

ECAD7004

What is the relationship between technology and independent learning in a mixed year 1 and 2 classroom at School X?

(Design, conduct and critically evaluate a close-to-practice research project focusing on the model of the transformative teacher in developing practise that has a positive impact on the learner).

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|          | Target                                                                                                  | What I have done in this assignment...                                                                                                                                             |
|----------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Target 1 | Ensure you consistently adhere to Harvard referencing conventions.                                      | I have checked my references against the Harvard referencing support provided in the feedback of my previous assignment and adhered to those policies wherever possible            |
| Target 2 | Continue to draw on the most recent research available to you to build on your emerging critical voice. | I have sought out the most recent research and studies, drawing from modern scholarly discussion throughout while also listing the foundational sources of educational philosophy. |

## **Introduction:**

The aim of this assignment is to explore the relationship between the use of technology and independent learning within a mixed year 1 and 2 classroom. This topic interests me as technology is frequently implemented within education, offering strengths and limitations. My previous schools have seen students explore Chromebooks/iPads for independent learning. This presented complications, students could become distracted or access inappropriate websites, making it challenging to keep them on task. I found these experiences testing to navigate and I am interested in exploring it further at my latest placement school. My current class integrates technology-driven independent learning throughout each day, offering beneficial research opportunities to explore the relationship.

This project contributes to the refinement of my pedagogical practises by enriching my approach as an educator. It affords me the opportunity to develop my professional learning through a deeper comprehension of this particular area and the effective implementation of technology to aid independent learning.

Throughout this assignment, the school this research takes place in is anonymised as 'School X'. Students are referred to as Student A/B/C etc. Staff members are referred to as Teacher A/B/C etc. Anonymity is preserved regarding the school and all participants in the research, these approaches are in-line with guidelines (BERA, 2018).

School X is a primary school based in South Wales, hosting 263 pupils. The amount of pupils eligible for free school meals (EFSM) is 21.4%, compared to the national average for primary schools which is 23.0% (ESTYN, 2023), indicating it is based in a more affluent area. As the student participants in this study are in a mixed age year 1 and 2 classroom, they range from 5-7 years old.

This assignment directly explores the research question: What is the relationship between technology and independent learning in a mixed year 1 and 2 classroom at School X?

## **Literature Review:**

Piaget (1954) emphasized that learners actively construct knowledge through engagement with experiences and interactions within their environment, emphasising the significance of tools like technology to facilitate practical exploration, thereby fostering an independent approach to learning. Despite this statement being dated, it holds relevance today, offering foundations for modern educational approaches.

Ullah and Anwar (2020) built upon this concept, remarking that technology can be utilised as effective processes of formative assessment, offering supporting collaboration, learner feedback, showcasing progression and promoting independent learning through a sense of ownership. Correspondingly, technology offers learners access to an expanse of resources and interactive features, encouraging students to pursue independent learning outside of traditional classroom methods, especially for EAL learners (Wei, 2022). To further promote its benefits, the Zone of Proximal Development (ZPD) advises that technology is an adequate scaffold for learning, empowering students to accomplish targets they would struggle to achieve otherwise (Vygotskiĭ et al., 1978). These concepts are explored throughout the research undertaken at School X.

Alternately, scholars dictate that there is a demand for development when integrating technology into the learning process as approaches currently lack variety and innovation (Ricoy and Sánchez-Martínez, 2020), with indications that technological difficulties prove detrimental to independent learning (Morris and Rohs, 2021). Ongoro and Fanjiang (2024) concur, elaborating that technology can serve as a distraction and use of games for learning can drive learners to focus on rewards as opposed to comprehension. Several studies indicate as screen time increases, there is a greater likelihood that children will exhibit difficulties when focusing elsewhere (Mihăilă-Popa, 2023). This prioritises ensuring children are interacting with others and exploring the environment around them (Montag and Elhai, 2020). This research is particularly resonant with this research project and is one of the focal points of the case study.

Contrarily, technology has offered learners a sense of independence, as evidenced by studies conducted by Morris and Rohs (2021). These investigations reveal improvements in cognitive abilities. However, this trend signifies the requirement for pedagogical innovation, as recommended through the findings of Liu and Hwang (2021). While student-directed learning through technology has correlated with improved academic performance, it is worth noting that such initiatives often require initial guidance from educators, lessening the independent nature of the approach (Boyer et al., 2013).

