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THE IN-BETWEENS: EXPLORING BRISEÑO STUDENTS' PERSPECTIVES ON
DIGITAL LITERACY

Master of Arts thesis

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Abstract

Given Mexico's profound diversity, providing access to digital opportunities, while incredibly important, has left a huge part of the population, those who are not extremely poor but not wealthy either, unattended. Depending on public education to fill their educational needs, they become part of the second level gap of digital literacy: the skills gap. This case study explores the experiences, and perspectives of seven students from an in-between socio-economic neighbourhood in Mexico. Using a qualitative approach, the research identified three main themes: experiences with digital tools, perceptions about digital literacy, and encountered challenges. The findings reveal that students begin using digital devices at a young age, driven by needs for entertainment and education, often learning digital skills through family guidance and personal exploration rather than formal instruction. Despite self-reported proficiency, students face significant challenges, including distractions from digital tools, digital illiteracy, and insufficient teacher support, particularly during the pandemic. These challenges highlight the necessity for a holistic approach to digital literacy that integrates both formal and informal learning environments and provides robust institutional support. The findings contribute to grasp these students' perceptions about their educational needs regarding digital literacy and where to begin designing a training program that will fulfil these crucial needs.

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1. Introduction

Several decades have passed since the introduction of digital technology, and the fact that it is now more often noticed by its absence than noticed at all is referred to as the "post-digital" era (Fawns, 2018), but similar to what happened with the "post-punk" movement, the prefix "post" was given due to the continuation of the phenomenon, an ongoing mutation in which the disruptive and thoroughly transformative impact that the digital revolution once had on all cultural, social and economic practices has become an intrinsic, seamless part of human life (Cramer, 2014). Current global trends at the individual level (e.g., smartphone-driven Internet access, digital citizenship, social media) and an organisational level (e.g., artificial intelligence, remote work, life-long learning) underscore the importance of digital literacy due to their continuously growing relationship to social and economic well-being (Helsper & Van Deursen, 2018).

However, despite its emancipatory potential and high degree of perceived benefits, digital technologies, like the Internet, have replicated and even amplified inequality trends around the world (Calderon Gómez, 2020; OECD, 2021), a phenomenon known as Digital Divide, primarily because of the significant differences between those who can afford technological opportunities, including skill development, and those who cannot (Van Dijk, 2006; Qureshi, 2014).

In Mexico, there is a gap between the high end of the socioeconomic scale, with economic access to digital technologies and the skills to profit from them, and the low end, where extreme poverty, lack of basic services and challenging geography make the adoption and use of information and communication technologies (ICT) a significant challenge (Montiel, 2016; Martínez-Domínguez & Mora-Rivera, 2020). This "in-between" population is situated in a state of liminality, somewhere between the two ends. Despite some economic means of digital access, they still rely on public education services, which have lagged behind in terms of ICT implementation (Becerril-Velasco, 2020).

Merely owning devices is not enough for individuals to purposefully use digital tools, as evidenced by Wang et al. (2024). Furthermore, the attainment of digital literacy can fluctuate dramatically with population demographics. Consequently, evaluating students' familiarity and exposure becomes especially important to tailor training programs according to their specific needs of society and its actors (Helsper and Van Deursen, 2018; Chetty et al., 2018), making use of infrastructure investments, facilitating student involvement in

educational and occupational contexts, and providing a means to gain an understanding of the world in this post-digital era (Martín & Grudziecki, 2006).

The ultimate goal of this research is to raise awareness of the students' voices and to illustrate the benefits and obstacles they experience in their digital literacy practices. The project contributes to delineating the liminal situation that the in-between youth lives in, with potential impacts on curriculum design and teaching approaches for those who work to educate them.

2. Theoretical Overview

In order to articulate the connection of this thesis with existing research and to facilitate the understanding of the information to be presented in the following sections, it is necessary to present the key concepts to be used. This review will begin by examining the digital divide phenomenon from a global perspective and then from within the Mexican context in which this study takes place. It will then proceed to examine the concepts of digital literacy and the "in-betweens", and how they are applied in this thesis. This will be followed by an overview of the most relevant studies that have previously been conducted on students' perspectives on digital literacy or that have addressed this topic from a similar perspective. The researcher concludes this chapter by stating the purpose of her research and the research questions that guided the process.

2.1. Digital Divide

To this date, the research community has identified three levels in which this phenomenon occurs. The ever-evolving term originated in the mid-1990s and was initially used to describe people's disproportionate access to emerging information and communication technologies (Van Dijk, 2006; Skaletsky et al., 2013). However, as connectivity increased primarily, but not exclusively, in developed countries (Calderón Gómez, 2020), a growing awareness of the need for skill-training access was observed by researchers, advocating to go "beyond access" and expand the concept's focus to include socio-cultural and psychological approaches (van Dijk, 2006, p. 224).

