COUNTRY REPORT

Brunei Darussalam: Innovative Approaches to Teaching and Learning through Integration of Digital Technologies – A School Leader's Perspective

Mrs. Penroose Saleha Hj Mohd Salleh
Principal of Katok Secondary School, Ministry of Education

CURRICULUM VITAE

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IC NO	00-116325	COLOUR	YELLOW	
Date of Birth	29 SEPTEMBER 1968			
Home Address	NO 20 SIMPANG 271-25, JALAN PELADANG KECIL, KG MARABURONG, KUPANG. TUTONG			
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Gender	Female	Status:	Married	
Nationality:	Bruneian Malay	Religion:	Islam	
Current Appointment:	Special Grade Education Officer/ School Principal	Appointed	October, 2010	
Previous Appointment	Education Officer	Appointed	3 Julai 1993	
Date of Retirement	29 September 2028			
School:	Katok Secondary School			
Department	Department of Schools			
Ministry:	Education			

ACADEMIC AND PROFESSIONAL QUALIFICATION

QUALIFICATION	INSTITUTION	YEARS
MEd in Science Education	Faculty of Science, University Brunei Darussalam	2005
BSc in Education	Science Education Biology (Major), Mathematics (Minor)	1993

PREVIOUS APPOINTMENT

DATES	APPOINTMENTS	SUBJECTS TAUGHT	INSTITUTIONS
1993 - 2003	Education Officer	Biology,Combined Science (O Level)/ Science (N Level)	RIPAS Secondary School
2005 -2008	Education Officer/ Dep Head of Biology Department.	Biology (A Level)	Duli Pengiran Muda Al-Muhtadee Billah College
2008 - 2013	Education Officer/Special Grade Education Officer/ Deputy Principal (Academic).	Biology (A Level)	Sixth Form Centre
2014 -Present.	Special Grade Education Officer/Deputy Principal/Principal		Katok Sixth Form Centre

ABILITY TO COMMUNICATE		
LANGUAGE	SPOKEN	WRITTEN
Malay	Good	Good
English	Good	Good

COURSES AND TRANING ATTENDED					
TOPICS	DATES	END	ORGANISER	COUNTRIES	
PEAKS Training Level 4 & 5	2014	2014	MOE	Brunei	
Brunei Teachers' Standards Certification of Completion Awareness Raising Programme	12th January 2015	13th January 2015	MOE	Brunei	
Brunei Teachers' Standards Accredited Trainer	4th Januari 2015	4th Januari 2015	MOE	Brunei	
Brunei Program School Senior Leaders (BPSSL)	August 2015	November 2015	ILIA, UBD	Brunei	
SEDF – Program on Strategic Thinking and Innovation	Oct 2016	January 2017	SEAMEO INNOTECH, Quezon City, Philippines	Philippines & Brunei (online Phase)	
Empowering Students Through Assessment	Sept 2023	Sept 2023	BDLTA	Brunei	
Effective Policies for Quality Teachers in SouthEast Asian Countries, Train the Trainers	6 Oct 2021	7 Oct 2021	UNESCO, Jakarta	Brunei (online)	
Leading with Microsoft Teams (Basic Level)	6 May 2020	6 May 20202	School Leadership Unit, Brunei Darussalam Teacher Academy	Brunei (online)	
Modular Series – FI103 Financial Governance	13 May 2020	15 May 2020	School Leadership Unit, Brunei Darussalam Teacher Academy	Brunei	
Modular Series – EI102 Introduction to Emotional Intelligence	14th, 15th, 19th, 21st, 22nd June 2021 and	24th June 2021	School Leadership Unit, Brunei Darussalam Teacher Academy	Brunei	
Modular Series – MC101 Introduction to mentoring and Coaching	1st July 2021 and	3rd July 2021	School Leadership Unit, Brunei Darussalam Teacher Academy	Brunei	
Modular Series – MC102 Mentoring and Coaching Essentials	13th,December 2021	15th December 2021	School Leadership Unit, Brunei Darussalam Teacher Academy	Online	
Modular Series – IL401 Modified Curriculum	15th February, 8th March 2022 and	7th June 2022	School Leadership Unit, Brunei Darussalam Teacher Academy	Online	
Modular Series – HRM401 Applied Human Resource Management Tier 4	13th, 15th, 17th August 2022 and	20th August 2022	School Leadership Unit, Brunei Darussalam Teacher Academy	Online	

