professional Development

This theme encapsulates the various approaches teachers take to develop their research mentorship skills through professional development opportunities. Seeking out professional growth allows teachers to address gaps in their knowledge and stay current with new developments in research methodologies. Four key codes emerged under this theme: seeking professional development, reading academic literature, attending conferences/workshops, and accessing online learning resources.

Table 1 Essential Codes and Supporting Statements on Pursuing Professional Development

Codes	Supporting Statements
Seeking professional development	"One approach I take is regularly setting aside time to pursue professional development opportunities such as attending conferences and training seminars related to research methodologies." [T1] "Another resource that helped me address my skill gaps was when I became a panelist in a research proposal and final defense, where I learned to become a more efficient mentor." [T4]
Reading academic literature	"I engage in independent learning by reading academic literature and texts on research approaches and statistical methods that are new to me." [T1) "The primary thing that I do to address these challenges is to read. Research has a wide range of complex topics. I have to fuel myself to keep up with my students and be able to deliver what they need in the process of conducting research." [T4]
Attending conferences/ workshops	"I engage in continuous learning by staying updated with the latest research and advancements in my students' field of interest. I read research papers, attend free conferences, and participate in school-based workshops." [T6] "Attending research congresses or conferences provides me with an avenue for research knowledge enrichment and research skill enhancement." [T7] "We are also blessed to continually join different research congresses and conferences, initiated by our research department." [T8]
Accessing online learning resources	"Indeed, online research platforms always come in handy, providing access to 'upskilling' opportunities." [T7] "Online Mentoring Programs: special groups of research teachers (e.g., educational research center, teachers teaching research, etc.) offer webinars, online courses and tutorials. I am grateful that these online resources can be accessed anywhere and anytime." [T8]

Source: Author's survey, 2023

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The findings reveal that teachers take purposeful steps to pursue professional development opportunities in order to enhance their research mentorship skills. This demonstrates their commitment to continuous learning and providing the best possible support to student researchers under their guidance. High-quality mentorship requires ongoing development of knowledge and abilities (Arnesson & Albinsson, 2017; Tillema & Westhuizen, 2015). The teachers in this study recognize skill gaps in their mentorship capacity and address these gaps through activities like seeking out professional development, reading academic literature, attending conferences and workshops, and accessing online learning resources. These proactive efforts to stay current with new methodologies and improve their mentoring align with previous literatures emphasizing the need for continuous growth and learning in mentorship (Gagliardi et al., 2015; Langdon & Ward, 2015). The implications suggest that providing professional development focused specifically on research mentorship skills could empower more teachers to take on mentorship roles. Administrators may need to allocate time and resources to enable teachers' participation in developmental activities. Recommendations include offering regular professional development workshops or courses on research mentorship, providing release time for teachers to attend conferences and webinars, and facilitating mentorship networks that connect experienced and novice research mentors. Investing in professional development is key to building teachers' confidence and abilities in guiding student researchers.

Theme 2: Building Collaborative Partnerships

This theme highlights how teachers leverage collaborative relationships address gaps in their research mentorship knowledge and skills. Seven codes emerged under this theme: collaborating with colleagues, seeking expert guidance, leveraging student knowledge, developing transparency with students, filling knowledge gaps together, facilitating collaborations, and joining research groups.

The findings indicate that teachers build collaborative partnerships to strengthen their research mentorship abilities. They leverage relationships with colleagues, experts, and students to fill gaps in their knowledge and skills. This aligns with literature emphasizing the benefits of collaboration in mentorship, including knowledge sharing and reciprocal learning relationships (Eisenschmidt & Oder,2018; Wang et al., 2016). Additionally, studies have found that mentor-mentee partnerships promoteprofessional growth for both parties (Chopra et al., 2016; Dopson et al., 2017). Teachers collaborate with colleagues to learn from their experiences, seek expert guidance to strengthen understanding, are transparent with students about limitations, fill knowledge gaps together, facilitate connections between students and experts, and join research groups. The implications are that facilitating collaborations through mentorship networks and learning communities could enhance teachers' mentorship capacities. Administrators may need to provide time and space for collaborative development. Recommendations include establishing peer mentor programs, connecting teachers and experts as co-mentors, and incorporating collaborative projects into research courses.

Theme 3: Engaging in Self-Directed Learning

This theme encapsulates the self-driven efforts teachers make to independently develop their research mentorship knowledge and abilities. Six codes emerged under this theme: self-study, creating learning plans, utilizing online resources, building research competencies, strengthening statistical skills, and staying updated on technology.

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Table 2 Essential Codes and Supporting Statements on Building Collaborative Partnerships

Codes	Supporting Statements
Collaborating with colleagues	"I also make it a priority to connect with other experienced teacher-researchers through my professional network. Consulting colleagues who have more advanced expertise helps me address skill gaps so I can better assist students in turn." [T1] "After all, I can always rely on my department head and colleagues for clarification and guidance." [T2] "I also ask my co-research teachers and colleagues if some concepts need clarification." [T4] "I also ask for help from a colleague or a mentor specializing in a specific field or discipline." [T7]
Seeking expert guidance	"We brought in another teacher on staff who had a strong math and statistics background and set up collaborative mentoring sessions." [T1] "I go back to my notes, update them, sometimes rely on my colleagues, and learn from my students." [T2] "I frequently collaborate with other experts in the field or with colleagues who have complementary expertise." [T6]
Leveraging student knowledge	"I try to recall how I handled previous queries and concerns, reflect, improve, and again apply." [T2] "I also use the students' research papers as examples in my practical research 1 and 2 classes; we use these as their model papers." [T4] "I allowed my students working on a low-cost earthquake detector device to seek the help of both staff and a student who have a background in computer programming and coding skills I lacked." [T6]
Transparency with students	"Throughout the process I provided ongoing encouragement and reviewed drafts to strengthen the student's technical writing." [T1] "I inform my students of the extent of my understanding, and I also ask them that we both do extensive research on the research challenge at hand so that we learn and discover together." [T5]
Filling knowledge gaps together	"Being transparent to my limitations as a research adviser and doing my part to address it ensure that I do not compromise the soundness of their study." [T5]
Facilitating collaborations	"I collaborate with science and math teachers for experimental and statistical-related concerns. I also encourage students to seek guidance from other experts." [T8]
Joining research groups	"I have joined various research groups on social media, which I really find helpful." [T8]

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Table 3	Essential Codes and Supporting Statements on Engaging in Self-Directed Learning
Codes	**Supporting Statements**
Self-study	"I spend considerable time proactively reading academic journals, textbooks, and other scholarly materials related to the diverse array of topics students are exploring through their research." [T1]
Creating learning plan	"I create a personal learning plan based on my skill gap." [T7]
Utilizing online resources	"One of my upskilling initiatives is rummaging through scientific publications/e-journals and e-theses/e-dissertations to understand a specific research method that I can suggest to my students or understand the method they plan to use. Another upskilling initiative is using online instructional YouTube videos as a learning resource." [T7]
Building research competencies	"I undertake self-study to fill my knowledge gaps. Most of the time, I explore relevant textbooks, online courses, or educational resources to gain a deeper understanding of the topics I need to address." [T6]
Strengthening statistical skills	"I focused my guidance on areas I was knowledgeable about like helping craft research questions, finding literature, and developing the overall study design. Meanwhile, the other teacher provided supplemental expertise advising on the quantitative components." [T1]
Staying updated on technology	"I continually read about the latest trends, topics, and tools in doing research. I have joined various research groups on social media, which I really find helpful. Therein, most members do share their resources, conferences, and eBooks (most of which are free)." [T8]

The findings show that teachers take initiative in engaging in self-directed learning to improve their research mentorship capacities. This demonstrates their motivation to address personal knowledge gaps and independently seek out learning opportunities. Self-directed learning is critical for continuous professional development (Ambreen & Arif, 2022; Wu, 2021). Additionally, studies have found self-directed learning enhances mentorship competence (Kuzma et al., 2016; Wong et al., 2021). Teachers in this study demonstrate self-direction through activities like reading academic journals, creating personal learning plans, using online resources, exploring textbooks and courses, and joining research groups. The implications are that facilitating self-directed learning with resources and flexible time may further improve teachers' mentorship capacities. Administrators may need to provide more autonomy in teachers' development pursuits. Recommendations include creating online hubs for research mentorship resources, building independent study time into schedules, and promoting reflection.

Theme 4: Adapting Mentorship Approach

This theme demonstrates how teachers adapt their research mentorship strategies in response to challenges and as part of the learning process. Three codes emerged under this theme: adapting mentorship approach, asking for feedback and humility.

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Table 4	Essential Codes and Supporting Statements on Adapting Mentorship Approach
Codes	**Supporting Statements**
Adapting mentorship approach	"Adjusting to move from a mentor role into more of a facilitator who connects those students with other experts has been an important learning experience." [T1] "When some of my students decided to pursue experimental design, I had no choice but to learn the process of their chosen methodology." [T7]
Asking for feedback	"Specifically, I ask feedback and ideas from my peers (fellow research mentors)." Learning from past experiences and students were also mentioned. [T3] "I try to recall how I handled previous queries and concerns, reflect, improve, and again apply." [T2]
Humility	"Experiences like this, teach me the importance of humility, adaptability, and the power of leveraging diverse skills in a mentorship setting." [T7]

The results of this study highlight the adaptive nature by which teachers modify their research guidance approaches in reaction to difficulties encountered and as an element of their own continuing pedagogical development. This aligns with literature indicating effective mentors are reflective and flexible, constantly working to improve their practice (Crutcher & Naseem, 2015; McQuade et al., 2015; Nyanjom, 2018). Additionally, studies show adaptable mentoring promotes mentor growth and enhances the mentee experience (Schriever & Grainger, 2019, Klinge, 2015). Teachers in this study adjust their approach when needed, shifting to more of a facilitator role and learning new methodologies to support students. They also actively seek feedback from peers and students to improve, and express humility regarding their limitations. The implications are that professional development focused on adaptability and a growth mindset could strengthen teachers' mentorship abilities. Administrators may need to allow flexibility in how teachers approach mentoring. Recommendations include incorporating continuous feedback processes, emphasizing reflection, and celebrating growth over perfection.

Conclusion

This qualitative phenomenological study addressed gaps in understanding how teachers independently strengthen their research mentorship skills when formal training opportunities are limited. Through interviews with eight secondary school teachers actively mentoring student projects, four key themes emerged on self-directed strategies used to build capacities: pursuing professional development, fostering collaborations, engaging in self-learning, and adapting approaches.

The findings provide insights into teachers' intrinsic motivation to develop abilities without structured training. Participants demonstrated commitment to continuous learning by proactively seeking workshops, conferences, literature, and online resources. They leveraged relationships with colleagues, experts, and students for reciprocal learning and transparent collaborations. Teachers also exhibited self-driven efforts through independent study, personalized plans, and research groups. Adaptability emerged as critical, with participants modifying approaches based on needs and soliciting feedback. This research makes theoretical

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and practical contributions regarding informal mentorship development pathways, offering a model of key components underpinning teachers' autonomous skill enhancement.

However, limitations should be noted. The small qualitative sample focused only on secondary school teachers in one region, which may restrict transferability of findings. Additionally, self-reported data relies on subjective perceptions of competence gains. Follow-up studies should incorporate objective measures of mentoring skills and expanded samples across educational contexts. Longitudinal data tracking mentors' progress over time could provide further insights. Comparative research on outcomes from informal versus formal training would also be valuable. There are opportunities to build on this exploratory study to develop evidence-based resources and communities supporting teachers' self-directed mentorship development. Ultimately, equipping educators with robust, adaptable mentoring abilities is essential to nurture students' research self-efficacy and future success.

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Article 6

Competency Training Needs of Business Education Lecturers on the usage of Assessment Software Applications in North-east Nigerian Universities

S. Hayatu , H. Bello, A. A. Deba and B. S. Dalhat

Abstract

This study determined the training needs on the usage of assessment software applications for research activities among business education lecturers in North-east Nigerian universities. The study adopted explanatory sequential mixed method design. Two research questions and one hypothesis guided the study. The study's population consists of 57 business education lecturers in Abubakar Tafawa Balewa University Bauchi, Modibbo Adama University Yola and University of Maiduguri. Total population sample was used for the quantitative part of the study, whereas three participants were selected for the qualitative part of the study using purposeful sampling technique. A dual-response format structured questionnaire was developed as a quantitative data collection instrument based on Borich needs assessment model, while an open-ended interview was used for qualitative data collection. The questionnaire was validated by five experts while the validity of the interview schedule was conducted using participants' checking. The reliability of the questionnaire was determined using Cronbach alpha after a pilot study at Ahmadu Bello University Zaria, the coefficients of 0.85 (importance) and 0.83(ability) were found, signifying that the instrument was reliable. The reliability of the interview schedule was determined using a peer debriefing method. The data was collected by the researchers and two trained research assistants. Forty-eight questionnaires were retrieved representing eighty-four percent rate of return. The quantitative data generated from research question one was analyzed using Mean Weighted Discrepancy Score (MWDS). Research question two was analyzed using thematic analysis, the null hypothesis was analyzed using one-way analysis of variance. The findings of the study among others indicated that business education lecturers in universities in North-east Nigeria need training in the usage of assessment software applications, also significant differences do not exist on the training needs among accounting, marketing and OTM lecturers. The study recommends that stakeholders in education should ensure that business education lecturers in North-east Nigerian universities are trained on the effective use of assessment software applications.

Keywords: Assessment, Software Applications, Training Needs, Business Education Lecturers.

Introduction

Assessment in education refers to different tools and methods employed by lecturers to measure, evaluate and record students' academic performance. Kizlik (2014) defines assessment as a broad term which connotes all processes through which information relative to some identified goal or objective is obtained. In other perspectives, assessment is the process of finding out information necessary for decision making about learners, educational policy, schools, curriculum and programmes (Nitko &Brookhart, 2011). Education

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remains one of the vital aspects of developing countries since through it the citizens struggle in developing their human capital, therefore, quality education requires good assessment (Marina, 2015). With the view to maintaining good assessment techniques available in our educational institutions, utilization of ICT-based assessment tools such as assessment software applications in particular or electronic assessment (e-assessment) in general is imperative. This is in agreement with the views of Marina (2015) who opines that since present educational institutions are becoming ICT driven with regards to instruction infrastructure and facilities, ICT can be used to facilitate assessment practice in different ways.

Assessing students' progress is a regular practice of lecturers in every institution of learning. Various studies have reported that students favour the use of assessment software applications/e-assessment over traditional assessments (Alsadoon, 2017; Petrisor, 2016), therefore, lecturers can utilise ICT as an assessment tool for administering tests, scoring tests, analysing the results and facilitating the assessment of students' learning outcome (Marina, 2015). This is evident since e-assessment is gaining ground by the day in higher institutions of learning as a means of assessing students. E-assessment plays a significant role in improving the performance of students and enhancing high-order thinking among them (Alruwais et al., 2018) as well as saves lecturers' time and energy (Hanifi, 2019) and saves the costs incurred in traditional assessment (Eshaghi, 2019). In view of these, there is a need for universities to take advantage of its utility as rightly recommended by Marina (2015) that educational institutions should strengthen their commitment in the development of a reliable assessment practice that can support both students, teachers and other stakeholders. Similarly, e-assessment has played a vital role in making students to be motivated in performing a given task, and also allows the teacher to have access to highly standardised materials and make objective judgement (Shaheen et al., 2019).

Assessment software applications are the various packages used for conducting tests and examinations as well as grading students' performance. These include: ProProfs Training Maker, Easy LMS, HireVue Assessments, Test Grading, Test Invite, DigiExam, ProvExam, OnDemand, Remark Test Grading, Examsoft, Cognician Lead Quizzes, Psyft Personality Assessment, Questionmark, CodeMeet, TutorPro Assessments, Brillium Solution, Assessmart, Digital Teacher, ExamN, Gauge, Insight, Journey, Kolbe Indexes, Learnosity, WeCP, Test Commander. Others include; Survey Monkey, Zoomerang, SurveyPro, Quia, QuizStar, SurveyGizmo and many others (Dawley, 2007; Marina, 2015). Various terminologies which includes; e-assessment, Computer-Based Assessment (CBA), Computer-Based Testing (CBT), Computer administered testing and computerised testing are frequently used by educators as substitutes for one another to mean electronic assessment (Shaheen et al., 2019). This study considered *ProProfs, Test Invite* and *DigiExam* as assessment software applications used in the study, this is because they are among the best assessment software applications (Serchen, 2024; Software Suggest, 2023).

Business education refers to the study of various technologies and relevant sciences as well as the acquisition of competencies necessary for occupations in different areas of the economy and social life (Otamiri cited in Nwokocha, 2015). Business education has three broad areas of specialisations which include; accounting, marketing and office technology management (OTM). Utilisation of assessment software applications in business education programmes for evaluation purposes becomes inevitable, this is because there is a paradigm shift from traditional instructional delivery and assessment process to more electronic means (Amesi & Ezeora, 2023). Having highlighted the positive impacts of assessing students electronically, business education lecturers can utilise the available assessment software applications in assessing the

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academic achievement of their students objectively. In achieving this, the need for training the lecturers on how to use the assessment software applications effectively and efficiently remain highlyvimportant. But the needed competencies on the usage of the assessment software applications among business education lecturers is an issue of great concern which this study explored.

Literature Review

Assessment of students' performance was viewed as a fundamental part of the instructional delivery process (Eshaghi, 2019). The use of technology for assessment was traced to the 1920s when an automatic machine for testing was developed by Sidney L. Preeses (Skinner cited in Al Ruwais et al., 2018). It is evident that the use of assessment software applications not only reduces the lecturers' burden of manual assessment of large students but also facilitates easy feedback and analysis of students' performance. This is why researchers such as Paul (2020) recommended that both teachers and students should be encouraged to exhibit a positive attitude towards the use of e-assessment systems. However, there are various studies conducted on the training needs of lecturers/instructors with regards to the use of assessment software applications in particular or e-assessment in general. Isiwu and Isiwu (2021) conducted a study and found out that lecturers of library and information science need training and development in the use of electronic assessment for effective processing of students' performance. Also, Alruwais et al. (2018) in their study, reported that some teachers are incompetent on the use of technology for assessment of students' performance. Similarly, Paul (2020) conducted a study and reported that both teachers and students need training on the effective use of e-evaluation systems in education. In a related development, Okoli and Wagbara, (2016) asserted that most lecturers have inadequate competencies in utilizing digital resources such as assessment software applications due to inadequate training in meeting with the current technological advancement.

Another study carried out by Uvie (2021) discovered that secondary school teachers are competent towards implementation of school-based assessment. Similarly, Briones (2018) revealed that Physics teachers are proficient in electronic assessment and evaluation. Similarly, Chukwuedo and Igbinedion (2014) conducted an empirical study and found that TVE lecturers in South-south Nigerian universities need capacity building in the usage of ICT for instructional delivery purposes including assessment of students' performance. Also, Anaza (2019) discovered that student-teachers in colleges of education in North Central Nigeria need moderate training in the use of software applications. In the same vein, a study conducted by Mukhari (2016) reported inadequate training and low level of ICT proficiency among urban school teachers in Gauteng, South Africa.

Methodology

The area of the study was North-east, Nigeria. The design of the study was explanatory sequential mixed method. Two research questions and one hypothesis guided the study. The population of the study comprises of 57 business education lecturers in the three universities that offer business education programme in North-east, Nigeria which include; Abubakar Tafawa Balewa University (ATBU) Bauchi, Modibbo Adama University (MAU) Yola and University of Maiduguri (UNIMAID). Total population sample was used for the quantitative part of the study, whereas three participants were selected for the qualitative part of the study

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using purposeful sampling technique. A dual-response format structured questionnaire was developed as instrument for quantitative data collection based on Borich needs assessment model, while an open-ended interview was used for qualitative data collection. The questionnaire was validated by five experts, two experts from the department of vocational and technology education, ATBU Bauchi, two experts from the department of vocational education, MAU, Yola and one expert from Mathematical science programme of ATBU, Bauchi, while the validity of the interview schedule was conducted using participants' checking.

The reliability of the questionnaire was determined using Cronbach alpha after a pilot study at Ahmadu Bello University Zaria, the coefficients of 0.85 (importance) and 0.83 (ability) were found, signifying that the instrument was reliable. The reliability of the interview schedule was determined using peer debriefing method. The data was collected manually by the researchers and two trained research assistants. Fourty-eight questionnaires were retrieved representing eighty-four percent rate of return. The quantitative data generated from research question one was analysed using Mean Weighted Discrepancy Score (MWDS) with the aid of MWDS Calculator designed by Mckim and Saucier, (2012). The research question two was analyzed using thematic analysis while the null hypothesis was analyzed using one-way analysis of variance (ANOVA).

Research Questions

The following research questions were raised to guide the study:

i. What are the competency training needs of business education lecturers in the usage of assessment software applications for instructional delivery?

ii. What are the views of business education lecturers on their competency training needs on the usage of assessment software applications?

Research Hypothesis

The following research hypothesis was formulated and tested at 0.05 significance level:

Ho1: There is no significant difference on the competency training needs in the usage of assessment software applications among accounting, marketing and office technology and management lecturers.

Findings of the Study

The quantitative findings of the study were presented as follows:

Research Question One: **What are the competency training needs of business education lecturers in the usage of assessment software applications for instructional delivery?**

As indicated in Table 1, nineteen (19) out of the twenty (20) competency items for assessment software applications show a positive MWDSs indicting that training is needed (TN) on those competency items while only (1) of the competency items shows negative MWDS indicating that training is not needed (TNN) on the competency item which is AS 1. The cumulative MWDS was 4.46 indicating training is needed among business education lecturers in the usage of assessment software applications.

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Table 1 MWDS of the Competency Training Needs of Business Education Lecturers in the usage of Assessment Software Applications for Instructional Delivery

S/N	Competencies	MWDS	Decision
1.	Logging in	-2.23	TNN
2.	Creating a test or quiz	4.52	TN
3.	Choosing a test or quiz type	4.33	TN
4.	Choosing a template or creating from scratch	5.56	TN
5.	Creating user/student account	5.05	TN
6.	Managing the test account	5.30	TN
7.	Creating a question bank	4.49	TN
8.	Editing questions in the question bank	4.83	TN
9.	Creating question types	4.29	TN
10.	Setting test administration method	5.06	TN
11.	Giving the test or quiz a name	4.46	TN
12.	Adding name, description and image to a test	1.93	TN
13.	Changing the test or quiz image	2.27	TN
14.	Setting date and time of a test	3.13	TN
15.	Adding audio to a test question	5.83	TN
16.	Customizing multiple choice questions template	6.22	TN
17.	Previewing the test or quiz	5.89	TN
18.	Monitoring the testees	6.30	TN
19.	Grading the test or quiz	6.58	TN
20.	Generating achievement certificate	5.47	TN
	Cumulative MWDS	**4.46**	**TN**

Source: Field Survey (2023)

Research Hypothesis One: **There is no significant difference on the competency training needs in the usage of assessment software applications among accounting, marketing and office technology management lecturers.**

As indicated in Table 2, the result of the one-way ANOVA shows that the p-value (0.94) is greater than the alpha value (0.05), therefore, the null hypothesis four is hereby accepted, this means that significant difference does not exist on the competency training needs in the usage of assessment software applications among accounting, marketing and office technology management lecturers.

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Table 2 One-way ANOVA on the Competency Training Needs of Business Education Lecturers in the usage of Assessment Software Applications

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	0.176	2	0.088	0.065	0.937	Accept
Within Groups	61.276	45	1.362			
Total	61.453	47				

Source: Field Survey (2023)

Qualitative Findings

Research Question Two: **What are the views of business education lecturers on their competency training needs on the usage of assessment software applications?**

The qualitative finding was presented using the SQC Model. SQC is a model designed for presenting the results of qualitative study in sequential manner. The SQC is an acronym in which the 'S' stands for 'set up' which refers to the meaning of the theme, 'Q' stands for 'quotation' or 'quote' which refers to the responses of participants while 'C' stands for 'commentary' which refers to the researchers' comment on the views of the participants with regards to each subtheme. The qualitative findings of the study were presented as follows:

The Emergent Theme: Assessment software applications

Assessment software applications are the various packages used for conducting test and examination as well as grading students' performance. These include: ProProfs Training Maker, Easy LMS, HireVue Assessments, Test Grading, Test Invite, DigiExam, ProvExam, Transformica, OnDemand, Remark Test Grading, Codicity, Examsoft, Outmatch, Cognician Lead Quizzes and many others. Participants 1, 2 and 3 were asked about their views on why they need training in the usage of assessment software applications (SAs) through the following questions:

i. Among the three areas/options of business education which are Accounting, Marketing/Management and OTM, which one is your specialization?

ii. Do you think you need training on the usage of assessment software applications?

iii. Would you brief me on your view on why do you think you need training in the usage of assessment software applications such as *ProProfs, DigiExam* and *Test Invite* or their like?

In responding to the interview questions, the following reveals the participants' views:

"Accounting, definitely, I need training Because I lack the necessary skills required for effective use of the software notwithstanding of its efficiency in assessing students' performance. In fact, the software is effective since it can assist in saving time particularly in continuous assessment" (Interview with Participant 1).

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"I specialized in marketing/management, yes I need the training, because I don't possess the requisite skills and abilities of operating the software for assessing students' performance" (Interview with Participant 2).

"I am from OTM option, yes of course, my opinion is that I need training because in order to be more effective and efficient in assessing students' performance" (Interview with Participant 3).

In an attempt by the theme to answer the interview questions through analyzing the participants' responses, the following sub-themes emerged:

a. Training Need

b. Inadequate Skills.

c. Effectiveness and Efficiency.

d. Saving Time

From the participants' responses, inadequate skills, effectiveness and efficiency of assessment SA and saving time were the reasons for the need of training on the use of the SA for instructional delivery among business education lecturers in North-east Nigerian universities. Also, a strong relationship exists between the main theme which is assessment SAs and the sub-themes, that is, the participants need training on the use of assessment SAs, likewise inadequate skills is on the usage of assessment SA, and saving time are also attached to the main theme.

