

ORIGINAL RESEARCH

Minecraft Education Edition in foreign language education: Pre-service teachers' reasons for acceptance and integration

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Abstract

In this paper, I explored the reasons three pre-service teachers gave for why they accept and integrate *Minecraft Education Edition* into their growing practice. During a six-week online university course on technology in foreign language education, a group of twenty-one pre-service and in-service teachers created weekly Reflexive Digital Story (RDS) Journals to document their technology exploration along with lesson plans and projects that incorporated innovative technologies they wanted to integrate into their practice. Three of the pre-service teachers enrolled in this course became innovators and early adopters in comparison to their peers as they voluntarily integrated *Minecraft Education Edition* into their coursework. This allowed me to qualitatively analyze their coursework to identify the reasons they integrated the digital game into their developing practice. This work contributes to the field of digital game-based learning, technology acceptance and integration, and the study of teacher education by illuminating the factors that contribute to why pre-service teachers accept and use Virtual Worlds (VWs). I discovered the reasons these pre-service teachers gave for acceptance and use of VW technology embodied the recognition of a need for motivation and engagement in the classroom, beliefs about the social nature of culture and language, and perceptions of VWs as an opportunity to make the impossible possible.

Keywords multimodal input; virtual reality; reading comprehension; cognitive load

1. Introduction

Research shows plentiful evidence of the educational benefits of technology integration (Balanskat et al., 2006; Harrison et al., 2002). Keengwe, Kidd, and Kyei-Blankson (2009) assert that teachers need to familiarize, utilize, and integrate technology, as well as reconfigure their desired learning outcomes and classroom practices to align with the culture of technological usage.

In this paper, I explored the reasons three pre-service teachers gave for why they accept and integrate *Minecraft Education Edition* into their growing practice. During a six-week online university course on technology in foreign language education, a group of twenty-one pre-service and in-service teachers created weekly Reflexive Digital Story (RDS) Journals to document their technology exploration along with lesson plans and projects that incorporated innovative

technologies they wanted to integrate into their practice. Three of the pre-service teachers enrolled in this course became innovators and early adopters in comparison to their peers as they voluntarily integrated *Minecraft Education Edition* into their coursework. This allowed me to qualitatively analyze their reflections, lesson plans, projects, and other coursework to identify the reasons they integrated the digital game into their developing practice. This work contributes to the field of digital game-based learning, technology acceptance and integration, and the study of teacher education by illuminating the factors that contribute to why pre-service teachers accept and use Virtual Worlds (VWs).

2. Literature Review

2.1. Teachers' Acceptance and Usage of Technology

Research on technology adoption in teachers

categorizes external (first-order) and internal (second-order) factors that impact integration (Snoeyink & Ertmer, 2001; Wachira & Keengwe, 2011). Typical external factors include time available for planning lessons and learning technology, and access to computers, the internet, software, and tech support. Internal factors include school-level factors such as their institution's organizational culture and factors like teacher's beliefs, attitudes, readiness, and openness to change (Wachira & Keengwe, 2011). Inan and Lowther (2010) posit that teacher demographics (age, years of experience, etc.) may have an impact on teachers' computer proficiency, but that some internal factors like teachers' beliefs and readiness may also be influenced by external factors like the availability of computers, tech support, and community support, which can positively or negatively influence their technology integration. As Veletsianos' (2016) states, there is a "negotiated relationship between the maturation of a technology/practice and the environment that surrounds it" (p. 9). Beavis et al. (2014) purport that the appropriation and adoption of digital games in educational contexts are often determined by factors like teachers' training, skills, resources, and the regulations of the educational system where they work. Egbert and Borysenko (2019)

contended that few studies explore the use of Minecraft Education Edition in teacher education, which echoes Gabriel's (2016) statements on how teacher education programs need to include digital game-based learning in order to produce teachers that are competent at integrating digital games into their practice. This is also in line with the argument that the effort expended during the initial phases of acquiring a new behavior, such as using new technology, plays a crucial role in the process of acceptance (Al-Qeisi 2009; Venkatesh et al. 2003).