In 2006, De Haan and Iedema also referred to this expansion by describing three novel types of access for the proficient use of ICT. First, motivation, including attitudes such as interest, intention, and lack of concern about new technology; second, possession, referring to the availability of devices and Internet connection; and last, digital skills, meaning the degree

to which individuals can use ICT. Additionally, Harigittai (2002) referred to this phenomenon as the "second-level" digital divide concerning people's ICT skills and use, recommending investments in training and support as a supplement for access.

In contrast, Zhao and Elesh (2018) used the same term to point out the permeation of social stratification into the digital sphere, centring on the role of social networks as a mechanism for social capital sharing and supporting the idea that diverse ways to use the Internet could benefit the underprivileged more than just asking for equal access to it. Lastly, in their 2015 study, Van Deursen and Helsper explored further into the differences in internet use outcomes that members from societies with near-universal and autonomous internet access might experience, labelling this phenomenon as the "third-level divide" (Van Deursen & Helsper, 2015).

2.1.1. The Mexican Divide

A study on the evolution of the digital divide by Skaletsky and her colleagues (2013) found that progress in Mexico, based on digital development, economical, demographic, and risk indicators, was remarkably limited in a nine-year period (1999 - 2007) along with the vast majority of Latin American countries. The country's first initiatives directed at narrowing the first-level digital divide were e-Mexico in 2001, Agenda Digital.mx in 2011, and the National Digital Strategy (NDS) in 2013. Mexico's NDS aimed to strengthen students' learning capacities through ICT use with its Inclusion and Digital Literacy Program (Programa de Inclusión y Alfabetización Digital), where it gave more than two million personal devices to students and their schools across the country through the Secretaría de Educación Pública (SEP for its acronym in Spanish, translated as Public Secretariat of Education) between 2013 and 2016. The initiative was called "Un Dispositivo para Cada Estudiante" (One Device per Student) and was proposed under the idea that giving devices to students creates enough pressure to drive a change in teacher practices (Martínez et al., 2016). However, the government did not conduct any national digital skills program; the primary goal of this endeavour was to supply pupils with devices. (Mecinas, 2016). Among the program's outcomes was the noticeable need for an emphasis on DL in students due to the low effectiveness of the methodologies used, and the inclusion of these skills in the school curriculum (SEP, 2018). Even now, in its 2021 - 2024 edition, the NDS explicitly aims to close the Internet access gap, as a "very large" proportion of the Mexican population still does not have access to the Internet (SEGOB, 2021).

2.2. Digital Literacy

There have been several definitions and approaches to the concept of Digital Literacy that we use today since it was first introduced by Paul Gilster in 1997 (Badwen, 2008). As Chetty et al. mentioned in 2018, "Unlike literacy, the definition of digital literacy is contested" (p. 6) because definitions vary according to individuals' perspectives on education and educational styles. For example, some teachers focus on educating students to enter the workforce, and some focus on educating them to engage with the digital society (Gourlay & Oliver, 2016). Additionally, while the majority of digital literacy definitions describe it as if it were a single "thing", as some competence or composed skill to develop or attain when absent (Knobel & Lankshear, 2006), a few authors have described the concept of digital competence following the idea that skill development is a multidimensional, interconnected and sensitive to the socio-cultural context process, integrating several "literacies" that consist of cognitive, technical, and sociological skills to solve problems and carry out tasks in digital environments (Eshet-Alkalai, 2004; Calvani et al., 2008; Bhatt et al., 2015).

In this research project, the author shares the views of the latter group, approaching digital literacy as a social practice through an alternative method to reveal the intricacies of human interactions with digital technologies, as suggested by Gillen & Barton (2010), and revising the students' abilities to utilise their devices outside of plain consumption and predefined mechanical patterns (Pasta et al., 2021).

2.3. The In-betweens

The Socioeconomic Status Index (NSE for its Spanish acronym) categorises Mexican households into seven levels, according to their economic and social well-being in terms of the satisfaction of their space, health and hygiene, comfort and practicality, connectivity and schooling needs, as well as planning and future (AMAI, 2024). The levels are arranged from the richest to the poorest, namely A/B, C+, C, C-, D+, D, and E.