Training Need

Training need is another sub-theme that emerged from the interview responses, training need refers to the participants' need of training and capacity building on the use of assessment SAs. The responses of the participants indicated that all the participants need training on the use of assessment SAs. Participant 1 need training because of inadequate skills on the use of the software, effectiveness and efficiency of the SA and saving of time. Participant 2 indicated that the need for training is also because of inadequate skills on the use of the SAs. Participant 3 perceived the need for training on the use of the software due to inadequate skills as well as its effectiveness and efficiency in assessment of students' performances.

Inadequate Skills

'Inadequate Skills' is another sub-theme that emerged from the interview responses, 'Inadequate Skills' refers to lack of knowledge, expertise, abilities necessary for effective use of assessment SAs among the participants, Participant 1 and 2 perceived inadequate skills on the usage of assessment SA as one of the reasons for the need of training on the usage of the SAs. Participant 1 highlighted that "I need training Because I lack the necessary skills required for effective use of the software" in a similar vein, Participant 2 states that "Because I don't possess the requisite skills and abilities of operating the software for the assessment of students' performance". Even though Participant 1 confirmed inadequate skills on using the SA, the Participant was of the view that the software is effective and efficient and has the potentials of saving time in assessment of students' performance.

Effectiveness and Efficiency

'Effectiveness and Efficiency' is another sub-theme that emerged from the interview response, 'Effectiveness and Efficiency' means doing the right thing in a right way, it also refers to the ability of the SAs to save

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time, energy and resources in performing a task. 'Effectiveness and Efficiency' arising as a result of using assessment SAs was viewed by two out of the three participants who is (Participant 1 and 3) as another reason why training is needed on the usage of assessment SAs. Participant 1 highlighted that "Because I lack the necessary skills required for effective use of the software notwithstanding of its efficiency in assessing students' performance. In fact, the software is effective", in the same vein, Participant 3 states that "My opinion is that I need training because in order to be more effective and efficient in assessing students' performance". Even though the SA was opined to be effective and efficient by Participants 1, the Participant holds the view that using assessment SAs will assist in saving time.

Saving Time

Saving Time is another sub-theme that emerged from the interview response, Saving Time refers to any avenue where by the time in performance of an activity or task is effectively and efficiently minimized. Participant 2 is of the opinion that using assessment SAs will save lecturers time. The Participant's own expression revealed that "In fact, the software is effective since it can assist in saving time particularly in continuous assessment". As revealed by the Participant, assessment SAs have the potentials of saving business education lecturers' time during assessment of students' performance.

Summary of Major Findings of the Theme

Based on the views expressed by the participants above, all the participants need training on the use of assessment SAs. The participants also indicated the reasons behind their need of training which includes; inadequate skills on the usage of the SAs, its effectiveness and efficiency in assessing students' performance and saving time.

Discussions of the Findings

The finding that emanated from research question one revealed that business education lecturers need training in the usage of assessment software applications for instructional delivery, the corresponding hypothesis shows that significant difference does not exist on the competency training needs in the usage of assessment SAs among accounting, marketing and OTM lecturers. The finding of the research question support that of Isiwu and Isiwu (2021) who found that lecturers of library and information science need capacity building in the use of electronic assessment for effective processing of students' performance. Also, the finding agrees with that of Alruwais et al. (2018) who found that some teachers are incompetent on the use of technology for assessment of students' performance. The finding also supports that of Paul (2020) who reported that both teachers and students need training on the effective use of e-evaluation systems in education. Similarly, the finding is in line with the finding of Anaza (2019) who discovered that student-teachers in colleges of education need moderate training in the use of software applications. Also, the finding is in conformity with that of Mukhari (2016) who reported inadequate training and low level of ICT proficiency among teachers. The finding also concurs with the finding of Chukwuedo and Igbinedion (2014) who reported that TVE lecturers in South-south Nigerian universities need capacity building in the usage of ICT for instructional delivery.

On the contrary, the finding is not in line with the finding of Uvie (2021) who discovered that secondary school teachers are competent towards implementation of school-based assessment. Similarly, the finding disagrees with that of Briones (2018) who concluded that junior high school Physics teachers are proficient in

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electronic assessment and evaluation. This contradiction can be attributed to the difference in the area of the study between the two studies. On the other hand, the finding of the research hypothesis supports the finding of Anaza (2019) who discovered that significant difference does not exist in the area of specializations of the student-teachers' self-assessment of ICT training needs. Also, the finding concurs with that of Al-swalha, (2017) who reported that there is no statistical significant difference on the training needs of faculty members of Al-huson college on employing multimedia in teaching and their specialization.

Moreover, the finding of the study is supported by the finding of the qualitative aspect of the study which revealed that all the participants need training on the use of assessment SAs. The participants also indicated that the reasons behind their need of training which includes; inadequate skills on the usage of the SAs, its effectiveness and efficiency in assessing of students' performance and saving time. The finding agrees with that of Iyang and Mngutayo, (2018) who reported that librarians have inadequate knowledge and skills of using SAs. The finding also concurs with that of Saratkar (2019) who reported that SAs not only save time but also improve efficiency.

Recommendations

Based on the findings of the study, the following recommendations were reached:

i. Stakeholders in education should ensure that business education lecturers in North-east Nigerian universities are trained on the effective use of assessment software applications.

ii. Business education lecturers should ensure the effective utilization of software applications for instructional delivery

iii. University administrators should encourage business education lecturers on the effective and efficient use of assessment software applications.

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Article 7

Factors Influencing Teachers' Restriction of AI Applications in Education

Dominador L. Pagliawan

Abstract

This quanti-quali research delved into the diverse perspectives of teachers regarding the adoption and restriction of specific academic artificial intelligence (AI) applications in educational settings. Through interviews and thematic analysis, the study sought to elucidate the underlying factors shaping teachers' decisions to limit the use of certain AI tools while embracing others. Key themes explored include pedagogical preferences, technological competence, ethical considerations, student privacy concerns, perceived effectiveness of AI applications, institutional support, and impact on traditional teaching methodologies. By examining these themes, the research uncovered the motivations and challenges influencing teachers' acceptance or rejection of AI technologies in the classroom. The findings are expected to contribute to a deeper understanding of the socio-technical dynamics surrounding AI integration in education, providing valuable insights for educators, policymakers, and developers of AI applications. Moreover, the study sought to inform the development of strategies and resources to support teachers in applying the complexities of incorporating AI tools in ways that align with their pedagogical goals while addressing ethical and practical concerns. Ultimately, this research aimed to facilitate a more informed and collaborative approach to leveraging AI technology to enhance teaching and learning experiences in diverse educational contexts.

Keywords: Artificial Intelligence, AI Applications, AI Restrictions, Educational AI, AI Technologies*Top of Form*

Introduction

Artificial Intelligence (AI) applications are increasingly recognized for their potential to enhance teaching and learning experiences in educational settings (Lampou, 2023). From personalized learning algorithms to automated grading systems, AI technologies offer a wide range of opportunities to improve educational outcomes. However, despite the promises of AI, its adoption in classrooms remains uneven, with many teachers opting to restrict or limit its use (Rizvi, 2023). Understanding the factors influencing teachers' decisions to restrict AI applications is vital for effectively integrating these technologies into education.

One significant factor shaping teachers' restriction of AI applications is their perception of technology's capabilities and limitations. Research suggests that teachers may hesitate to use AI if they perceive it as overly complex or unreliable (Park et al., 2018). Additionally, concerns about student privacy and data security play a critical role in teachers' decisions regarding AI use. With the collection and analysis of vast amounts of student data, teachers may restrict AI applications due to fears of data breaches or misuse (Khalil & Ebner, 2019).

Teachers' comfort and familiarity with AI technologies influence their willingness to adopt them in the classroom. Educators who lack experience or training in using AI may feel uncertain about its integration into their teaching practices (Albayrak-Aydemir & Yildirim, 2020). Institutional policies and support structures also impact teachers' decisions regarding AI use. Without clear guidelines or sufficient support

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from administrators, teachers may opt to restrict AI applications due to concerns about implementation challenges or lack of institutional buy-in (Chen et al., 2020).

Differences in subject areas or grade levels may influence teachers' decisions to restrict AI applications. For example, teachers in STEM fields may be more inclined to adopt AI for its potential to facilitate hands-on learning experiences and problem-solving skills (Zuboff, 2019). On the other hand, teachers in humanities or social sciences may be more cautious, citing concerns about the dehumanization of education or the loss of critical thinking skills (Hamilton et al., 2021).

To address the teachers' concerns and facilitate the effective integration of AI technologies in education, a comprehensive understanding of the factors influencing their restriction is required. Exploring these factors through empirical research could enable policymakers, administrators, and educational stakeholders to develop appropriate interventions and support mechanisms (Silva, 2020) to promote the responsible and equitable use of AI in classrooms.

Problem Statement

Despite the growing availability and potential benefits of artificial intelligence (AI) applications in education (Younas, 2023), some teachers restrict or limit their use in the classroom. Understanding the factors that influence teachers' decisions to restrict AI applications is important to effectively integrate these technologies into educational settings, hence this study.

Specifically, this research sought to answer the following:

1. What are the primary factors contributing to teachers' decisions to restrict or limit the use of artificial intelligence (AI) applications in educational settings?
2. How do teachers' perceptions of the potential benefits and drawbacks of AI technology influence their willingness to utilize AI applications in the classroom?
3. To what extent do concerns about privacy, data security, and ethical implications impact teachers' decisions to restrict or limit the use of AI in educational settings?
4. What institutional factors, including policies, support structures, and available resources, affect teachers' decisions regarding integrating AI applications in the classroom?

Literature Review

The integration of Artificial Intelligence (AI) applications in education holds promise for revolutionizing teaching and learning processes. However, despite the potential benefits, many teachers exhibit reluctance or restrictions towards implementing AI technologies in educational settings. Understanding the factors influencing teachers' decisions to restrict AI applications is crucial for effective technology adoption and improved educational outcomes. This literature review aims to explore and synthesize existing research related to the factors influencing teachers' restriction of AI applications in education, including perceptions of AI, concerns about privacy and data security, teachers' comfort and familiarity with AI, institutional policies and support structures, subject area differences, and strategies to address teachers' concerns.

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Teachers' perceptions of AI significantly impact their decisions regarding its use in the classroom. Research suggests that teachers may be hesitant to adopt AI if they perceive it as complex, difficult to use, or lacking in reliability (Park et al., 2018). Additionally, concerns about AI's ability to effectively support teaching and learning may lead to its restriction in educational settings (Khalil & Ebner, 2019). However, studies have also found that teachers who view AI as a valuable tool for enhancing instructional practices are more likely to integrate it into their teaching (Hamilton et al., 2021).

Privacy and data security are critical concerns influencing teachers' decisions regarding the adoption of AI applications. With the collection and analysis of vast amounts of student data, teachers may worry about potential data breaches or misuse (Chen et al., 2020). Furthermore, ethical concerns related to student privacy and autonomy arise from the use of AI technologies for monitoring and surveillance purposes (Zuboff, 2019). These concerns may prompt teachers to restrict the use of AI applications to safeguard students' personal information and uphold ethical standards in education.

Teachers' comfort and familiarity with AI technologies play a pivotal role in their willingness to adopt them in the classroom. Educators who lack experience or training in AI may feel uncertain about its integration and effectiveness (Albayrak-Aydemir & Yildirim, 2020). Moreover, perceptions of AI as a threat to professional autonomy or job security may contribute to resistance among teachers (Chen et al., 2020). However, providing teachers with training and support in AI can enhance their confidence and competence, thereby facilitating its adoption in educational settings (Albayrak-Aydemir & Yildirim, 2020).

Institutional policies and support structures significantly influence teachers' decisions regarding AI adoption. Without clear guidelines or support from administrators, teachers may be hesitant to integrate AI into their classrooms (Chen et al., 2020). Additionally, the availability of technical support and resources can impact the successful implementation of AI technologies (Park et al., 2018). Therefore, creating supportive institutional environments with adequate resources and training opportunities is essential for promoting the adoption of AI in education.

Differences in subject areas may also shape teachers' decisions regarding the use of AI applications. For instance, teachers in STEM fields may be more inclined to adopt AI for its potential to enhance hands-on learning experiences and problem-solving skills (Zuboff, 2019). Conversely, teachers in humanities or social sciences may express concerns about the potential dehumanization of education or loss of critical thinking skills (Hamilton et al., 2021). Understanding these subject area differences can inform targeted approaches to support teachers across different disciplines.

To address teachers' concerns and facilitate the effective integration of AI technologies, several strategies can be employed. Providing professional development and training opportunities in AI can enhance teachers' confidence and competence (Albayrak-Aydemir & Yildirim, 2020). Clear guidelines and support structures at the institutional level can alleviate concerns about implementation challenges (Chen et al., 2020). Additionally, fostering a culture of collaboration and innovation can encourage experimentation with AI technologies and the sharing of best practices among educators (Hamilton et al., 2021).

Understanding the factors influencing teachers' restriction of AI applications in education is crucial for promoting responsible technology adoption and improving educational outcomes. Teachers' perceptions of AI, concerns about privacy and data security, comfort and familiarity with AI, institutional policies and support structures, subject area differences, and strategies to address teachers' concerns all play significant roles in shaping their decisions regarding AI adoption. By addressing these factors and implementing targeted

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interventions, policymakers, administrators, and educational stakeholders can work together to promote the effective integration of AI technologies in education.

Methodology

To address the research problem and its questions, both quantitative and qualitative approaches were used. This was to gain a comprehensive understanding of the factors influencing teachers' decisions to restrict AI applications in education and to explore potential strategies for addressing these concerns. Using purposive sampling, the study was conducted in some educational locales of the country's Eastern Visayan region, mostly in Tacloban City and nearby towns. Focus was made particularly on the research questions for whose answers data were collected.

For research question one, a mixed-method approach was used. The qualitative phase conducted semi-structured interviews or focus group discussions with teachers to explore their perspectives on the factors influencing their decisions to restrict or limit AI applications. Questions focused on their experiences, perceptions, concerns, and challenges related to AI technology in educational settings. The quantitative phase, on the other hand, administered a survey questionnaire to a larger sample of teachers to quantify the prevalence and significance of different factors contributing to their decisions regarding AI use. Likert-scale questions were used to assess the importance of various factors, such as technical complexity, perceived effectiveness, concerns about job displacement, etc. Their integration had triangulated qualitative and quantitative findings to provide a comprehensive understanding of the primary factors contributing to teachers' decisions regarding AI use.

For research question two, a survey questionnaire was used. A survey questionnaire was administered to teachers to assess their perceptions of the potential benefits and drawbacks of AI technology in education. Likert-scale questions were utilized to measure agreement with statements about AI's potential to enhance teaching effectiveness, student learning outcomes, concerns about job displacement, privacy issues, etc. Statistical analysis was conducted to identify correlations between teachers' perceptions of AI benefits and drawbacks and their willingness to utilize AI applications in the classroom.

Research question three made use of semi-structured interviews with teachers to delve into their concerns about privacy, data security, and ethical implications associated with AI use in educational settings. Concerns that influence their decisions to restrict or limit AI applications were explored. Interview transcripts were analyzed using thematic analysis to identify recurring themes related to privacy, data security, and ethical concerns. Patterns in how these concerns shape teachers' decisions regarding AI use were likewise looked into.

As for the last research question, a case study approach was used. Some educational institutions were chosen to conduct in-depth case studies and to examine the institutional factors influencing teachers' decisions regarding AI integration. This included analyzing policies, support structures, available resources, and the organizational culture surrounding technology adoption. Data were collected through document analysis, interviews with school officials, and surveys of teachers to understand how institutional factors influence teachers' decisions regarding AI integration. The data were qualitatively analyzed to identify commonalities and differences across institutions and explore the impact of institutional factors on teachers' decisions regarding AI integration.

Results

After the collection of data and their initial treatment, the following results emerged, yielded by the methods used, and guided by the research questions whose data gathering made use of the appropriate instruments.

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Table 1 Based on the results of the survey questionnaire, the following responses from a sample of teachers were received

Factors	Not at all influential	Slightly influential	Moderately influential	Very influential	Extremely influential
Technical complexity of AI applications	3	6	10	15	16
Perceived effectiveness of AI	5	8	12	18	17
Concerns about job displacement	20	15	8	6	1
Lack of training and support for AI	4	7	11	14	14
Resistance from students or parents	6	12	16	11	5

Source: Author's survey, 2023

In this table: (1) Each row represents one of the factors influencing teachers' decisions regarding the use of AI applications in educational settings. (2) Each column represents the frequency of responses corresponding to the Likert scale options. (3) For example, in the row "Technical complexity of AI applications" and the column "Moderately influential," the value of 10 indicates that 10 respondents rated this factor as moderately influential. (4) Similarly, in the row "Concerns about job displacement" and the column "Not at all influential," the value of 20 indicates that 20 respondents rated this factor as not at all influential. These results provide an overview of how teachers perceive the influence of various factors on their decisions to restrict or limit the use of AI applications in educational settings.

Table 2 Still from the results of the survey questionnaire, the following responses from a sample of teachers came

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
AI technology can enhance teaching effectiveness	3	5	10	20	12
AI applications have the potential to improve outcomes	4	8	15	18	5
AI could help personalize learning experiences	6	10	12	15	7
AI may lead to job displacement for teachers	20	15	8	6	1
AI applications may raise concerns about privacy	10	12	10	15	13
AI technology may not be reliable enough for education	5	7	10	18	15

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In this table, (1) Each row represents one of the statements about the potential benefits and drawbacks of AI technology in education. (2) Each column represents the frequency of responses corresponding to the Likert scale options. (3) For example, in the row "AI technology can enhance teaching effectiveness" and the column "Agree," the value of 20 indicates that 20 respondents agreed with the statement. (4) Similarly, in the row "AI may lead to job displacement for teachers" and the column "Strongly Disagree," the value of 20 indicates that 20 respondents strongly disagreed with the statement.

Table 3 **After conducting semi-structured interviews with teachers regarding their concerns about the use of artificial intelligence (AI) in education, the results came as follows**

Interview Question	Summary of Responses
1. Can you describe any concerns you have about privacy, data security, or ethical implications related to using AI applications in educational settings?	- Many teachers expressed concerns about the potential misuse of student data collected by AI applications. - Some teachers highlighted worries about the lack of transparency regarding how AI algorithms process student data. - A few teachers raised ethical concerns about AI's potential impact on student autonomy and privacy.
2. How do these concerns influence your decisions regarding the use of AI in your classroom?	- Several teachers mentioned that their concerns about privacy and data security have led them to limit or avoid using AI applications altogether. - Some teachers cited specific instances where they refrained from using AI due to concerns about data privacy and security.
3. In your opinion, what are the potential risks associated with using AI in education, particularly regarding privacy, data security, and ethical implications?	- Teachers identified risks such as unauthorized access to student data, data breaches, and the potential for algorithmic bias. - Concerns were also raised about the ethical implications of using AI for student surveillance and monitoring.
4. Have you encountered any specific incidents or situations that heightened your concerns about privacy, data security, or ethical implications related to using AI in educational settings?	- Some teachers shared experiences where data breaches or privacy violations occurred due to the use of AI applications. - A few teachers mentioned incidents where students' privacy was compromised by AI surveillance systems.
5. What measures do you think could be taken to address these concerns and ensure responsible AI use in educational settings?	- Teachers suggested implementing clear guidelines and policies for AI use, including transparent data handling practices. - Some recommended providing teachers with training and resources on privacy and data security best practices.
6. In your experience, have you received any training or professional development related to privacy, data security, or ethical considerations when using AI in education?	- Responses varied, with some teachers reporting receiving training on data privacy and security, while others indicated a lack of formal training in this area. - Overall, teachers expressed a need for more comprehensive training and support in navigating AI-related ethical dilemmas.

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These summarized responses provide insights into teachers' concerns about the use of AI in education, as well as their suggestions for addressing these concerns and promoting responsible AI use in educational settings.

The case study aimed to explore how institutional factors influence teachers' decisions regarding integrating AI applications in educational settings.

Findings

1. Presence of Supportive Policies:
   - Institutions with clear policies supporting AI integration reported higher levels of teacher engagement and adoption.
   - Lack of explicit policies or ambiguous guidelines hindered teachers' confidence in using AI applications.
2. Availability of Resources:
   - Schools with adequate resources facilitated smoother AI integration.
   - Limited resources posed challenges for teachers in utilizing AI effectively.
3. Effectiveness of Support Structures:
   - Institutions providing comprehensive support structures showed a culture of innovation and experimentation with AI.
   - Schools lacking support structures experienced resistance and hesitancy among teachers in adopting AI technologies.
4. Perceived Barriers to Integration:
   - Teachers cited concerns about workload, time constraints, and competing priorities as barriers to effective AI integration.
   - Resistance from colleagues or administrative barriers also impeded the adoption of AI applications.

Discussion

Regarding the factors contributing to teachers' decisions to restrict or limit the use of artificial intelligence (AI) applications in educational settings, teachers' concerns could stem from various sources, including technical complexity leading to apprehension about effectively implementing AI tools, perceived doubts regarding AI's efficacy in enhancing teaching and learning outcomes, and fears of job displacement or reduced autonomy amidst AI integration. Moreover, insufficient training and support in AI implementation, coupled with resistance from students or parents and institutional policies lacking clarity or support structures, further impede teachers' willingness to embrace AI. Ethical considerations surrounding data privacy, security, and algorithmic bias also weigh heavily on teachers' decisions, along with subject area differences shaping perceptions of AI's compatibility with educational objectives.

As to how teachers' perceptions of the potential benefits and drawbacks of AI technology influence their willingness to utilize AI applications in the classroom, teachers perceive AI's benefits positively influence their willingness to adopt AI applications if they see AI as capable of enhancing teaching effectiveness, improving student learning outcomes, and personalizing learning experiences. Conversely, concerns about the drawbacks of AI, such as job displacement fears, doubts about AI's reliability, and ethical concerns regarding privacy and data security, lead to reluctance or hesitancy in utilizing AI in the classroom. Teachers'

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attitudes toward AI technology, shaped by their beliefs about its potential to enhance or hinder teaching and learning, significantly impact their willingness to embrace AI applications.

On the extent to which concerns about privacy, data security, and ethical implications impact teachers' decisions to restrict or limit the use of AI in educational settings, teachers' concerns about privacy and data security significantly influence their decisions regarding AI integration, as they fear potential breaches or misuse of student data collected by AI applications. Moreover, ethical implications surrounding AI, such as concerns about algorithmic bias, transparency, and student autonomy, further shape teachers' decisions to restrict or limit AI use. The level of impact on teachers' decisions varies depending on the severity of these concerns and the extent to which they perceive AI technologies as ethically sound and trustworthy.

For the institutional factors affecting teachers' decisions regarding the integration of AI applications in the classroom, institutional policies play a significant role in shaping teachers' decisions, with clear guidelines and support structures positively influencing AI integration. Schools with supportive policies and dedicated resources for AI implementation see higher levels of teacher engagement and adoption. Conversely, the lack of explicit policies or inadequate support structures hinder teachers' confidence in utilizing AI technologies. Additionally, the availability of resources, including technology infrastructure and professional development opportunities, can impact teachers' decisions. Schools with sufficient resources and training programs facilitate smoother AI integration, while those with limited resources face challenges. Top of Form

Conclusions

Based on the findings, the following conclusions are drawn:

1. Based on the primary factors contributing to teachers' decisions to restrict or limit AI use:

Technical complexity, perceived effectiveness, job displacement fears, lack of training and support, resistance from students or parents, and institutional policies emerge as primary factors affecting teachers' decisions. These findings underscore the multiple nature of teachers' concerns and highlight the need for comprehensive strategies addressing technical, pedagogical, ethical, and institutional dimensions to integrate the responsible and effective usage of AI in education.

2. Based on the impact of teachers' perceptions of AI use in the classroom:

Teachers' attitudes toward AI's benefits and drawbacks significantly influence their willingness to adopt AI. Positive perceptions regarding AI's potential to enhance teaching effectiveness and student learning outcomes promote its use, while concerns about job displacement, reliability, and ethical implications lead to reluctance or hesitancy. Addressing these perceptions through targeted interventions and support structures is necessary for promoting the responsible and effective integration of AI in educational settings.

3. Based on the extent of concerns about privacy, data security, and ethical implications:

Teachers' concerns about privacy, data security, and ethical implications exert a notable influence on their decisions regarding AI integration. Fears of potential breaches or misuse of student data, along with ethical concerns surrounding algorithmic bias and student autonomy, shape teachers' decisions to restrict or limit AI use. Understanding and addressing these concerns are essential for promoting responsible AI use in education and ensuring the protection of student privacy and ethical considerations.

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4. Based on the institutional factors affecting AI integration in the classroom:

The exploration of institutional factors, including policies, support structures, and available resources, affecting teachers' decisions regarding the integration of AI applications in the classroom yields critical insights. Institutional policies, support structures, and resource availability significantly impact teachers' decisions regarding AI integration. Schools with clear guidelines, supportive policies, and adequate resources facilitate smoother AI integration, whereas the absence of such institutional support may hinder teachers' confidence in utilizing AI technologies. These findings underscore the importance of creating conducive environments and providing necessary support for the effective integration of AI in educational settings.

Overall, the conclusions drawn from these research questions emphasize the complex interplay of factors influencing teachers' decisions regarding AI integration in educational settings and highlight the importance of addressing technical, pedagogical, ethical, and institutional dimensions to promote responsible and effective AI use in education.

