

Staff Perspectives on the Influence of a Minecraft Education Challenge on Pupils with Additional Learning Needs

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ABSTRACT

This pilot study examines the influence of a Minecraft Education Challenge (MEC) on the confidence and engagement of pupils who have Additional Learning Needs (ALN) from the perspective of staff.

The qualitative findings from staff members (n=11) at an ALN community school in North Wales indicate that the MEC contributed to the development of confidence and engagement with the challenge, which also encouraged creativity, communication, and collaboration between pupils who have ALN.

The findings also indicated that pupils' engagement with MEC increased through the following factors: confidence in communicating; growing confidence; confidence in collaborating; engaged when having fun; and engagement in all Areas of Learning and Experience in the new Curriculum for Wales. Another noteworthy finding was that participants acquired new digital skills from the pupils, which was perceived as a form of empowerment for the pupils. Furthermore, staff members perceived that Minecraft Education could be employed to address a multitude of areas within the Digital Competency Framework (DCF). The participants did not perceive the MEC as a barrier for pupils with ALNs, but rather as a means of enhancing their engagement and confidence in learning, thereby creating equity for pupils with ALN.

Finally, further research is required on the application of game-based learning for pupils with ALN, as the current data is limited in Wales.

Keywords: additional learning needs, ALN, minecraft education, digital competence framework, DCF

Introduction

This study explores the impact of a Minecraft Education Challenge (Minecraft Education, 2025) on the confidence and engagement of pupils with Additional Learning Needs (ALN) from the perspective of staff. This was a timely and important study to undertake as teachers and teaching assistants (TAs) who have pupils in their class with ALN can often find it hard to engage them in their learning, and the building of their confidence (Thomas, 2025), depending on their specific needs and requirements (Knight et al., 2022). Also, teachers' and TAs' views are often not considered when it comes to game-based learning.

The research was conducted at an ALN community school in North Wales, with n=11 staff members and contemporaneously recording their reflections in notebooks throughout the challenge and participating in semi-structured interviews.

Literature

Engaging pupils with their learning and building their confidence can be challenging for any teacher across all settings and contexts (Knight et al., 2023), but often for teachers and TAs who support pupils with ALN (Conn et al., 2024). This can be due to the complexities in ALN across each cohort of learners (Knight et al., 2024).

In 2015, the Welsh Government published guidance for teaching practitioners in how to use assistive technologies to support learners with specific learning difficulties (Welsh Government, 2015). In recent years, Edyburn (2020) and the UK Government's Department for Education (2024) recognised that assistive technologies can play an important role for pupils with ALN as it enhances a wide range of academic, behavioural and social benefits. However, it is also important to consider the use of technology for pupils with ALN in the same way that others use

it, such as for communicating and entertainment. Unstructured play enables pupils to discover things independently without guidance, which helps pupils learn naturally (Harman and Harms, 2017). This can be through free play with physical items or play on computers. Game-based learning offers many opportunities for pupils to learn as they play (Lu and Lien, 2020). Karsenti et al. (2017) posited that pupil's imagination is unbounded when creating and exploring on Minecraft Education.

Minecraft is a sandbox game developed and published by Mojang Studios in 2016 that uses blocks to construct an environment and explore your own unique worlds. Karsenti et al. (2017) found that the fun and enjoyment pupils gain from using Minecraft as an educational tool helps the pupils to learn and is only limited by the player's imagination. It was developed into an educational game when developers saw the benefits it had educationally; educators thus use Minecraft Education to engage students in immersive lessons, group projects, build challenges, and esports programs (Minecraft Education, 2024). Balin Hazarika et al. (2024) and Levin (2019) also found that Minecraft Education enhanced pupils' communication skills. Games can also encourage thinking and social skills (Erickson and Sammons-Lohse, 2021), and Minecraft was shown to build collaboration in pupils (Gee, 2003).

Building on its major education-system level reforms with the phasing in of the new Curriculum for Wales from September 2022, there has been a significant focus on computer science education and digital competence (Crick, 2022a; Crick, 2022b) since the independent review of the ICT curriculum in 2013 (Arthur et al., 2013). Wales is thus perceived to be a global leader in learner-centred digital competence (Moller and Crick, 2018), especially with the development of the bilingual, cross-curricular Digital Competence Framework (DCF) for all learners aged three to sixteen in 2016 (Crick, 2022b). In 2019, the Welsh Government provided free access to Minecraft educational software for all students and teachers in schools and colleges in Wales and launched *Minecraft: Education Edition* (now known as Minecraft Education) and Microsoft 365 to all 467,000 learners (Welsh Government, 2019). Furthermore, Harris (2022) highlights Wales's leadership in professional development for educators through its Hwb learning resource across the country, especially in the context of wider curriculum leadership, as well as school and system improvement (Harris et al., 2020).