Marangunić and Granić's (2015) literature review on technology acceptance models described how researchers, Venkatesh and Davis (1996, 2000), expanded Davis' (1989) Technology Acceptance Model (TAM) with the introduction of the Technology Acceptance Model 2 (TAM2), which connects the constructs of perceived usefulness and behavioral intention to use with theoretical constructs of social influence (subjective norm, voluntariness, and image) and cognitive instrumentals (job relevance, output quality, result demonstrability, and perceived ease of use) (Venkatesh & Davis, 2000; Sullivan, 2012) (see Figure 1).

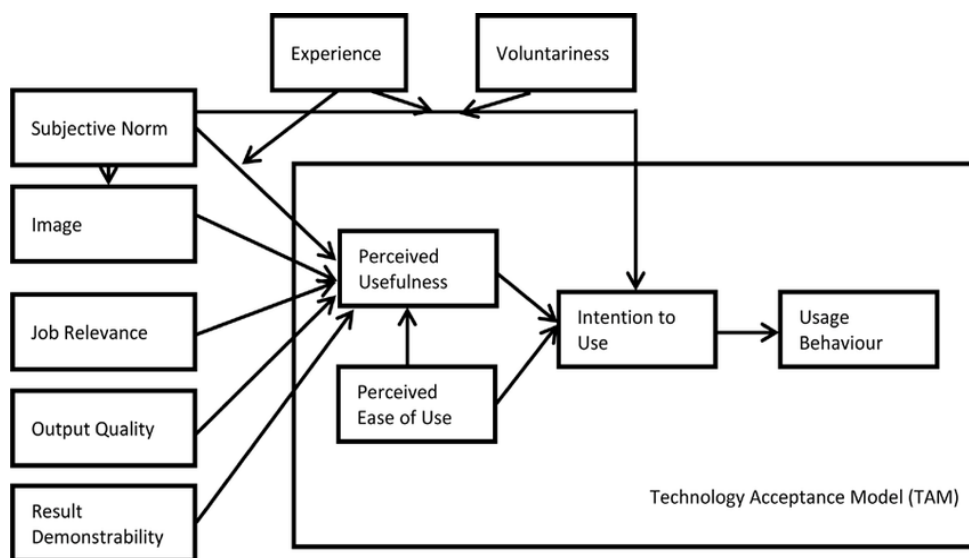


Figure 1. Technology Acceptance Model 2 (TAM2) by Venkatesh & Davis, 2000

Students in today's educational system are currently being prepared for a life that requires digital literacy and 21st-century learning skills (Newbill & Baum, 2013). Hence, researchers developed many different theories and models that can be used to explore individuals' acceptance and use of new technology (Yurdakul-Kabakçı et al., 2014). Venkatesh and Davis' (2000) TAM2 served as a predecessor and steppingstone for Venkatesh, Morris, Davis, and Davis' (2003) model, the Unified Theory of Acceptance and Use of Technology (UTAUT) (see Figure 2). The

UTAUT model specifically integrates eight dominant theories and models, including the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), the Motivational Model (Deci, 1971; Vallerand, 1997), the Technology Acceptance Model (TAM) (Davis, 1989), the Theory of Planned Behaviour (TPB) (Ajzen, 1991), the Innovation Diffusion Theory (IDT) (Tornatzky & Klein, 1982), the Social Cognitive Theory (Bandura, 1986), the Model of PC Utilization (Thompson et al., 1991), and the combined C-TAM-TPB model (Taylor & Todd, 1995).