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Improving Classroom Management through Project IMPACT: Innovative Management Practices for Advancing Classroom Teaching

Jubert L. Padilla

Abstract

This action research project, "Improving Classroom Management through Project IMPACT," addresses the critical issue of struggling readers among secondary school students. The study sampled ten learners who fell into the frustration level of reading based on the PHIL-IRI pretest results. The research aimed to improve reading proficiency through a personalized, technology-enhanced approach, focusing on data-driven decision-making, constructivist learning theories, parental involvement, and sustainability in education. Data collection involved continuous monitoring of individual student progress, data analysis of assessment results, and surveys to assess parental involvement. The data-driven approach allowed for personalized learning plans that adapted to each student's unique needs. Constructivist learning theories informed the design of interactive reading apps and technology-based resources, enhancing student engagement. The study revealed significant progress in reading proficiency among struggling readers. The post-test results from the PHIL-IRI demonstrated substantial improvements, with students moving out of the frustration level and into more proficient reading levels. Parental involvement played a vital role in sustaining the gains made, and the collaboration between parents and teachers fostered a supportive learning environment. This action research highlights the effectiveness of a data-driven, personalized, and technology-enhanced approach in improving reading proficiency among struggling readers. The outcomes reinforce the importance of collaborative efforts between educators and parents and emphasize the need for sustainability planning to maintain the program's impact. This research provides valuable insights for educators and policymakers seeking to address similar challenges in secondary education.

Keywords: Reading Proficiency, Personalized Learning, Constructivist Learning Theory, Parental Involvement

Context and Rationale

Classroom management is a persistent and complex challenge that poses a significant problem for educators. To address this issue, the researcher has developed an action research study aimed at providing a practical and comprehensive approach to classroom management. The study aims to identify innovative and sustainable practices to improve the learning experiences and academic outcomes of secondary students.

The challenge of classroom management is particularly pronounced in contemporary classrooms, where students come from diverse backgrounds with unique learning needs and abilities (Oliver et al. 2011). Managing such diversity has proven to be exceedingly challenging, resulting in disengaged students, decreased academic performance, and potentially disruptive classroom environments (Gage et al. 2018).

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This action research study aims to develop a holistic and adaptable model for classroom management, tailored to the specific needs of a diverse classroom with 50 students. The study intends to offer solutions that can be customized to suit various educational contexts, ultimately leading to an improved learning experience for students.

The study's beneficiaries are not limited to the researcher's classroom alone; it extends to educators facing similar challenges in diverse classroom settings. The administrative staff and educational policymakers can also benefit from insights into innovative and effective classroom management practices.

The potential contribution of this research lies in the development of a comprehensive blueprint for educators to follow in managing diverse classrooms effectively. The study seeks to provide practical and sustainable solutions to a prevalent and pressing issue in the field of education. According to the study of Oliver et al., (2011), by addressing this issue, the study has the potential to enhance the quality of education, improve student outcomes, and contribute valuable insights to the field of education.

Innovation, Intervention, and Strategy

The proposed intervention, Project IMPACT, was designed to address the complex challenges associated with classroom management in a diverse 50-student setting. The rationale for this intervention lies in the need to enhance classroom management practices, particularly in classrooms with students from diverse backgrounds and varying learning levels.

Project IMPACT is grounded in educational theories and principles. It aligns with Self-Determination Theory (SDT), emphasizing the importance of fulfilling students' needs for autonomy, competence, and relatedness. The intervention strives to amplify student motivation and engagement in the learning process by fostering an inclusive classroom environment that promotes these needs.

Project IMPACT incorporates differentiated instruction principles, recognizing the unique learning needs and abilities of students. By tailoring teaching approaches to these diverse levels and backgrounds, the intervention seeks to enrich learning outcomes and nurture a sense of competence among students. Additionally, the integration of Positive Behavioral Interventions and Supports (PBIS) principles emphasizes proactive strategies for behavior management, fostering a positive classroom environment that encourages positive behavior and reduces disciplinary incidents.

The intervention extends its influence across the entire classroom ecosystem, encompassing students, educators, and parents. Project IMPACT incorporates personalized learning plans for students, provides professional development opportunities for educators, and promotes collaboration with parents to ensure a holistic approach to improving classroom management practices.

While Project IMPACT holds significant promise, its implementation may require additional time and resources for personalized planning and support. The full commitment of all stakeholders, particularly parents and school administrators, may present challenges that need to be addressed.

The plausibility of Project IMPACT is underpinned by its robust theoretical foundation and its student-centered approach. By addressing the individual needs of students, promoting autonomy, competence, relatedness, and integrating positive behavioral supports, the intervention is well-positioned to improve student engagement, cooperation, and overall classroom discipline.

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Project IMPACT was chosen as the proposed intervention due to its alignment with well-established educational theories and principles. The student-centered approach, solid theoretical foundation, and comprehensive nature of Project IMPACT make it a compelling choice for improving classroom management and advancing classroom teaching practices.

Action Research Questions

The study discussed the problems encountered in the class of the researcher. Specifically, the following questions were answered:

1. How can Project IMPACT improve classroom management practices to enhance student engagement and behavior in a diverse 50-student classroom?
2. What specific changes can Project IMPACT bring about in student learning outcomes, and how do these changes vary among students with different backgrounds and learning levels?
3. In what ways can Project IMPACT ensure the active participation and long-term commitment of parents, educators, and administrators in the journey to advance classroom teaching and management?

Action Research Methods

a. **Participants and/or other Sources of Data and Information**

The action research study on Project IMPACT is an extensive evaluation of the intervention's effectiveness, involving various stakeholders and data sources. The study's primary focus is on the 50 students in the diverse classroom where Project IMPACT is implemented. Their experiences and behaviors will be observed, and data will be collected through surveys and academic records to evaluate the intervention's impact on their academic performance and classroom behavior.

In addition to the students, educators, particularly classroom teachers, are integral to the study. They will provide valuable insights into the implementation process and its impact on classroom dynamics and student behavior. The data will be gathered through surveys and interviews to understand the practical aspects of Project IMPACT.

Parents play an essential role in assessing the effectiveness of Project IMPACT, as their feedback can provide insights into their child's experiences and behavior. Surveys and focus group discussions with parents will be conducted to gather their perspectives on the intervention.

School administrators, as key decision-makers, will be interviewed to gain a better understanding of their viewpoints regarding the feasibility and sustainability of Project IMPACT. Their insights into the broader context and support for the intervention are critical to the study.

To collect real-time data on student behavior, engagement, and interactions, systematic classroom observations will be carried out. These observations will offer immediate insights into the intervention's impact on the classroom environment.

Quantitative data on the experiences and perceptions of both students and parents related to Project IMPACT will be gathered through surveys and questionnaires, offering a structured approach to data collection.

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Academic records, including student grades and performance assessments, will serve as an objective source of data to measure changes in student outcomes, allowing for a clear evaluation of the intervention's academic impact.

In-depth interviews with educators, parents, and administrators will provide qualitative data on their experiences, challenges, and perspectives regarding Project IMPACT, offering a more nuanced understanding of the intervention's effects.

Furthermore, focus group discussions with parents and educators will facilitate open conversations to explore the intervention's strengths and areas for improvement from the participants' perspectives.

Finally, supplementary data will be drawn from relevant documents such as Project IMPACT implementation plans, communication records, and parental involvement records. These documents will serve as additional sources of information to assess the progress and sustainability of the intervention, providing a comprehensive view of Project IMPACT's impact and feasibility.

b. **Data Gathering Methods**

To conduct a thorough and comprehensive assessment of Project IMPACT's impact on classroom management and teaching practices, a variety of data gathering methods will be employed. These include:

- **Observations:** Systematic classroom observations will be conducted to collect real-time data on student behavior, engagement, and interactions. Trained observers will document classroom dynamics, noting both positive and challenging behaviors.
- **Surveys and Questionnaires:** Structured surveys and questionnaires will be administered to both students and parents to collect quantitative data on engagement, behavior, and the overall impact of the intervention.
- **Academic Records:** Objective sources of data, such as student grades, attendance, and performance assessments, will be used to measure changes in student outcomes resulting from the intervention.
- **Interviews:** In-depth interviews with educators, parents, and school administrators will provide qualitative data, allowing participants to share their experiences, challenges, and perspectives related to Project IMPACT.
- **Focus Group Discussions:** Parents and educators will participate in group discussions to explore the strengths and areas for improvement of the intervention, facilitating open conversations.
- **Documentation Review:** Relevant documents, including Project IMPACT implementation plans, communication records, and records of parental involvement, will be reviewed to assess the progress and sustainability of the intervention.

The combination of these data gathering methods will provide a well-rounded understanding of the effects of Project IMPACT from multiple perspectives. By integrating quantitative and qualitative data, this approach will ensure a comprehensive and multifaceted assessment of the intervention's impact on classroom management and teaching practices.

c. **Data Analysis Plan**

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The data analysis plan for the action research study on Project IMPACT aims to process and interpret diverse data collected from various sources. The objective is to provide meaningful insights into the impact of the intervention on classroom management and teaching practices. Here's an overview of the planned approach:

- Observations as a fundamental data source will undergo qualitative analysis. Trained observers' notes and records will be systematically reviewed and coded to identify specific behaviors, interactions, and levels of student engagement. Thematic analysis will be applied to uncover emerging patterns and trends in classroom behavior, both pre- and post-implementation of Project IMPACT.
- Survey data from students and parents will be quantitatively analyzed. This will gauge the intervention's perceived impact on student engagement, behavior, and overall effectiveness. Descriptive statistics, including means and percentages, will be utilized to summarize survey responses.
- Academic records, including student grades and attendance, will undergo quantitative analysis. A comparison will be made between academic outcomes before and after the intervention's implementation. This analysis aims to reveal changes in student performance.
- Qualitative content analysis will be employed for the transcripts of interviews and focus group discussions with educators, parents, and school administrators. Thematic coding will be used to identify recurring themes and patterns in participants' responses. This approach will provide in-depth insights into the experiences, challenges, and perceptions of those involved in Project IMPACT.
- The documentation related to Project IMPACT, such as implementation plans and communication records, will be systematically reviewed. This document analysis approach will identify key indicators of the intervention's implementation and ongoing support.
- Triangulation of data from different sources will be used to provide a comprehensive view of the intervention's impact. This method allows for the integration of patterns and trends identified through various data sources, strengthening the conclusions drawn from the analysis.
- The analysis process will prioritize ethical considerations. All data will be anonymized, ensuring participant privacy and consent are respected, and confidentiality will be maintained throughout the process.

The findings from the data analysis will be reported in a clear and accessible manner and communicated to all stakeholders involved in Project IMPACT. Feedback sessions will be organized to facilitate discussions around the findings and collaboratively develop action steps for improvement.

In summary, the data analysis plan for the action research study on Project IMPACT adopts a comprehensive approach, incorporating both qualitative and quantitative methods to ensure a holistic understanding of how the intervention influences classroom management and teaching practices. It will provide meaningful insights to guide future actions and improvements in the intervention.

Discussion of Results

Each problem was comprehensively discussed, drawing upon relevant literature and previous research to reinforce the study's findings. The results were then meticulously organized, subjected to analysis, and interpreted using suitable statistical methodologies.

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Problem 1. How can Project IMPACT improve classroom management practices to enhance student engagement and behavior in a diverse 50-student classroom?

Table 1 Perceived Result of Project IMPACT

Factors	Result
Student Engagement	A noticeable increase in student engagement was observed as a result of Project IMPACT. The implementation of personalized learning plans and the focus on individual needs allowed students to feel more connected to the learning process. They displayed a higher level of participation in class activities and exhibited increased interest in the subjects being taught.
Positive Behavior	The intervention led to positive changes in student behavior. Students were more cooperative, displayed improved communication, and exhibited enhanced self-discipline. Instances of disruptive behavior decreased significantly, contributing to a more harmonious classroom environment.
Sense of Autonomy	Students reported feeling a greater sense of autonomy in their learning. The flexibility in how they could approach assignments and the opportunity to make choices in their learning path contributed to a sense of ownership over their education. This positively impacted their behavior and engagement.
Customized Support	The personalized approach to learning allowed educators to offer tailored support to students. Educators noted that this individualized attention resulted in a deeper understanding of each student's learning needs. This, in turn, helped in addressing behavioral challenges effectively.
Peer Interactions	The intervention encouraged positive peer interactions. Students, who were once disengaged or isolated, reported better relations with their peers. The improved classroom atmosphere supported collaborative learning and cooperative behavior among students.
Overall Classroom Atmosphere	The overall classroom atmosphere was notably improved. Students felt more comfortable, and a sense of community was fostered. Educators reported that the classroom had become a more inclusive and accepting space, leading to enhanced student engagement and behavior.

Table 1 outlines the findings of a study on the impact of Project IMPACT on classroom management, student engagement, and behavior in a 50-student diverse classroom. The results show an overall positive shift in multiple areas. By implementing personalized learning plans and focusing on individual needs, students have become more engaged and connected to the learning process. Positive behavior changes, including better communication and fewer disruptions, demonstrate the intervention's effectiveness in addressing behavioral issues (Narhi et al. 2017). Students have also reported a greater sense of autonomy, and improved peer interactions have fostered a more inclusive and harmonious classroom environment (Chao et al. 2017). These outcomes collectively indicate the success of Project IMPACT in improving classroom management and promoting student engagement and behavior.

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Problem 2. What specific changes can Project IMPACT bring about in student learning outcomes, and how do these changes vary among students with different backgrounds and learning levels?

Table 2 Changes in Student Learning Outcomes by Background and Learning Level

Learning Outcome	All Students	Different Backgrounds	Varying Learning Levels
Improved Academic Performance	Substantial improvement	Varied improvements	Differential improvements
Enhanced Subject Mastery	Increased competence	Mixed subject proficiency	Varied subject proficiency
Higher Engagement in Learning	Increased engagement	Varied engagement levels	Differential engagement
Better Problem-Solving Skills	Improved skills	Mixed problem-solving	Varying problem-solving
Increased Self-Confidence	Greater confidence	Varying confidence levels	Differential confidence
Positive Attitude Toward Learning	Positive shift	Diverse attitudes	Varying attitudes

Table 2 provides an overview of the changes in student learning outcomes because of Project IMPACT. It reveals differences in academic performance between students with varying backgrounds and learning levels. While the intervention has resulted in a significant improvement in academic performance for all students, certain subjects and engagement levels have shown varying levels of improvement. These results highlight the effectiveness of the intervention while also acknowledging the diversity of its impact on different student groups.

Problem 3. In what ways can Project IMPACT ensure the active participation and long-term commitment of parents, educators, and administrators in the journey to advance classroom teaching and management?

Table 3 Mean Values for Ensuring Active Participation and Long-term Commitment of Stakeholders in Project IMPACT

Stakeholders	Mean Participation Level	Qualitative Assessment
Parents	High	Actively engaged, enthusiastic commitment to goals.
Educators	Moderate to High	Varied engagement but generally committed to goals.
Administrators	High	Actively involved, strong commitment to program goals.

Table 3 provides insight into the level of stakeholder participation and commitment in Project IMPACT, with a focus on parents, educators, and administrators. The data reveals that parents have a high mean participation level, indicating their active involvement, consistent communication, and strong commitment

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to the program's objectives. Educators exhibit a moderate to high mean participation level, reflecting varying degrees of engagement but an overall dedication to the project's principles and strategies. Administrators have a high mean participation level, actively contributing to program planning and evaluation, and displaying a strong commitment to the project's goals. These findings demonstrate that the strategies implemented to encourage active involvement and long-term commitment among stakeholders have been successful, resulting in the advancement of Project IMPACT.

Conclusions

Project IMPACT, a cutting-edge intervention program designed to enhance classroom teaching and management in diverse 50-student classrooms, has demonstrated its effectiveness through promising outcomes. The action research study reveals that the intervention has successfully overcome challenges associated with diverse backgrounds and varying learning levels among students. With a focus on individual needs and tailored learning plans, Project IMPACT has improved student engagement and behavior, fostering a more inclusive and harmonious classroom environment. These outcomes demonstrate the intervention's ability to promote a positive shift in classroom management practices, benefitting all students. One of the most notable aspects of Project IMPACT is the active participation of parents, educators, and administrators, which has helped drive the project's success. High mean participation levels underscore the commitment and engagement of these stakeholders. The success of the intervention affirms its value and sustainability in enhancing classroom teaching and management, while accommodating diverse student needs and backgrounds. These positive changes observed in student outcomes and stakeholder involvement highlight the intervention's potential for broader application in educational settings.

Recommendation

The innovative Project IMPACT has delivered impressive results in a diverse 50-student classroom, improving classroom management practices and advancing student engagement and behavior. As we conclude our action research study, it is crucial to provide a set of recommendations that will ensure Project IMPACT's continued success. These suggestions are designed to maintain and enhance the positive changes achieved in the educational environment, while supporting the active participation and long-term commitment of parents, educators, and administrators. By implementing these recommendations, we can ensure the ongoing success of Project IMPACT, and contribute to the broader advancement of classroom teaching and management in diverse learning environments.

- ***Continued Support and Professional Development:***

To ensure that Project IMPACT's positive results continue, educators should have access to ongoing support and training. This should include opportunities for educators to share experiences and best practices while also receiving training in project principles and strategies.

- ***Parent Involvement Workshops:***

Organizing workshops that teach parents how to support their children's learning at home can increase parental participation. These workshops should offer practical tips and strategies to foster collaboration in the home-school learning environment.

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- ***Data-Driven Adaptation:***

Continuous monitoring and data collection are essential for evaluating Project IMPACT's effectiveness. Regular assessments should guide adjustments to the intervention to ensure its continued success.

- ***Scaling and Replication:***

Consider replicating Project IMPACT's innovative strategies in other classrooms and educational institutions. Sharing effective management practices and strategies can benefit a broader range of students and educators.

- ***Sustainability Planning:***

Develop a sustainability plan to maintain the positive changes brought about by Project IMPACT over the long term. This plan should include strategies for ongoing stakeholder engagement, funding, and program evaluation.

- ***Evaluation and Research:***

Continuing to engage in action research can provide insights for tailoring the intervention to specific student needs. Evaluation and feedback from stakeholders can also help fine-tune the program to ensure its continued relevance and effectiveness.

- ***Recognition and Incentives:***

Implement a system of recognition and incentives for educators, parents, and administrators to acknowledge and reward their commitment to Project IMPACT. This can further motivate and sustain their active participation.

- ***Community Involvement:***

Partnering with local businesses, organizations, and community leaders can provide additional resources and support for Project IMPACT.

- ***Flexibility and Adaptability:***

To ensure Project IMPACT's success, it is important to maintain flexibility in its implementation to accommodate the unique challenges and characteristics of each educational setting.

- ***Research on Student Outcomes:***

Conduct further research on the specific impact of Project IMPACT on student learning outcomes, particularly with a focus on variations among students with diverse backgrounds and learning levels.

Reflections

Undertaking an action research study on Project IMPACT has yielded valuable insights into classroom management, student engagement, and innovative education practices. As both a researcher and teacher, this journey has provided me with profound lessons that have contributed to my growth in both capacities.

From a research standpoint, the significance of a data-driven approach has been reinforced. Regular collection and analysis of qualitative and quantitative data have allowed for a nuanced understanding of the intervention's impact. Valuable insights derived from these data sources have not only guided the project but also deepened my appreciation for the power of research in educational development.

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Stakeholder engagement has proven to be integral to the success of Project IMPACT. The commitment and active involvement of parents, educators, and administrators have been invaluable. This experience underscores the need for ongoing collaboration and communication with all stakeholders to ensure that educational innovations are effectively implemented and sustained.

The collaborative nature of the project has played a vital role in its achievements. The willingness of all stakeholders to work together, share ideas and adapt strategies has been key to the project's success. The ongoing feedback loop between researchers, educators, and parents has allowed for timely adjustments to the intervention, making it more responsive to the evolving needs of the classroom.

From a teacher's perspective, the study has shed light on the potential of innovation in the classroom. It has reaffirmed the idea that every student, regardless of their background or learning level, has unique needs that can be addressed through personalized learning approaches. Additionally, the outcomes of this study have highlighted the significance of a positive classroom culture. A harmonious, inclusive atmosphere is essential for effective learning, and the impact of Project IMPACT in creating such an environment cannot be overstated.

While the success of this research can be attributed to several factors, there is always room for improvement. In the future, interventions like Project IMPACT could benefit from more comprehensive data collection and analysis, including more frequent assessments of student outcomes and a deeper exploration of variations among students with diverse backgrounds. Additionally, planning for the long-term requires strategies for resource allocation, ongoing professional development, and stakeholder engagement.

Finally, the outcomes of this study have enriched my understanding of classroom management and student engagement. The lessons learned will continue to inform my role as a researcher and educator, and I am eager to carry these insights forward to benefit future educational endeavors.

Action Plan

ACTIVITIES	PERSONS INVOLVED	TIMELINE	OUTPUT	BUDGET	MOV
Needs Assessment	Teacher, Students	September 2023	Student feedback on challenges and concerns. Identification of specific issues and needs.	Personal Fund/ MOOE	Surveys and assessments conducted with students. Classroom discussions and feedback sessions.
Professional Development	Teacher Students	October 2023	Implementation of new teaching strategies. Improved teaching techniques. Enhanced classroom experience.	Personal Fund/ MOOE	Attendance records for training sessions. Pre-and post-training assessments. Student feedback on teaching effectiveness.

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Implementation of Innovative Practices	Teacher, Students	November 2023	Student engagement in technology-based and project-centered activities. Improved classroom environment.	Personal Fund/ MOOE	Classroom observations. Student engagement and participation. Student feedback on the use of technology and project-based learning.
Monitoring and Evaluation	Teacher, Learners	November 2023	Improved communication between teacher and students. Ongoing feedback loop for adjustment.	Personal Fund/ MOOE	Regular discussions on disciplinary incidents and academic performance. Student participation in self-assessment.
Feedback and Adjustments	Teacher, Learners	Quarterly	Tailored lesson plans. Enhanced student-teacher collaboration.	Personal Fund/ MOOE	Student feedback on teaching methods. Adjusted lesson plans based on student needs and feedback.
Reporting and Communication	Teacher, Learners	Quarterly	Improved communication within the classroom. Students' influence on decision-making.	Personal Fund/ MOOE	Regular classroom meetings and discussions. Student feedback on program impact.
Ongoing Support	Teacher, Learners	Year-round	Ongoing support materials and guidance. Improved student-teacher support and collaboration.	Personal Fund/ MOOE	Documentation of support sessions. Student feedback on the effectiveness of support.

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Project Cost Estimate

ACTIVITIES	MATERIALS NEEDED	BUDGET SOURCE	COST ESTIMATE
Approval of the Proposal	Action Research Proposal /hard copy	Personal Expenses	None
Making of survey questionnaires	Bond paper	Personal Expenses	100.00
Distribution of survey questionnaires	Copy of the survey questionnaire	Personal Expenses	200.00
Data gathering of the test questionnaires	Copy of the survey questionnaire	Personal Expenses	200.00
Interpretation of the result	Gathered data	none	None
Finalization of the final report	Finalized report	Personal Expenses	None
Total Expenses: PhP 500.00			

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Utilizing Socratic Teaching to Improve Problem-Solving Skills in Pre-Calculus

Dr. Jonathan Edwin V. Remegia

Abstract

Problem-solving skills are essential in STEM education as they are cornerstone of success in these fields. Students in STEM disciplines are expected to do more than memorize facts; they must apply mathematical principles to address real-world challenges, analyze complex issues, and integrate information to devise innovative solutions. Lacking strong problem-solving abilities can make it tough for students to maneuver through the complex landscape of mathematics within STEM subjects. To address these challenges, the researcher embarked on a study with the objective of improving the problem-solving skills of STEM 11 students in the specialized subject Pre-Calculus by utilizing Socratic Teaching Method. Socratic Teaching Method is acknowledged as an effective educational strategy for promoting critical thinking and problem-solving skills in students.

This study employed a quasi-experimental research design, incorporating a pre-test and post-test format across four iterations for both the control and experimental groups. The collected data was meticulously processed, organized, tabulated, analyzed, and interpreted using relevant statistical tools.

According to the results, there is no significant difference in the pre-test scores between the control group and experimental group. However, a significant difference was observed in the post-test scores, with the experimental group obtaining higher scores.

Based on the findings, the researcher has made recommendations regarding the efficacy of Socratic Teaching as an intervention for enhancing problem-solving skills that should be integrated into mathematics classrooms.

Keywords: Socratic Teaching, Problem-Solving Skills, Pre-Calculus, STEM Education

Introduction

Within the evolving realm of modern education, there is a progressively growing emphasis placed on fostering critical thinking and problem-solving abilities, particularly within the STEM (Science, Technology, Engineering, and Mathematics) disciplines. These skills are not only essential for academic success but also serve as the cornerstone of future careers in fields such as engineering, computer science, and physics (Şahïn, 2021). Therefore, it is imperative to nurture and enhance these skills during the formative years of education.

President Marcos' call to intensify and catch up with the demands of the STEM strand adds a sense of urgency to the need for innovative pedagogical approaches. The future of the nation's progress in science, technology, engineering, and mathematics hinges on the abilities nurtured during the formative years of education (Soriano, 2022). The STEM strand, a cornerstone of this vision, is expected to produce a workforce equipped not only with theoretical knowledge but also with robust problem-solving skills essential for addressing complex challenges in various scientific and technical domains (Sen et. al., 2018).

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Furthermore, it is crucial to acknowledge that not all students in the STEM strand will choose to pursue engineering or other math-related courses; some may decide to go into medical or other science-related fields. Consequently, it becomes paramount to establish an inclusive educational setting that accommodates a wide range of aspirations and inclinations. Hence, the need arises for a strategic intervention, akin to the Socratic teaching method, that empowers students inclined towards mathematics to grasp the intricacies of their subjects. This method encourages active engagement and deep understanding, transcending the boundaries of traditional teaching methodologies (Saha et al., 2020). Moreover, it aligns with the differentiated needs of students, ensuring that those with an affinity for math can excel while fostering an appreciation for problem-solving among others.

Upon closer inspection of the Pre-Calculus classes at Talisay Senior High School, located in Tumaway, Talisay, Batangas, within the specialized STEM Strand, reveals that students often face significant hurdles when it comes to problem-solving. This course serves as a critical bridge between fundamental mathematics and advanced calculus, acting as a foundation for higher-level mathematical and scientific study. Consequently, students in this strand are expected to develop strong problem-solving skills as they navigate complex mathematical concepts.