Extending this thought, it is essential to consider that there is an abundance of inaccurate information available online. When students are engaging in self-directed learning, they may encounter incorrect or fabricated information. Without guidance to ensure appropriate information is being processed, students can develop misconceptions regarding their learning. An efficient way to counter-act this is providing a fact-checked list of sources when they are engaging in independent technology-based learning, assuring appropriate exploration of accurate information (Zamira, 2020).

Opposingly, studies portray critical outlooks, claiming a decline in cognitive abilities and a reliance on dopamine regarding technology-based games (Shanmugasundaram and Tamilarasu, 2023), with dopamine-inducing rewards potentially encouraging addictive behaviour. This negative influence can affect language development, which is similarly impacted by increasing screen time, lacking the quality and extensiveness of face-to-face interactions (Muppalla et al., 2023). This echoes Bandura's Social Learning Theory (1977), suggesting that individuals develop behaviours through observation, imitation and reinforcement. In this context, the instant reinforcement provided by technology-based games, coupled with a student's peers influencing each other to use technology because the other is using it, can reinforce addictive tendencies. Despite Bandura's philosophy dating nearly half a century, it remains a cornerstone in scholarly debate, frequently cited for its lasting relevance and value.

Elaborating upon these assertions, technology provides access to a vast amount of information. However, Toffler's Overload Theory (2022), originally published in 1970, warns that with increased quantities of information, children's processing abilities can be compromised, leading to an academic decline. This philosophy remains relevant today, as evidenced by studies indicating that even interactive reading apps provide distractions, contributing to cognitive overload in children (Chuang and Jamiat, 2023).

Additional investigation indicates an inclination to interact with game-based learning than other educational elements, stressing the attractiveness of this approach within technology-enhanced classrooms (Gokcearslan, 2017).

This aligns with the conclusions drawn from Razum and Huić's (2023) study on adolescent gamers, accentuating the encouraging features of game-based learning, such as social interaction and skill development. However, it underscores the necessity for balance and awareness of potential risks due to excessive technology use, endorsing the call for nuanced approaches for integration into education.

When implementing technology-based learning within the classroom, it becomes crucial to acknowledge that alterations to conventional academic approaches may evoke stress among students, thereby influencing their willingness to engage; however, the introduction of pedagogical strategies combined with enjoyment offers the potential to be effective (Åkerlind and Trevitt, 1999).

Nevertheless, the effects of digital technology on the younger generation's well-being can be multidimensional and sophisticated. While there may appear to be minor negative effects, the impact drastically varies depending on factors such as the nature and duration of use (Dienlin and Johannes, 2020).

### **Explanation Of A Case Study:**

This research project typically adopts a qualitative, exploratory case study approach. As such, it is essential to review what this requires in order to gain a clear understanding of the project. Case studies provide the researcher opportunities to customise their methods to align with their research question. They consist of a meticulous examination from multiple perspectives of a variety of subjects, ranging from individuals to small groups to whole communities (Miles et al., 2020), accentuating the adaptability integral to this practise. It is considered that the aim and purpose of a case study is to better understand a larger case through examination of a condensed sample (Gerring, 2019). Despite Gerring's work being published originally in 2007, the philosophy behind the case study methodology still applies today. The approach is research-based and evidence-led, focusing on the investigation of existing events and not requiring control of behavioural events (Yin, 2018). This case study aligns with these methodologies and explores the participants' perspective through their naturally-contextualised lenses. The qualitative aspect of the project suggests that it attempts to offer a rich, detailed description of the case with a focus on contextualised findings, while also drawing on broader implications and insights (Hyett et al., 2014).

As with all research approaches and studies, there are strengths and limitations to discuss. Yin (2018) spoke about the benefit of flexibility, which the strategy offers as it has the potential for adaptability to suit a variety of contexts, moulding to the researcher's question. However, while flexibility is a valuable characteristic of qualitative case study research, it also presents challenges related to methodological credibility. Inconsistencies in application could result in complications when replicating the findings, misinterpretation of results additionally compromises the validity of the findings (Hyett et al., 2014). Yin (2018) further delved into the holistic perspectives provided by qualitative case studies, broadening the reader's understanding through visualising the subject's experiences and perspectives through their lens. In contrast, the approach can be time consuming, and does not result in an objectively verifiable result (Choy, 2014).