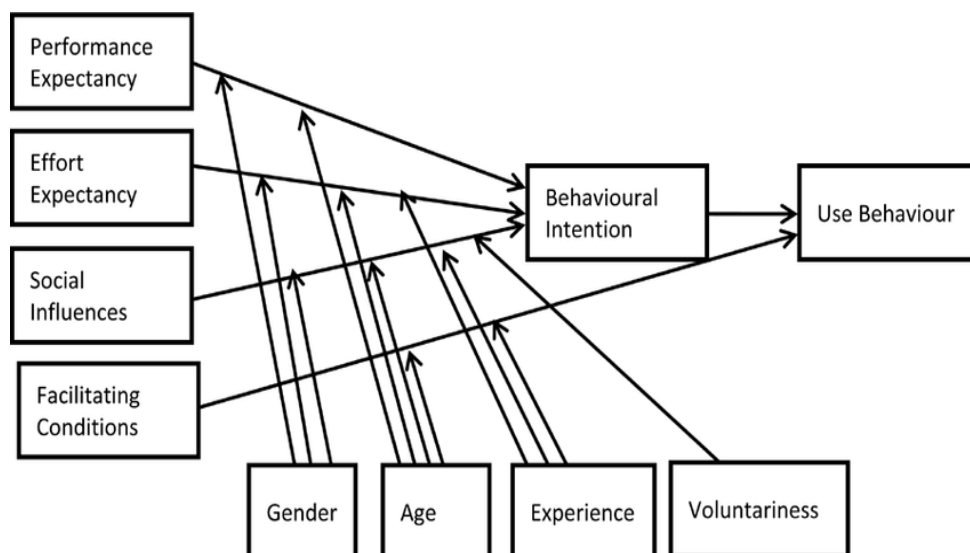


Figure 2. The Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al., 2003

The UTAUT model diverges from the TAM models as it contends that the construct of *social norms* directly influences an individual's *behavioral intention to use* and creates a *facilitating conditions* construct that directly influences actual use. In the education sector, researchers used UTAUT to study students' mobile learning (Bharati & Srikanth, 2018; Chao, 2019; Moorthy et al., 2019; Sung et al., 2015), learning management system use (Ain et al., 2015; Fang et al., 2019) e-learning systems (Samsudeen & Mohamed, 2019) augmented reality (Guest et al., 2018, Nizar et al., 2019).

2.2. Digital Game-Based Language Learning

The literature on Digital Game-Based Learning (DGBL) shows that its implementation increases students' self-efficacy, academic performance, and motivation to learn (Hung et al., 2014). It also shows that specifically Digital Game-Based Language Learning has a positive impact on students and offers instructional advantages to teachers in relation to improvements in students' writing skills (Neville et al., 2009), listening skills (Bernert-Rehaber & Schlemminger, 2013; Roy & Schlemminger, 2014), reading skills, and speaking skills in the target language (Levy & O'Brien, 2006).

When it comes to types of games, the literature on DGBLL consists mostly of inquiries using commercial off-the-shelf (COTS) adventure games and massively multiplayer online role-playing games (Hung et al., 2018; The majority of these inquiries focus on the effects of in-game variables (i.e. game narrative structure, interaction, multimedia, etc.) non-game variables (i.e. autonomy, motivation, immersion, social interaction etc.), and player attributes (i.e. age, gender, game literacy, attitudes, etc.), and report positive results (Cornille et al., 2012; Peterson, 2012; Turgut & İrgin, 2010).

There are also many DGBLL inquiries that explore serious games (games where the primary

purpose is one other than entertainment) (Doe, 2014; Jantke & Hume, 2015; Howland et al. 2013; Romero & Barma, 2015). Serious games are comparable to computer assisted language learning software (CALL) in that they improve students' vocabulary knowledge (Muller, 2012; Peirce & Vade, 2010), yet render more positive attitudes and motivation (Kocaman & Kizilkaya-Cumaoglu, 2014).

2.3. Acceptance and Usage of Minecraft Education Edition

The use of games in education is not a new idea. However, the acceptance and usage of Virtual Worlds (VWs) for Digital Game-Based Learning (DGBL) is only in its infancy. One notable institution already using Minecraft is Clemson University in South Carolina, USA. Clemson is a Research I university with a college of education that is "a transformative leader in improving education from birth through adulthood" with award winning programs that "train teachers, school counselors, and school leaders," and uses Minecraft Education Edition as a classroom tool to build literacy and "learn about collaboration, communication, and critical thinking" (Minecraft, 2022, n.p.; Clemson University, 2022). While the diffusion of VWs may not be rapid, the landscape of educational usage could soon change as billion-dollar video game franchises like Minecraft continue to invest in features geared to facilitate educational use (Egbert & Borysenko, 2018; Lincenberg & Eynon, 2021; Porter et al., 2018). Lincenberg and Eynon (2021) assert that numerous factors contribute to the rise of COTS games in education, such as increased cultural acceptance of digital games as an art form (Tavinor, 2011), the accumulation of research demonstrating the benefits of DGBL (Coleman & Money, 2020), and game developers desire to capitalize on the educational market (Jowitt, 2016).