Modular Series – CM201 Leadership Alignment in Leading Change (Tier 4)	23rd, 25th, 28th June 2022 and	30th June 2022	School Leadership Unit, Brunei Darussalam Teacher Academy	BDLTA Brunei	
SC202 - Effective Stakeholder Engagement Workshop	13th, 14th, 15th March 2023 and	16th March 2023	BIG APC & School Leadership Unit, Brunei Darussalam Teacher Academy	BDLTA, Brunei	
IL402 The Resilient School Leaders: Using Data to Make Instructional Decisions and Actions	3th, 5th July 2023 and	11th September 2023	School Leadership Unit, Brunei Darussalam Teacher Academy	BDLTA Brunei	
IL107 Learning Theories	6th February 2023	8th February 2023	School Leadership Unit, Brunei Darussalam Teacher Academy	BDLTA Brunei	
DL101 Data Collection 2024	12th June 2024	24th June 2024	School Leadership Unit, Brunei Darussalam Teacher Academy	BDLTA Brunei	

ACCREDATION AND STATE DECORATION		
		dates
Pingat Kerja Lama (Long Service Medal)	PKL	2017
BTS CHAMPION		2015

SKILLS
MS Teams (Secondary Leval) Mentoring & Coaching

HOBBY AND INTERESTS
Gardening Hiking/ Brisk Walk

END

"Innovative Approaches to Teaching and Learning through Integration of Digital Technologies – A School Leader's Perspective"

Presented by: Penroose Saleha Haji Mohd Salleh
Principal Katok Secondary School Brunei Darussalam

Abstract

This report examines Katok Secondary School's journey in integrating digital technology into the classroom, highlighting the transformative potential and challenges. While acknowledging the positive impact on student learning and engagement, the report recognizes obstacles such as unreliable internet connectivity, teacher training, and responsible technology use among students.

In response, Katok Secondary School embraces classroom-based action research, empowering teachers to develop and share practical strategies for technology integration. The school is committed to creating a sustainable and impactful digital learning environment by acknowledging these challenges and actively seeking solutions.

INTRODUCTION

Current State of Education in Brunei Darussalam

The Sultanate of Brunei has always prioritized education as part of its national agenda, aiming to provide high-quality education for all citizens. In this regard, the Government has initiated several policies and programs.

Among the prominent features in Brunei's education system were: 1) free and compulsory provision of primary to lower secondary levels; 2) inclusive special educational needs (SEN); and 3) implementation of the SPN21 curriculum, stressing key skills /skills for a digital era.

Brunei provides 12 years of free and compulsory education, seven years in primary and five years in secondary. The education system uses a bilingual model, transitioning from Malay to English, using a bilingual approach from upper primary onwards. Alongside general education, Brunei offers specialized Islamic religious education as an alternative pathway for Muslim students.

The system has prioritized academic quality, moral spirit, Islamic values, and cultural attitudes of the nation, in addition to 21st-century skills. In Brunei, digital technologies are being introduced into schools, and investments have been made in teacher training programs that prepare educators to use these tools (Mundia, 2010).

Brunei has adopted an inclusive education policy, striving to provide equal opportunities for students with special needs and support their integration into mainstream schools.

Brunei's education system reflects the nation's commitment to holistic development. It aims to create a future-ready system that cultivates academic excellence and well-rounded individuals.

The importance of Happy Schooling.

Happy schooling is about more than just good academic performance. It is about creating an environment where students feel happy, supported, and excited to learn. This means focusing on their emotional well-being and creativity and helping them find their passions.

Happy schooling prioritizes the whole student instead of just focusing on their achievement. Children who feel good and enjoy learning are likelier to succeed in school and life.

Sustainability in Education: Why it matters.

Sustainability in education incorporates environmental, social, and economic factors into the learning experience. This approach aims to equip students with the knowledge, attitudes, and skills needed to make informed decisions that contribute to our planet's and communities' long-term well-being. By integrating sustainability principles into curriculum and teaching, educators can inspire students to become agents of positive change (Burbules et al., 2020) (Sengupta et al., 2020).

Combining happy schooling and sustainability, the education system can nurture a generation that is academically proficient, socially conscious, resilient, and committed to creating a better future for all.

The education landscape is undergoing a transformative shift driven by the integration of digital technologies and the evolving needs of 21st-century learners. Traditional educational models focused on passive knowledge transmission are giving way to more dynamic, learner-centric

approaches that emphasize active engagement, critical thinking, and the development of transversal competencies (Srivastava, 2023).