The socio-economic level of homes in the Briseño neighborhood is D+, which is also the case for 15% of the Mexican population (ENIGH, 2022). This means that 34% of the population stand below the D+ level and the remaining 51% above it. Students from this NSE are less likely to benefit from social programs, which are directed towards the people from the NSEs E and D, who live in extreme poverty (Velázquez, 2012; Becerril-Velasco, 2020; Sorzano et al., 2021). Nevertheless, their families are unable to afford the high-quality private education that the wealthier population can, placing them amidst the ones who are unable to

access digital devices, or get their basic needs satisfied for that matter, and those who consistently receive high quality and technology enhanced education (Alfaro-Ponce et al., 2023). Unfortunately, the quality of public education in Mexico has been in decline for decades, which has increasingly led middle and upper-class families to choose private institutions (Martin & Solorzano, 2003). Research on the quality of digital public education in Mexico is scarce and only two reports were found that examined the digital competences of teachers in one high school public institution (Del Hoyo Loeza et al., 2021) and within Higher Education Institutions in Mexico (Calleros et al., 2022) the studies found that teachers from both educational levels had low or medium-low mastery of digital competencies, further illustrating the argument in favour of the private institutions.

2.4. Previous Research

In the context of students' perspectives on the use of technology for learning, Li, J., Snow, C., & White, C. (2015) assessed the perspectives of 15 teenagers from a lower income neighbourhood in Northeastern United States. The researchers reported that the "urban teens" used their digital tools essentially for peer socialising, and expressed their interest in improving their digital literacy through technology, despite their lack of independent efforts to engage in such activities. The results also showed that among the older the students, their use of technology became more sophisticated. Whereas Arras-Vota and her colleagues (2011) explored Mexican and Spanish public university learners' perceptions on their own competence level in ICT. Their research showed that most of the students felt highly appreciative of and capable of dealing with digital tools in their learning journeys. On a similar line, Erez Porat, Ina Blau, and Azy Barak (2018) measured the differences between the perceived digital literacy of high-school students and their actual performances on the topic. Their results are similar to those of Arras-Vota et al., in that these students also felt highly confident in their ICT competence. However their self-perceptions were unfounded, as their actual performance on digital tasks were "mediocre-to-low".

Regarding ICT user's problems, Esperanza Huerta and Rodrigo Sandoval (2007) conducted an exploratory case study in the Estado de México to learn about the digital skills or lack thereof that users of Internet public access sites (telecenters) face. They found that users, all of them students between 10 and 15 years of age that lived in counties with high levels of poverty, were facing significant impediments when trying to take advantage of the internet due to a lack of digital skills. They specifically identified the branching, recreation, and information skills to be absent. However, they clarify that the lack of awareness does not

imply a lack of deficiencies, implying an even wider digital illiteracy. In Southeast Spain, Díaz, Mirete, and Maquilón (2021) analysed adolescents' perceptions on the interference of ICT in their development and described how more than half of their eleven hundred participants believed that continuous access to technologies was keeping them from studying, and around two hundred and twenty of them perceived that their academic performance had decreased due to ICT. The researchers commented on the urgent need to notify parents, teachers and general members of society of the academic consequences that these technologies can have on adolescents. In another study, conducted in Australia in 2011, McNeill, Diao and Gosper examined students' everyday use of technologies through a mixed methods approach that included photo ethnography and in-depth interviews. They found that on one hand, participants perceived themselves as highly technologically literate, while on the other, their use of digital tools for learning was predominantly by simple and easy-to-use means (McNeill et al., 2011).

As shown in the previous research review, no previous studies have been conducted using in-between population samples in Mexico. The current research contributes to the existing literature by elucidating the understandings of digital literacy held by the participants in this case study. It provides a starting point for future researchers interested in looking at other in-between populations. In addition, a close look at students' experiences with digital literacy can help teachers and policymakers understand the consequences of educational programmes and reforms, raising awareness of the problems they might bring to students. To this end, the following research questions have been formulated:

1. What are students' perceptions about digital literacy?
2. What are students' experiences with digital tools?
3. What are the challenges they encountered?

3. Methodology

The focus of this case study is to describe the relationship that seven students from the same neighbourhood in Mexico have with digital technology. The research interest emerged from observations of the digital literacies displayed and the lack thereof by the author's students. The researcher pursued the students' perspectives and experiences after concluding that quantitative methods fail to incorporate the sociocultural, cognitive, and practical aspects of these skills (Pasta et al., 2020); therefore, a qualitative approach to understanding their digital

literacy would be more appropriate. Additionally, from the researcher's perspective, reality is open to interpretation, which acknowledges that the researcher's subjectivity inherently shapes the emergence of knowledge, in this case, the current status of students' views and experiences with digital literacy (De Fina, 2019). The use of semi structured interviews was deemed optimal for gaining a deep understanding of the experiences of these students, as this method allows for more detailed explorations than is possible with a survey that presents predefined responses (Rubin & Rubin, 2005).