Research by Bebbington and Vellino (2015) found that while younger gamers often lack critical information literacy skills, Minecraft Education can help them

develop other essential skills to address this gap. However, Nebel et al. (2016) found that many teachers have not received training on how to integrate Minecraft Education into their classrooms, as it is not typically included in teacher training programmes and there may be some reluctance due to some teachers' preconceived notions or lack of personal experience with these games (Kuhn, 2017). However, Kelion (2016) notes that while Minecraft Education is a valuable tool, it should be used alongside other teaching methods to be most effective; therefore, building teachers' confidence is crucial to successfully integrating this tool into the classroom. Building teachers' confidence will enable them to effectively combine Minecraft Education with more established teaching methods, creating a more enriching and inclusive learning environment for students with ALN, especially in the context of the new Curriculum for Wales, and the ongoing ALN systems reforms (Welsh Government, 2025).

Methods

This research study used a qualitative method of semi-structured interviews and contemporaneous journal logging to explore the lived experience of teachers and TAs when using Minecraft Education as a teaching and learning aid within their class. There were two interviews; one took place prior to the challenge and one was after. These interviews took place over Microsoft Teams and were recorded for research purposes only.

Ethics

Before the interviews and MEC began, participants provided their informed consent (BERA, 2024). This step was essential to ensure that participants understood the nature of the study and what their participation would involve. Ethical practice requires that participants are fully aware of what they are agreeing to (Bryman, 2012) and that consent is voluntarily given, whether in written or oral form (Cohen et al., 2016). For this study, written consent was obtained following ethical approval from the University's ethics review process.

Sampling Procedure

The aim of the research was to explore the lived experiences of teachers and TAs when implementing a MEC with their pupils within their classes, using a small sample based in a small geographical area as a pilot study as the foundation for future work. Thomas (2023) describes this as a purposeful sample which is recommended for qualitative research which requires information-rich cases where there are limited resources. Eleven participants (n=11) were invited and accepted the invitation to participate in the research project.

Data Analysis

Semi-structured interviews were undertaken before and after the MEC to ensure that a full set of data could be collected from the participants. Alongside the interviews, the participants were also asked to write down anonymised notes, to capture their thoughts on the engagement and confidence of the pupils throughout the challenge. This evidence was recorded in participants' journals which they were asked to keep during the MEC. The data used NVivo software where 226 references were coded and themed. The number of references by each participant coded are shown in Figure 1.

Figure 1: Percentage of References on Confidence

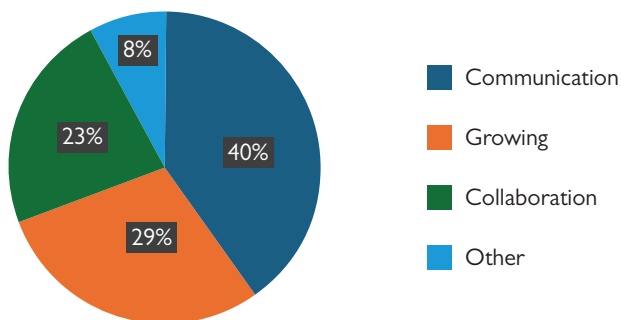
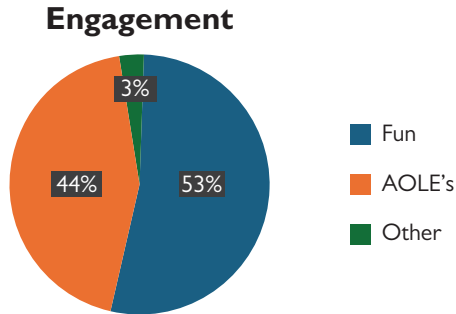


Figure 2: Percentage of References on Engagement



Main themes and sub-themes were extracted from the findings using thematic analysis (Braun and Clark, 2022). The main themes were 'confidence and engagement' and the sub themes for confidence were 'confidence in communicating', 'growing in confidence' and 'confidence in collaborating'. The sub-themes for engagement were 'engaged when having fun' and 'the MEC creating engagement in all areas of learning and experience (AoLE) of the Curriculum for Wales'.

Results and Discussion

This section will report and analyse the findings from the research and will present a discussion of the results making references to how these findings relate back to the literature.

Theme 1: Communication

Confidence in communicating

Participants found that communication was easier for the pupils when using Minecraft Education as they did not always 'have to use their words... [they could] show each other what they mean' (TA11). The participants identified that pupils, even when they did not remember the names of the blocks but recognised them,

were confident to continue regardless, with one participant stating that they were 'just laying down the block [and saying] I'm using this to do this'. TAI1 noted that as the pupils played the game that they were 'building communication without realising it'. An excerpt in T1's journal notes that 'learners were able to explain their builds confidently to teaching staff and their peers'. Therefore, suggesting that the use of digital platforms such as Minecraft Education may improve communication confidence in pupils with ALN (Balin Hazarika et al., 2024). The development of communication skills is valued by Minecraft Education (Minecraft Education, 2024) and other digital platforms, which primarily use picture blocks as a major part of their communication systems with their users allowing them to use tools or join their friends' worlds (Levin, 2019). This can offer support for pupils with ALN who cannot communicate with others easily.