Innovative Teaching and Learning Strategies.

Creating ways to help students learn where learning is more engaging, fun, and effective requires a shift towards learner-centric pedagogies that encourage active participation. Some key innovative strategies include:

1. **Project-Based Learning**: Students tackle real-world problems through in-depth projects.
2. **Personalized Learning**: Tailoring lessons to individual student needs and learning styles.
3. **Game-Based Learning**: Using games and simulations to make learning fun and engaging.
4. **Collaborative Learning**: Students work in groups to solve problems and share ideas.
5. **Blended Learning**: Combining online resources and technology with traditional classroom instruction.

These approaches promote more profound understanding, problem-solving skills, and the development of 21st-century competencies like creativity, communication, and critical thinking (Moreno-Guerrero et al., 2020) (Seechaliao, 2017).

Innovations in Teaching and Learning in Brunei Darussalam

The global shift towards digital learning during the pandemic resonates strongly in Brunei Darussalam. Recognizing that lack of access to digital devices posed a significant barrier to learning during the pandemic, the Ministry of Education spearheaded the "Digital Drive." Through generous donations from public and private organizations, thousands of needy students received essential tools, enabling them to participate in online learning and stay connected to their education.

The Ministry's total commitment to facilitating access to digital devices for all students and teachers in our Brunei schools has laid the groundwork for a more inclusive and digitally empowered education system for the future.

The University of Brunei Darussalam has implemented a blended learning approach integrating sustainability education across various disciplines (Samuel, 2023). This approach has enabled students to engage in hands-on projects, virtual field trips, and interactive simulations that deepen their understanding of sustainable development and their role as change agents.

However, the successful integration of digital technologies in education requires careful consideration of the design and management of learning materials to ensure their long-term educational impact and sustainability (Samuel, 2023). Educators must develop effective methods for integrating technology and pedagogy, fostering digital competence among teachers and students (Srivastava & Dangwal, 2021).

As we move forward, we must continue to invest in research, policy, and practice that support integrating digital technologies and sustainability in education. Ministry of Education Brunei Darussalam Digital Transformation Plan for 2023 to 2027 outlines a comprehensive strategy to enhance digital literacy and integrate sustainable practices across all levels of education.

At the Brunei Darussalam School Leaders' Convention in 2022, a framework for integrating digital technologies and sustainability in teaching and learning was presented. This framework emphasizes the importance of teacher professional development, the creation of collaborative learning communities, and the development of a shared vision for sustainable education.

A School Leader's Perspective: Embracing Innovation.

As a principal at Katok Secondary School, a high school in Brunei Darussalam, I have witnessed firsthand the transformative power of integrating technologies into teaching and learning. We have started implementing a blended learning program that combines traditional face-to-face instruction with diverse online resources, interactive digital platforms, and collaborative learning opportunities.

This approach has enabled our students to engage more actively with course content, collaborate on project-based learning tasks, and develop critical 21st-century skills such as digital literacy, creativity, and problem-solving. (Koay, 2012) (Mohamad et al., 2018).

As a school leader, I firmly believe that embracing innovation and leveraging digital technologies is essential to preparing our students for success in the 21st century. I encourage our teachers to

continuously explore new pedagogical approaches, experiment with digital tools, and collaborate with colleagues to share best practices (Aldawood et al., 2019) (Bhuiyan et al., 2021) (AlAjmi, 2022) (Garba et al., 2015).

Relevant departments within the Ministry of Education supported our school's journey towards innovative approaches. In 2022, the Ministry's EdTech Centre collaborated with our school through the Partners in Learning Digital Classroom Program, which aimed to assist schools in driving pragmatic and impactful digital transformation. The program was designed to provide students with the best possible education through educational technology. This initiative was further strengthened by the establishment of a MOU between our Ministry and Microsoft, which aligned with the recognized goals:

I. the need to improve access to and use of information and communications technology (ICT) in primary and secondary education;
II. the value of technology in schools and seeking to improve both access to jointly and the use of ICT for the support of teaching and learning; and
III. the power of an international exchange of information.