However, these expectations can sometimes overwhelm students, leading to frustration and a lack of motivation (Saadati & Celis, 2022). The intricacies of advanced mathematical topics can pose a significant challenge, and students may struggle to effectively break down and solve complex problems. In some cases, this struggle can deter them from pursuing STEM-related fields in the future.

To address these challenges, Socratic Teaching emerges as a promising pedagogical approach. Rooted in the philosophical methods of Socrates, Socratic Teaching is characterized using open-ended and probing questions to stimulate critical thinking, inquiry, and active student engagement (Grondin, 2018). This approach encourages students to explore concepts deeply, develop their own understanding, and engage in thoughtful dialogue with both peers and teachers. Moreover, it was also observed in their study that Socratic Teaching has shown significant promise in fostering problem-solving skills and critical thinking in various educational contexts. Through utilizing this method, educators can establish an atmosphere that fosters not only the transmission of knowledge but also the development of critical thinking skills, which are essential for proficient problem-solving.

One study conducted by Palavan (2020) examined the impact of Socratic questioning on the enhancement of critical thinking and problem-solving skills in mathematics education. The study involved university-level mathematics students who participated in Socratic questioning sessions as part of their coursework. The results indicated significant improvements in both critical thinking and problem-solving abilities among the students. They reported that Socratic questioning encouraged them to think more deeply about mathematical concepts and facilitated their ability to solve complex problems.

In another study by Sahamid (2016), the researcher investigated the efficacy of Socratic questioning in improving students' problem-solving skills in a pre-calculus course. The study found that students who participated in Socratic questioning sessions demonstrated more significant enhancements in their problem-solving skills in comparison to those who received traditional instruction. The researcher concluded that

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Socratic questioning promoted active engagement, critical thinking, and deeper understanding of concepts, all of which are essential for effective problem-solving.

Considering the importance of problem-solving skills in STEM education, the challenges faced by students in Pre-Calculus classes, and the potential of Socratic Teaching as an intervention, action research becomes a valuable framework for exploration. Action research is a powerful approach that combines research and practical application within an educational setting (Manfra, 2019). It allows educators to investigate the effectiveness of pedagogical strategies and interventions in real-world classrooms.

In addition to the studies mentioned earlier, there exists a substantial body of research that validates the effectiveness of Socratic Teaching to improve problem-solving skills in mathematics and pre-calculus. For instance, a study by Oyler & Romanelli (2014) delved into the effectiveness of Socratic questioning in promoting problem-solving abilities in various contexts. The researchers found that Socratic questioning not only encouraged students to think critically but also helped them develop a deeper understanding of the underlying concepts. This deep understanding, in turn, facilitated more effective problem-solving. Furthermore, a study by Alsaleh (2020) explored the impact of Socratic teaching methods on problem-solving skills in higher education. While the study encompassed a broader range of subjects, the results indicated that Socratic teaching promoted critical thinking and improved students' ability to analyze and solve complex problems across various disciplines.

Hence, this action research project is grounded in the pressing need to enhance problem-solving skills within the specialized Pre-Calculus classes at Talisay Senior High School in the STEM Strand. The importance of problem-solving skills in STEM education, the challenges faced by students, and the potential of Socratic Teaching as an intervention emphasize the significance of this research endeavor. By engaging in thorough investigation and practical implementation, this research endeavor aimed to make a substantial contribution towards the development and implementation of highly efficient pedagogical methods in the field of mathematics education, aiming to ultimately provide valuable advantages to students as they equip themselves for their prospective pursuits in the STEM field.

Methodology

Research Design

The study employed the quasi-experimental research design to establish causal relationships between the independent variable (Socratic teaching) and dependent variable (problem-solving skills) and investigate the effects (if any) of Socratic teaching to improve students' problem-solving skills in Pre-Calculus.

Within a quasi-experimental research design, data is gathered both before and after the implementation of the independent variable. The initial data, or pre-test acts as a baseline which enables the measurement of changes over time, known as the post-test. This particular methodology aids in a more precise assessment of the impact of the independent variable.

The researcher used descriptive statistics such as Frequency and Percentage and Mean of Grouped Data to quantify the scores and levels of problem-solving skills of the STEM students. In addition, the study also employed inferential statistics, specifically the two-sample t-test, to ascertain the presence of statistically significant distinction between the means in two distinct groups.

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Research Locale

The research was carried out at Talisay Senior High School in Tumaway, Talisay, Batangas. The study focused on the population of all STEM 11 students who are currently enrolled in the school and taking Pre-Calculus classes. This selection of locale and population was deliberate to maintain a concentrated and precise sample that correlated with the research goal.

Research Participants

1. STEM 11 Newton (Control Group) – This group of 29 students received traditional lecture-based instruction in Pre-Calculus. They served as the control group against which the effectiveness of Socratic Teaching in the experimental group was compared in the experimental group.

2. STEM 11 Einstein (Experimental Group) – This group of 27 students from the STEM 11 Einstein section participated in Socratic Teaching sessions as the experimental group. These students received the intervention designed to enhance their problem-solving skills in Pre-Calculus.

Intervention

During the implementation of Socratic Teaching, the process was divided into four (4) organized iterations, with each one centered on a different pre-calculus concept. The initial iteration focused on circles and involved finding the center and radius. The second iteration was dedicated to understanding the standard and general forms of a parabola's equation. The third iteration revolved around ellipses and emphasized the application of this concept in planetary motion. Finally, the fourth iteration focused on hyperbolas and problem-solving related to them.

Questioning Techniques

The heart of Socratic Teaching lies in the art of questioning. Open-ended and probing questions were strategically incorporated into each lesson plan. For example, during discussions on circles, students might be prompted to ponder, "What are the uses of circles in real life and what are their varied features?" Similarly, questions like "How does a parabola manifest its shape in satellite dishes?" will encourage exploration of parabola. Questions regarding ellipses and hyperbolas were tailored to the specific topics under study.

Classroom Discussions

Classroom discussions served as the centerpiece of the Socratic Teaching approach. These discussions provided a platform for students to share their thought processes, engaged in peer-to-peer learning, and collectively analyze problem-solving strategies. Within this collaborative environment, students were encouraged to voice their ideas, question each other's assumptions, and explore different approaches to problem-solving.

Problem-Solving Scenarios

Real-world problem-solving scenarios were presented to students, aligned with the Pre-Calculus topics under study. Through Socratic questioning, students were guided in breaking down complex problems

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into manageable steps, fostering a deeper understanding of the mathematical concepts involved. For example, they analyzed circles in real-world scenarios from the tip of the pen to the shapes of the planets and explored parabola and its application to automobile headlight reflectors and design of ballistic missiles.

Reflection and Feedback

The Socratic Teaching approach places a premium on reflection. Students were encouraged to reflect on their problem-solving approaches, both individually and in groups. Additionally, they received constructive feedback not only from the teacher but also from their peers, promoting continuous improvement in their problem-solving skills.

Data Gathering Method

Prior to the start of the intervention, both the control and experimental groups took a pre-test assessment. The assessment consisted of a series of mathematical problems that assessed their problem-solving skills in the context of Pre-Calculus topics. The pre-test served as a baseline measurement of the students' initial problem-solving abilities.

Following the pre-test, the control group (STEM-Newton) received traditional lecture-based instruction in Pre-Calculus. This instruction followed the school's existing curriculum and teaching methods. While the experimental group (STEM-Einstein) participated in a series of Socratic Teaching sessions. These sessions incorporated open-ended and probing questions to stimulate critical thinking and problem-solving skills among the students. Classroom discussions encouraged active engagement and exploration of mathematical concepts.

After the traditional lecture (for the control group) and discussion with Socratic Teaching sessions (for the experimental group), both groups took a post-test assessment. This post-test was similar in content and format to the pre-test and evaluated the problem-solving skills of the students after the instructional interventions. The scores gained by the participants were statistically analyzed through Frequency and Percentage, Mean of Grouped Data and Two-Sample t-test.

For the pre-test and post-test assessments, a standardized questionnaire consisting of mathematical problems that require critical thinking and problem-solving was administered. The questionnaire was aligned with the Pre-Calculus curriculum and was designed to measure the specific skills relevant to the research questions.

The assessments included complex problem-solving items. These items were carefully crafted to assess the students' ability to analyze, synthesize, and apply mathematical principles, which are essential for effective problem-solving in Pre-Calculus.

Results and Discussions

This section presents the data collected along with the corresponding analysis and interpretation. The data is presented in a tabular format that is organized sequentially, following the order in which specific problems were introduced at the outset of the study.

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Table 1	Level of Problem-Solving Skills of Grade 11 Newton (Control Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 1				
	Pre-Test		Post-Test		
Score Range (20-item test)	Frequency	Percentage	Frequency	Percentage	Level of Problem-Solving Skills
16-20	1	3.448	8	27.586	EXCELLENT
11-15	6	20.690	7	24.138	VERY SATISFACTORY
6-10	8	27.586	10	34.483	SATISFACTORY
5 and below	14	48.276	4	13.793	NEED IMPROVEMENT
TOTAL	29	100	29	100	
MEAN	**7.14**		**11.17**		

According to Table 1, a significant proportion of the students, specifically fourteen (14) or 48.276 percent, achieved scores of 5 or below in the pre-test. It can be inferred, overall, that the problem-solving skills of the students needed improvement. Conversely, according to the data presented in table 2, a significant portion of the students achieved satisfactory scores in the post-test, accounting for ten (10) or 34.483 percent of the total.

Table 2	Level of Problem-Solving Skills of Grade 11 Newton (Control Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 2				
	Pre-Test		Post-Test		
Score Range (20-item test)	Frequency	Percentage	Frequency	Percentage	Level of Problem-Solving Skills
16-20	0	-	6	20.690	EXCELLENT
11-15	4	13.793	12	41.379	VERY SATISFACTORY
6-10	7	24.138	10	34.483	SATISFACTORY
5 and below	18	62.069	1	3.448	NEED IMPROVEMENT
TOTAL	29	100	29	100	
MEAN	**5.69**		**11.90**		

As observed in Table 2, it is evident that most students needed improvement in their problem-solving skills, specifically accounting for eighteen (18) or 62.069 percent. The post-test results, however, indicated that a significant proportion of students, specifically twelve (12) or 41.379 percent, attained a very satisfactory level of problem-solving skills.

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Table 3	Level of Problem-Solving Skills of Grade 11 Newton (Control Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 3				
	Pre-Test		Post-Test		
Score Range (20-item test)	Frequency	Percentage	Frequency	Percentage	Level of Problem-Solving Skills
16-20	1	3.448	8	27.586	EXCELLENT
11-15	4	13.793	12	41.379	VERY SATISFACTORY
6-10	7	24.138	6	20.690	SATISFACTORY
5 and below	17	58.621	3	10.345	NEED IMPROVEMENT
TOTAL	29	100	29	100	
MEAN	**6.14**		**12.10**		

As seen in Table 3, it is evident that seventeen (17) students, equivalent to 58.621 percent, scored 5 or below on the pre-test. This indicates a clear need for improvement in problem-solving skills. In contrast, in the post-test, a significant number of students, precisely twelve (12) or 41.379 percent, obtained scores that were considered very satisfactory.

Table 4	Level of Problem-Solving Skills of Grade 11 Newton (Control Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 4				
	Pre-Test		Post-Test		
Score Range (20-item test)	Frequency	Percentage	Frequency	Percentage	Level of Problem-Solving Skills
16-20	1	3.448	1	3.448	EXCELLENT
11-15	3	10.345	8	27.586	VERY SATISFACTORY
6-10	7	24.138	18	62.069	SATISFACTORY
5 and below	18	62.069	2	6.897	NEED IMPROVEMENT
TOTAL	29	100	29	100	
MEAN	**5.43**		**10.76**		

It is apparent from Table p4 that most of the students, specifically eighteen (18) or 62.069 percent, require improvement in problem-solving skills. Regarding the results of the post-test, the majority, specifically eighteen (18) or 62.069 percent achieved a satisfactory level of problem-solving skills.

In summarizing the results of both the pre-test and post-test of the control group across four (4) iterations, as depicted in Table 5, it can be inferred that there has been a notable enhancement in the problem-solving skills of the students after the discussion of each topic utilizing a traditional approach.

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Table 5	Summary of Mean of the Pre-Test and Post-Test Results of STEM 11 Newton (Control Group)	
Iteration	**Mean**	
	Pre-Test	**Post-Test**
1	7.14	11.17
2	5.69	11.90
3	6.14	12.10
4	5.43	10.76

Table 6	Level of Problem-Solving Skills of Grade 11 Einstein (Experimental Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 1				
	Pre-Test		**Post-Test**		
Score Range (20-item test)	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**Level of Problem-Solving Skills**
16-20	1	3.704	10	37.037	EXCELLENT
11-15	6	22.222	15	55.556	VERY SATISFACTORY
6-10	7	25.926	2	7.407	SATISFACTORY
5 and below	13	48.148	0	-	NEED IMPROVEMENT
TOTAL	27	100	27	100	
MEAN	**7.04**		**15.04**		

The pre-test results in Table 6 show that a significant majority, accounting for thirteen (13) or 48.148 percent of students, require improvement in their problem-solving skills. Conversely, according to the post-test results presented in Table 7, most students demonstrated a high level of problem-solving skills. Fifteen (15) students, equivalent to 55.556 percent, achieved a very satisfactory level.

It can be gleaned from Table 7 that most of the students, precisely sixteen (16) or 59.259 percent, have a need to improve their problem-solving skills. In contrast, based on the post-test results, the majority obtained scores ranging from 11 to 15, representing sixteen (16) or 59.259 percent of the students.

According to Table 8, it was observed that 55.556 percent, or fifteen (15) students, required improvement in their problem-solving skills based on the pre-test results. Conversely, in the post-test, most of the students, specifically twelve (12) or 44.444 percent, demonstrated excellent problem-solving skills.

As indicated in Table 9, a majority, comprising 59.259 percent, equivalent to sixteen (16) students, attained scores of 5 or below in the pre-test, highlighting the necessity for enhancement in their problem-solving skills. In contrast, in the post-test results, a majority of 40.741 percent corresponding to eleven (11) students, exhibited a very satisfactory level of problem-solving skills.

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Table 7 Level of Problem-Solving Skills of Grade 11 Einstein (Experimental Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 2

	Pre-Test		Post-Test		
Score Range (20-item test)	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**Level of Problem-Solving Skills**
16-20	0	-	10	37.037	EXCELLENT
11-15	4	14.815	16	59.259	VERY SATISFACTORY
6-10	7	25.926	1	3.704	SATISFACTORY
5 and below	16	59.259	0	-	NEED IMPROVEMENT
TOTAL	27	100	27	100	
MEAN	**5.93**		**15.33**		

Table 8 Level of Problem-Solving Skills of Grade 11 Einstein (Experimental Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 3

	Pre-Test		Post-Test		
Score Range (20-item test)	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**Level of Problem-Solving Skills**
16-20	1	3.704	12	44.444	EXCELLENT
11-15	4	14.815	10	37.037	VERY SATISFACTORY
6-10	7	25.926	4	14.815	SATISFACTORY
5 and below	15	55.556	1	3.704	NEED IMPROVEMENT
TOTAL	27	100	27	100	
MEAN	**6.78**		**14.89**		

Table 9 Level of Problem-Solving Skills of Grade 11 Einstein (Experimental Group) in Pre-Calculus in Pre-Test and Post-Test for Iteration 4

	Pre-Test		Post-Test		
Score Range (20-item test)	**Frequency**	**Percentage**	**Frequency**	**Percentage**	**Level of Problem-Solving Skills**
16-20	1	3.704	9	33.333	EXCELLENT
11-15	3	11.111	11	40.741	VERY SATISFACTORY
6-10	7	25.926	5	18.519	SATISFACTORY
5 and below	16	59.259	2	7.407	NEED IMPROVEMENT
TOTAL	27	100	27	100	
MEAN	**5.93**		**12.93**		

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Table 10 Summary of Mean of the Pre-Test and Post-Test Results of STEM 11 Einstein (Experimental Group)

Iteration	Mean	
	Pre-Test	Post-Test
1	7.04	15.04
2	5.93	15.33
3	6.78	14.89
4	5.93	12.93

In analyzing the pre-test and post-test results of the experimental group over four (4) iterations, as indicated in Table 10, it is evident that there was a substantial improvement in the problem-solving skills of the students after engaging in subsequent discussions on the topics integrating Socratic teaching.

Table 11 Test of Significant Difference in the Problem-Solving Skills of the STEM 11 Newton (Control Group) and STEM 11 Einstein (Experimental Group) based on the Pre-Test Results

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
Pair 1	CGROUP - EGROUP	-.34500	.32099	.16049	-.85576	.16576	-2.150	3	.121

As indicated in Table 11, the conducted analysis examined the disparity between the control group and experimental group's pre-test results.

The researcher obtained probability values exceeding the significance level of 0.05. Based on these computed outcomes, it was concluded that there is no statistically significant distinction in the problem-solving skills levels between the control group and experimental group, specifically in relation to the pre-test results.

Based on these computed results, it can be concluded that a significant difference exists between the post-test results of the control group and the experimental group. Thus, it can be inferred that Socratic Teaching is an effective method to enhance students' problem-solving skills.

According to Jensen's study (2015), it was reported that students who engaged in Socratic questioning sessions demonstrated considerable improvements in their problem-solving skills, in comparison to students who experienced traditional teaching approaches. Additionally, Yudcovitch & Hayes (2014) presented evidence supporting the notion that students achieve higher examination scores following the implementation of Socratic Teaching.

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Table 12 Test of Significant Difference in the Problem-Solving Skills of the STEM 11 Newton (Control Group) and STEM 11 Einstein (Experimental Group) based on the Post-Test Results

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
Pair 1	CGROUP - EGROUP	-4.39750	2.11533	1.05767	-7.76346	-1.03154	-4.158	3	.025

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Article 10

The Effect of Multimedia Instruction on the Performance of Male and Female Students in the Technical Colleges of Adamawa State, Nigeria

Professor D. K. Diraso, Abdullahi I. Haruna and Sunday Wilfred

Abstract

The study is on the effect of multimedia instruction on the performance of male and female students in the Government Science and Technical College (GSTC) of Adamawa State. The study was a quasi-pre-test, post-test, non-equivalent design. The instrument for data collection was a test instrument adopted from the National Business and Technical Examination Board (NABTEB) past question papers on Mechanical Engineering Craft Practice (MECP). The population of the study consists of 53 students of MECP registered for the 2019/2020 academic session in two selected GSTCs; out of this population, 13 were females and 40 were males. Students of GSTC Yola were assigned to the experimental group, while students of GSTC Numan were assigned to the control group, respectively. Six specific objectives, three research questions, and three formulated null hypotheses guided the study. The data was analysed using mean and standard deviation to answer the research questions, and the analysis of covariant was used to test the null hypothesis at the 0.05 level of significance. The findings of the study reveal that demonstration and multimedia instructions are effective and do not have an effect on male and female academic performance; the academic performance of students increases significantly when taught using multimedia rather than demonstration instruction. Technical teachers should blend demonstration and multimedia instruction in teaching and learning was the recommendation of the study.

Keywords: Effect, Multimedia and Demonstration Instructions

Introduction

Right from the inception of technical education in Nigeria, many Nigerians have had misconceptions about technical education as it pertains to girls. They believe technical education is not for girls and should only be for boys. Thus, technicians are considered men who engage in technical repairs and maintenance. While females were seen as fit for vocational education such as secretarial studies, home economics, and catering services, among others **(Ndahi, 2002),** It was not conceived that females could be mechanics, carpenters, electricians, or builders; hence, enrolment in technical institutions was strictly for males at that time, while females were enrolled in vocational studies **(Nzewi, 2010).** This separation, according to Ndahi, conformed to the traditional setting of the Nigerian people. Most cultures strictly place women in a position of child upbringing and menial home activities. Similarly, some religious ideologies isolate women from the public, and some vocations are perceived as manly. It is clear that our cultural and religious beliefs played a significant role in technical education masculinity. Consequently, girl children lost interest in technical education

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(Faulkner, 2006) and conceived that male children were better at technical courses **(Udofia, Ekpo, Nsa, & Akpan, 2012)**. This perception has necessitated low enrolment of girls in technical and engineering trades across the technical colleges in Nigeria. Nevertheless, as sensitization or advocacy continued on gender equality and gender equity, people began to let go of those cultural beliefs and ideologies that restrained girls potential. With this development, society is gradually developing a positive perception towards technical education, which is relevant to girl child education. By and large, girl children are as good at some things as male children are academically **(Nzewi, 2010).**

Multimedia instruction is a combination of text, image, and visual elements into one formidable instructional platform that guarantees a multisensory learning experience for the learner **(El-Sayed & El-Sayed, 2013)**. It provides a unique opportunity to present and teach from the unknown to a known learning experience. Instruction using multimedia enhances the internalisation of information received by the learner as well as draws specific attention to details on the subject to be taught (Gertner, 2011; Robert, 2011). Multimedia instruction presents an excellent learning platform that ensures a three-dimensional view of objects and realistic scenes and presents sequences in motion along with their accompanied audio built into the instruction **(Nazir, Rizvi, & Pujeri, 2012)**. Instruction with multimedia mirrors the way the human mind thinks, learns, and remembers by moving easily from words to images to sound, giving interpretation, making analysis, and engaging in in-depth exploration. The flexibility of multimedia is enormous, including adaptability to sociocultural and environmental factors, time, and space, among others **(Mahajan, 2012)**. The multimedia instruction is readily accessible and packaged in different formats compatible with multimedia devices.

Many studies have shown that multimedia instruction is effective in instructional delivery. Udofia et al. (2012) found out that male and female academic performance improved significantly when taught using multimedia instruction. Similarly, Agomuo and Nzewi (2004) also observed that multimedia instruction does well in instructing boys and girls. Also, Agomuo (2010) noted that multimedia instruction improved the conceptual ability of the learner and showed no disparity in male and female performance. In the same vein, Osuagwu **(2006)** proved that the performance of male and female students was not significantly different when taught using multimedia as a medium for teaching male and female students of auto mechanics at Technical College and advocated for the integration of multimedia instruction in our classrooms. Similarly, Bianca, Ngozi, Umate, and Attah (2021) found that multimedia instruction is effective for teaching science, and the performance of male and female teachers of basic science using multimedia integrated instruction does not differ significantly. This implies that under normal circumstances, females have the capacity to learn as many industrial and technical courses as their male counterparts; after all, there is nothing in the nature of females that makes them not do well in their quest for learning (Nzewi, 2010; Udofia et al., 2012).

The demonstration instructional method is recommended as the most suitable method for teaching practical subjects in science, technical, and vocational education (Okoro, 2006). The major components of demonstration instruction include the instructional materials, tools, or equipment and the teacher, who will perform an operation before the learners **(Cyril, 2013).** Gestures, performances, and exchange of verbal ideas from the activities between teachers and the students during the demonstration instructional method. Concepts, principles, and practical activities can be taught through demonstration instruction. The demonstration method of instruction enhances holistic teaching and learning that cuts across the psychomotor, cognitive, and affective learning domains. The demonstration method of teaching elicits the desire to emulate the action of the teacher and builds up the learner's curiosity and confidence **(Idris & Rajuddeen, 2012).** However, the

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limitations of the demonstration method of instructions, which requires expensive equipment and materials, are not suitable for large classes, and complex concepts and theories cannot be easily illustrated by using demonstration **(Bakpo, 2011;** Neo & Neo, 2002).

Objectives of the Study

The main objective of the study was to determine the effect of multimedia and demonstration instructions on the performance of male and female students in Mechanical Engineering Craft Practice (MECP). The study specifically determined:The mean performance of male and female students taught Mechanical Engineering Craft Practice using demonstration method of instruction.

1. The mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia instructional methods.
2. The mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia and demonstration instructional methods.
3. The significant difference between the mean performance of male and female students taught mechanical engineering craft practice using the demonstration method of instruction.
4. The significant difference between the mean performance of male and female students taught mechanical engineering craft practice using multimedia instructional methods.
5. The significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia and demonstration instructional methods.

Research Questions

1. What is the mean performance of male and female students taught Mechanical Engineering Craft Practice using demonstration method of instruction?
2. What is the mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia instructional method?
3. What is the mean performance of students taught Mechanical Engineering Craft Practice using multimedia and demonstration instructional methods.

Hypotheses

H_{01}: There is no significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using demonstration method of instruction.

H_{02}: There is no significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia instructional method.

H_{03}: There is no significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia and demonstration instructional methods.

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Methodology

The design for this study was pre-test, post-test, non-equivalent control group, and quasi-experimental. The study was conducted at the Government Science and Technical Colleges (GSTCs) in Yola and Numan, Adamawa State, respectively. The population of the study consisted of 53 students of Mechanical Engineering Craft Practice registered for the 2027/2018 academic session in two selected technical colleges, out of which 13 were females and 40 were males. There are 5 female students in GSTC Yola and 8 female students in GSTC Numan. Similarly, 17 male students in GSTC Yola and 23 in GSTC Numan.

The test instrument was adapted from the NABTEB past questions from the 2015–2018 examinations, drawn using a table of specifications based on Bloom's taxonomy of learning. Hence, 40 multiple-choice and six essay questions with an assessment profile of 40% and 60%, respectively, formed the test instrument. The reliability coefficient of the test instrument was 0.89, as determined by the Crouchback Alfa reliability instrument, when tested on eight males and four females of GSTC Mubi in the Mechanical Engineering Craft Practice trade. There were no randomizations, as intact classes were used. GSTC Yola was used as the experimental group, while GSTC Numan was used as the control group. The control group was taught using the demonstration method. Whereas, the experimental group was taught using a multimedia instructional method. The pre-test was administered to both groups before the instruction. After the instruction, a post-test was administered to the groups after two weeks of instruction. To ensure the students did not produce the same answer to their early testing, the numbering sequence of the pre-test was changed and used as a post-test. The mean and standard deviation were used to answer the research questions. While the null hypothesis was tested at the 0.5 level of significance using Analysis of Covariant (ANCOVA), The minimum pass mark for the NABTEB examination is 40 and above, which was taken as passed, while a student's performance below 40 was considered failed. Additionally, the decision on the null hypothesis was that if the probability value (P-value) is less than the significant value (sign value = 0.05), the null hypothesis is rejected, and otherwise, accept the null hypothesis.