The participants in this case study consist of both staff members and students from School X's mixed-age classrooms for year 1 and year 2. Specifically, the selected staff members are educators employed by School X, responsible for teaching in each of the year 1 and 2 classrooms. These staff members were selected for interviews because of their connection to the students' involved in the research and their extensive experience, allowing them to offer valuable insight into the dynamics of student relationships with their technology-based independent learning opportunities. Teacher B and Teacher C were chosen for their roles as

instructors for year 1 and year 2 classes, ensuring their perspectives remain pertinent to the study, despite not teaching Class A directly. Furthermore, Teacher B's position as one of the IT leads at School X adds valuable insight into the research. Initially, a teacher questionnaire was to be implemented, but this was abandoned due to time constraints.

The primary focus of this study are students from Class A at School X. Teacher A serves as the teacher for Class A, while Teacher B oversees Class B, and Teacher C manages Class C. The three classes follow a similar structure to their daily timetable, integrating frequently and employing similar approaches and opportunities for independent, technology-based learning.

To ensure a representative sample, consent forms were distributed to the parents/guardians of all students in Class A. Additionally, consent was sought from a subset of students in Class A for participation in focus group interviews as well as questionnaires. Teacher A selected these students to represent a diverse sample, encompassing various genders and ages across year 1 and year 2. Not all students in Class A returned their consent forms, therefore, out of 23 students, 17 students took part in this research project.

### **Research Methods:**

Throughout this study, several research approaches were implemented when exploring the research question within Class A:

#### **- Observations (students):**

A comprehensive investigation explored student interactions with technology during independent learning. The variety of student engagement within the classroom and the behavioural/social aspects were also observed. An observation schedule (Item E) was created and adhered to throughout. Observations were conducted around the researcher's non-teaching timetabled sessions to immerse fully as an observer, limiting the potential to impose on the research subjects to the greatest degree attainable.

Through immersing in the environment, the intention was to capture the subtle behaviours and interactions of students, shedding light on how they engage with technology both independently and within the broader classroom context, enabling the observation of real-time dynamics. Observations are recognised as important tools to enhance pedagogical practises, offering holistic explorations of various elements (Martinez et al., 2016). Through the lens of observational practise, researchers can gain valuable insights into the complexities of teaching and learning, by observing the learning environment itself (Klette, 2023).

However, despite observations offering insights into the learning environment, the presence of spectators can induce anxiety for participants. This indicates the potential to significantly alter the environmental dynamics and contribute to a less-natural representation of participants. Additionally, to provide the truest representation, a large number of observations should be conducted. Otherwise, there is a risk of obtaining only a partial understanding of more complex phenomena being studied (Lasagabaster and Sierra, 2011).

Still, there are limitations associated with the approach. It is time-consuming, limiting the viability of assessing a larger sample. Additionally, while observations can capture obvious behaviour, they fall short in revealing underlying mentalities (Veenman and van Cleef, 2018), indicating that observational research produces a surface-level representation of a study.

#### **- Interviews (staff):**

Informal, face-to-face interviews were conducted with staff members (Teacher A, B and C). Concurrently, diligent note-taking captured key insights throughout the implementation. Each participant was presented with 10 questions, focusing on areas such as student engagement with technology during independent learning, their perceptions of students' interactions with technology and strategies employed by teachers to enhance engagement (Item B).

Through these dialogues, the goal was to uncover valuable insights into experienced educators' perceptions, strategies and challenges regarding student engagement with technology, thus enriching our understanding of these learning experiences.

Semi-structured interviews are generally considered flexible, allowing for adjustments in questioning and deeper exploration of participants' thoughts and feelings. They promote personal interaction between interviewer and interviewee, particularly when face-to-face, facilitating the building of rapport, leading to potentially richer data. Additionally, they allow opportunities for clarification and elaboration, enhancing the accuracy of the data (Alamri, 2019).

Opting for a face-to-face approach enables a deeper exploration of the topic in discussion, but similarly to observational study, it can be time-consuming, involving the arrangement of schedules, questions and transcription in recorded interviews (Muthanna, 2019).