The Digital Classroom program was designed in the context of Brunei's education system, considering the school's unique capabilities and strengths. The program's key objectives are:

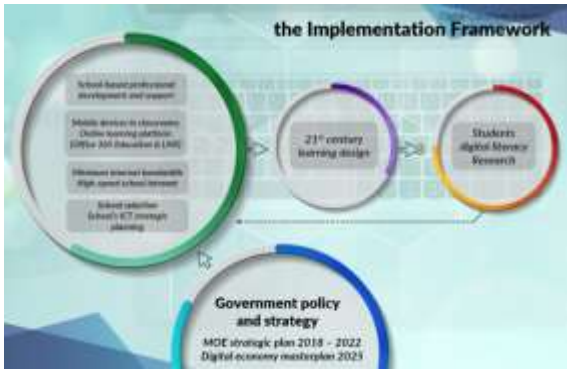
a) Develop the skills and confidence of teachers in the appropriate and effective use of digital technology to support learning and teaching

b) Improve access to digital technology for all learners

c) Ensure that digital technology is a central consideration in all areas of curriculum and assessment delivery

d) Empower leaders of change to drive innovation and investment in digital technology for learning and teaching main

The program implementation framework was developed as follows:



Our teachers have undertaken the Microsoft Innovative Educators certification program within this PIL program to equip themselves with essential digital literacy skills. MIE is a professional development initiative by Microsoft that trains educators on effectively integrating technology into their teaching practices. The MIE exams assess and validate the knowledge and skills required for educators to incorporate technology into their teaching methods seamlessly. One hundred sixteen teachers at our school successfully obtained this prestigious certification, demonstrating their commitment to embracing digital innovation in the classroom (Garba et al., 2015).

Three were recognized as Microsoft Innovative Educator Experts, an honor bestowed on outstanding educators who showcase leadership in digital teaching and learning.

Our teachers have also actively participated in the collaborative learning communities facilitated by the Ministry's EdTech Centre, where they engage in peer learning, share best practices, and co-create innovative lesson plans incorporating digital tools.

Furthermore, we have established regular professional learning communities where teachers can share their experiences, challenges, and best practices in integrating digital tools and resources into their teaching. These collaborative sessions have fostered a culture of innovation and continuous learning among our teachers (International Journal of Instruction, 2018).

As part of our school's digital transformation, Our Ministry has also invested in equipping classrooms with the necessary digital infrastructure, such as interactive whiteboards, projectors, and high-speed internet connectivity.

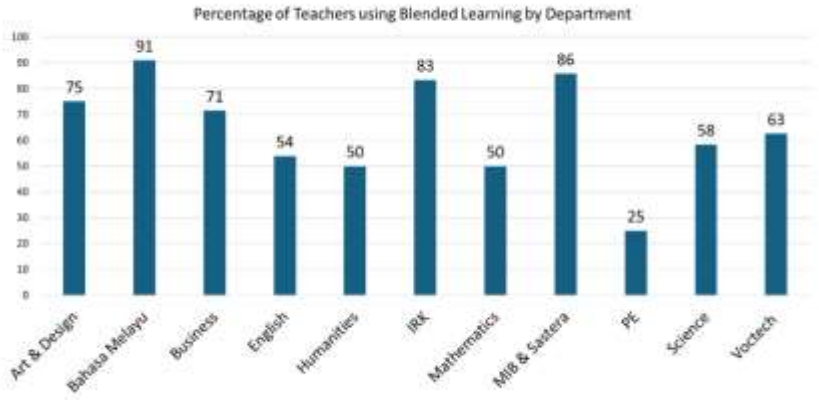
Continuous learning and teacher collaboration have been key to our school's digital transformation. We have established professional learning communities that facilitate sharing best

practices, co-creating digital learning resources, and collaborative problem-solving around challenges in integrating technology. (Aldawood et al., 2019)

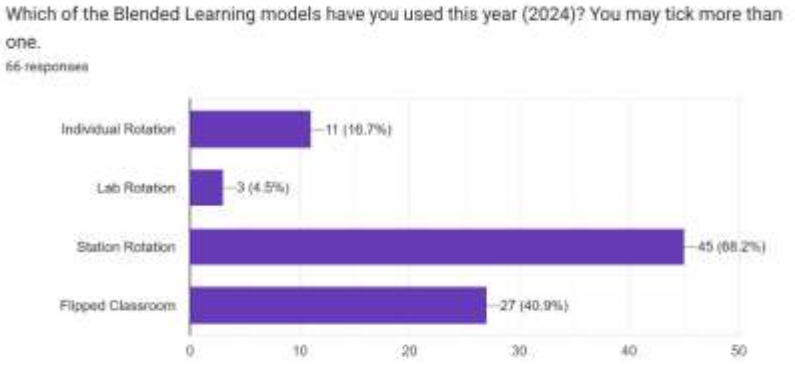
As a school leader, I have cultivated a culture of innovation and experimentation among our teachers, encouraging them to explore new pedagogical approaches and integrate digital tools in Classroom Action Research. Our teachers' dedication to their professional growth and willingness to embrace digital innovation have been critical to the progress toward the success of our school's digital transformation journey. (Prestridge & Tondeur, 2015)

Katok Secondary School's Digital Journey: Cultivating a Culture of Innovation.