Data Analysis

Research Question 1

What is the mean performance of male and female students taught Mechanical Engineering Craft Practice using the demonstration method of instruction?

Table 1 Mean and Standard Deviation of Male and Female Students in the Control Group

Group	N=31	X	STD	REMARK
Male	23	48.13	9.43	Passed
Female	8	54.87	10.78	Passed

Key: N, Sample size; X, Mean; STD, Standard Deviation

The analysis presented in Table 1 showed that the mean performance scores of male and female students were 48.13 and 54.87, respectively. The standard deviation of male and female students showed that deviations from the mean were far from the mean in both cases. However, the female mean is above their male counterpart with about 6.74 scores.

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Research Question 2

What is the mean performance of students taught Mechanical Engineering Craft Practice using multimedia instructional method?

Table 2 Mean and Standard Deviation of Male and Female students in Experimental Group

Group	N=31	X	STD	REMARK
Male	17	71.71	7.25	Passed
Female	5	68.60	14.57	Passed

Key: N, Sample size; X, Mean; STD, Standard Deviation

Table 2 above indicated that male students had a mean performance score of 71.71 and a 7.25 standard deviation. Female students had a mean performance score of 68.60 and a 14.57 standard deviation. Male students performed higher than female students. The mean difference between male and female students was 3.11 in favour of male students.

Research Question 3

What is the mean performance of male and female students taught mechanical engineering craft practice using multimedia and demonstration instructional methods?

Table 3 Mean and Standard Deviation of Demonstration and Multimedia

Group	N=31	X	STD	REMARK
Demonstration	31	53.13	10.72	Passed
Multimedia	22	71.00	9.07	Passed

Key: N, Sample size; X, Mean; STD, Standard Deviation

The analysis in Table 3 indicated that students taught using multimedia methods of instruction had a higher mean performance score of 71.00 and a 9.07 standard deviation. While students were taught using the demonstration method, they had a mean performance score of 53.13 and a standard deviation of 10.72. Hence, the difference was 17.78 in favour of those taught with multimedia instruction.

$\mathbf{H}_{01}$ There is no significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using the demonstration method of instruction.

The analysis of hypothesis one, as indicated in Table 4, shows that at the 0.05 level of significance and 31 degrees of freedom, the calculated F was 0.26 with a P-value 0.62, which is greater than 0.05. Therefore, the null hypothesis is accepted. This analysis revealed that the mean performance scores of male and female students taught using the demonstration method of instruction are significantly the same. Hence, the mean difference in their performances occurred by chance.

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Table 4	Mean Analysis of Male and Female taught using Demonstration Method of Instruction					
Source	**SS**	**df**	**MS**	**F**	**P-value**	**Decision**
Corrected Model	552.81[a]	2	276.41	2.67	0.09	
Intercept	3942.81	1	3942.81	38.11	0.00	
Pre-test	282.81	1	282.81	2.73	0.11	
Male/Female	26.41	1	26.41	**0.26**	**0.62**	
Error	2896.67	28	103.45			
Total	90953.00	31				
Corrected Total	3449.48	30				

[a]R Squared = .160 (Adjusted R Squared = 0.10)
Key: SS = Sum of Square: df = degree of freedom: MS = Mean of Square; F = Critical Value

$\mathbf{H}_{02}$ There is no significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using the multimedia instructional method.

Table 5	Mean analysis of male and female taught using multimedia instructional method					
Source	**SS**	**Df**	**MS**	**F**	**P-value**	**Decision**
Corrected Model	250.39[a]	2	125.20	1.61	0.23	
Intercept	3628.34	1	3628.54	46.66	0.00	
Pre-test	213.12	1	213.12	2.74	0.11	
Male/Female	**74.28**	**1**	**74.28**	**0.34**	**0.96**	**Accepted**
Error	1477.61	19	77.77			
Total	112630	22				
Corrected Total	1728.00	21				

[a]R Squared = .145 (Adjusted R Squared = 0.055)
Key: SS = Sum of Square: df = degree of freedom: MS = Mean of Square; F = Critical Value

The analysis of hypothesis two presented in Table 5 shows that at the 0.05 level of significance and 22 degrees of freedom, the calculated F was 0.34 with a P-value 0.96, which is greater than 0.05. This analysis indicated that the null hypothesis was accepted at the 0.05 level of significance. It follows that the mean performance scores of male and female students are hypothetically the same, despite the differences in their mean performance. These differences just occurred by chance. Hence, gender has no effect on the performance of students when taught using multimedia instruction.

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H_{03} There is no significant difference between the mean performance of male and female students taught Mechanical Engineering Craft Practice using multimedia and demonstration instructional methods.

Table 6 Mean analysis of Analysis of Control and Experimental Group

Source	SS	Df	MS	F	P-value	Decision
Corrected Model	4154.92[a]	2	2077.46	20.24	0,00	
Intercept	10922.76	1	10922.76	106.41	0.00	
Pre-test	45.27	1	45.27	0.44	0.51	
Group	**4107.20**	**1**	**4107.20**	**40.01**	**0.00**	**Rejected**
Error	5132.21	50	102.64			
Total	203583.00	53				
Corrected Total	9287.13	52				

[a]R Squared = .447 (Adjusted R Squared = .425)
Key: SS = Sum of Square: df = degree of freedom: MS = Mean of Square; F = Critical Value

The outcome of the analysis presented in Table 6 revealed the rejection of the null hypothesis at the 0.05 level of significance and 52 degrees of freedom. This follows from the fact that the calculated F is 40.01 with a p-value of 0.00, which is less than the significance value of 0.05. Consequently, the alternative hypothesis was upheld. Thus, there is a significant difference between the mean performances of students taught Mechanical Engineering Craft Practice in the GSTC of Yola, Adamawa State.

Results

The findings that emerged from this study are:

1. The demonstration method of instruction enhances the academic performance of both male and female students.
2. Multimedia instruction enhances the academic performance of both male and female students.
3. Students obtained a higher mean performance when taught using multimedia instruction than the mean performance of students taught using the demonstration method of instruction.
4. There was no significant difference between the performance of male and female students taught mechanical engineering craft practice using demonstration method instruction.
5. There was no significant difference between the performance of male and female students taught Mechanical Engineering Craft Practice using the multimedia instructional method.
6. There was no significant difference between the performance of male and female students taught mechanical engineering craft practice using multimedia and demonstration instructional methods.

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Discussion of Results

The research findings one and two, as well as null hypotheses one and two, indicated that gender has no effect on students' mean performance when multimedia and demonstration instruction are used as mediums of instruction. Neither does it place male or female students in a disadvantageous situation asa result of its usage. The finding is consistent with the work of Nzewi (2010) and Udofia et al. (2012), who depict that the method of instruction does not deprive learners based on gender but improves their conceptual abilities, showing no disparity in male and female academic performance.

Although there are many research findings that reveal that there is no replacement for the demonstration method of instruction, as we can see from the findings of the study, higher mean performance was recorded by students taught using multimedia instruction. Similarly, the null hypothesis in line with this same research finding also proved a significant difference in the mean academic performance of students in the multimedia and demonstration groups. These findings agreed with Gertner (2011) and Robert (2011) and were supported by Haruna (2023) and Haruna (2022), who had similar findings that students perform better with multimedia than demonstration and lecture methods of instruction. .

Conclusion

This study concluded that demonstration and multimedia methods of teaching are effective for teaching mechanical engineering craft practice in technical colleges. Hence, both methods of teaching do not have any effect on the performance of male and female students. However, the mean performance of students taught using multimedia increased significantly compared to the mean performance of students taught using multimedia instruction.

Recommendation

This study recommended that demonstration and multimedia instruction should be blended for teaching and learning in technical colleges in Adamawa State.

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Benefits and Challenges of E-Reporting to Tertiary Students of General Education Courses in A State University in the Philippines

Jovert R. Balunsay

Abstract

COVID-19 pandemic brought a lot of changes in many sectors. The field of education was one of the most affected fields due to the pandemic. Teachers were tasked to innovate and think of solution on how to conduct classes with the use of technology to make distance or online education effective and accessible to all learners. This study delves into e-reporting's role as a teaching tool in the new normal among tertiary students at a state university in the Philippines, examining its benefits and challenges. It employs a survey methodology to gauge students' perceptions and experiences. With the aid of a self-made survey questionnaire, the researcher was able to gather the needed data. The said tool underwent series of validations, try-out, and reliability testing with the use of Cronbach Alpha. 144 tertiary students were the respondents of the study. They are the students of the researchers who used e-reporting during their General Education courses handled by the researcher. The research aims to showcase e-reporting's advantages, such as increased accessibility, self-paced learning, and technological literacy, while also noting challenges like technical issues and limited interaction. The findings suggest that e-reporting is promising but requires improvements like better internet infrastructure, technical support, and interactive features for effective implementation. These findings were used to enhance and improve the conduct of online classes during the pandemic when distance education was imposed in the Philippines due to the COVID-19 pandemic specifically in Catanduanes State University at Catanduanes Island, Luzon, Philippines.

Keywords: E-Reporting, New Normal, Education, Teaching Tool, Benefits and Challenges, Distance Education, Online Learning

Background of the Study

The advent of the COVID-19 pandemic precipitated transformative shifts within the realm of education worldwide. One of the most profound impacts was witnessed in the rapid evolution of instructional modalities, necessitating a departure from traditional face-to-face teaching towards a diverse range of remote learning approaches. These adaptations, including asynchronous and synchronous learning, blended learning models, and fully online classes, were swiftly embraced by educational institutions globally in response to the pandemic's challenges. Consequently, the educational landscape saw a significant reliance on digital technologies, particularly internet connectivity and mobile devices, marking a paradigm shift often termed as the "new normal" in education.

In the Philippines, this paradigm shift towards flexible learning modalities was duly recognized and implemented by educational governing bodies such as the Commission on Higher Education (CHEd) and

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the Department of Education (DepEd). The issuance of CHEd Memorandum Order No. 04, Series of 2020, titled "Guidelines in the Implementation of Flexible Learning," underscores the strategic response aimed at accommodating the diverse technological access levels among students within the country's educational framework. This strategic categorization, comprising high, medium, and low-level technology classifications, was designed to assist educators in tailoring instructional strategies that align with students' technological capabilities and resources.

At Catanduanes State University, situated within this evolving educational landscape, a proposal emerges to evaluate the efficacy of e-reporting as a pedagogical tool specifically geared towards General Education courses. This proposal stems from a recognition of the dynamic interplay between technological advancements, instructional methodologies, and student learning outcomes within the context of flexible learning environments. Informal surveys conducted among students at the university reveal varying degrees of technological access, with mobile phones being ubiquitous but internet connectivity exhibiting disparities in speed and reliability. Consequently, educators have employed a range of instructional methods, including self-made modules, virtual discussions through messenger platforms, closed Facebook groups, and academic vlogs, to cater to these diverse technological contexts and optimize learning experiences.

In light of these developments, the proposed study seeks to delve into the impact of e-reporting within the context of General Education courses at Catanduanes State University. Additionally, the study aims to gather valuable insights and recommendations from both educators and students, thereby contributing to the ongoing discourse on enhancing instructional practices and content delivery within the realm of flexible learning paradigms.

Research Objectives

The primary aim of this study is to evaluate the influence of electronic reporting on students enrolled in General Education Subjects at Catanduanes State University. More specifically, it seeks to address three key questions: 1. What benefits do students get from e-reporting? 2. What are the challenges do students face when engaging with e-reports? This research endeavors to provide valuable insights into the effectiveness and challenges of electronic reporting in an educational setting.

Methodology

This quantitative research employs tools like the Likert Scale and weighted mean to gather data. A survey questionnaire was formulated and given to selected respondents. The study focuses on students who took General Education courses during the School Year 2021-2022, specifically "The Life and Works of Rizal," "Kontekstuwalisadong Komunikasyon sa Filipino," and "Panitikan ng Pilipinas." A total of 144 students participated in this study. There was no sampling procedure done in choosing the respondents because all students who engaged in e-reporting participated as respondents in the study.

The researcher utilized total enumeration, including all students in the proponent's General Education courses, as respondents. A questionnaire addressing the research questions was created and validated by five jurors, experts in their respective fields with master's degrees. After incorporating their suggestions, the tool was tested on 15 students who were not part of the researcher's class but engaged in e-reporting. The questionnaire's reliability was assessed using Cronbach's Alpha formula, yielding an internal consistency rating of 0.89, signifying "Good" internal consistency. The questionnaires were distributed via Google Forms for data collection.

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Results and Discussions

Benefits of E-Reports to the Students

During flexible learning, educators had the freedom to employ diverse online and offline methods to ensure effective student learning. Modular and online approaches were particularly utilized to prevent learning gaps across all education levels. To facilitate learning, students were tasked with creating e-reports, which were then shared and processed using platforms like group messages, Facebook groups, and Google Meet. Table 1 outlines the benefits of e-reports as perceived by students who utilized them. The majority of respondents strongly agreed that e-reports enhance learning, improve layout and editing skills, enable personalized learning at students' own pace, and offer additional resources as pre-recorded and downloadable materials. These indicators ranked highly with computed average means ranging from 4.67 to 4.33, showcasing the perceived efficacy of e-reports in enhancing student learning experiences.

Table 1 Benefits of E-Reports to Students

Benefits	Weighted Mean	Descriptive Rating
1. E-reports enhances students learning of the lessons	**4.80**	Strongly Agree
2. E-reports help students understand important concepts	**4.02**	Agree
3. E-reports enhances the communication skills of students	**3.82**	Agree
4. E-reports help in improving student's cooperation and collaboration in the new normal	**3.91**	Agree
5. E-reports give additional learning opportunities and tools to students since they are pre-recorded and downloadable.	**4.32**	Strongly Agree
6. E-reports create an active atmosphere in the online class that cause more learning	**3.70**	Agree
7. E-reports make students more active in online discussions	**3.58**	Agree
8. E-reports help students achieve better understanding on different issues and facts related to the topic	**3.70**	Agree
9. E-reports help students retain more knowledge of the subject matter.	**3.73**	Agree
10. E-reports cause better academic performance of students	**3.55**	Agree
11. E-reports increase the creativity of students	**4.19**	Agree
12. E-reports improve students' lay outing and editing skills	**4.34**	Strongly Agree
13. E—reports help students to learn at their own convenience and at a pace that is right for them	**4.33**	Strongly Agree
14. E-reports help students build critical thinking, decision-making and problem-solving skills.	**3.98**	Agree
15. E-reports offer a lot of savings	**3.67**	Agree

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The respondents largely supported the benefits of e-reporting, with high agreement levels noted for several key advantages. Firstly, e-reporting was perceived to significantly enhance students' learning of lessons, as evidenced by a computed average mean of 4.67, indicating strong agreement. Secondly, it was found to improve students' lay outing and editing skills, with an average mean of 4.34, suggesting effective content organization and presentation. Additionally, e-reporting facilitated learning at students' own convenience and pace, with an average mean of 4.33, indicating flexibility in engagement with course materials. Furthermore, the provision of additional learning opportunities through pre-recorded and downloadable content was seen as beneficial, also obtaining an average mean of 4.33.

While these benefits garnered strong agreement, other identified advantages were generally agreed upon by the respondents. These included e-reports fostering creativity (average mean of 4.19), aiding in understanding important concepts (average mean of 4.02), contributing to critical thinking and problem-solving skills (average mean of 3.98), promoting cooperation and collaboration (average mean of 3.91), enhancing communication skills (average mean of 3.82), improving retention of subject matter knowledge (average mean of 3.73), providing a comprehensive understanding of different issues (average mean of 3.70), creating an active learning atmosphere (average mean of 3.70), offering cost savings (average mean of 3.67), encouraging active participation in online discussions (average mean of 3.58), and enhancing academic performance (average mean of 3.55).

These findings collectively highlight the multifaceted benefits of e-reporting, including its role in promoting comprehension, developing skills in content presentation, offering flexibility in learning, expanding access to resources, fostering creativity, and improving overall academic performance.

Challenges Met by Students in Making E-Reports

The shift to digital learning has led to the adoption of e-reporting, presenting both benefits and challenges. This overview delves into the obstacles students face when creating e-reports, encompassing technological barriers, unfamiliarity with digital tools, content organization challenges, multimedia integration issues, time management struggles, and resource accessibility limitations. Educators can aid students by addressing these challenges, enhancing their e-reporting experiences, and maximizing learning outcomes in digital environments.

Table 2 presents the pre-determined challenges encountered by students in the process of developing e-reports. This includes 15 challenges which were tallied and tabulated. Based on the results of the tabulation, 2 challenges were strongly agreed by the respondents. These includes, Weak internet connectivity and E-reports occupy large space that make uploading difficult. They were the 1st and 2nd in rank among all other pre-determined challenges which have a computed average means of 4.67 and 4.25 respectively.

The table presents 15 pre-determined challenges that students may face when creating e-reports. These challenges were identified and tabulated, and the results provide insights into the level of agreement among the respondents regarding each challenge. Among the 15 challenges, two challenges stood out as strongly agreed upon by the respondents**.** The first is **Weak internet connectivity.** This challenge ranked 1st among all the pre-determined challenges, with a computed average mean of 4.67. The respondents strongly agreed that weak internet connectivity posed a significant challenge during the development of e-reports. This suggests that students encountered difficulties due to slow or unreliable internet connections, which may have hindered

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Table 2 Challenges Met by Students Who Did E-reporting

Challenges	Weighted Mean	Descriptive Rating
1. Weak internet connectivity	4.67	Strongly Agree
2. Less knowledge in Information Technology/ Insufficient knowledge in using the system.	3.77	Agree
3. Lack of electronic gadgets	4.19	Agree
4. No available editing application	3.73	Agree
5. Less knowledge of the subject matter	3.63	Agree
6. Less knowledge in lay outing	3.77	Agree
7. Less knowledge in editing	3.70	Agree
8. Less time in crafting e-reports	3.78	Agree
9. Classmates are not so cooperative	3.96	Agree
10. No available music for e-reports	3.04	Neutral/ Uncertain
11. No available reference materials	3.22	Agree
12. E-reports occupy large space that make uploading difficult	4.25	Strongly Agree
13. Financial constraints in producing materials during e- reporting	3.75	Agree
14. Lack of instructions/information	3.46	Agree
15. Lack of personal motivation	3.65	Agree

their ability to access online resources, upload their e-reports, or collaborate effectively in digital platforms. The second is **E-reports occupy large space that make uploading difficult**. This challenge ranked 2nd among the pre-determined challenges, with a computed average mean of 4.25. The respondents strongly agreed that the large file sizes of e-reports made uploading and sharing them challenging. This indicates that students may have faced issues related to file size restrictions, limited storage capacity, or difficulties in transferring large files within their digital learning environments.

The high average mean scores for both of these challenges suggest that they were prominent and widely experienced by the respondents. Weak internet connectivity and the challenges associated with large file sizes demonstrate the technological barriers and limitations that students encountered during the e-report development process. It is important to note that while these two challenges were strongly agreed upon, the data does not provide information on the specific percentage or number of respondents who agreed. Therefore, it is advisable to interpret these findings as a general indication of the challenges rather than precise quantitative measures.

These findings have several implications for educators and institutions: 1. Infrastructure and technical support: Addressing weak internet connectivity should be a priority for educational institutions. Providing

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reliable and robust internet access can help mitigate the challenges faced by students and ensure a smoother e-reporting process. Additionally, offering technical support and guidance on optimizing file sizes can assist students in overcoming uploading difficulties. 2. File compression and alternative formats: Educators can guide students on techniques for compressing e-report files without compromising their quality. Exploring alternative formats or platforms that facilitate easier uploading and sharing of large files may also be beneficial. 3. Flexible submission options: Institutions can consider implementing flexible submission options for e-reports, such as utilizing cloud storage or learning management systems with larger storage capacities. This can alleviate the limitations imposed by file size restrictions and facilitate smoother file transfers. 4. Clear communication and guidelines: Educators should provide clear guidelines and instructions on file size limitations, recommended file formats, and technical requirements for e-report submissions. Clear communication can help students understand the expectations and navigate potential challenges more effectively.

By addressing these challenges and providing appropriate support, educators can help students overcome the technical barriers associated with weak internet connectivity and large file sizes, ultimately enhancing their e-reporting experiences and ensuring the successful completion of their assignments.

Furthermore, 12 challenges listed were just agreed by the respondents. These challenges includes, Lack of electronic gadgets, Classmates are not so cooperative, Less time in crafting e-reports, Less knowledge in lay outing, Less knowledge in Information Technology/ Insufficient knowledge in using the system., Financial constraints in producing materials during e- reporting, No available editing application, Less knowledge in editing, Lack of personal motivation, Less knowledge of the subject matter, Lack of instructions/information, and.No available reference materials. The computed mean for each challenge includes 4.19, 3.96, 3.78, 3.77, 3.77. 3.75, 3.73, 3.70. 3.65, 3.63, 3.46, and 3.22, respectively.

The findings indicate that while not strongly agreed upon, these challenges were generally acknowledged by the respondents. The interpretation for these fondings were broken down to the following. **Lack of electronic gadgets** received a computed mean of 4.19. It suggests that students identified a lack of access to electronic devices as a significant obstacle in developing e-reports. Insufficient access to computers, laptops, or smartphones could limit students' ability to engage in digital activities and complete their e-report assignments effectively. **Classmates are not so cooperative** received a computed mean of 3.96. It implies that students faced difficulties in collaborating and working with their classmates during the e-reporting process. Limited cooperation from peers might hinder the exchange of ideas, feedback, and collective efforts required for producing high-quality e-reports. **Less time in crafting e-reports** received a computed mean of 3.78. It indicates that students perceived time constraints as a barrier to creating comprehensive and well-crafted e-reports. Limited time for gathering information, organizing content, and ensuring the overall quality of their work could impact the depth and effectiveness of their reports. **Less knowledge in lay outing** received a computed mean of 3.77. It suggests that students faced difficulties in effectively arranging and presenting the content of their e-reports. Insufficient knowledge of layout design principles, visual organization, and formatting may have affected the overall clarity and coherence of their reports.

Furthermore, **Less knowledge in Information Technology/Insufficient knowledge in using the system** received a computed mean of 3.77. It indicates that students lacked proficiency in using information technology tools and systems required for e-report development. Limited understanding of software applications, digital

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platforms, or specific functionalities could impede students' ability to navigate and utilize the necessary technologies effectively. **Financial constraints in producing materials during e-reporting** received a computed mean of 3.75. It suggests that students encountered financial limitations that affected their ability to acquire or produce necessary materials for their e-reports. Limited access to paid resources, printing costs, or purchasing software licenses may have hindered their progress and resource utilization. **No available editing application** received a computed mean of 3.73. It implies that students faced difficulties in finding suitable editing applications for their e-reporting tasks. Insufficient access to software or applications for proofreading, grammar checking, or overall editing might have impacted the accuracy and quality of their reports. **Less knowledge in editing** received a computed mean of 3.70. It indicates that students lacked proficiency in editing techniques, including grammar, syntax, and overall coherence. Limited understanding of editing principles and strategies might have resulted in reports with errors or inconsistencies. **Lack of personal motivation** received a computed mean of 3.65. It suggests that students experienced a lack of personal drive or motivation in the e-reporting process. Insufficient self-motivation may have affected their engagement, effort, and overall commitment to producing high-quality reports. **Less knowledge of the subject matter** received a computed mean of 3.63. It implies that students struggled with a lack of sufficient understanding or knowledge of the subject matter being reported. Insufficient comprehension of the topic might have affected the depth of analysis, accuracy of information, and overall quality of their reports. **Lack of instructions/information** received a computed mean of 3.46. It suggests that students encountered difficulties due to a lack of clear instructions or information provided by instructors. Insufficient guidance and clarity in assignment requirements, expectations, or technical instructions may have caused confusion

However, the result for the indicator **No available music for e-reports** with a computed mean of 3.04 is "Neutral/Uncertain". It indicates that the respondents neither strongly agreed nor strongly disagreed with the statement. The result suggests that the availability of music for e-reports did not elicit a clear consensus among the respondents. They expressed a level of uncertainty or neutrality regarding this specific challenge. This could indicate a lack of clarity or mixed opinions among the respondents regarding the inclusion of music in e-reports. The neutral response could stem from various factors. It is possible that the respondents had differing preferences when it comes to incorporating music into e-reports. Some students may view music as a valuable addition that enhances the overall presentation and engagement, while others may consider it unnecessary or distracting. Additionally, the neutrality might also stem from the respondents' limited exposure or experience with using music in e-reports. They might not have encountered situations where music was readily available or were uncertain about the appropriateness of including music in their reports. The neutral response regarding the availability of music for e-reports suggests that further investigation or clarification is needed to understand the students' perspectives and preferences regarding this aspect. Conducting additional surveys or interviews to gather more in-depth insights from the respondents could help shed light on their attitudes and opinions towards incorporating music in e-reports.

Conclusions

Based on the given findings, the researcher therefore concludes that:

1. E-reports prove to be highly valuable for students, particularly in the context of flexible learning during the pandemic, offering significant benefits for their educational experience.

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2. While students acknowledge the benefits of e-reports, they also faced various challenges, particularly related to internet connectivity and the large file sizes of e-reports, which hindered their smooth uploading and sharing.

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Impact of Skill Development in De-Addiction & Rehabilitation

Ambuj jain

Abstract

Substance abuse among youth, particularly in urban areas like the National Capital Region (NCR), has become a significant public health concern. This paper explores the impact of skill development programs on youth aged 14-24 in de-addiction and rehabilitation settings in the NCR.

A mixed-methods approach was employed, involving a structured questionnaire administered to100 participants and a comprehensive review of existing literature. The questionnaire assessed demographic characteristics, substance use history, participation in skill development programs, perceived challenges, available support resources, and the effectiveness of interventions. Statistical analysis revealed insights into the prevalence of substance abuse, types of substances used, frequency of use, participation in skill development programs, perceived effectiveness of interventions, challenges faced, and available support networks.