3.1. Sample

Baxter and her colleagues (2015) make the case that when researchers use convenience sampling, "the sample of the population used reflects those who were available (or those you had access to) at a moment in time, as opposed to selecting a truly *representative* sample of the population." (Baxter et al., 2015, p. 108) For this thesis, convenience sampling was used not only due to availability but also because of the specific purpose of this research. So, rather than searching for participants from a larger population, the researcher aimed to recruit students from this population subset.

The participants are students who attend ESL classes, imparted by the researcher of this project, in a complementary education project named Casa Tatic, established in their community eight years prior to the research, and they all attend public high schools in the area as their formal education source. The proximity of the teacher-student situation allowed the researcher to contact them directly and ask them individually if they would like to participate in this study. Upon agreement, the participant's parents were informed about the project and asked to sign a consent form (See Appendix A). The consent form stated the purpose of the research.

Lastly, participants were asked by the researcher to complete a Google form to collect their demographic information (See Appendix B). Based on this information, a participant code was developed for each of them to refer to them in the following sections while maintaining anonymity.

Table 1. Participants' demographics

Participant code	Age	Gender	Education Level	Name of School
S1	18	M	6th semester of Preparatory school	Preparatoria No. 9

Participant code	Age	Gender	Education Level	Name of School
S2	13	M	2nd year of secondary school	Escuela Secundaria mixta No. 13 Francisco Márquez
S3	15	M	3rd year of secondary school	Escuela Secundaria Mixta No. 81 Octavio Paz Lozano
S4	13	F	2nd year of secondary school	Escuela Secundaria Técnica No. 114
S5	13	F	2nd year of secondary school	Escuela Secundaria Mixta No. 81 Octavio Paz Lozano
S6	12	F	1rst year of secondary school	Escuela Secundaria Técnica No. 136
S7	12	M	2nd year of secondary school	Escuela Secundaria Técnica No. 114

Table 2. Participants' Connectivity

Participant code	Cellphone owner	Computer at home	Home internet connection	School internet connection
S1	✓	✓	✓	✓
S2	✓	✓	✓	✓
S3	✓	✓	✓	✗
S4	✓	✓	✓	✓
S5	✓	✗	✓	✓
S6	✓	✗	✓	✗
S7	✓	✓	✓	✓

Participants range from 12 to 18 years of age. They come from 5 different public education institutions. They all own a cell phone and have an internet connection at home. Most of them have a computer at home (5) and an internet connection at school (5).

3.2. Data Collection

The research process for this study employed qualitative interviewing as a dynamic and iterative process (Rubin & Rubin, 2005). Consequently, the author conducted face-to-face,

individual semi-structured interviews, which allowed for a deep understanding of the students' experiences in a cross-sectional manner. This method has the additional benefit of simultaneous mutual learning between the interviewer and her "conversational partners" (Azungah, 2018, p. 387).

First, a semi-structured interview guide was developed to allow flexibility in the interview process. The guide contained nine main questions, and some follow-up probes designed to maintain the interview conversation focused on the research questions (Rubin & Rubin, 2005) while thoroughly exploring the participant's experiences of using and learning to use digital tools, both in their daily lives and at school, and their thoughts on whether they would like to receive DL training. A pilot interview was then conducted to evaluate the adequacy of the questions, the depth of the answers, and the overall flow of the interview process. The questionnaire was modified based on the observations from the pilot interview, which resulted in the interview guide shown in Appendix C.

Interviews took place at Casa Tatic for the convenience of both parties and lasted between 18 and 37 minutes. Before the interview began, students were again explained the purpose of the research in an at-their-level language, reminded about the voluntary nature of their participation, and asked for consent to record the interview.

3.3. Data analysis

The analysis process applied in this thesis was guided by Braun and Clarke's six-step approach to thematic analysis (2006). This approach begins by familiarising oneself with the data to understand the content and context of it. Next, generating initial codes by systematically identifying potentially interesting features. The third step is searching for themes, organising the codes into patterns and reviewing them as step four, refining them to ensure accurate representation of the dataset. Subsequently clearly defining and naming the final themes. Lastly, the last step consists of producing the report.

Interviews were transcribed verbatim and read at least twice to convey step 1. Inductive coding was integrated following the following steps to balance the data and avoid decontextualisation comprehensively (Xu & Zammit, 2020) using a Miro board for visual support. Initial thoughts that erupted throughout the transcription process were written down, i.e. "Searching online vs in books: easier process, same result" or "Information from the internet is seen as more visually attractive", and each transcript was carefully evaluated to achieve a thorough comprehension. After producing preliminary codes, their categorisation made it possible to generate visible themes that addressed the research questions across

transcripts. Step 4 involved "interrogating" the obtained information and reviewing the raw data to ensure that themes followed the data set context. Informative names were given to each theme before delving into the process of reflecting on the data to originate the results report.