Drawbacks may arise when participants feel constrained or influenced by researcher positionality, societal expectations or the perceived nature of the research topic, leading to hesitation in providing their genuine opinions, especially if those opinions deviate from the

perceived norm or if they fear identification through the study (Alamri, 2019). In this case, anonymity must be stressed to the participants and upheld consistently to offer the truest insight possible.

- **Questionnaires (students):**

Questionnaires were distributed amongst students and completed face-to-face, fostering individualised responses with the researcher's supportive guidance. In most cases, the researcher facilitated the process by reading aloud the questions and transcribing the students' responses as appropriate for their age and reading/writing levels. The questionnaires were conducted as individual, informal discussions focusing on five key questions, aiming to gain insights into student perspectives on technology within the classroom and their perceptions of its impact on their learning. The questions provided to participants consisted of Likert-type scales, which were followed by the open-ended question of 'why' in order to gain an in-depth insight into their perspective and reasoning. Students were given the opportunity of 'colouring in' some of the answers they had selected, in an attempt to engage and involve them in the process of the questionnaire further (Item D). Due to the age, comprehension ability and EAL status of certain students, some questions had to be translated or supplemented with additional context to ensure comprehension.

Through direct engagement with students, the intention was to capture their unique perspectives and experiences with technology in their classroom. These insights provide a valuable glimpse into how students perceive the role of technology in their learning journey, as well as their preferences, challenges and attitudes towards integrating technology into their educational experiences.

Together, these methodologies offer a holistic approach to gaining a comprehension of the complex relationship between technology and independent learning, providing a widespread understanding that serves to inform future educational practises.

Questionnaires, despite their value in gathering information about unobservable characteristics like attitudes and behaviours, come with their own set of challenges. They are time-consuming and require perseverance, as noted by Sharma (2022). To keep participants engaged, it is recommended to keep questionnaires short, as prolonged surveys can lead to participant boredom and hastened responses.

Moreover, face-to-face questionnaires, similarly to interviews and observations, demand meticulous planning and organisation of schedules for implementation, design and

administration. Taherdoost (2022) specifies that while face-to-face questionnaires may be time-consuming, they are suitable when working with young children, as they can provide the necessary support to ensure understanding and accurate completion, yielding richer data for analysis.

Considering questionnaire implementation, the Likert scale stands out as a widely-utilised tool for capturing key characteristics. However, it is not without its pitfalls, as highlighted by De et al. (2021), who claims that despite its occurrence, researchers easily misunderstand or misuse the Likert scale. This stresses the need for cautious implementation and interpretation.

### **Being Ethical:**

In this case study, adherence to BERA guidelines (2018) ensures that ethical principles are upheld. Anonymity is maintained for all participants, perspectives are diverse and inclusive and integrity guides the research process, supporting participants and obtaining consent (Item G) and assent (Item F). Questionnaires (Item D) and interviews are tailored for accessibility and understanding, promoting equity. The research aims to develop the understanding of technology's impact on independent learning, benefitting pedagogical practises in the process.

The UNCRC (1990) rights of the child were adhered to and strictly followed throughout the research as well as the UWTSD research ethics and integrity code of practise (2022).

Only the research methods approved through the submission of an ethics form (Item A) were employed throughout this research project. Parents/guardians of student participants received consent forms outlining the project and research methods, allowing them to agree to each element's implementation (Item G).

Participants were granted the right to withdraw at any point and consistent assent was sought throughout (Item F). Prior to conducting staff interviews, a paragraph was read to each participant, outlining the methods aim, its connection to the research project, and offering withdrawal at any time (Item C). Adults were given the option to verbally opt out, while children were provided with multiple avenues to express their assent or opt out during the questionnaire. They could walk away if disinterested or decline to continue without repercussion. Discussions regarding their comfortability and assent were undertaken throughout the questionnaire sessions and a red/green card was left out for students to flip to red if they wished to opt out. It would be kept on green if they wished to continue.

Before observation sessions began, children were reminded that they would be observed for research purposes, with reassurance that it would not demand anything from them.