Growing in confidence

Participants shared how pupils grew in confidence when showing teaching staff or their peers how to complete tasks on Minecraft Education which is similar to findings shared by Levin (2019). In their white paper, Minecraft Education (2024) describe the Minecraft environment as being inclusive for every pupil including those with ALN, claiming that it can 'boost confidence and academic performance' because it has been specifically designed to 'foster social cohesion and community among students, enhancing emotional and social well-being'. Participants shared how each pupil using MEC grew in confidence as the game developed.

Confidence in collaboration

In their end interview, T2 stated that the pupils 'worked well together' on the MEC. Similarly, TA5 noted how the pupils worked together stating they 'agree on their decisions and make compromises', evidencing the development of confidence through collaboration.

All participants shared how the pupils worked well together on the challenge, and this helped them to improve their decision-making skills. Most participants recognised how compromises were made and social skills improved. Erickson and Sammons-Lohse (2021) posit that games that help pupils to think and solve puzzles bring social interactions that are natural. Collaboration is an important part of

working as a team; learners need to learn this skill to help them thrive throughout their lives. Nebel et al. (2020) found that collaboration was learnt by pupils through sharing an interest. All participants found that the pupil's interest in the challenge and Minecraft Education was found to increase the pupils' collaboration; additionally Gee (2003) found that gaming that was collaborative also helped the pupils learn in a wide range of subjects, such as Maths and Science.

Theme 2: Engagement

Examination of the results from the interviews and notebooks revealed that most participants found that the MEC helped pupils engage better with their learning. There were 124 coded references made to the MEC improving the overall engagement shown by pupils with ALN. References were thematically analysed and coded to two areas of engagement: *Engaged when having fun* and *Engagement in all AoLE*.

Engaged when having fun

The findings show that of the 66 coded references, 53 per cent were engaged when they were having fun. T1 found that their pupils 'genuinely enjoy[ed] going on Minecraft Education'. They noted that they '[didn't] think they [saw] it as a lesson... they... [saw] it as a treat'. In their journal, T4 reflects that the pupils enjoyed Minecraft Education the most out of a range of sessions.

The findings show that pupils enjoyed the MEC and did engage more when they were having fun. The literature found that when pupils enjoyed Minecraft Education as an educational tool, the limitations are only that of the pupil's imagination (Karsenti et al., 2017).

Engaged in all areas of learning

The MEC covered the Mathematics and Numeracy (MN) area of learning and experience (AoLE). An example of pupils being engaged in MN was recorded in a journal that notes 'the team had to calculate how many blocks they needed to build and lookup examples of football fields on Google' (TA11). A further example of pupils engaging in this area was provided in the journal reference 'P3 and P4 [spoke]

together about height and what they still had to do with their pool' (TA7). T2 and TA6 both spoke about the pupils in their classes engaging well with MN in their first interviews. Elford (2016) highlighted learners who could not engage with MN until they had used Minecraft Education with him.

Conclusion

Participants were unsure of how or if the MEC would have any effect on their pupils before the start of the challenge. Only 2 out of 11 participants had used Minecraft Education with a class before; therefore most participants were novice practitioners, and found that they wanted to experiment, but were not sure if it would be of immediate benefit to them or their pupils.

Participants found that pupils with ALN were able to communicate more easily as they progressed through the MEC. Participants shared the perception of how some pupils who would normally become frustrated when communicating were able to interact more with the rest of the class. Pupils were also perceived to be interacting more with each other, as words were not needed to carry meaning due to the use of symbols in Minecraft Education. Participants also saw that the freedom that Minecraft Education gave pupils helped them to be more confident in communicating naturally. Pupils were also seen to be eager to share the skills they had learnt with others; participants saw this as improving pupils' wellbeing and self-esteem. Participants saw that pupils were engaged when they enjoyed the challenge. They also found that the MEC was a leveller, as in each class there is a large and varied number of needs amongst the pupils and this put them all on the same level – they could now work together on the same project. Participants found that they covered parts of the DCF or AoLE with the MEC as it was naturally built into it. Participants also felt that pupils were more able to use Minecraft Education than the participants themselves were, as the pupils were more used to digital platforms. Staff felt that they were not as knowledgeable as their pupils when it came to Minecraft Education, but they found that pupils taught them in a flipped classroom scenario. Participants found a number of benefits when students were involved in the MEC; they perceived that students became more independent (away from teachers and assistants) and communicated more freely.

Participants shared that they needed help with the technical elements and with identifying, disseminating and evaluating challenges. Participants found that they were able to fulfil some aspects of the DCFs that they had not been able to fulfil before, such as coding and collaborating on a digital platform. Therefore, staff need access to high-quality bilingual training and professional learning (Thomas et al., 2025) to be able to use Minecraft Education (and similar platforms) more effectively, especially to better understand the pedagogies of games-based learning in their specific settings and contexts.

Thus this should be a priority for future research to further support the continued implementation of the Curriculum for Wales, especially across diverse ALN contexts. This pilot has demonstrated the potential impact of pupils better engaging with their learning and communicating well when using Minecraft Education in the classroom, as well as the positive benefits on the perceptions and practices of ALN teachers and TAs.

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