4. Results

The research focused on a group of in-between students' lived experiences with digital literacies. The author identified three major themes: *experiences with digital tools*, *perceptions about digital literacy*, and *encountered challenges*. This section contains a detailed account of the identified themes, their subthemes and illustrative quotations translated to English from the interviews, providing the reader with a comprehensive narrative.

4.1. Experiences with Digital Tools

The first theme to emerge dealt with students' experiences around digital tools and how they have acquired their digital literacies. The interview-conversations centred on the subthemes of digital *technology adoption*, *sources of digital literacy* and *experiences with instruction* or the absence of it.

4.1.1. Digital Technology Adoption

Participants started engaging with mobile devices between seven and fourteen years of age. Whereas for computer and laptop use the earliest started at eight and the latest at twelve. Their reasons for starting to use digital technologies fall under three main categories, in the first one, three students expressed their first encounters with digital devices were for entertaining purposes or in S5's words "*Just to play*". In the second one, two students reported that doing school homework was their main reason. S1, describes how he and his brother, who is 7 years older, started to use their computer: "*..when we were kids he [my brother] liked technology a lot since then, it was like we had one [computer] and it helped us do our homework more than anything else.*". While S7 reported that "*Sometimes I would get computer homework from the school and I would do it*". However, for the remaining students, their digital technology use started with the pandemic, as S6, a twelve year old highschool student, expresses: "*Well [it began] with the online classes thing, and my dad told me "I'm going to buy you the mobile phone so that you can connect and we can take our phones to work" and that's when they bought it for me and from then on I started using it.*"

Since then, entertainment and homework continue to be the main reasons behind their digital technology use as evident in the comment from participant S2, who reports using his device daily for both reasons: *“Well, [I use it] every day, I do use it [the mobile phone] to send messages or for different things, like if I don't go [to school] there I ask about the homework [that was assigned] and in my free time, when I have nothing to do, I also waste time there.”*. And participant S7, who shared similar reasons of device use, however, his point of view contrasted with that of S2 in the notion that he rarely uses his mobile phone: *“Sometimes the teachers in high school let us do some research and I just grab it to do homework or watch videos, I'm almost never on my mobile phone.”* S7

Additionally, participants shared the notion that when there is no internet access, digital devices are just for entertaining purposes. Exemplifications of this come from students S4 and S6, who usually pre download content in advance for the times when they don't have internet access at home or at school:

“...sometimes when I don't have internet, I have on my phone some photos, videos and so on, and I watch them many times and many times [...] for example at school as I don't have internet or anything, I download like games without internet so that when I don't have classes I can be in the [mobile phone and] play something.” S4

“Well, it's happened to me [the lack of internet] several times and I download games that are without internet or I save as part of movies, they all appear and I start watching them in my gallery like this.” S6

4.1.2. Sources of Digital Literacy

Participants reported learning to navigate their smartphones and computers primarily from their close family members, such as parents, siblings and cousins, by watching from seeing them, as in the case of S3 who learnt by observing his mom do his homework: *“...seeing when she researched about what they assigned to me in elementary school, she would go to Google and I would be next to her and [see] how she clicked on it.”*. Or participant S4 who had a similar experience with her father: *“Well, I think since I was 8 or 9, because my dad has a lot of computers, so it's like I learned to use it from seeing him, and now when I use it, it's not so much of a problem to use it.”*

All the participants noted resembling experiences of initiating their digital literacies due to family member guidance.

4.1.3. Experiences with Instruction

An overview of the digital literacy training that State educational institutions provide is visible among the main experiences reported by the students. Three of the seven interviewed students expressed never having technology related classes: *“In secondary school there are different workshops, [...] but in my workshop, [...] they don't teach us that.”* S4. Conversely, the remaining 4 participants explained that the technology classes they had available at school consisted of learning to use one or more (but not all) of the following softwares: Word, Excel, PowerPoint and Paint, but nothing internet related: *“...it's three hours a week and out of those three, the last hour of the week they took us to computers and it was like how to use word or pinter [paint].”* S2.

S3's description of his technology classes reflects a shared perception among participants about the technology classes being inadequate, or deficient mainly due to the educators that teach them: *“...I feel that she's more of a natural sciences (teacher) [...] Then (the teacher being knowledgeable about technology) not really, she doesn't give like an explanation of what has to be done or something like that.”* S3

4.2. Perceptions about Digital Literacy

The second theme to emerge emphasised how the students perceived working with digital technology and how they viewed their own abilities when doing so. From this theme, the subthemes of *effortlessness* and *proficiency* surfaced.