A recent survey of our school's teachers revealed that over 65% reported incorporating digital technologies in their teaching. These teachers use blended learning approaches, such as online resources and interactive platforms with face-to-face instruction, as a fundamental approach to digital integration. This creates a more dynamic learning environment catering to diverse students' needs and learning styles. The survey also shows that blended learning is spread among all subjects, such as math, science, humanities, and languages. (Thumlert et al., 2018) (Admiraal et al., 2017)



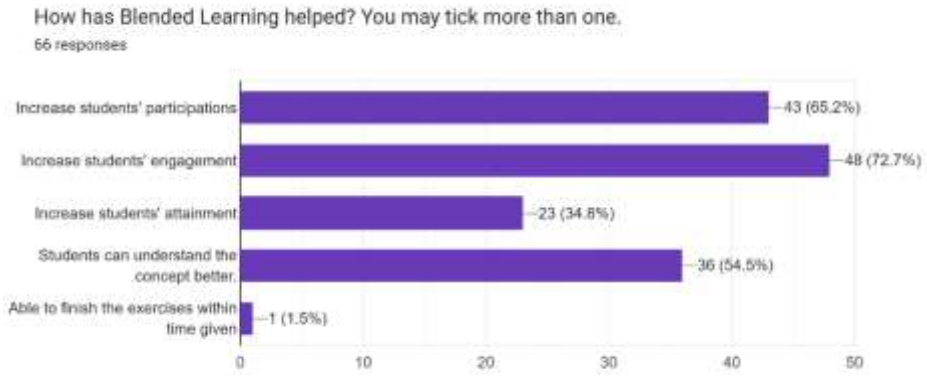
The most chosen blended learning methods among our teachers are station rotation, flipped classroom, and individual station and lab rotation. These adopted practices are a shift towards a more sustainable approach.



Interestingly, our students have also demonstrated high engagement and motivation and improved learning outcomes when utilizing this blended approach. The most popular online platforms used are Quizziz, Padlets, Wordwall Kahoot, Liveworksheets, and Google Classroom for reasons such as being easy to use, interactive, customizable, allowing collaboration and accessibility, and providing instant feedback.

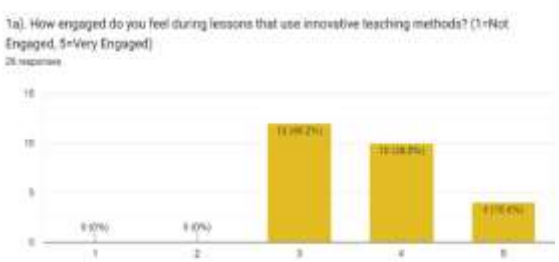
Our teachers have observed considerable improvements in student learning, including a better understanding of course concepts, increased participation and collaboration, and enhanced understanding of concepts.

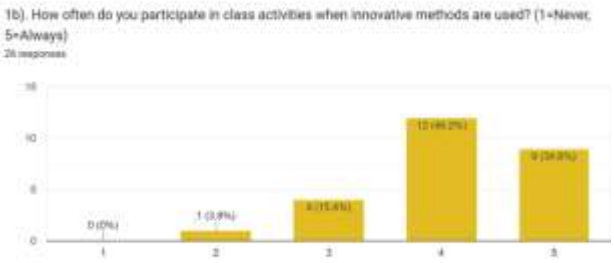
Impacts of Innovation Through Digital Technologies on Students: Katok Secondary School Teachers' Observation