Unfortunately, assuming the factors responsible for the rise of games in education are the same reasons

teachers accept and integrate technology into their practice is not acceptable. Future research is needed to clearly identify the reasons pre-service and in-service teachers have for their acceptance and integration of VW technology like *Minecraft Education Edition*.

3. Methodology

3.1. Study Design

Pre-service teachers are still students of educational practices who need guidance and training. Anderson and Maninger (2007) argue that the purpose of integrating new emerging technologies into teacher education programs is to create receptiveness and ability to use communication and information technologies in students' future practices. I concur with Nelson et al. (2009) and Yildiz Durak (2019) that students should be provided with opportunities to build skills and knowledge through higher education in order to empower them to use technology in the classroom. In this inquiry, I employed a multiple case study with a sample of cases from a bounded context (Krathwohl, 1998; McMillan & Schumacher, 1997). The data for this study were documents and multimedia pieces, such as videos, podcasts, PowerPoint presentations, and written papers, submitted as coursework to a university-level course on technology in foreign language education for pre-service and in-service teachers.

Two experienced professors developed the course context of this inquiry in order to observe pre-service and in-service teachers learning about technology in an asynchronous, student-centered, online environment rooted in choice and social interaction with peers where the professor acted as a facilitator. They based the design on Social-Constructivism theory (Vygotsky, 1962) and the educational literature that promotes self-directed learning, where individuals can choose the methods and strategies appropriate for achieving their goals (Fisher et al., 2001). This design gave students choice in each of each of their assignments and projects so they could focus their academic efforts on the technologies and activities most applicable and beneficial to their specific educational context and growing language teaching practice. It also provided the opportunity to explore several different *a priori* questions (such as the one driving this inquiry) in an authentic, natural environment through retrospective document studies. While a more common qualitative research approach would have been to conduct interviews, this design created a scenario where teachers could voluntarily accept or reject Virtual World technology without pressure or influence from professors or researchers, yet rich data could still be collected on their technology acceptance and integration.

3.2. Participants

For this inquiry, it was important that only pre-

service language teachers were eligible as it is "important to differentiate pre-service teachers' beliefs and competencies with regard to the acceptance and use of technology depending upon the subject taught" (Yildiz Durak, 2019, p.177). By only focusing on pre-service teachers in one subject, this research contributes to literature that could help inform instructional technology programs based on subject matter as it provides case studies for designers to reference in order to better understand the reasons various pre-service language teachers have for incorporating *Minecraft* in a context of Social Constructivism and self-directed learning (Baydas and Goktas, 2016). During the summer of 2021, twenty-one students from the college of education enrolled in a technology in foreign language education course at a Research I university in the Southeastern United States. All the students were either pre-service or in-service language teachers. Only ten students chose to integrate *Minecraft Education Edition* into their work: four in-service teachers and six pre-service teachers. I created this sample of three pre-service teachers after receiving institutional review board approval and reaching out to the eligible students. I could only include the pre-service teachers who would consent to examination of their coursework because the Family Educational Rights and Privacy Act protects the privacy of students' educational documents (FLDOE, 2022). Participant One was a female, first year undergraduate student, at the beginning of her journey to become a teacher. This course was not only her first technology course, but also her first education course. Teacher Two was a male undergraduate student less than a year away from graduation with aspirations on teaching abroad. Neither of these participants had classroom teaching experience. However, Teacher Three was a female undergraduate student nearing her second year who was at the time teaching in a secondary classroom setting and had multiple years volunteering in primary and secondary classrooms.