Additionally, they were reminded that teachers regularly observe classrooms to ensure safety and improve practises. Throughout observation sessions, children were given the opportunity to verbally opt out, as they were known to express themselves openly. Any notes taken were made clear to students upon request to ensure transparency.

It is crucial to acknowledge the potential impact of positionality as both a researcher and educator in Class A, possibly influencing participants' behaviour and responses (Secules et al., 2021). To mitigate this influence, particularly with younger students during questionnaire administration, informal conversations were fostered, unbiased language was employed and a calm environment was maintained. These were conducted in the classroom with other staff and students around.

### **Data Presentation and Analysis Methods:**

#### **Staff Interviews:**

The data reported through interviews with class teachers serves as a transcript. It has been studied under a thematic analysis approach. Thematic analysis is accessible and flexible, offering analysis of qualitative data to identify patterns and themes (Brain and Clarke, 2006). The process covers several key phases, including:

- **Familiarisation of data** – Transcription of responses without altering the content of what has been discussed. Researchers should familiarise themselves with their data in order to gain as accurate an understanding as possible
- **Coding** – Organisation of data into relevant groups, labelling each element with codes to identify themes throughout.
- **Identification of themes** – Identification of any themes and patterns throughout the coded transcripts.
- **Review of themes** – Analysis and review of areas where data have meaningful links.
- **Definition of themes** – Defining the over-arching themes and sub-themes, interpreting data and summarising the content.

Scholars convey that there must be consideration of researcher positionality when undertaking thematic analysis, as there is potential for researchers to search for themes to fit a specific narrative instead of analysing and interpreting the data without a bias. This must be counter-acted with consistent, flexible approach to analysing data (Castleberry and Nolen, 2018). Braun and Clarke (2006) confess the limitations of the method, asserting that

despite its acceptance among researchers due to its simplicity, it lacks boundaries and distinctions. It can lead to misinterpretation of data and ambiguity regarding results.

### **Student questionnaires:**

The data retrieved through student questionnaires was analysed through the same approach of thematic analysis.

### **Observations:**

The results from observations are presented as a narrative summary, focusing on key observations and insights from the sessions. Additionally, a comprehensive description of every minute occurrence was not feasible, thus, many elements of the session in observation may not have been recorded.

### **Results/Analysis Of Results/Discussion:**

Based on the qualitative research obtained through interviews and questionnaires, three main themes with two sub-themes each were generated throughout. The results are explored and explained through these elements.

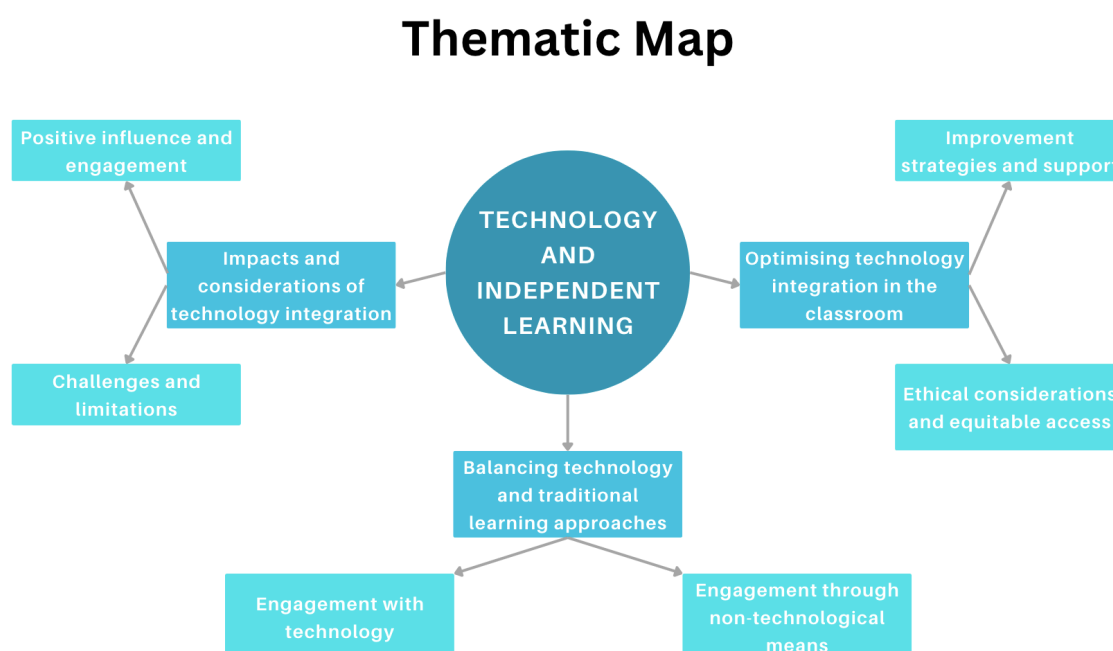


*Figure 1: A thematic map based on qualitative data collected from staff interviews and student questionnaires.*