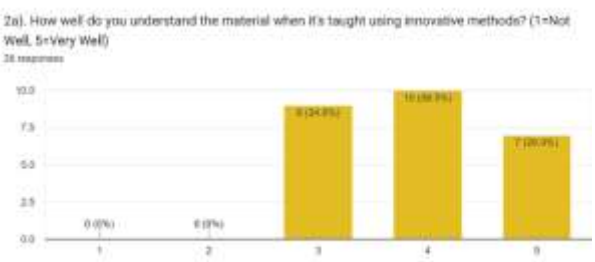


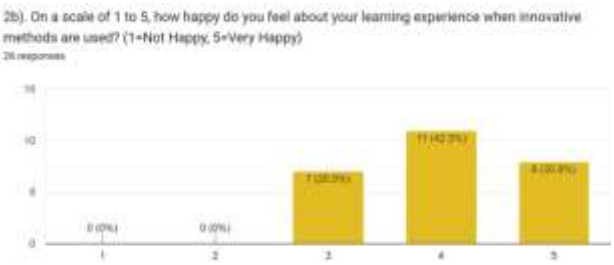
Their students' perspectives reflect this positive teacher observation of their students' achievements.

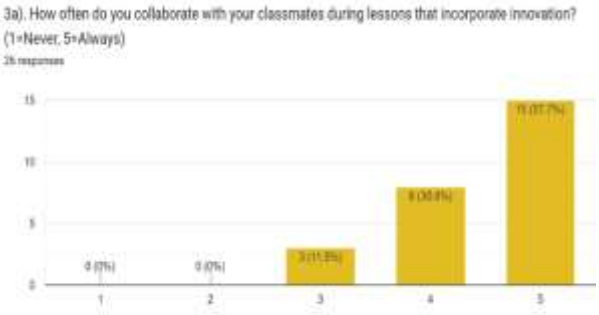
Katok Secondary School Students Reflection on Their Performance

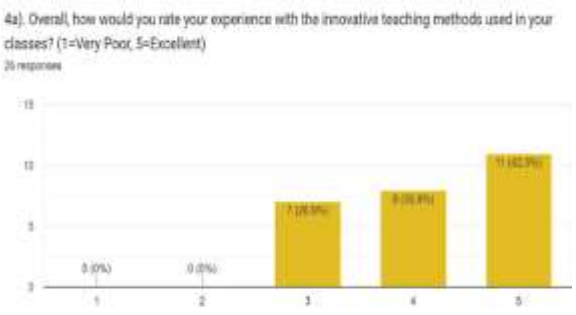












A Culture of Innovation: Classroom-Based Research in Action

As a school leader, I have cultivated a culture of innovation and experimentation among our teachers, encouraging them to explore new pedagogical approaches and integrate digital tools in Classroom Action Research. Our teachers' dedication to their professional growth and willingness to embrace digital innovation have been critical to the progress toward the success of our school's digital transformation journey. (Prestridge & Tondeur, 2015)

Building on insights from Classroom Action Research, this section highlights how teachers at Katok Secondary School leverage digital technologies to enhance student learning through their classroom action research. By showcasing these teacher-led initiatives, the report aims to demonstrate the breadth of innovation within our school and inspire further exploration of digital pedagogy. These teacher-led classroom action research projects exemplify our school's dedication to innovation by investigating how digital technologies can be thoughtfully integrated to foster positive growth and achievement for all students.

Project Title: Assessing the Effectiveness of Online Learning Platforms in Accounting Education

Teacher Involved: Teacher A, An Accounting Teacher teaching two classes of Year 9 students.

Research Question/Focus: To assess the effectiveness of online quizzes in imparting Accounting Knowledge

Digital Technology Used: Quizzi - Online Quiz Platform

Key Findings and Impact: Using the online quiz platform Quizzi in the Accounting class has demonstrated a marked increase in student engagement and learning motivation. Previously, students would often be less attentive and not participate as much, but with the interactive quizzes, they became more eager to engage and showcase their understanding.

Teacher Reflection: The online quizzes have evolved my Accounting lessons. I noticed a significant boost in student participation; they genuinely enjoy the learning process. The instant feedback and scoring provided by the platform have helped me identify areas where students are struggling, allowing me to provide more targeted support.

A similar positive result was observed in a project led by a Travel and Tourism Subject.

Project Title: The Use of Virtual Field Trips in Travel and Tourism Education

Teacher Involved: Teacher B, Travel and Tourism Teacher for Year 9

Research Question/Focus: To evaluate the effectiveness of virtual field trips in enhancing students' understanding and engagement in Travel and Tourism concepts.

Digital Technology Used: 360-degree virtual tours, YouTube video.