3.3. Data Collection

For six weeks (the duration of the summer semester) the course context required students to post a Reflexive Digital Story (RDS) Journal that documented their ideas, reflections, perceptions, and attitudes relevant to the technology they focused on that week. Students posted these journals after they completed the assigned readings and coursework for that week. The course syllabus directed students to "connect course content, teaching philosophy/pedagogy reflections, and individual experiences" and use the RDS journal as an opportunity to "create a multimodal autoethnographic digital story that demonstrates student reflexive practices and development." It also stated that the creation of an RDS includes "multiple drafts that take peer (and instructor) feedback into consideration and combines audio, visuals, and word-based text into a cohesive, expressive, 5-minute minimum sharable... video, animation, "podcast" style audio, etc. to share with your classmates reflecting on the topics of the

week and directly addressing implications for your teaching.” Each week students completed these journals along with a lesson plan assignment or project that related to the specific technologies they chose to integrate that week. The also course required students to actively review their peers’ posts and comment on a minimum of two other students’ work. As the primary investigator, I downloaded their multimedia RDS journals, written submissions, and discussion comments, anonymized them by assigning the participants pseudonyms, and saved them to encrypted files on a password-protected external hard drive. I then used Otter.ai to create transcripts of the video and audio data and uploaded everything to Atlas.ti 22 for analysis.

3.4. Research Question

I used a single a priori question to guide this inquiry: What reasons do 3 pre-service teachers actively engaged with *Minecraft Education Edition* in a technology in foreign language education course give for their acceptance and usage of virtual world technology?

3.5. Data Analysis

3.5.1. Theoretical Framework and Coding Process

Just as the researcher cannot be eliminated from the research, Anfara and Mertz (2015) contend that “theory plays a key role in framing and conducting almost every aspect of the study” (p. 11). I employed the Unified Theory of Acceptance and Use of Technology (UTAUT) as a lens to explore the reasons spoken and unspoken that potentially impact pre-service teachers’ acceptance and use of *Minecraft Education Edition* (Venkatesh et al., 2003). To do so, I read over a sample of data from each of the participants and used it to inform the creation of a preliminary codebook (Codebook #1). This preliminary codebook composed of codes for the major UTAUT constructs, structural codes for the research questions, and codes to identify negative and positive perceptions, along with their definitions. I then went back through the data sample and tested this first codebook iteration. This deeper analysis helped me to revise my codebook into a second more detailed iteration (Codebook #2) that included codes for change, technology, design factors, and identity facets. I used this iteration to code all of the data from the three participants, adding additional codes during this open coding process. Exceptional coding of the data was a priority as I concur with Richards (2021) and Miles, Huberman, and Saldaña (2020) that coding is not a preliminary process that prepares data for analysis. Rather, “coding is the heart of data analysis” (Richards, 2021, p. 156). Without a meaningful coding practice, the quality of the research suffers as “the excellence of the research rests in a large part on the excellence of the coding” (Strauss, 1987, p. 27).

For the final analysis phase of this inquiry, I

followed the literature on Reflexive Thematic Analysis (Braun & Clarke, 2006; Clark & Braun, 2013; Richards, 2021; Richards & Bebeau, 2021). As themes do not spontaneously emerge but are actively generated by the researcher through constant engagement with the data and active decision-making (Braun & Clarke, 2006; Clarke & Braun, 2013), this phase of the inquiry was an extensive, intentional, and highly personal process. As Briggs (2019) states, “none of us are detached, objective observers” and “the perspective or position of the researcher shapes all research” (p.1).

3.5.2. Axiological Stance, Positionality, and Verisimilitude

As Noble and Smith (2015) discuss, quantitative researchers frequently criticize qualitative research as “lacking scientific rigor with poor justification of methods adopted, lack of transparency in analytical procedures and the findings being merely a collection of personal opinions subject to researcher bias” (p. 1). Quantitative research uses tests and measures to establish validity and reliability, which cannot be applied to qualitative research, creating debate over whether terms like validity, reliability, and generalizability are applicable or appropriate for the evaluation of qualitative research (Long & Johnson, 2000; Noble & Smith, 2015; Rolfe, 2006; Sandelowski, 1993). Qualitative research employs methods that are inherently different in terms of philosophical position and purpose deeming an alternative framework for evaluation necessary (Sandelowski, 1993). Lincoln and Guba (1985) established the criteria of verisimilitude, consistency and neutrality, and applicability. In order to achieve these, the research must acknowledge “the complexity of prolonged engagement with participants and that the methods undertaken and findings are intrinsically linked to the researchers philosophical position, experiences, and perspectives” (Noble & Smith, 2015, p. 2). “Researchers have a personal history that situates them as inquirers” (Creswell, 2013, p. 51). “In qualitative inquiry, the researcher is the instrument” (Patton, 2002, p.14). I concur with these researchers, which is why I am transparent on my axiological stance, positionality, and the experiences that make me a unique instrument or lens to view the data.