4.2.1. Effortlessness

Participants consistently mentioned perceiving working with digital tools as easier and even better than working with analog methods: *“Because it's easier and I just print it and that's it.”* S7. Sometimes students also referred to the availability of previously created materials that can be readily used or need some minor curation as contributing to the perception of effortlessness. S2 described his views about which method is better for learning: *“...I think I learn the same. It's easier for me to search on the internet because it's like I just jump in and I already have the answer, and in the book I have to summarise and so on...”* S2; In addition, S4 shared her perception about her work being of a higher quality despite the fact that it was not more challenging: *“...it looks very elaborate but I don't feel that I made so much effort because it was just copying and pasting videos to the computer”* S4

4.2.2. Proficiency

No one of these students has ever heard of the term digital literacy, yet, they all reported feeling capable or highly capable when engaging with their digital tools: “...*I think I know how to use them (digital tools) quite well.*” S1. Differences arose between students who felt that it was either their computer or their smartphone skills that were stronger, depending on the availability of tools they had. An example of this is S3’s case, where he has been using his cellphone daily for 7 years, contrary to his computer, that he received 3 years ago and only uses twice a week for entertainment: “*For the mobile phone (I) maybe (feel very skilled), but for the computer I find it hard there...*” S3. On the other hand, The case of participant S4, illustrates how her early computer interactions have lead her to amass a certain level of digital literacy, with which she can complete her school assignments: “*Well, when it's for school I have to put together the presentations and the projects I have to do on the computer [...] two weeks ago I had to edit a video of a podcast that the school asked us to do, so it was like I did it myself [...]*” S4

4.3. Encountered Challenges

The third theme relates to the barriers that participants have encountered when using digital tools. Students faced three main challenges, namely their distracting nature, an insufficiency of digital skills/knowledge with some tools, and a lack of teacher support during the pandemic. From these, three subthemes were identified by the researcher, namely *distraction*, *digital illiteracy*, and *insufficient teacher support*.

4.3.1. Distraction

Students described various experiences in which digital tools like social media, mobile devices and the internet were perceived as distracting. These participants expressed a concern for this situation as they would rather not be diverted from their studies: “*In one part it could be that it does affect me (her cellphone) because sometimes at school it distracts you a lot and you don't pay as much attention to things...*” S4. Whereas S7 reported to have a teacher tell him that “*We [the students] should barely use the internet because if we do it will start to affect our grades...if we use the internet or the computer too much we will start to [lower our] grades for being so much on the mobile phone.*”

4.3.2. Digital Illiteracy

The majority of students (five out of seven) reported having some difficulties when doing their homework, despite previously identifying themselves as proficient users of their devices.

Participants' described situations in which their lack of understanding resulted in undesired results for their objectives: "...sometimes it happens to me that I can't open the pages and it doesn't let me open the pages that are there and I have to put the first thing that appears ...the Wikipedia thing." S6. Or that implied a higher investment of effort: "Well, yes, sometimes [doing homework on the mobile] is more difficult for me, because I can't find [what I am looking for] or I don't know what to look for, where to look." S5

In addition to these challenges, S2 reported feeling hesitant when searching online, due to the lack of knowledge about digital safety: "...There's just something that, well, it kind of makes me insecure, which is that I might go to pages where I can, where something might happen to me, where I might get a virus and so on, trying to investigate something." S2.

4.3.3. Insufficient Teacher Support

This subtheme emerged out of the students accounts of their online education experiences during the pandemic. Participants expressed that, in addition to reduced learning, compared to their learning before the pandemic, they did not felt supported by their teachers: "...I mean [we I learnt] some things, but it was like [...] from one to 10, like a 5, half or something like that ...Because it wasn't like (the teacher) was explaining much, he was just guiding you sometimes, like "do this" or "from your book, this" and so on." S3. Affecting not just individual students, but the whole group: "...almost the whole class was on the verge of flunking, because the teacher just kept talking and just had us copy summaries and so on, she didn't tell us "oh well, do what you understood from here", we just copied pages and so on, it was the only thing we did." S6. Furthermore, due to the unstructured format, students would easily miss parts of the content without apparent notice from the teacher: "...and sometimes I felt like something and I went downstairs and [when I came back] they were already on another subject" S2.

5. Discussion

This research addressed the lived experiences of a group of students from an in-between community in Mexico, with regards to digital literacy and digital tools. The findings revealed three major themes: experiences with digital tools, perceptions about digital literacy, and encountered challenges, and each theme presented subthemes. This chapter will delve into these themes, followed by the implications of this research for future studies and its limitations.

Experiences with Digital Tools

The first theme described how students began using digital devices, and their continued interactions as they gained experience. Notably, in the subtheme of **Digital Technology Adoption**, the COVID-19 pandemic influenced the early adoption of digital technologies, with some students reporting that their use of mobile phones and computers for learning purposes began during this period. However, since the pandemic ended digital devices are no longer used for learning, and students returned to utilising their devices exclusively for doing homework and socialising. The implications for this finding are that training designed to attend the needs of these students should be targeted at increasing their awareness of the values of online learning, supported by Senevirathne et al. 's argument (2021) that facilitating students with DL skills will enable effective online learning.