Findings indicate a high prevalence of substance abuse among youth in the NCR, with alcohol, tobacco, and marijuana being the most commonly abused substances. Skill development programs, including vocational training, cognitive-behavioral therapy, and art therapy, were perceived as effective in supporting recovery from addiction. However, challenges such as social pressure, lack of support, and stigma were identified as significant barriers to maintaining sobriety. Access to supportive resources, particularly family support and professional counselling, was deemed crucial in the recovery process

This paper contributes to our understanding of effective approaches to addiction treatment for youth in the NCR and underscores the importance of integrating skill development programs into rehabilitation efforts. Recommendations include the expansion of evidence-based interventions tailored to the needs of youth, the implementation of comprehensive support services, and the promotion of community-based initiatives to address substance abuse effectively

Keywords: Substance abuse, Youth, Skill development programs, De-addiction, Rehabilitation, National Capital Region (NCR)

Introduction

Background of Substance Abuse and Addiction in Youth

Substance abuse and addiction among youth, especially those aged 14-24, represent a significant public health concern globally. In the National Capital Region (NCR) of India, this issue is particularly pronounced due to factors such as urbanization, peer pressure, academic stress, and easy access to drugs and alcohol. Substance abuse refers to the harmful or hazardous use of psychoactive substances, including alcohol, tobacco, and illicit drugs, which can lead to addiction and various adverse health outcomes.

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The prevalence of substance abuse among youth in the NCR is alarming, with studies indicating high rates of experimentation and regular use of drugs and alcohol. The use of substances not only poses immediate risks to physical and mental health but also increases the likelihood of engaging in risky behaviors such as unsafe sex, violence, and criminal activities. Moreover, substance abuse among youth often co-occurs with other mental health issues such as depression, anxiety, and conduct disorders, further exacerbating the negative consequences.

The consequences of substance abuse and addiction among youth are multifaceted and far- reaching. They include adverse effects on academic performance, impaired cognitive functioning, strained family relationships, social isolation, legal troubles, and increased risk of accidents and injuries. Additionally, substance abuse can hinder the individual's personal and professional development, leading to long-term socioeconomic disparities and reduced quality of life.

Addressing substance abuse and addiction among youth requires a comprehensive approach that encompasses prevention, early intervention, treatment, and rehabilitation. While traditional approaches to de-addiction primarily focus on detoxification and psychotherapy, there is growing recognition of the importance of incorporating skill development programs into rehabilitation efforts. These programs aim to equip individuals with coping strategies, life skills, vocational training, and social support networks to empower them to lead fulfilling and substance-free lives.

Despite the importance of skill development in the de-addiction and rehabilitation process, there is a gap in the literature regarding its impact, particularly among youth in the NCR. Therefore, this paper seeks to fill this gap by examining the effectiveness of skill development interventions in promoting recovery and preventing relapse among 100 students aged 14-24 in the NCR who have struggled with substance abuse. By understanding the background and context of substance abuse among youth in the region, this study aims to shed light on the significance of skill development in addressing this pressing public health issue.

Importance of Skill Development in De-addiction and Rehabilitation

Substance abuse and addiction are complex issues that not only affect the physical and mental health of individuals but also impact their social, academic, and vocational functioning. In addressing addiction among youth aged 14-24, skill development plays a crucial role in promoting successful recovery and preventing relapse. The importance of skill development in de-addiction and rehabilitation can be understood through the following key points:

1. **Coping Mechanisms:** Skill development programs provide individuals with effective coping mechanisms to manage cravings, triggers, and stressors associated with substance abuse. By learning healthy coping strategies, such as mindfulness, problem-solving, and emotion regulation, individuals are better equipped to navigate challenging situations without resorting to substance use.

2. **Relapse Prevention:** One of the primary goals of rehabilitation is to prevent relapse and maintain long-term sobriety. Skill development interventions focus on identifying and addressing the underlying factors contributing to addiction while equipping individuals with the skills needed to avoid relapse triggers and maintain a healthy lifestyle. These skills may include refusal skills, assertiveness training, and relapse prevention planning.

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3. **Life Skills:** Substance abuse often disrupts the development of essential life skills necessary for independent living and personal growth. Skill development programs address this gap by providing education and training in areas such as communication, decision- making, time management, and goal setting. These skills not only support recovery but also enhance overall functioning and well-being.

4. **Vocational Training:** Many individuals struggling with addiction face barriers to employment and financial stability. Skill development initiatives offer vocational training and job readiness programs to help individuals acquire the necessary skills and qualifications for gainful employment. By fostering economic independence and self-sufficiency, vocational training plays a vital role in reducing the risk of relapse and promoting social integration.

5. **Social Support:** Building a strong support network is essential for recovery from addiction. Skill development programs provide opportunities for individuals to connect with peers, mentors, and support groups who understand their experiences and can offer encouragement and guidance. These social connections promote feelings of belongingness, accountability, and motivation, which are instrumental in maintaining sobriety.

6. **Self-esteem and Empowerment:** Addiction often takes a toll on individuals' self-esteem and sense of self-worth. Skill development interventions focus on enhancing self-esteem and empowering individuals to take control of their lives. Through mastery of new skills and accomplishments, individuals gain confidence in their abilities and develop a positive self- concept, which is essential for sustained recovery.

Problem Statement:

Substance abuse and addiction among youth in urban areas, particularly in the National Capital Region (NCR) of India, have emerged as significant public health challenges. Despite various interventions, the prevalence of substance abuse remains high, necessitating a comprehensive approach to address this issue effectively. One promising avenue for intervention is the integration of skill development programs into de-addiction and rehabilitation efforts. However, there is a notable gap in the literature regarding the impact of skill development interventions on youth aged 14-24 in the NCR who are struggling with substance abuse.

Purpose of the Study:

This paper aims to investigate the effectiveness of skill development programs in facilitating the recovery process and preventing relapse among youth aged 14-24 undergoing de-addiction and rehabilitation in the NCR. Specifically, the study seeks to assess the influence of skill development on various domains of functioning, identify beneficial skills and competencies, explore participant experiences and perceptions, examine influencing factors, and provide evidence-based recommendations for tailored interventions.

Objectives:

1. Assess the effectiveness of skill development programs in promoting recovery among youth in the NCR.
2. Examine the impact of skill development on physical health, mental well-being, social relationships, academic performance, and vocational attainment.
3. Identify specific skills and competencies beneficial for supporting recovery and sustained abstinence.

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4. Explore participant experiences and perceptions regarding engagement with skill development programs.
5. Investigate factors influencing the effectiveness of skill development interventions.
6. Provide evidence-based recommendations for designing and enhancing skill development initiatives for youth in addiction treatment and rehabilitation.

Significance of the Study:

This study addresses a pressing public health concern by focusing on substance abuse among youth in the NCR, offering insights into the potential of skill development interventions to enhance treatment effectiveness and improve recovery outcomes. By tailoring interventions to youth needs, informing policy and practice, and empowering youth in recovery, this research contributes to academic literature and advances efforts to combat substance abuse in urban settings like the NCR.

Literature Review

Substance abuse among youth, particularly in urban areas like the National Capital Region (NCR), has emerged as a significant public health concern. This section provides an overview of the existing literature on substance abuse among youth, current approaches to de-addiction and rehabilitation, the role of skill development in the recovery process, previous studies on the impact of skill development programs, and gaps in the existing literature.

Overview of Substance Abuse among Youth:

Substance abuse among youth in urban areas, such as the NCR, has been on the rise in recent years. It poses profound and long-lasting effects on various aspects of young people's lives, including physical health, mental well-being, social relationships, academic performance, and future prospects.

Current Approaches to De-addiction and Rehabilitation:

Traditional approaches to addiction treatment often focus on detoxification and counseling, with limited emphasis on skill development. However, there is a growing recognition of the need for comprehensive and multidimensional approaches that address the underlying causes of addiction and equip individuals with the skills necessary for sustainable recovery.

Role of Skill Development in Rehabilitation:

Skill development programs aim to enhance individuals' abilities to cope with stress, manage emotions, make healthy choices, and engage in meaningful activities. Research suggests that acquiring new skills and competencies can help individuals in recovery build self-esteem, develop a sense of purpose, and improve their overall quality of life.

Evidence Supporting Skill Development in De-addiction:

Studies have shown that incorporating skill development components into addiction treatment programs can lead to better treatment engagement, reduced substance use, and improved psychosocial outcomes. Various interventions, such as vocational training, life skills training, and social skills training, have demonstrated effectiveness in supporting recovery.

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Challenges and Limitations:

Despite the potential benefits of skill development in addiction treatment, challenges remain in implementation, including resource constraints and resistance to change within treatment settings. Additionally, the effectiveness of skill development interventions may vary depending on individual characteristics and treatment context.

Research Gap and Rationale:

While there is growing evidence supporting the integration of skill development into addiction treatment, there is limited research specifically focused on youth populations in the NCR. This research aims to address this gap by examining the impact of skill development programs on youth in de-addiction and rehabilitation settings in the NCR, thereby contributing to our understanding of effective approaches to addiction treatment for this demographic.

Previous Studies on the Impact of Skill Development Programs in De-addiction:

Several studies have examined the impact of skill development programs in de-addiction and rehabilitation settings. These studies have shown that interventions targeting skill development can lead to improvements in employment skills, coping mechanisms, social functioning, and substance use outcomes among individuals in recovery.

Gaps in Existing Literature:

While existing literature provides valuable insights into the impact of skill development in de- addiction and rehabilitation, there are several notable gaps that warrant further exploration.

These include limited research in the NCR region, a lack of focus on youth populations aged 14-24,limited longitudinal studies, insufficient diversity in intervention models, and the need for mixed-methods research to capture both quantitative and qualitative outcomes.

In conclusion, addressing these gaps in the literature through rigorous research efforts can enhance our understanding of the role of skill development in de-addiction and rehabilitation, inform evidence-based practice, and ultimately improve outcomes for youth struggling with substance abuse in the NCR and beyond.

Methodology

Introduction:

The methodology employed in this research paper aims to investigate the effects of skill development interventions on addiction recovery among youth aged 14-24 in the National Capital Region (NCR). A mixed-methods approach combining quantitative surveys and qualitative interviews will be used to gather comprehensive data and insights.

Research Design:

The research design consists of quantitative surveys and qualitative interviews, integrating both components to provide a deeper understanding of the phenomenon under investigation. Surveys collected quantitative data on demographic information, substance use history, self-efficacy, motivation for recovery, and skill development outcomes. Triangulation of quantitative and qualitative data enhanced the validity and reliability of the findings.

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Participants:

Participants were the youth aged 14-24 residing in the NCR with a history of substance use, currently undergoing or having completed rehabilitation programs. Convenience sampling methods were used to recruit 100 participants, ensuring diversity in gender, socio-economic status, and type of substance use. Informed consent was obtained from all participants.

Data Collection:

Data collection methods include structured survey questionnaires and qualitative interviews, the reliability and validity of which were established by discussing with experts. Surveys collected quantitative data on various aspects of skill development, addiction, and recovery, while interviews provided in-depth insights into participants' experiences and perspectives.

Data Analysis:

Descriptive statistics summarized demographic characteristics and key factors related to addiction and recovery. Inferential statistics, including hypothesis testing, correlation analysis, and regression analysis, were employed to assess relationships and test hypotheses.

Qualitative data was analyzed using thematic analysis to identify recurring themes and patterns.

Conclusion

The methodology outlined in this research paper provides a robust framework for investigating the impact of skill development in addiction recovery among youth in the NCR. By integrating quantitative and qualitative methods, this study aims to generate valuable insights that can inform the development of effective interventions and support services for youth undergoing rehabilitation programs in the NCR.
Survey Questionnaire

1. Gender:
   - Male
   - Female
   - Other (please specify)
2. Age:_____years
3. Educational Level:
   - Currently enrolled in school
   - High school graduate
   - College student
   - College graduate
   - Other (please specify)
4. Socio-economic Status:
   - Low-income
   - Middle-income
   - High-income

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Section 2: Substance Use History

5. Have you ever used any addictive substances (e.g., alcohol, tobacco, drugs)?
   - Yes
   - No
6. If yes, please specify the type(s) of substance(s) used:
   - Alcohol
   - Tobacco
   - Marijuana
   - Prescription drugs
   - - Illicit drugs (please specify)
7. Age of initiation of substance use:___years
8. Frequency of substance use:
   - Daily
   - Weekly
   - Monthly
   - Occasionally
9. Duration of substance use:__years

Section 3: Skill Development and Rehabilitation

10. Are you currently enrolled in any skill development program related to de-addiction and rehabilitation?
    - Yes
    - No
11. If yes, please specify the type(s) of skill development program(s) you are enrolled in:
    - Vocational training
    - Cognitive-behavioral therapy (CBT)
    - Art therapy
    - Music therapy
    - Sports and recreational activities
    - Other (please specify)
12. How effective do you find the skill development program(s) in supporting your recovery from addiction?
    - Very effective
    - Somewhat effective
    - Neutral
    - Not very effective
    - Not at all effective
13. What specific skills or activities have you found most helpful in your recovery process? (open-ended)
14. What are the biggest challenges you face in maintaining sobriety and recovery?
    - Social pressure
    - Emotional triggers
    - Lack of support
    - Stigma and discrimination
    - Access to treatment and support services
    - Financial constraints
    - Other (please specify)

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15. How do you think skill development programs can address these challenges? (open- ended)
16. Do you have access to supportive resources or networks to help you in your recovery journey?
    - Yes
    - No
17. If yes, please specify the types of support you receive:
    - Family support
    - Peer support groups
    - Professional counseling
    - Community organizations
    - Religious or spiritual support
    - Other (please specify)
18. How important do you think supportive relationships and networks are in the recoveryprocess?
    - Very important
    - Somewhat important
    - Neutral
    - Not very important
    - Not at all important

Results

Category	Percentage
A. Demographic Profile	
Gender	
- Male	55%
- Female	43%
- Other	2%
Age Distribution	
- Age 14-18	35%
- Age 19-24	65%
Educational Level	
- Currently enrolled in school	14%
- High school graduate	26%
- College student	45%
- College graduate	15%
Socio-economic Status	
- Low-income	13%
- Middle-income	77%
- High-income	10%

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B. Prevalence of Substance Abuse	
Substance Abuse	
Category	**Percentage**
- Yes	65%
- No	35%
C. Skill Development Programs Attended	
Skill Development Programs	
- Vocational training	30%
- Cognitive-behavioral therapy (CBT)	20%
- Art therapy	15%
- Music therapy	10%
- Sports and recreational activities	5%
- Other	20%
D. Perceived Impact of Skill Development Programs	
Impact of Skill Development Programs	
- Very effective	35%
- Somewhat effective	25%
- Neutral	10%
- Not very effective	15%
- Not at all effective	15%

Findings

1. ***Gender Distribution:***
   - The sample exhibits a slight predominance of males (55%) over females (43%), with a small percentage identifying as "Other" (2%), suggesting a relatively balanced representation of genders.
2. ***Age Distribution:***
   - The majority of participants fall within the age range of 19-24 years (65%), indicating a significant presence of young adults. A smaller proportion are aged 14-18 years (35%).
3. Educational Level: - Most participants are either college students (45%) or high school graduates (26%), indicating a higher representation of individuals in higher education or secondary education completion stages.
4. ***Socio-economic Status:***
   - The majority of participants belong to middle-income households (77%), with smaller proportions from low-income (13%) and high-income (10%) households.

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5. ***Substance Use History:***
   - Approximately 55% of participants have a history of substance use, with alcohol (31%), marijuana (29%), and tobacco (18%) being the most commonly reported substances.
6. Frequency of Substance ***Use:***
   - Substance use frequency varies, with occasional use (45%) being most common, followed by weekly (23%), daily (18%), and monthly (14%) use.
7. ***Enrollment in Skill Development Program:***
   - The majority of participants (62%) are enrolled in skill development programs related to de- addiction and rehabilitation.
8. ***Type(s) of Skill Development Program(s) Enrolled In:***
   - Commonly enrolled programs include cognitive-behavioral therapy (CBT) (29%), vocational training (21%), and art therapy (12%).
9. ***Effectiveness of Skill Development Program:***
   - Participants perceive skill development programs as effective, with 38% rating them as "very effective" and 23% as "somewhat effective".
10. ***Challenges Faced in Maintaining Sobriety and Recovery:***
    - Participants report various challenges, including emotional triggers (40%) and lack of support (32%).
11. ***Support Resources Available:***
    - Participants have access to professional counseling (32%), peer support groups (29%), and family support (28%).
12. ***Importance of Supportive Relationships:***
    - The majority (65%) perceive supportive relationships and networks as very important in the recovery process.

These findings offer comprehensive insights into the demographic characteristics, substance use patterns and participation in rehabilitation programs, perceived challenges, and available support resources among the participants. Further analysis can provide deeper insights into intervention effectiveness and areas for improvement in addiction recovery programs.

Discussion

Implications for De-addiction and Rehabilitation Practices

The analysis of the data from the 100 filled forms reveals several significant implications for de-addiction and rehabilitation practices:

1. Tailored Interventions Based on Demographic Profiles: Understanding demographic characteristics allows for tailored interventions to meet specific needs. Programs may address peer pressure for young adults and accessibility for those from low-income backgrounds.
2. Comprehensive Substance Use Assessment and Treatment Planning: Given the prevalence of substance use, individualized treatment plans addressing substance use patterns and co- occurring disorders are essential.

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3. Diverse Skill Development Programs: Offering a variety of evidence-based interventions, including cognitive-behavioral therapy (CBT) and vocational training, provides holistic support for recovery.
4. Continuous Evaluation of Program Effectiveness: Regular evaluation and participant feedback are crucial for ensuring programs meet participant needs and produce positive outcomes.
5. Addressing Barriers to Recovery: Interventions should target identified barriers such as emotional triggers and lack of support, through coping strategies and anti-stigma campaigns.
6. Promotion of Supportive Relationships and Network: Fostering supportive environments through family involvement and peer support groups enhances engagement and accountability.
7. Integration of Peer Support and Family Involvement: Incorporating peer support groups and family involvement can further enhance recovery outcomes.
8. Accessibility and Equity in Service Delivery: Efforts to reduce financial barriers and expand outreach to underserved communities are necessary for equitable access to services.

By incorporating these implications, service providers can enhance the effectiveness of interventions, ultimately supporting individuals in sustained recovery.

Strengths and Limitations of the Study

Strengths:

1. Diverse Sample: The study includes a varied sample, enhancing generalizability.
2. Comprehensive Data Collection: Detailed information provides a comprehensive understanding of participants' experiences.
3. Quantitative and Qualitative Data: Combining both offers nuanced insights.
4. Real-world Relevance: Addresses real-world challenges, offering practical implications.

Implications and Limitations:

1. Self-report Bias: Potential biases in self-reported data may influence accuracy.
2. Sample Bias: The sample may not fully represent the population seeking rehabilitation services.
3. Limited Generalizability: Findings may not apply universally, particularly across different cultural backgrounds.

Recommendations for Future Research

1. Longitudinal Studies: Track recovery trajectories over time.
2. Comparative Studies: Assess effectiveness of different interventions.
3. Cultural and Contextual Factors: Explore diverse populations' unique needs.
4. Mixed-Methods Approaches: Combine quantitative and qualitative methods.

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5. Evaluation of Program Components: Identify most effective intervention elements.
6. Technology-Based Interventions: Investigate feasibility of tech-based support.
7. Community-Based Interventions: Explore role of community organizations.
8. Tailored Interventions: Develop interventions specific to demographic groups.
9. Prevention Strategies: Focus on prevention targeting at-risk populations.
10. Health Equity and Access: Investigate disparities in access to services.

Addressing these areas in future research will advance understanding and improve interventions for addiction treatment and recovery.

Conclusion

In conclusion, the findings of this study shed light on various aspects of substance use, recovery, and rehabilitation practices among individuals aged 14-24. The demographic profile revealed a predominantly young adult population, with a fairly balanced gender distribution and a majority belonging to the middle-income bracket.

Substance use was prevalent among the participants, with alcohol, marijuana, and tobacco being the most commonly reported substances. However, a significant proportion of individuals were also engaged in skill development programs related to de-addiction and rehabilitation, indicating a proactive approach toward recovery.

While many participants perceived these programs as effective in supporting their recovery, challenges such as emotional triggers, lack of support, and social pressure were commonly reported barriers. Nevertheless, supportive relationships and networks were considered crucial in the recovery process, highlighting the importance of social support systems.

Strengths of the study include its focus on a specific age group and the comprehensive exploration of various factors related to addiction and recovery. However, limitations such as potential biases in self-reported data and the lack of generalizability to other populations should be acknowledged.

Overall, these findings underscore the need for tailored interventions, continued research, and the development of comprehensive support systems to address substance abuse and promote successful recovery among young individuals. By addressing the identified challenges and building upon the strengths of existing programs, we can work towards more effective strategies for addiction treatment and rehabilitation in this population.

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INNOVATIVE SCHOOL EXPERIMENTS

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Analyzing an Alternative Approach to Education Delivery in Badakhshan Province: The COVID-19 Emergency Response Plan of Afghanistan's Ministry of Education

Zulaikha Delju

Abstract

This paper examines the emergency response strategy for education during the COVID-19 pandemic in Badakhshan, Afghanistan. The main focus was to examine the policy's goals and achievements in accessing education. The study used qualitative, semi-structured interviews with administrators, teachers, and students who were in schools during the pandemic. The results show a number of challenges (faced to access education as per emergency), Lack of network coverage, a shortage of electricity, and insufficient knowledge of technology literacy among instructors and students are among the most pressing challenges. Meanwhile, the academic year ended for the schools at the same time following assessments, which was challenging for those who did not access any source of education and had to pass the assessments. The study emphasizes that there is a need for the restructuring of education systems with a focus on minimizing these barriers and ensuring efficient instruction in emergency situations.

Keywords: COVID-19**;** Education**;** Technology Integration; Network Outreach; Access; Emergency Response.

Introduction

Education is crucial to a healthy community and a nation's future. Afghanistan has had a turbulent history, and today it struggles to receive a solid education. Afghanistan's development, social harmony, and youth opportunities depend on its education system.

During COVID-19 in Afghanistan, the Ministry of Education, under the direction of the President, created an emergency response strategy to address the COVID-19 pandemic's effects on education. In order to maintain the students' education at home, the strategy aims to make use of the ministry's assets and capabilities. In addition, the strategy is to put numerous cutting-edge methods into practice while taking into account the pandemics medical and health guidelines, such as distance learning, using television and mobile devices, and educating in small groups (Ministry of Education, 2020).

In March 2020, the World Health Organization declared COVID-19 a global pandemic. In 200 countries, 35 million people got sick, and around 1 million people died. Afghanistan is a war-torn country and sustains itself on international funds; therefore, providing healthcare is not easy due to limited services, a shortage of qualified healthcare workers, and the condition of hospitals. Afghanistan's Ministry of Public Health began getting ready for COVID-19 in December 2019. The poor make up most of the 32 million people who live in rural places. The Ministry of Public Health's early estimates suggested that 80% of the people in Kabul,

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the country's capital, could get sick, and if COVID-related health measures were not practiced, over 125,000 people could die (Basij-Rasikh et al., 2020).

During the COVID-19 outbreak, the Ministry of Public Health announced that it was important to follow the COVID-19 prevention instructions. The Ministry of Public Health delivered warnings that, if not taken seriously, up to 80% of the population may get sick or die. Authorities implemented measures at all levels, including quarantine and distancing in all places, even airports. The Intensive Care Unit (ICU), isolation rooms, and isolation centers were prepared. On the other hand, several strategies have been developed to control the spread of the COVID-19 virus in the country (Prisno et al., 2020)."Alternate Education Service Delivery COVID-19 Emergency Response Plan" was a strategic plan of the Ministry of Education and proposed three alternate learning options: self-learning, distance learning, and small learning groups.

The Ministry was in charge of monitoring and effectively providing educational practice at all levels. However, the effectiveness of the paths was not further studied or investigated to understand how the policies were implemented and to what extent the goal of access to education was achieved. In order to analyze the policy application and consider the plan of the emergency COVID-19 reaction plan for education in Afghanistan, the study primarily makes a connection between the policy and its application. The study evaluated whether the policy's purpose and goal were met after implementation in Badakhshan, a province in northern Afghanistan. Badakhshan is one of the rural and mountainous provinces with a challenging geographical location (BBC, 2012). Badakhshan's economic stability depends on agriculture and cattle farming. Badakhshan has long winters, which limits resident road accessibility (Himalayan Database, n. d). Therefore, it lacks standard infrastructure like schools, hospitals, and roads. This study's main research focus is how did the COVID-19 Emergency Response Plan aim at providing education delivery? How successful was the education policy in responding to the COVID-19 outbreak in Badakhshan province?

Literature

Modern Education in Afghanistan

Schools in Afghanistan provide modern education, while madrasas focus on teaching Islamic and Arabic subjects. The graduates from madrasa became Mullahs and worked as prolocutor in mosques or in Islamic jurisprudence. Whereas graduates from schools can go to colleges or universities for higher education or later look for jobs in government institutions. (Sherzad et al., 2017).

Amir Habibullah made the first significant steps toward establishing an advanced system of education between 1901 and 1919. He established the Habibia Lycee in 1903, a school that utilized the same curriculum as British Indian high schools. This lycee raised many intellectuals, and even transported some students to British India to continue their education. These improvements in education led to substantial breakthroughs in fields like social literacy, newspaper accessibility, library construction, and enhanced public discourse (Yazdani, 2020).

All children had to go to primary school when King Amanullah Khan was in charge (1919–1929). The government set up the Ministry of Education during this time. There were more high schools, and German and French teachers were joined by Afghan teachers in Kabul's high schools. Initially, the schools were constructed outside the city. At the time, there were 322 elementary schools, and the department of education sent a few hundred students abroad to study in places like Turkey, Italy, Germany, and Russia. In 1921, when girls' schools first opened, the department of education sent some girls there to go to school (Khwajamir, 2016).