Key Findings and Impact: The integration of virtual field trips in the Travel and Tourism subject has been incredibly impactful. Students have demonstrated increased engagement, as they are now more attentive and actively participate in discussions during the lessons. Additionally, their understanding of critical concepts has improved, as evidenced by their assessment performance. They express an increased excitement and anticipation for the virtual trips, which have brought the subject matter to life more.

Teacher's Reflection: The teacher expressed enthusiasm about the impact of these virtual field trips, stating, "The virtual field trips have transformed my lessons, making them more engaging and effective. My students are now more invested in learning the content, and I see a marked improvement in their comprehension and retention of the subject matter."

Continuing the emphasis on innovation and the enhancement of student learning through technology, another teacher, Teacher C, has been investigating the integration of tablets and web-based resources in her English classes to address individual student needs.

Project Title: Learning through Tablet Integration in English Lessons to Enhance Differentiated Instruction

Teacher Involved: Teacher C, an English Teacher teaching Year 7 students

Research Question/Focus: To explore the potential of tablet devices and web-based resources in catering to the diverse learning needs of students in English lessons.

Digital Technology Used: Tablet devices, web-based applications (e.g., Quizlet, Padlet, Google Docs)

Key Findings and Impact: Teacher C's project has demonstrated the power of technology to enable differentiated instruction and cater to her students' different learning styles and needs. By leveraging tablet devices and web-based applications, she has provided group learning experiences, allowing students to progress at their own pace and engage with content that best suits their preferences. "The ability to tailor the lessons and resources to individual student needs has been truly transformative," Teacher C shared.

Integrating these digital tools has fostered a more inclusive and supportive learning environment where students feel empowered to take ownership of their learning journey.

Week 1:

- Online research of 23 words (meaning of words) using Samsung Tabs.
- Memorize the meanings of the word.
- Short presentation (HA make extra sentences).

These classroom action research projects, undertaken by dedicated teachers at Katok Secondary School, exemplify the school's commitment to fostering a culture of innovation and exploring the potential of digital technologies to enhance teaching and learning.

The classroom action research projects highlighted in this report offer compelling evidence of the transformative power of digital technology in education. At Katok Secondary School, we are committed to fostering a culture of innovation where teachers are empowered to explore, experiment, and continuously improve their practice through technology integration. By embracing these advancements, we create dynamic and engaging learning environments that prepare our students for success in the 21st century.

Forward: Challenges, Success Amplified.

As immense as the potential of some of these classroom action research projects utilizing digital technologies in integration is, we also recognize that it comes with challenges. We have seen at our school the need for continual professional development, technical support, and a broad strategic plan to ensure the successful adoption (and retention) of these innovations. Continual reflection and collaboration with our teachers have uncovered potential solutions to do this more effectively.

Challenges we faced include:

Despite our teachers having been given laptops and Data to address unreliable internet connectivity in some classrooms, this issue persists in some areas of our school, hindering the smooth integration of online resources and collaborative tools. (Admiraal et al., 2017) (Lorenz et al., 2015). Teachers need professional development opportunities to develop their digital pedagogical skills and confidence in incorporating technology into their lessons. (Ramorola, 2013) (Abdullah et al., 2013). Students' literacy skills and access to devices gaps can inhibit the full utilization of

technology integration in specific classrooms. (Schnellert & Keengwe, 2012). Managing distractions and ensuring responsible technology use among students remains an ongoing concern that requires vigilance and clear guidelines. (Schrum & Levin, 2015)

Impact on Teachers:

The challenges described have resulted in additional workload and stress for teachers navigating unfamiliar digital tools and strategies. However, the positive impacts on student engagement and learning have motivated our teachers to persist.

Solutions to Challenges:

In response to these challenges, Katok Secondary School has embraced Classroom-based Action Research as a strategy to help improve their pedagogy that can, in return, impact their student's learning and attainment. A number of them incorporate teacher-led innovations and investing in sustainable technology integration. The reality of their experiences, by gaining momentum and making real progress towards their goals, has gained confidence among our teachers in the utilization of technologies effectively and their impact in mind.

Our school's journey in the few years since integrating digital technology is undoubtedly an ongoing success. It has made significant progress in student learning outcomes and teacher professional development. One ready to admit the struggles cheers bigger on the little wins as an agent of change and gives our teachers the tools we need to succeed. The projects described in this report are just the start of our journey to use digital technologies creatively and meaningfully, not simply as add-ons but genuinely embedded into transformative education that prepares students for their futures.

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