My axiological stance is created by my background as a professional artist and dedicated activist who was raised by an extended family of eccentrics and performers who encouraged me to experience the world through artistic expressions. It is also crafted by my experiences traveling the world as an English language teacher, living amongst cultures different than my own, and opening myself to their traditions, values, and views of the world. I am a Social Constructivist teacher in the classroom, and a Post-Structuralist espousing incredulity towards metanarratives in my life as an artist.

My positionality at the time included my positioning as a doctoral student serving as a teaching assistant in the inquiry context. I am also a strong

proponent of virtual worlds and online teaching, which required me to be conscious of my bias, understand that students may not want to share their truths with me if they disagreed, and take steps to ensure counter these limitations.

I do not try to eliminate myself from my work or pretend that it is not subjective. Rather, I accept it and view it with open eyes in recognition that multiple realities exist, and outlining my personal experiences and viewpoints that may have resulted in methodological bias, leaving a 'decision-trail' that makes my decisions clear and transparent (Lincoln & Guba, 1987). Primeau (2003) puts forth that as a researcher immerses themselves in data, reflexivity facilitates a deeper understanding of the impact their subjectivities have on their interpretation of that data. In order to achieve this reflexivity and follow the steps that Lincoln and Gupta put forth, reflection and memo-ing were a large part of my analysis process. While memo-ing is often associated with Grounded Theory, "all qualitative approaches can be enhanced by the use of memos" (Birks et al., 2008, p. 69).

4. Results

What reasons do 3 pre-service teachers actively engaged with *Minecraft Education Edition* in a technology in foreign language education course give for their acceptance and usage of virtual world technology?

The three participants gave a collection of reasons for their acceptance and usage of virtual world technology that formed three distinct trends of 1) A Need for Motivation and Engagement, 2) The Social Nature of Culture and Language, and 3) An Opportunity to Make the Impossible Possible.

4.1. Trend 1: A Need for Motivation and Engagement

The trend of "A Need for Motivation and Engagement" was the first trend I discovered within the participants' reasons. It is about how these unique individuals all believed today's students, K-12 and beyond, lack motivation and engagement and that can be improved with the effective integration of technology like Virtual Worlds (VWs) because they are prevalent in many students' lives outside of school and backed by DGBLL pedagogy and its motivational benefits. This line of reasoning is rooted in the participants' reflections on their personal experiences and their status as current students.

Participant One discussed how *Minecraft Education Edition* is "a much more interactive and fun assignment while still teaching you so much more and giving you an opportunity to really show how things are while connecting certain words and ideas to how the images and environments are." She thought *Minecraft* would be an especially great way to teach younger generations because her experiences in academia showed her students are already immersed in

technology. Her observations led her to believe books and paper/pencil activities might not be as effective and could possibly demotivate and disengage students. Participant One even extends the engagement aspect of *Minecraft* to the position of teacher, relating how she believes lesson designing and teaching are more engaging for teachers when using *Minecraft*.

One of the reasons Participant Two chose to implement *Minecraft Education Edition* was his belief that fun is a critical factor and his perception that VWs and VR (Virtual Reality) accessories are fun, engaging, and a source of motivation. Participant Two admitted that before the course started, he was worried that maybe he was in the wrong field, but that the course reminded him how much fun it is to create lesson plans with cutting-edge technology and to teach with them, which reaffirmed that he is on the right career path. The experience even motivated him to go out and get his first professional teaching job as a substitute teacher, which aligns with what Participant One said about how working with technology does not only engage the student, but it engages the teacher.

Participant Three decided to explore and implement *Minecraft Education Edition* after she experienced the ineffectiveness of apps like *Duolingo* and wanted a more effective tech option for language learning. She quoted Chappelle and Sauro (2017) who state that applications like *Duolingo* "reflect a range of sometimes questionable L2 pedagogical approaches, including grammar-translation and memorization drills, and may not necessarily leverage principles of game-based learning beyond the motivational capabilities of gamified feedback and assessment" (p.205)." She recognized how pedagogy could be better applied to motivate and engage through the flexibility of *Minecraft Education Edition*, which offers opportunities for building, communicating, and designing experiences. Participant Three used research to back up her experience-based reasoning and stated that motivation is important because as Alsolami and Saaty assert "motivation directly influences L2 learning strategies, the amount of input which learners receive, and overall achievement and proficiency" (p.718).