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Moreover, the systematic and steady advancement of Afghan education was a key priority under Zahir Shah's forty-year administration. There was a significant increase in students as a result of the construction of several schools in Kabul along with other locations. Access to education improved in the regions. From 1992 to 1996, the Mujahedeen took power, and access to education was challenged by the new government until Kabul fell to the Taliban from 1997 until 2001, especially for girls (Yazdani, 2020).

This excerpt explores what transpired in Afghanistan following the collapse of the Taliban in 2001. It adds that the Islamic Republic of Afghanistan's new government and the international community, which had pledged to support the nation's reconstruction efforts, both placed a high value on education. Both the new government of the Islamic Republic of Afghanistan and the international community, which had pledged to support the nation's reconstruction efforts, recognized the system of education as an important issue requiring assistance and attention (Yazdani, 2020).

Education System in Afghanistan

Afghanistan's official education system includes primary schools (grades 1–6), middle schools (grades 7–9), high schools (grades 10–12), and a variety of vocational training institutions, such as instructors' schools and vocational schools, which are each run by the Ministry of Education (MoE). Usually, students between the ages of 7 and 12 go to elementary school, those between 13 and 15 go to middle school, and those between 16 and 18 go to high school (Arooje & Burridge, 2020).

In Afghanistan, formal compulsory education traditionally begins at age six to ninth grade. Students have two options after the ninth grade. The Ministry of Education (MOE) is in charge of overseeing not just general education but also giving students who are interested in Islamic studies access to Islamic education. Grades 1 through 12 are covered by Madrassas, whereas grades 14 and up are covered by Dar-ul-Ulums, which offer a larger curriculum outside Quranic study, and Dar-ul-Huffaz, which emphasizes Quranic education. Each district typically has one Islamic school, and the province capitals each have one of the Dar-ul Ulum and Dar-ul Huffaz (World Bank, 2018).

In Afghanistan, children attend primary education from the age of seven to six years. There are various forms of education available at the primary school level, including community-based, home-based, and religious schools. All students must receive free and compulsory education (Afghanistan, 2020).

The secondary education system in Afghanistan consists of two three-year cycles: the Mutawasita, or lower secondary school, and the Lycee, or upper secondary education, encompassing grades 7 through 9. The latter, which includes grades 7 through 9, had 1,744,305 registered students in 2018. Moreover, the Afghan law on education says that basic education is for children in grades 1–9. Students in grades 10 through 12 of the three-year upper school education are between 16 and 18 years old. In 2017, there were 947,241 students in high schools across the country (Arooje & Burridge, 2020; Afghanistan, 2020).

Education Technology in Afghanistan

Technology in education is the study of the ways we engage in learning and how we can make it better by using scientific methods and knowledge. Laptops, gadgets, handheld devices, applications, and other tools are used in educational technology to improve and speed up the way knowledge is shared. Due to educational technology, students as well as educators can easily talk to each other and work together using a variety of

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apps and platforms (Alizada et al., 2023).In Afghanistan, the Ministry of Information and Communication Technology, along with the Ministries of Education and Higher Education, worked together to make a policy that emphasizes the use of information and communication technology (ICT) in the school system. The goal of these programs is to establish the culture of distance learning and attract scholars to help Afghan educational institutions improve their ICT (Falah et al., 2021).

However, in Afghanistan, the biggest trouble with online education in colleges and universities is that there is not enough IT infrastructure (Frough, 2019). Furthermore, a lack of technological knowledge and resources among educational actors challenged distance learning by all means. (Sarwari et al., 2022).

The effectiveness of e-learning depends on its technological infrastructure, which consists of components like device availability, access to the internet, and e-learning platforms (Hakimi et al., 2024).Improving Afghanistan's technological infrastructure is crucial because it will enable more people to receive high-quality education in locations with limited access to traditional educational resources (Brown, Jones, & Williams, 2021). The ability of educators to use digital technologies and modify their lesson plans for the online setting is critical to the success of e-learning (Karami et al., 2020).

In order to improve the use of ICT (information and communication technology) in education, the Ministries of Education (MoE) and the Ministry of Communication and Information Technology (MCIT) have decided to collaborate. Additionally, MCIT has promised to finance the execution of this agreement. The biggest difficulty, though, is properly integrating ICT into Afghan classrooms. Many research studies indicated lecturers' unwillingness to use new teaching tools during teaching in Afghanistan universities (Falah et al., 2022).

In addition only a few schools in Kabul, the country's capital, have computer labs and can provide actual computer education. Additionally, some schools just offer theoretical instruction in computer science with no practical application. It will take at least another ten years to complete the necessary infrastructure improvements in order to meet the objectives set forth by the Ministry of Education (Arooje & Burridge, 2020).

Indeed, in many parts of the country, schools struggle to get access to the internet, and many, many schools struggle to get access to electricity (Asia Foundation, 2017). The COVID-19 pandemic has caused the biggest ever disruption in education, affecting around 1.6 billion pupils across more than 190 nations on all continents. 94% of students worldwide have been impacted by school closures, with that number rising to 99% in nations with poor and lower-middle incomes (United Nations, 2020). This pandemic has had a huge impact on the educational field and has forced educational institutions to implement online-based distance learning at all levels, from pre-kindergarten to post-graduate. But because many students do not have access to the required tools and facilities, this transformation has created a number of difficulties that have had tragic results, like casualties (Rulandari, 2020).

At the highest point of the pandemic, 45 countries in Europe and Central Asia closed their schools, affecting 185 million students. Teachers and educational administrators had to quickly develop urgent online learning systems since this transition occurred suddenly, leaving them unprepared. The inability of professors and students to immediately engage, which is essential for forging a personal connection, is a drawback of emergency remote learning. However, several nations have discovered ways to enhance distance learning

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by utilizing various techniques like social networking sites, email, phone calls, and even ordinary mail. Unfortunately, evidence reveals that school closures have actually resulted in learning setbacks despite efforts to foster an advantageous remote learning environment (Donnelly et al., 2021).

Methodology

The present study employs a qualitative approach to scrutinize an alternative method of delivering education amid the COVID-19 pandemic in Badakhshan province. The primary focus is on assessing the implementation of Afghanistan's Ministry of Education's emergency response plan. Semi-structured interviews were conducted through an online platform, with each interview lasting between 20 and 25 minutes. The primary participants encompassed both male and female individuals, including principals, teachers, and students. The study targeted 8 schools spanning grades 7 to 12 in Badakhshan, with a total of 30 respondents who had direct experience with education accessibility during the COVID-19 pandemic in the province. Moreover, Purposeful sampling was employed to select participants for the study.

Analysis

In this study, the data analysis took several steps, such as translating the data from Dari to English, cleaning the data with color coding, making charts, and analyzing the primary findings. By following these rules, I gained an understanding of the data and its outcome.

Findings

After deeply analyzing the emergency response plan of Afghanistan's Ministry of Education in terms of delivering distance learning during COVID-19 and a semi-structured interview with target respondents, the data was analyzed using thematic analysis techniques. Theis study found the following obstacles that hindered the successful implementation of the emergency plan in the Northern Province of Afghanistan. While the fundamental goal of the COVID-19 emergency response plan of Afghanistan's Ministry of Education is to deliver timely access to education programs. Furthermore, it underlines the need for self-learning training packages to increase the abilities and knowledge of teachers, head teachers, and school and madrasa principals during lockdown periods (Ministry of Education, 2020).In addition, according to the Ministry of Education (2020), there are three approaches to delivering education during the COVID-19 pandemic:

A. **Self-Learning:** students will study social sciences, languages, and Islamic education independently using Ministry instructions. Moreover, regional radio stations will offer linguistic and social science seminars. Administrators and instructors will build their capabilities by following the Ministry's guidelines and using distributed learning materials (Ministry of Education, 2020).

B. **Distance learning:** distance learning programs will teach science, mathematics, and foreign languages in lower- and upper-secondary schools, in addition to elementary school core subjects. Scheduled television broadcasts will teach these subjects (Ministry of Education, 2020).

C. **Small learning groups:** when electricity, television, and cell phones are scarce and parents can't help, classrooms will be divided into 5-8 students and classes will be done in an open space. (Ministry of Education, 2020).

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Key challenges faced by principals, Teachers and Students during the COVID-19 Pandemic in Badakhshan Province

Teachers

A. **Absence of Network Coverage**

In most of the regions in Badakhshan province, learners suffered from a lack of network coverage. According to the teachers, the ministry of education provided online guidance and tutorials for teachers in terms of teaching during the pandemic on the ministry's website, to which teachers could refer and use the contents. However, the shortage, breakage, and low signals of internet coverage at the district level were ignored, and teachers were not able to follow the emergency plan. Indeed, the targeted participants in Faizabad did not face connective challenges, but the internet high price was another form of limitation for them.

B. **Internet Affordability**

During the interview with teachers both from remote areas and center of Badakhshan province, teachers have complained about the high price of internet. According to the teachers, during the pandemic, in one hand the price of food and every things got double on the other hand teacher's salary is very low which they cannot afford to even pay for internet from their own salary to teach online.

"I live in the center of Badakhshan province, there was internet coverage, but during the COVID- 19, the price was too high, and teachers' salaries were too low to cover the expense, so we were not able to pay for a data bundle" (Teacher).

Students

C. **Lack of Electricity**

Energy shortages in areas of Badakhshan province challenged the use of digital gadgets and online learning. Students in both urban and remote areas cannot follow television broadcasts, which serve as a medium for instruction. On top of that, electricity accessibility in the entire country is a challenge, especially in rural areas. However, according to the emergency plan of the Ministry of Education in Afghanistan in the areas of electricity shortage, small learning groups of 5-8 students were planned to be formed. Teachers will deliver lessons for these groups in open areas in the villages. However, the plan was realistic based on the plan in practice and was not practical during the pandemic. Meanwhile, all the education facilities were closed, and neither principals, teachers, nor students had access to e-learning.

"In our district, each family has their own single wind electric resource, which is only for lighting, and the capacity is not enough for televisions or other electronic devices"(Student).

D. **Limited Knowledge of Technology**

Badakhshan is a rural area with limited access to technology; therefore, teachers and students both lacked experience with and knowledge of technological tools, which challenged them to adjust to online learning environments and make efficient use of digital resources. The findings indicate all the respondents especially students in remote areas complain about the low literacy of teachers in modern technology. Moreover, the students were not familiar with the world of technology, including computer practical knowledge, as the computer lessons always have been delivered theoretically at schools. There for it challenged students to learn online.

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"Since I remember, I never had any electronic device, either a mobile phone or a computer "(Students).

E. **Lack of Technological Equipment**

Learners and educators faced difficulties accessing educational opportunities due to the lack of technological devices to enter online learning. In remote areas at the beginning of the COVID-19 virus, schools were open for two months, and with the cooperation of the Agha Khan Foundation (AKF), they distributed antiseptics, masks, sanitizers, and other first aid items for the prevention of the virus. Moreover, in the second wave of the COVID-19 pandemic, schools closed. During the pandemic, only a few learners and educators had access to technological devices or equipment both in rural areas and in the centers of Badakhshan province. Which resulted in the failure of the emergency response to the COVID -19 pandemic.

"During the covied-19 neither ministry of education nor foreign organizations provided any technological device which could help to access online materials" (Student).

Principals

According to principals in Badakhshan Providence, during the pandemic, the quality of education decreased almost to zero. Besides, in the first phase of COVID-19, students and teachers absences were a challenge for principals. While the second phase of the coronavirus caused the closure of all schools in this area, Moreover, the principals struggled to effectively execute their annual plan. Accordingly, without teaching and examinations, students were promoted to higher classes, and the 12th grade students could not succeed in the entrance (Kankor) exam or the public exam for entering universities. Additionally, the health and safety of students and staff were another challenge for principals. Training teachers, managing the distances between students in small groups, and providing separation classes and teachers for all during the first and second phases of COVID-19 were the most challenging moments for principals.

"In rural areas people are not used to of face mask or sanitizer and making students to using masks was the difficult part for us" (principle).

Discussion

Considering the above issues in the alternative approach to education delivery in Badakhshan Province during COVID-19, the education delivery as per the emergency response plan by the Ministry of Education did not achieve its goal. It is to say that the lack of technological devices and equipment, the absence of network coverage, the lack of electricity, the limited knowledge of technology, and the challenges faced by principals, teachers, and students during the COVID-19 pandemic were not under the control of the ministry of education.

Therefore, these situations require collective action. According to the Asia Foundation (2017), most schools in Afghanistan lack access to the solid infrastructure needed to use technology in classrooms. Similarly, in another study, Arooje and Burridge (2020) indicated that it is sorely contestable in the near future that rural areas in Afghanistan could have access to ICT education, computer labs, computer classes, and e-learning programs. Preparing the necessary infrastructure will take more time to achieve the objective set by the Ministry of Education.

Additionally, as indicated in another study by Falah et al. (2022), the Ministries of Education and Communication and Information Technology agreed to collaborate in order to improve the use of Information

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and Communication Technology in education. Accordingly, the Ministry of Communication Information Technology (MCIT) also provided financial support for the execution of this agreement. Unfortunately, despite agreement and collaboration, the Ministry of Education's alternative approach to education delivery during COVID-19 was not successfully implemented in Badakhshan province, as discovered through interviews conducted for this study.

To address the above issues, this study suggests a wider collaboration between the Ministry of Education and the Ministry of Energy and Water, as well as collaboration between the Ministry of Health and the Ministry of Communication Information Technology. Further, there should be collaboration with telecommunications companies in Afghanistan to address the highlighted issues in this study in case of another emergency situation. However, despite being a large province with 28 districts, only a few districts were studied in the present paper, highlighting the need for further research.

Conclusion

Limited access and knowledge of technology smartphones computers and internet connection challenged the participants to access distance learning during COVID - Pandemic in Badakhshan Province. The emergency plan did consider the geographical location therefore, the television broadcasts, distance learning, small group learning in open space did not achieve the plan result.

Principals, instructors, and students encountered a variety of difficulties during the COVID-19 pandemic. School closings disrupted regular education, resulting in less teaching and learning and a decline in educational quality. Fear of the infection had an impact on students' attendance and participation in class activities. Without adequate assessments, teachers have trouble assessing the learning outcomes of their students. The impact on the overall educational environment resulted in teacher unhappiness and decreased student academic achievement.

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Digital Storytelling: An Intervention in Improving Learners' Reading Comprehension Skills

Randy O. Pedros, James A. Hinautan and Melody D. Bernardez

Abstract

This study aimed to determine the effectiveness of digital storytelling technique in improving the reading comprehension skills of Grade 3 learners of Guio-ang Elementary School, District of Guindulman, S.Y. 2020-2021. It mainly determined the reading comprehension level of the learners before and after using the digital storytelling technique and showed how it is effective in improving the learners' reading comprehension level. Through one-group pretest-posttest experimental research design, 20 grade three learners with reading performance below an independent level were exposed to the digital storytelling technique. The researchers purposively selected these participants to obtain more accurate results. It was revealed that the pretest recorded a mean score of 2.95 (Sd = 0.96) and a mean score of 4.90 (Sd = 0.85) substantiated the post-test result. Moreover, there was a remarkable increase of 1.95 in the mean post-test score of the participants after utilizing the digital storytelling technique. To conclude, the digital storytelling technique is a potent way of improving the learners' reading comprehension. Thus, it was recommended that teachers are encouraged to employ the digital storytelling technique in teaching reading regardless of what learning modality is adopted; a similar or parallel study may be conducted to explore its effectiveness in understanding concepts in other subject areas.

Keywords: Digital Storytelling Technique, English Language Teaching, Experimental Research, Reading Comprehension

Introduction

Storytelling in the classroom has been used to teach reading skills such as vocabulary and comprehension, among others. Through the years, storytelling has never lost its charm to children. It is an activity that they tend to enjoy.

DepEd (Department of Education) Memorandum No. 338, Series of 2009 states that one way of capturing the lessons is through stories. It is a creative and powerful way to increase the consciousness and understanding of young minds. With the help of an engaging storyteller, children will begin to appreciate the values embedded in stories.

Due to the pandemic, schools were forced to cancel face-to-face classes, and many changes and adaptations were made to continue learners' learning. To improve literacy, teachers may shift traditional storytelling mediums to the digital sphere to continue helping the learners develop 21st-century literacy skills even in the comfort of their homes. Literature about digital storytelling suggests its significant effects in developing learners' reading comprehension.

Isbel, Sobol, Lindauer, and Lowrence (2004) studied the potential impact of storytelling on comprehension and story reading on children's language development between the ages of 3 and 5. The study had two

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groups. The first group listened to the stories while the second read aloud from a book. After the reading tests were conducted, they discovered that children's language development and understanding had increased due to storytelling and story reading.

Sultan, Nafi, Al-abed (2018) investigated the possible influence of listening to short stories on the reading comprehension skills of fifth-grade learners. Eighty-seven fifth-grade learners were purposively selected, which were assigned to control and experimental groups. Between control and experimental groups, the latter did better in the reading comprehension test. As a result, they recommended modern methods of teaching short stories to improve learners reading proficiency.

Using digital storytelling in reading lessons helps learners comprehend the meaning and develop their thinking, linguistic abilities, and study strategies. Moreover, they can learn new vocabulary, ask questions, examine information, form decisions, and create coherent reasoning to support a point of view. Moreover, the traditional storytelling technique is not applicable due to a health crisis.

Stipulated in the Republic Act No. 7836 of Magna Article VIII, Section 9 mandates teachers to take immediate steps that promote learning. They shall provide interventions in resolving the learners' issues and problems to increase learner performance. With the availability of various technological gadgets, teachers may employ other ways of narrating the story. Varying the way one shares a story, especially with technology, adds to the excitement and interest. Teachers can provide varied learning opportunities, especially those that will call their attention, such as digital storytelling.

In DepEd Order No. 173, s. 2019 entitled, "Hamon: Bawat Bata Bumabasa," the department stated the overall results of the national assessment conducted and the results revealed that there are many learners who did not meet the expectations in early language and literacy and low-performance rate in other subject areas was most likely due to learners' low reading comprehension profile. Also, the Filipino learners garnered a score of 340 against the 487-point score during the 2018 Program for International Student Assessment in reading comprehension. This showed that our learners' reading performance was poor (Perez, 2019).

Moreover, the Phil-IRI posttest results in English of Guio-ang Elementary School for S.Y. 2019-2020 showed that out of the 183 pupils, 74 pupils or 39% were frustration readers, 67 pupils or 32% were instructional readers, and 54 pupils or 29% independent readers. Furthermore, for S.Y. 2020-2021, the Phil-IRI pretest results in English of the Grade 3 class of Guio-ang Elementary School revealed that only 20 of 61 learners, or 33% scored 14 and above in the Group Screening Test in English. Thus, they are considered independent readers. There are 14 or 23% instructional readers and 27 or 44% frustration readers. This scenario could be a reality also in other schools, which causes great concern to teachers. Addressing this issue, improving learners' reading proficiency as part of the schools' reading program must be given great attention.

The researchers, comprising the school principal, an English teacher, and the school's ICT Coordinator, bring a diverse range of expertise to this study. Recognizing the limited attention given to digital reading techniques in existing literature, the researchers are motivated by the pressing issue of poor reading comprehension among learners. Despite the provision of conventional instructional materials, observations in reading classes revealed persistent challenges in learners' comprehension abilities. In response, the researchers are resolute in their commitment to investigate the potential impact of digitized storytelling on enhancing reading comprehension skills. Their determination is fueled by a desire to remain at the forefront of educational innovation and ensure their teaching practices remain relevant and captivating to their students.

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Research Questions

This study aimed to determine the effectiveness of the digital storytelling technique in improving the reading comprehension of Grade Three Learners of Guio-ang Elementary School, Guindulman District, School Year 2020-2021.

Specifically, it sought to answer these questions:

1. What are the reading comprehension levels of the learners prior to and following the implementation of the intervention?
2. How effective is the treatment implementation in improving the learners' reading comprehension level?

Intervention and Strategy

This action research utilized the digital storytelling technique as an intervention to improve the reading comprehension skills of learners of Guio-ang Elementary School, Guindulman District, enrolled for S.Y. 2020–2021. To realize this, the researchers employed the proposed intervention, and strategy.

The researchers carefully selected three appropriate grade-level stories as the materials to be used in the conduct of the study. The passages, "The Crow and the Pitcher", "The Little Red Hen" and "Belling the Cat" were selected and used. The selected stories were converted into digital format using the Filmora9 Wondershare. The researchers combined still and motion pictures to show the storyline. Background music, and sound effects were also added to give life to the presentation. Moreover, the proponents used their own voice to narrate the story. Supplementing the voice-over were the subtitles for the learners to read. The outputs in mp4 format were quality assured by the District Learning Resource Coordinator in the district. The implementation of the Digital Storytelling technique in this research work follows three stages. Below is the Intervention Strategy Process Flow of the study.

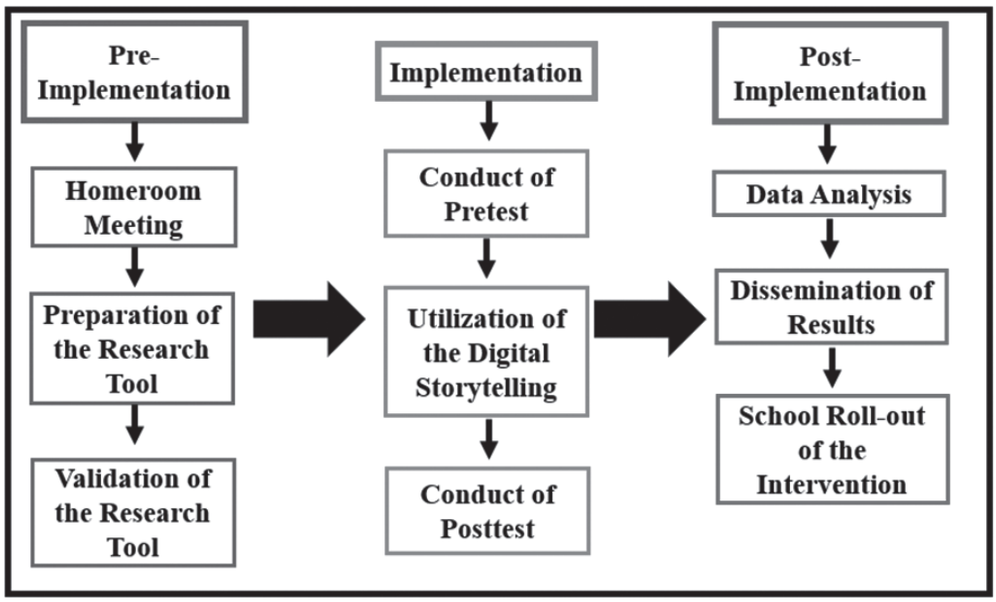


Figure 1: Intervention Strategy Process Flow

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Methodology

Research Design

The study employed an action research design, integrating the Digital Storytelling Technique. Action research, tailored for educators to address classroom challenges and refine professional methodologies, served as the framework to assess the enhancement of learners' reading comprehension skills through digital storytelling. Additionally, it outlined the reading comprehension proficiency of learners' post-intervention implementation.

Research Locale

The research study was conducted at Guio-ang Elementary School, which is a public school under the Schools Division of Bohol, within the Department of Education. It is situated in Guio-ang, Guindulman, Bohol, Philippines. Established in 1939, the school currently accommodates 344 learners for the school year 2020-2021. It consists of two sections each for Kindergarten through Grade 6.

Research Participants

The participants of this research were twenty Grade 3 learners, comprising 12 boys and 8 girls from Guio-ang Elementary School. They were purposively selected using a purposive sampling technique. Specifically, learners under the frustration level were intentionally chosen by the researchers to ensure the accuracy and relevance of the results.

Research Instrument

The primary research instrument used in this research work was three sets of researcher-made test questions. These researcher-made test questions were administered on separate occasions. The said tool measured the reading comprehension skills of the learners. The reading comprehension questions were derived from the stories provided to the learners. These items were categorized as literal, inferential, and evaluative. The tools were validated through face validity.

Data Gathering Procedure

During the conduct of this research study, strict adherence and compliance with public minimum health standards and protocols were observed due to the pandemic.

With approval from the researcher's immediate supervisor, along with consent from the parents of participants and permission from the school head to conduct the study, the implementation of the proposed intervention and strategy followed.

In the implementation of the intervention, each learner was provided with a hardcopy of the passage and a reading comprehension pretest during the distribution of the self-learning modules (first day of the week). Parents, following instructions provided by the class adviser, facilitated their child's reading of the story and completion of the pretest at home. The answered pretests were returned during the retrieval of the self-learning modules (last day of the week), and in turn, participants were given a copy of the digital story shared via Bluetooth and a reading comprehension posttest. Learners viewed the digital story and answered the posttest thereafter. The intervention ran for three weeks.

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The researchers checked and recorded the learners' results from their posttests, compared and treated the data with appropriate statistical tools. Then, the researchers stored all answered questionnaires in a secure location accessible only to the researchers. The study's reflections, conclusions, and recommendations were formulated based on the gathered data and were communicated to other teachers through the School Learning Action Cell (SLAC). Moreover, the researchers conducted capacity building for all reading coordinators of schools in the district to help them find ways to integrate this technique into their respective schools' reading programs.

Data Analysis

The statistical tools utilized in this study were mean scores and mean difference. Mean scores were employed to characterize the level of learners' reading comprehension, whereas mean difference was utilized to assess the effect of implementing the intervention on the reading comprehension of grade three learners.

Results and Discussion

Learners' Comprehension Level Pre and Post Intervention

Table 1 shows the mean score of the 20 participants in a 6-item reading comprehension pretest and posttest administered by the researchers throughout three series.