It was discovered in the **Sources of Digital Literacy** subtheme that students' primary sources of their initial digital literacies were their close family members. The research found that students typically began engaging with digital devices between the ages of seven and fourteen, primarily for entertainment or school-related purposes. This finding aligns with De Haan & Iedema (2006) who noted that young people get part of their skills from social contacts (mostly peers and parents).

The subtheme **Experiences with Instruction** revealed a mixed landscape regarding digital literacy education in schools. While some students had access to basic ICT courses, others reported no formal instruction. Moreover, the quality of these courses was perceived as inadequate, often focusing on rudimentary software skills rather than comprehensive digital literacy, which includes internet safety and critical evaluation of online information. This finding is consistent with the criticism by van Dijk (2005) that educational institutions often lag in providing effective digital literacy training, and the researchers by Del Hoyo Loeza et al (2021) and Calleros et al. (2022) regarding the low digital literacy of teachers from public educational institutions in Mexico.

Perceptions about Digital Literacy

The second main theme revealed that students generally viewed working with digital tools as easier and sometimes better than traditional methods. **Competence** was the second subtheme, where it was shown that despite their confidence in using digital tools, many students were unaware of the term "digital literacy." This discrepancy between their practical skills and theoretical understanding suggests the digital literacy instruction they receive is not systematic, and there is need for more explicit instruction on digital literacy concepts, in

alignment to the recommendations of Dashtestani & Hojatpanah (2020) to training students for the educational use of technology with implicit and explicit approaches.

Encountered Challenges

The third major theme identified significant barriers faced by students. Firstly, the subtheme of Distraction, revealed that while beneficial, also present significant challenges in maintaining focus and productivity. These findings are consistent with those of Díaz, Mirete, and Maquilón (2021), who emphasised that digital literacy is not only about having the technical skills to use digital tools but also about developing the cognitive and socio-emotional skills necessary to manage one's attention and stay focused on educational tasks. Their study suggests that effective digital literacy education should include strategies for self-regulation and managing digital distractions.

The second idea identified for this theme was Digital Illiteracy, where insufficient digital skills were evidenced as a significant barrier for many students. This finding resembles the work of McNeill, Diao and Gosper (2011) that also emphasised the need of equipping students with comprehensive digital literacy education that extends beyond some basic technical skills to effectively utilise them in an educational context. Similarly, the research by Esperanza Huerta and Rodrigo Sandoval (2007) highlights the critical need for targeted digital literacy programs to support students from disadvantaged communities, to bridge the gap between technology access and effective usage.

The pandemic exacerbated these issues, with students reporting Insufficient Support from Teachers. The subtheme of insufficient support from teachers emerged prominently from the students' accounts of their digital learning experiences during this period. Students expressed a sense of diminished learning and inadequate support from their educators, and this perceived lack of assistance contributed to their overall frustration and disengagement from the learning process. Harigittai's research in 2002 further supports these findings, illustrating how differences in internet skills and usage are exacerbated by varying levels of support from educational and institutional frameworks. Harigittai emphasises that simply providing access to technology is insufficient without corresponding educational support and guidance to ensure effective utilisation. It is essential for educational institutions to invest in ongoing professional development for teachers, ensuring they are equipped with the necessary skills and knowledge to effectively support their students in digital learning, including both technical and pedagogical training designed for digital literacy education.

6. Conclusions and Further Research

The findings of this study underscore the need for a holistic approach to digital literacy education that encompasses technical skills and critical thinking, as well as educational and cultural perspectives. Educational institutions should provide structured and comprehensive digital literacy programs that are accessible to all students, regardless of their socio-economic background. Additionally, ongoing professional development for teachers is essential to equip them with the skills needed to support students effectively in digital environments.


Teachers and policymakers should consider the diverse ways in which students interact with digital technologies, acknowledging the significant role of informal learning from family members. Strategies to bridge the digital divide should include not only providing access to digital tools but also fostering environments where digital literacy can flourish through both formal and informal educational experiences. Furthermore, the digital divide remains a significant factor influencing students' digital literacy. The disparities in access to digital technologies and the internet continue to impact students from different socio-economic backgrounds differently, perpetuating inequality in digital literacy skills. This research adds to the body of work indicating that merely providing access to digital tools is insufficient; instead, tailored and inclusive strategies are needed to ensure all students can effectively utilise digital resources.