4.2. Trend 2: The Social Nature of Culture and Language

This trend embodies the reasons the pre-service teachers gave related to culture, language learning, and the social nature of human beings as they live, learn, and communicate. For example, Participant One is highly interested in VWs and VR (Virtual Reality) accessories because she values immersive experiences and recognizes how *Minecraft* and other VWs can engage and motivate people by taking them to places that surround them in language, diverse cultural experiences, and opportunities to connect with other people through custom made worlds; elements she believes are valuable. Participant One's RDS journal entries and essay assignments reveal she values *Minecraft's* authenticity, social culture, and connection

to the real world which she believes is missing in her own education. Her reflections show she embraces the collaborative culture and interaction encouraged by *Minecraft*, and wished she used it in her classes during Covid-19 when most of her professors took the route of “*here’s the textbook, here’s an assignment, teach yourself.*” In Participant One’s words, she now believes that “*if we used something more like Minecraft education, even for like my Spanish classes that I’ve taken, it would be much easier to learn the language... and it would be much better connecting the language and the words to the culture and to the environment than just reading through a textbook because reading through a textbook genuinely doesn’t really show you as much as doing an online simulation can.*” Her reflections convey that she thinks VWs are a powerful resource for social education opportunities and for evolving teaching practices to new social levels that were not often experienced in academia during the past two decades.

Participant Two and Three expressed similar sentiments as Participant One in their RDS journals and their interactions with their peers on the course discussion boards. Throughout her work in the course, Participant Three reiterated the importance of cultural context and authenticity in language learning. She believes students need social interaction in order to “*care about their education*” and to feel motivated enough to engage in the material. Participant Three stated, “*The basis of my opinion is that humans are social creatures... we naturally learn a language, our native language, because we are forced to engage with it to meet our communicative needs, and our communicative needs are like interacting with others expressing our likes and dislikes...*” As this statement demonstrates, the situated learning opportunities VWs present build on these participants’ value of culture and social interaction to illuminate positive reasons for acceptance that motivate them to integrate VWs into their growing practices.

4.3. Trend 3: An Opportunity to Make the Impossible Possible

The trend “An Opportunity to Make the Impossible Possible” became prevalent later in the participants’ coursework as all three expressed in their RDS journals as having revelations about what it meant to live in today’s era, the needs of students, and the affordances Virtual Worlds (VWs) offer in and out of the classroom. All the participants believed the world changed since the emergence of Covid-19 and that new emerging technologies, like VWs, offered options that were no longer possible (such as field trips to crowded indoor spaces like museums, lectures, and theaters) alongside opportunities that may never have been an option (trips to other countries or even to parts of their own town deemed too dangerous, expensive, or time consuming), which gave them a reason to pursue VWs.

A major reason for Participant Two’s integration of VWs and their accessories into their practice was they are ways of connecting students, teachers, and

technology within a virtual space where resources come together so that “*essentially, you can do anything.*” He rooted his reasoning in the realization that *Minecraft* for educational purposes is “*a brilliant idea and everything because, you know, kids, they absolutely love Minecraft. And if you can utilize, you know, this technology to... help them learn and everything, then... I feel like that’s amazing, especially after... Covid...*” He believes that *Minecraft Education Edition* might help students regain the mindset to learn by bringing a popular out-of-school literacy into the classroom, something that he perceived as not possible pre-Covid.

In her RDS journal, Participant Three expressed that she had experiences where the education system has been “*unfair*” to her and based her reasons for integration in a desire to develop equitable practices that would work towards changing how students experience learning. As a social justice-oriented person, she saw the potential for connecting with students from around the world and giving them engaging experiences. She also recognized the connection between *Minecraft* and VR technologies and their common benefits of taking students out of the physical reality into a digital reality where they can do more than they can in real-life.