- **Theme 1: Impacts and considerations of technology integration:**

Exploring the various effects and considerations associated with integrating technology into the classroom.

○ **Sub-Theme 1a: Positive influence and engagement:**

Participants stated that technology facilitates engaging learning experiences, enhancing student motivation, interest and independent exploration. Educational games and digital tools reinforce previously-taught concepts, aiding skill development in numeracy and literacy. Students recognise specific instances where technology supports their learning, particularly through interactive and engaging games. Student C recognised the value of maths games in enhancing comprehension of different concepts. Student L appreciated how games like Karate Cats support literacy skill development. This positive influence of technology aligns with the findings of Piaget (1954) and Ullah and Anwar (2020), who emphasised its role in fostering independent learning and providing engaging experiences. Student testimonials about the value of educational games additionally supports this claim.

○ **Sub-Theme 1b: Challenges and limitations:**

Each teacher faces challenges in maintaining student focus, addressing technical issues, and promoting responsible usage, requiring proactive management. Technical difficulties logging causes distraction and can disrupt learning. Some students expressed doubts about the educational value of technology, citing limitations in learning opportunities and feedback. These issues directly echo the concerns raised by Morris and Rohs (2021) and Ongoro and Fanjiang (2024).

- **Theme 2: Balancing technology and traditional learning approaches:**

Highlighting the importance of achieving a balanced approach to learning experiences, catering to diverse student preferences and needs.

○ **Sub-Theme 2a: Engagement with technology:**

Continuing on from Piaget (1954) and Ullah and Anwar's (2020) claims, results showed that many students reported enjoying games and interactive features available, serving as a strong motivation for use. Teachers acknowledged the positive impact of technology in facilitating engagement and promoting student motivation and interest.

- **Sub-Theme 2b: Engagement through non-technological means:**

Some students expressed a preference for activities that involve creativity and hands-on experiences, such as crafts. Teachers recognise the challenges associated with technology integration, such as maintaining student focus and addressing technical issues, highlighting the demand for non-technological approaches as encouraged by Ricoy and Sanchez-Martinez (2020).

- **Theme 3: Optimising technology integration in the classroom:**

Focusing on strategies and considerations for enhancing the integration of technology, ensuring effective implementation, support and ethical practices.

- **Sub-Theme 3a: Improvement strategies and support:**

In 2021, Morris and Rohs and Liu and Hwang stated a cycle of continuous improvement is required when implementing technology. The results from this study showed that teachers underscored the prominence of ongoing improvements in technology access, infrastructure and resources to optimise learning. Furthermore, it results indicate that providing peer and adult support, fostering a supportive learning environment and promoting alternative learning opportunities could enable students to develop essential technical skills. Some students expressed a desire for balanced approaches to technology use, advocating for moderation and diversity in learning activities.

- **Sub-Theme 3b: Ethical considerations and equitable access:**

The importance of addressing ethical considerations associated with technology use was evident from staff, advocating for a safe and responsible digital learning environment. Collaboration between educators and parents is crucial in enforcing online safeguarding and responsible usage. Teachers emphasise ensuring equitable access to resources through support services, highlighting the role of schools in addressing systemic barriers to digital inclusion. Some students expressed a preference for more frequent technology use due to ease and enjoyment, reinforcing the necessity for equitable access. These concerns harmonise with claims in 2020 from Dienlin and Johannes, alongside Zamira, who outlined the importance of responsible technology use and addressing systemic barriers to digital inclusion.