Table 1 Learners' Comprehension Level before and after the Utilization of the Digital Storytelling Technique

Week	No. of Items	No. of Pupils	Pre-test Mean Score	Interpretation	Posttest Mean Score	Interpretation
1	6	20	2.80	Poor	4.80	Excellent
2	6	20	2.95	Poor	4.90	Excellent
3	6	20	3.10	Poor	5.00	Excellent
Overall	6	20	2.95	Poor	4.90	Excellent

Legend: 0.00 – 1.50 Very Poor 1.51 – 3.00 Poor 3.01 – 4.50 Good 4.51 – 6.00 Excellent

It revealed that the pretest recorded a mean score of 2.95, and a mean score of 4.90, substantiate the post-test result. It means that the learners' reading comprehension was poor; however, they progressed to excellent after the digital storytelling technique was employed. Such result is in consonance with the observations of Hamdy (2017), where the post-test standard deviation of the control group was higher than that of the post-test of the experimental group.

Impact of the Intervention

Table 2 shows the significant increase in the mean scores of the grade three learners after implementing the Digital Storytelling technique. A significant increase of 1.95 in the mean post-test score of the participants was evident. This increase is the effect of the treatment implementation. Hence, it is safe to say that said intervention can be a powerful instructional technique in improving learners' reading comprehension.

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Table 2	Significant Improvement in Mean Scores of the Grade Three Learners after using the Digital Storytelling Technique					
Grade level	**No. of Items**	**No. of Pupils**	**Pretest Mean**	**Posttest Mean**	**Increase**	**Interpretation**
3	6	20	2.95	4.90	1.95	Significant

The present study's results are consistent with Radaideh, Al-jamal, and Sa'di (2020), whose research demonstrated that implementing Digital Storytelling during reading activities led to gains in reading comprehension among students.

Conclusions

The fact that the participants could read the story or passage but failed in the reading comprehension pre-test, as evidenced by low scores, proved that they need further reading intervention. Using Digital stories help the learners visualize the context and understand the text because of the images (still and motion) used. These pictures and animations enhanced readers' attention as they no longer concentrate on word recognition, allowing them more time to understand the word's meaning, resulting in their comprehension. Also, the visual elements helped them understand abstract ideas present in the story as they could see what was happening in the story. Moreover, light, color, sound, and voice-over add color to the presentation, which in a way help enhance their engagement and understanding. Also, the text or subtitle helps learners increase their reading speed. Thus, digital stories are effective tools that teachers can use to develop their learners' reading comprehension skills.

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Daily Routine Reading Exercises: A Strategy in Enhancing Student Comprehension in The Philippnes

Mary Jane L. Coranez

Abstract

Reading comprehension is an important skill for every student. Brandon (2021) emphasized that without it, student gain no meaning from what they read. Manaog (2020) stated that the Program for International Student Assessment (PISA) results of 2018 revealed that 80% of Filipino students did not achieve the minimum reading comprehension. Ozowuba (2018) noted that the academic performance of students is influenced by their level of proficiency in their language of instruction connected to limited comprehension and reading ability. Students who struggle to read and comprehend struggle in all subjects. The Daily Routine Reading Exercises are short texts reading exercises given to the students every day as a part of their classroom routine activity to aid the struggling readers to practice and enhance students' reading comprehension skills. The researcher employed descriptive research design using the survey questionnaire as a data gathering tool as assessed by English teachers from selected public secondary schools in Cluster I, North I District, City of Caloocan. The extent of effectiveness of the use of Daily Routine Reading Exercises in enhancing student reading comprehension got an average weighted mean of 3.06 or High Extent and with a Wm of 3.33 or Very High Extent Used as reinforcement in teaching reading, in helping the students develop and enhance their comprehension skills.

Keywords: Daily Routine Reading Exercises, Strategy, Enhance, Reading Comprehension

Introduction

One of the most important skills a person can obtain is reading comprehension. Brandon (2021) emphasized that without it, people gain no meaning from what they read. Comprehension is the foundation for all reading processes. It plays a vital role as foundation and the ultimate objective of the reading learning process. The capacity of the readers to apprehend what they are reading, interpret thoughts, and make use of what one learns from studying to real-life conditions represents comprehension. Being able to decode and understand the meaning behind the text helps one develop intellectually, socially and professionally.

Manaog (2020) stated in a 2018 global survey of 600,000 students for the Program for International Student Assessment (PISA), participating Filipino students around the age of 15 had 340 points of reading comprehension, may below the average of 487 points. As a result, the Philippines was the last of the 79 countries in the survey. Consequently, 80% of Filipino students did not achieve the minimum reading comprehension.

In addition, Sadongdong et al. (2019) stated that the overall results of the national assessment showed that learners struggle to meet learning standards in early language, literacy and numeracy which appear to be caused by gaps in learners reading comprehension. This means that there are many low performing learners

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who could not read and comprehend and unable to demonstrate knowledge. Apparently, there are still deficits in literacy skills both in languages and content areas among elementary and high school learners. Poor reading ability of Filipino students is a reality that needs to be recognized in order to improve the country's educational system. Briones underscored the need to strengthen the proficiency of every learner due to students' lack of reading and comprehension.

In connection to the aforementioned, in one of the public schools in Caloocan where the researcher is teaching, out of 2,857 students evidently shows that 1,237 students get low points in reading comprehension. The problem is observed based on the researcher experienced and Grade 7 English teachers in their teaching practice. The reality in the field presumably, that learning comprehension in class is still not as expected based from the results of their tasks, outputs and tests. This clearly shows from the results of their tasks, outputs and tests. Thus, reading and comprehension is a lackluster and an issue to resolve in early years of the development of the child.

To bridge the gap between the problems presented, the researcher thought of a fitted strategy which can be used in practice through the utilization of the Daily Routine Reading Exercises a Strategy in Enhancing Student Comprehension. Daily routine reading exercises is an activity to practice reading comprehension (Lopez, 2020). Creating a reading routine, a day results in a more productive form of reading. The daily routine reading exercises fills a child's mind with facts and information, helps improve writing, grammar, spelling and vocabulary. These are short texts reading exercise given to the students every day as a part of their classroom routine activity suitable to enhance low level of comprehension and struggling readers to practice and enhance students' reading comprehension skills.

The researcher aimed to determine the effectiveness of the daily routine reading exercises, a strategy in enhancing student comprehension as assessed by English teachers from selected public secondary schools in Cluster I, North I District, Division of Caloocan City, during the Academic Year 2021-2022.

Statement of The Problem

This study aimed to determine the effectiveness of the daily routine reading exercises, a strategy in enhancing student comprehension as assessed by English teachers from selected public secondary schools in Cluster I, North I District, City of Caloocan, during the Academic Year 2021-2022.

Specifically, it sought answers to the following questions:

1. How do the respondents use the daily routine reading exercises as a strategy in enhancing student comprehension?
2. What is the extent of effectiveness on the use of daily routine reading exercises in enhancing student reading comprehension?
3. What reading difficulties are encountered by the student in using daily routine reading exercises as perceived by the teachers?
4. What challenges are encountered by the teachers using the daily routine reading exercises and how are these resolved?
5. How may the findings be utilized in compiling the contextualized selections used in enhancing student reading comprehension?

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Theoretical Framework

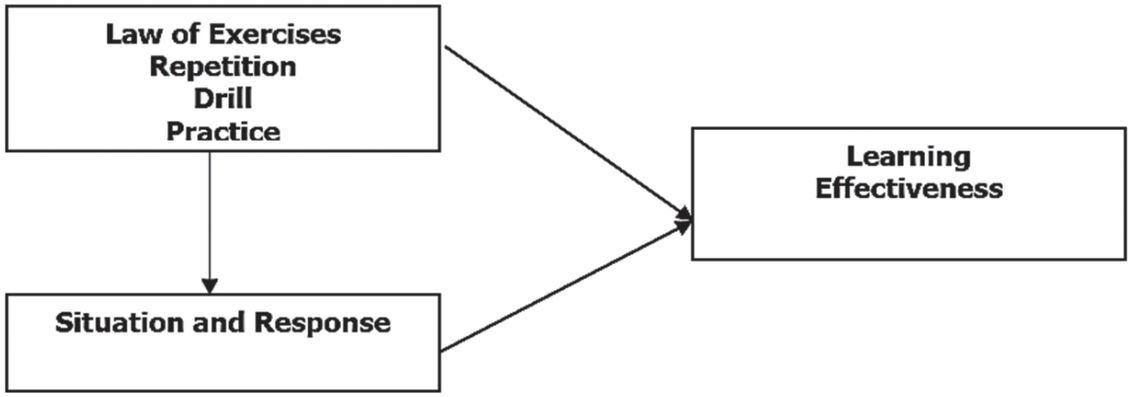


Figure 1. Thorndike's Law of Exercise

To further guide the researcher in understanding guidelines and procedures to conduct the daily routine reading exercises as strategy in enhancing student's comprehension, Thorndike's Theory of the Law of Exercise (1932) was adopted. Connections are strengthened with practice and weakened when practice is discontinued which reflects the adage "use it or lose it." The learners need to practice what has been learned in order to understand and remember the learning. Exercise is most meaningful and effective when a skill is learned within the context of a real world. Thorndike's Law of Exercise deemed on the value of repetition, drill, and practice. The term drill and practice are defined as a method of instruction characterized by disciplined, systematic repetitious exercises and concepts used as a means of teaching and perfecting a skill or procedure.

The Daily Routine Reading Exercises serves as an instructional strategy that will promote the acquisition of knowledge or skills through systematic training by multiple repetitions, rehearses, practices, and engages in a rehearsal in order to learn or become proficient reader. This also shows to develop or maintain one's specific skills and the sub skills built through drill and practice should become the building blocks for more meaningful learning.

Further, the implication of the theory in this study merely relied on the beliefs of Thorndike's law of exercise in learning. Drill or practice of exercises helps in increasing efficiency and durability of learning. This suggests that by exercising frequently and vigorously, bonds between the situation and response are strengthened.

The researcher used this theory because it is anchored to the present study wherein the teacher and parents are the knowledgeable persons who can extend efforts and patience through repetitive drills on reading as a reinforcement tool. Repetition of activities fix knowledge and enhance skills to be learned. The exercises and practice are mainly to encourage the learner who is experiencing problems and to develop the love for reading and the favorable results on competencies in reading. Moreover, the researcher looks at reading routine and habit as the foundation of reading comprehension and thinks that this might be the most appropriate model to form an instruction for her study.

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Conceptual Framework

Reading and reading comprehension nowadays remain the most needed skills of the students. Elementary and high school learners are still deficient in literacy skill both in language and content areas. In order to address the aforementioned gaps, there is a need to strengthen the reading proficiency of every learner and to nurture a culture of reading which is a requisite skill in all content areas. DepEd Memorandum No.173, s 2019 entitled "Hamon: Bawat Bata Bumabasa (3Bs Initiative)" strongly encouraged the educators to respond on this call by intensifying the advocacy for reading and by pledging commitment to make every learner a reader at at his/her grade level.

The conceptual paradigm illustrates the utilization of the Daily Routine Reading Exercise a Strategy in Enhancing Students Comprehension. This reflects that the researcher considered this daily exercise as a gear and mediating device which helps to enhance student's comprehension through persistent engagement in reading drill and practice.

This study was anchored on the concept of Bismo (2018) claimed that reading a book everyday as a part of daily activities has many significant benefits to a student. The more books the students read the more students realize the importance and see the better views of life. Daily routine reading activity of the students will help improve their knowledge, augment analytical skills, and give better writing and communication skills. In addition, Boakye (2017) mentioned the repeated constant and continuous substantial exposure to the texts help make students acquire reading speed and comprehension. Nash (2019) ten-minute daily routine reading practice can help build stronger reading skills. Inspiration was drawn from a review on the different studies and its effectiveness of the daily routine reading exercises to enhance student comprehension skill. The purpose of the concept is to help student enhance their reading comprehension, broaden their ideas, develop the habit of reading that will transform student into an independent reader and the impact will be in long term not only to make change in their entire academic trajectories as well as can be very beneficial in the life ahead and can change one's lives.

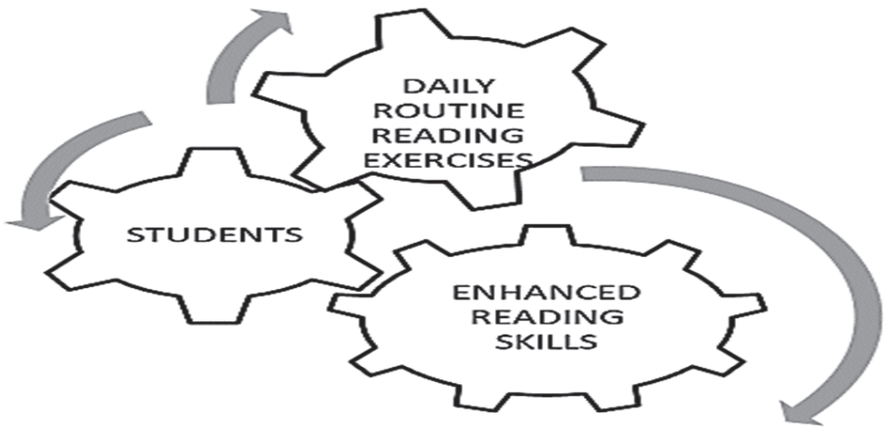


Figure 2. Conceptual Paradigm

Figure 2 explained the process of the daily routine reading exercises strategy to improve student's comprehension. In daily routine reading exercises students were given a ten-minute contextualized reading

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material with their pleasure and their level. This will elicit student's participation in engaging in reading. By using the Daily Routine Reading Exercises, like the gears they mesh and grind together, both the teacher and the students can be assisted in their own roles during the teaching and learning of reading. The students can be helped to improve their comprehension skills and the teacher can be more involved and active to guide the students during the reading session every day. Hardy (2018) emphasized that a ten-minute routine of learning and reading can develop a powerful memory. It helps someone to be a powerful thinker and develops to become extremely intelligent. Thus, it helps to become productive. It also develops expertise in solving difficult areas of someone's life.

The main purpose of the daily routine reading exercises is to engage the students into reading habits that will enhance their vocabulary and comprehension, increase attention span, and develop an interest to learn more every day, prepare them higher education, and instill a lifelong love of books and become an independent reader.

A gear is a rotating circular machine part having cut teeth or, in the case of a cogwheel, inserted teeth (called cogs), which mesh with another (compatible) toothed part to transmit (convert) torque and speed. Like the basic principle behind the operation of gears, the (called cogs) can be referred to the students which mesh with another (compatible)toothed part, referred to Daily Routine Reading Exercises to transmit (convert) torque and to increase speed or increase force, referred to the Enhanced Reading Skills. Figure 2 is comparable to how this study will work as the gear works and functions. Gearing or meshing together with the daily routine reading exercises and engagement of the students into their reading task the effect will be never ending, once the skills are enhanced.

Methodology

Research Design

The researcher employed Descriptive research design using the survey questionnaire as a data gathering tool. According to Siedlecki (2020), a descriptive research design is the most appropriate tool when studying a phenomenon that tends to seek the opinion of the respondents without the researcher attaching his value. This method was deemed the most appropriate to be employed in this study to determine the prevailing conditions on measuring the effectiveness of the daily routine reading exercises as a strategy in enhancing student comprehension. The reading difficulties encountered by the students and the challenges explained by the teacher in using the strategy, as well as the resolution employed by the latter.

Respondents

The respondents utilized in this study were the 54 teachers from the selected six (6) public secondary schools in Cluster I North I District, Division of Caloocan during Academic Year 2021-2022.

The number of respondents per school are as follows: Amparo High School (6); Caloocan Business Science High School (6): Caloocan National Science and Technology High School (6); Camarin High School (20); Cielito Zamora High School (10) and Horacio Dela Costa High School (6) yielding a total of 54 teachers of English from whom the needed data were derived.

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Sampling Techniques

The researcher used cluster random sampling in the selection of the teacher respondents limiting the fifty percent (50%) of the total number of English teachers' population per school to serve the intention of the study from the six (6) selected public secondary schools in Cluster I, North I District City of Caloocan.

In terms of statistical treatment, the researcher employed descriptive statistics such Weighted Mean, to address problems nos. 1 and 2. Frequency and Percentage Distribution was applied for problem nos. 3 and 4 to determine the reading difficulties of the students, challenges encountered and solutions made by the teachers in using the Daily Routine Reading Exercises. The Four-Point Rating Scale was used in scaling the value to each of the four (4) responses.

Summary of Findings

Based on the gathered data, the researcher came up with the following findings.

1. **Use of the Daily Routine Reading Exercises as a Strategy in Enhancing Student Comprehension**

Table 1 Use of the Daily Routine Reading Exercises as a Strategy in Enhancing Student Comprehension

Respondents:		Wm	I	Rank
a.	use the Daily Routine Reading Exercises as motivation.	3.06	HE	10
b.	adopt the Daily Routine Reading Exercises as a tool to convey information.	3.19	HE	6
c.	utilize the Daily Routine Reading Exercises to makes close links into their lesson.	3.19	HE	6
d.	use the Daily Routine Reading Exercises to mentor reading progress of a student.	3.24	HE	4
e.	utilize the Daily Routine Reading Exercises as a tool for effective reading engagement.	3.26	VHE	3
f.	use the Daily Routine Reading Exercises to reinforce teaching reading	3.33	VHE	1
g.	adopt the Daily Routine Reading Exercises as an aid to student retention of knowledge.	3.19	HE	6
h.	utilize the Daily Routine Reading Exercises as a world bank.	3.15	HE	8.5
i.	use the Daily Routine Reading Exercises to promote self-directed learning.	3.31	VHE	2
j.	incorporate the Daily Routine Reading Exercises in daily lesson.	3.15	HE	8.5
	Overall Weighted Mean	**3.21**	**HE**	

The first three in rank are:

a. Use to reinforce in teaching reading with a Wm of 3.33 or Very High Extent;

b. Use as to promote self-directed learning with a Wm of 3.31 or Very High Extent; and

c. Utilize as a tool for effective reading engagement with a Wm 3.26 or Very High Extent.

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Overall, the assessment of the respondents on the use of the daily routine reading exercises as a strategy in enhancing student comprehension got an average Wm of 3.21 or High Extent. It is therefore essential to provide these multiple reading experiences for young learners: Daily Routine Reading Exercises with a variety of genres, reading with them and facilitating this strategy with tailored feedback and guidance and promoting extended independent reading opportunities at home and after the school. If reading makes one smarter, and if reading is important for a child to get off to a successful early start for future reading ability and engagement, then the value of early reading engagements cannot be overestimated. Reading reinforcement produces reading engagement, which promotes achievement. When students fully engage in reading activities and it is consistent, active reading engagement helps individual build the varied cognitive processes requisite to deep reading comprehension.

2. **Extent of Effectiveness of the Use of Daily Routine Reading Exercises in Enhancing Student Reading Comprehension**

Table 2 **Extent of Effectiveness of the Use of Daily Routine Reading Exercises in Enhancing Student Reading Comprehension**

Indicators		**Wm**	**I**	**Rank**
The students:				
a.	are focused on their reading task.	3.07	HE	5
b.	have developed their vocabulary skills	3.09	HE	4
c.	are able to determine important and supporting ideas	3.00	HE	8
d.	have developed skill in decoding reading exercises	3.11	HE	2.5
e.	are able to acquire necessary skills in comprehension	3.11	HE	2.5
f.	have developed to become enthusiastic and motivated readers	3.06	HE	6
g.	have strengthened the love of reading	3.04	HE	7
h.	are able to learn new things and can connect to the world	3.15	HE	1
i.	have developed to become more proficient and independent readers	2.93	HE	10
j.	are able to enhance their academic performance	2.96	HE	9
	Overall Weighted Mean	**3.06**	**HE**	

The first three in rank are:

a. The students are able to learn new things and can connect to the world with a Wm of 3.15 or High Extent;

b. The students have developed skill in decoding reading exercises and the students are able to acquire necessary skills in comprehension with Wm of 3.11 or High Extent;

and

c. The students have developed their vocabulary skills with Wm of 3.09 or High Extent.

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Overall, the extent of effectiveness of the use of daily routine reading exercises in enhancing student reading comprehension got an average weighted mean of 3.06 or High Extent. The efficacy of the Daily Routine Reading Exercises instructional program as a strategy in enhancing reading comprehension designed to strengthen decoding and fluency skills have been shown to benefit students reading progress and achievement. Growth in comprehension was observed to occur as an indirect consequence of improvement in decoding, word recognition and fluency skills.

3. Reading Difficulties Encountered by the Students Using Daily Routine Reading Exercises as Perceived by the Teachers

Table 3 Reading Difficulties Encountered by the Studenta in Using Daily Routine Reading Exercises as Perceived by the Teachers

Indicators		*f	%	Rank
a.	lack of understanding of the text	44	81	1
b.	slow phase in reading	31	57	9
c.	inability to follow direction	38.00	70	5.5
d.	poor decoding and word recognition	32	59	7.5
e.	failure to use background knowledge	32	59	7.5
f.	difficulty in concentration of the text	38	70	5.5
g.	poor retention of the text read	40	74	3
h.	failure to understand the intent and to determine the author's purpose of the text	41	76	2
i.	poor understanding of grammatical structure of the text	39	72	4
j.	inability to read the English text orally	22	41	10

The first three in rank are:

a. Lack of understanding of the text with 44 respondents or 81%;

b. Failure to understand the intent and purpose of the text with 41 respondents or 76%; and

c. Poor retention of the text read with 40 respondents or 74%.

Overall, reading comprehension difficulty in which a person has trouble understanding the meaning of words and passages of writing. If the students are able to read a passage out loud but cannot tell much about it afterward, they have specific reading comprehension deficit. Some students with reading comprehension disorder have trouble learning to read and pronouncing words, but grasping meaning from text is their main challenge. Students with learning difficulty also often know they are behind their peers in certain academic areas, which can affect their self-esteem and motivation.

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4. Challenges Encountered by the Teachers in Using the Daily Routine Reading Exercises and Possible Solution to Address Them.

Table 4 Challenges Encountered by the Teachers in Using the Daily Routine Reading Exercises and Possible Solutions

Indicators	*f	%	Rank	Solutions
a. lack of student's interest in reading	46	85	2	a. give students reading materials that fit into their interest and reading level
b. poor student's family orientation on the importance of reading	41	76	4	b. remind the parents regularly about the importance and advantages of reading
c. Lack of student's schema activation	38	70	6	c. give students shorter, interesting and fun-filled activities that will help elicit prior knowledge
d. absence of patient's follow-up and support	47	87	1	d. engage parents/guardians in monitoring the reading progress of students thru regular communication and progress monitoring charts
e. student's over exposure to social media and online games/activities	43	80	3	e. maximize student interest in social media, online games and activities by giving them crafted reading materials using these platforms
f. difficulty in imposing e-classroom discipline	27	50	8.5	f. impose classroom discipline firmly and be prompt in giving merit to yielding students
g. insufficiency of time in preparing reading materials.	26	48	10	g. budget ample time and devote self in preparing engaging reading materials
h. limited times in monitoring student's progress in reading	39	72	5	h. promote peer coaching approach by tapping bright students' help in monitoring their class7mates who need assistance and require a regular reporting on peer's reading progress
i. insufficiency of trainings on related strategy	27	50	8.5	i. attend webinars, trainings and workshops on teaching reading to gain new ideas, insights and strategies
j. difficulty in addressing the needs of the learners with reading disabilities	34	63	7	j. seek assistances from the school administrators and other teachers in creating a reading clinic for intervention program

*multiple response

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The first three in rank are:

a. Absence of parent's follow-up and support with 47 respondents or 87%; Possible solution to this is to engage parents/ guardians in monitoring the reading progress of students thru regular communication and progress monitoring charts.

b. Lack of student's interest in reading with 46 respondents or 85%; and Possible solution to this is to give students reading materials that fit into their interest and reading level.

c. Students over exposure to social media and online games activities with 43 respondents or 80%. Possible solution to this is to maximize student interest in social media, online games and activities by giving them crafted reading materials using these platforms.

Generally, the basic obligations of families are to maintain children's health and safety, begin parenting, create a positive home environment and child rearing skills. However, Cutting (2017) stated that one of the best predictors on reading problems is if one or more relatives, particularly parents, struggled with reading themselves. Because reading difficulties have a large biological component that runs in families, and having a parent who has struggled with reading puts a child at risk genetically for also having reading problems. Likewise, the basic obligation of schools/teachers involve communicating all students progress and all necessary information to the home by many different forms. Foremost, teacher is to teach and give knowledge to students and support students when learning a skill. Understanding the root causes of non-readers and the signs that put children at risk for reading problems can facilitate early identification, and therefore early intervention. On the other hand, parental involvement has an impact on the reading achievement of the students. When at-home parent involvement included reading activities or reading games, then those children had higher reading comprehension.

5. Findings of the study were utilized in compiling the contextualized selections in enhancing student reading comprehension. (There was separate compiled contextualized reading selection)

Conclusion

In the light of the foregoing findings, the following conclusions were derived:

1. The Daily Routine Reading Exercises showed that it was used by the respondents as a reinforcement in teaching reading, used to promote self-directed learning and utilized as a tool for effective reading engagement. Teachers considered the Daily Routine Reading Exercises (DRRE) significant in helping the students develop and enhance their comprehension skills.

2. The Daily Routine Reading Exercises (DRRE) is a highly effective strategy for teachers to use in teaching reading, where students would be able to learn new things, can connect to the world, developed skill in decoding reading exercises, acquire necessary skills in comprehension and develop student vocabulary skills.

3. The reading difficulties encountered by the students in using the Daily Routine Reading Exercises (DRRE), as perceived by the teachers, served as bases in crafting measures to prevent such difficulties emerge and to improve the DRRE that will result to more enjoyable reading sessions for the students.

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4. The challenges encountered by the teachers were the absence of parent's follow-up and support, lack of student's interest in reading and students over exposure to social media and online games/activities. Therefore, ruling out these possible solutions given to the challenges like, to engage parents/ guardians in monitoring the reading progress of students through regular communication and progress monitoring charts, to give students reading materials that fit into their interest and reading level and to maximize student interest in social media, online games and activities by giving them crafted reading materials using these platforms.

5. The findings in this study were utilized in compiling the contextualized selections used in enhancing students reading comprehension.

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