Immersion and visiting places that are impossible in real life also impacted Participant One’s reasons for integration. As someone who has an interest in Marine Biology, she was amazed at how *Minecraft Education Edition* included an underwater world that created opportunities to explore different marine life through a Virtual World (VW). The participants recognized how VWs create the opportunity for activities like field trips and museum tours, as well as ones that were always out of reach due to logistics, funding, and/or safety issues, such as visiting a volcano, traveling to the bottom of the ocean, or representing ones’ self as avatar that expresses inner identity.

5. Limitations

The first limitation of this inquiry is hermeneutic considerations. I may see something different in this data should I look back on it ten years from now, and another researcher may see something different today or in the future as our interpretations are based on our unique positionalities and axiological stances. Second, researcher bias must be considered. I am a proponent of Virtual Worlds and my own affinity for them may have clouded my judgement even though I took conscious steps to counter any bias. Third, the participants and the whole population of the course may not have wanted to share their truths in their RDS journals due to pressure from peers, professors, or the larger community. The university where I conducted this research valued innovation and creative technology usage. The professor and teaching assistant (me) of the course valued social learning and collaboration. If the students in the course (participants included) did not

share these values, they may have been reluctant to disclose their true views. This could have also been a factor in why only three students out of the ten that incorporated *Minecraft* into their coursework consented to participating in this research. Fourth, those who did participate may not have been able to remember their reasons and perceptions accurately depending on when they completed the coursework and when they created their journal. There was also little direction given as to how to complete their journals and so students may not have reflected as deeply on their reasons as they would have with more guidance. Finally, quantitative researchers may see the small sample size and the lack of generalizability to be limitations. However, I disagree, as “the goal of most qualitative studies is not to generalize but rather to provide a rich, contextualized understanding of some aspect of human experience through the intensive study of particular cases” (Polit & Beck, 2010, p. 1451). The small sample size facilitated my “close association with the respondents, and enhance[d] the validity of fine-grained, in-depth inquiry,” something that would not have been possible with a large sample size (Crouch & McKenzie, 2006, p. 483).

6. Implications

Based on the findings of this inquiry, advancements in theory may continue. The Unified Theory of Acceptance and Use of Technology is not the end all model for technology acceptance, but a steppingstone that can be improved upon as more is learned about the evolving needs and preferences of people and societies. Inquiries such as this one provide cases in bounded contexts that give researchers and educators insight into how the lived experiences, goals, and era identities of individuals, as well as other factors, impact their acceptance and use of technology, and create references for the improvement or further validation of theoretical models.

The findings of this exploration also demonstrate that it would be advisable for universities to consider integrating this gaming platform in professional development programs as effective use of this software in the foreign language classroom may increase teacher motivation as well as learners’ motivation to learn the target language. Virtual Worlds can connect students and teachers from around the world and offer them access to situated learning opportunities and authentic learning experiences thus creating a fun and motivating space for digital learning.

7. Future Research

According to the literature review of Smith, Kahlke, and Judd (2020), the assumptions built by Prensky (2009) and other futurists that younger generations are ‘digital natives’ remains influential in academia today, even though many educational

technology researchers have argued for a move past those assumptions. More research is needed to better understand how pre-service teachers’ age, training, and learning experiences with technology contribute to their acceptance and use of technology. To better understand the underlying reasons for teachers’ current educational practices, how their educational contexts influence their work, and how technology effects their motivation to pursue teaching careers, research will need to explore more case studies where pre-service teachers of different ages, cultures, and backgrounds are given the choice and opportunity to pursue new emerging technologies like VWs.

8. Conclusions

The reasons these pre-service teachers gave for acceptance and use of VW technology embodied the recognition of a need for motivation and engagement in the classroom, beliefs about the social nature of culture and language, and perceptions of VWs as an opportunity to make the impossible possible. I conclude that more research on the different educational contexts is needed to illuminate the various journeys, mindsets, and values that produce various reasons for the acceptance and use of VW technology. A better understanding of the reasons pre-service teachers provides for acceptance and integration, and the underlying factors that root their reasoning, might support future teacher educators to better understand their students and in turn create teachers that can better serve their students. Without knowing the different values, influences, and reasons behind pre-service teachers’ choices, it is not possible to effectively train, educate, or support them as they face the ever-evolving landscape of education.

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