Throughout observations, these narrative themes were apparent. Many students were drawn to the use of educational games and were immersed in their learning, aligning with Piaget

(1954) and Ullah and Anwar (2020). However, they often lacked adherence to school rules when told to stop. Additionally, some younger students encountered difficulty when attempting to access devices and desired websites. They quickly abandoned technology in favour of a more traditional activity (books, Lego or doll houses) as indicated by Morris and Rohs (2021) and Ongoro and Fanjiang (2024). Many students enjoyed the social aspect of technology and similar groups were often found together on their devices as echoed by Bandura (1977) and Shanmugasundaram and Tamilarasu (2023). Nonetheless, there were instances where Student A deleted the score for other students, apparently in a desired attempt for more focused social interactions from his peers. This generally occurred while other students (typically the same groups), continued with their hands-on activities.

Overall, these results indicate that technology has a significant impact on student engagement and motivation, especially through interactive games and digital tools. It also specifies that there are ongoing challenges that must be addressed. Both teachers and students outlined that a balance between traditional learning and technology-driven independent learning is vital in order to cater to the diverse academic and social requirements of learners. As with pedagogical practises and approaches, the implementation and infrastructure surrounding technology must be continuously and consistently analysed in order to identify its strengths and weaknesses. Additionally, ethical considerations and ensuring an equitable digital learning environment are essential for constructing safety and inclusivity.

There are challenges and limitations related to ongoing technical issues, doubts from students about the educational value of technology and the need for proactive management from teachers. Despite its draw for many children, there is a call from learners for a balanced approach between technology and traditional learning methods.

Regarding Class A, opting for a range of activities for learners to engage with during independent learning time has proven beneficial. Managing the learning environment to ensure each student has a chance to utilise technology is crucial, but ensuring students are aware of the need to engage with other activities is prominent. Student A made noticeable claims that resonated with Shanmugasundaram and Tamilarasu's (2023) statements, testifying *"I don't want to use games all the time because I'll get addicted, but I would like to learn more on technology"*. Continuing with this notion, participants recognised individual preferences and needs regarding technology use. For School X, investing in support services and technology infrastructure, while continuing to promote ethical practises and equitable access, could contribute to student success and well-being.

## **Conclusions:**

The methods utilised throughout this study were undertaken with an ethical and unbiased approach. However, each method portrays strengths and limitations. Participants may have been influenced by researcher positionality, altering the uninfluenced nature of their responses and behaviours. Additionally, questionnaires were limiting, due to the array of comprehensive abilities in Class A. Initially, focus group interviews were to be utilised, but due to the anxious nature of certain children, this method was abandoned in favour of questionnaires. This provided a more consistent and true response from students as it was informal and took less time to complete. Observations were conducted but may have been influenced by researcher positionality. Additionally, the observations conducted offered a minor insight into the learning environment, with minute instances surely being missed, and a surface-level comprehension of deeper and more complex behaviours being overlooked.

These results could be generalised through a consideration of the themes that emerged. The thematic analysis based around questionnaire data could provide this generalised perspective.

In the future, I would like to carry out further research on technology-based independent learning. This research provided a starting point and has provided me with the foundational skills I would need to undertake further research, offering the opportunity for comparison between Class A and an alternate class. This research should be conducted as similarly as possible in order to ensure the consistent approaches.

This research project links to the professional teaching standards as indicated:

- Managing the learning environment – promoting and exploring positive learning habits and behaviours through technology use.
- Listening to learners – learners were given the opportunity to state their opinions regarding technology-based learning.
- Working with in-school colleagues – interviews were conducted with several colleagues at School X.
- Continuing professional learning – I have gained insights into the strengths and limitations of technology-based learning and can apply these in future classrooms.

## **Recommendations:**

In light of this research, I would recommend that educators utilise technology-based learning and introduce it to all learners, emphasising its benefits for learning. There are countless

digital tools available and they can be utilised to engage and teach students. Technology is a prominent part of our world and learners must be educated in how to effectively navigate these tools safely and effectively.

I wish to engage learners with more technology-based activities, perhaps through music, as these apps generally come installed on iPads. With minimal guidance initially, learners can investigate these apps and immerse themselves in their potentially unexplored creativity.

These findings offer insight into the exploration of technology for independent learning. The strengths and limitations outlined through this project could benefit future researchers, allowing them to develop their pedagogical practise and benefit their students' learning experiences.

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