7. Acknowledgements

My most sincere gratitude to my fantastic partner, my beloved family, and incredible friends (including the new ones!), as well as my brilliant teachers, and supervisors. Their wonderful encouragement and everlasting support gave me the strength to endure this THING.

8. Author's Declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.

A handwritten signature in black ink that reads "Laura Cecilia Díaz Barriga Ramírez". The signature is written in a cursive, flowing style.

Laura Cecilia Díaz Barriga Ramírez

01/06/2024

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THE IN-BETWEENS: EXPLORING BRISEÑO STUDENTS' PERSPECTIVES ON DIGITAL LITERACY,

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Laura Cecilia Díaz Barriga Ramírez

01/06/2024

Appendix A - Consent Form

CONSENTIMIENTO INFORMADO PARA LA ENTREVISTA

Título del Estudio: LOS DE EN MEDIO. EXPLORANDO LAS PERSPECTIVAS DE LOS ESTUDIANTES DEL BRISEÑO SOBRE LA ALFABETIZACIÓN DIGITAL.

Investigador Principal: Laura Cecilia Díaz Barriga Ramírez

Fecha: febrero - mayo 2024

Estimado/a Padre/Madre o Tutor Legal:

Soy estudiante de Maestría en Tecnología Educativa por la Universidad de Tartu. Estoy realizando un estudio que tiene como objetivo explorar las experiencias y opiniones de los estudiantes sobre el uso de la tecnología digital en su vida diaria.

Me gustaría solicitar su consentimiento para entrevistar a su hijo/a, [Nombre del estudiante]. La entrevista se llevará a cabo en un lugar tranquilo y privado dentro de la Casa Tatic o en su hogar, si es más conveniente para usted.

La entrevista tendrá una duración aproximada de cuarenta minutos y se grabará en audio para que pueda ser transcrita con precisión. La grabación se utilizará únicamente con fines de investigación y se mantendrá en un lugar seguro y confidencial.

La participación en esta entrevista es voluntaria, y su hijo/a puede retirarse en cualquier momento sin consecuencias. No hay riesgos asociados con esta entrevista, y su hijo/a no recibirá ningún tipo de compensación por su participación.

La información recopilada en esta entrevista será utilizada únicamente con fines de investigación académica y será tratada de manera confidencial. Los resultados del estudio podrían ser publicados en una tesis o en una revista académica, pero la identidad de su hijo/a será protegida en todo momento.

Si tiene alguna pregunta o inquietud sobre el estudio o la entrevista, no dude en comunicarse conmigo al teléfono 3314370809 o al correo laura.diazbarriga@gmail.com

Por favor, firme a continuación para indicar que ha leído y entendido la información proporcionada y que otorga su consentimiento para que su hijo/a participe en la entrevista.

Nombre del Padre/Madre o Tutor Legal:

Firma del Padre/Madre o Tutor Legal:

Firma del Investigador Principal:

INFORMED CONSENT FOR INTERVIEW

Study Title: THE IN-BETWEENS. EXPLORING BRISEÑO STUDENTS' PERSPECTIVES ON DIGITAL LITERACY.

Principal Investigator: Laura Cecilia Díaz Barriga Ramírez

Date: February - May 2024

Dear Parent or Legal Guardian:

I am a Master's student in Educational Technology at the University of Tartu. I am conducting a study to explore students' experiences and opinions about using technology and digital literacy in their daily lives.

I would like to request your consent to interview your child, [Student's Name]. The interview will take place in a quiet, private location within Casa Tatic or your home if it is more convenient for you.

The interview will last approximately forty minutes and will be audio recorded so that it can be accurately transcribed. The recording will be used for research purposes only and kept secure and confidential.

Participation in this interview is voluntary, and your child may withdraw at any time without consequence. No risks are associated with this interview, and your child will not receive any compensation for his/her participation.

The information collected in this interview will be used for academic research purposes only and will be treated confidentially. The study results may be published in a thesis or academic journal, but your child's identity will always be protected.

If you have any questions or concerns about the study or the interview, please do not hesitate to contact me at 3314370809 or laura.diazbarriga@gmail.com.

Please sign below to indicate that you have read and understand the information provided and consent to your child's participation in the interview.

Name of Parent or Legal Guardian:

Signature of Parent or Legal Guardian:

Student's Name:

Signature of Principal Investigator:

Appendix B - Questionnaire

Información de los participantes

* Indica que la pregunta es obligatoria

Nombre *

Tu respuesta _____

Edad *

Elegir ▼

Género *

Tu respuesta _____

¿En qué año vas de la escuela? *

Tu respuesta _____

¿Cómo se llama tu escuela? *

Tu respuesta _____

¿Tienes celular propio? *

Tu respuesta _____

¿Tienes computadora en casa? *

Tu respuesta _____

¿Tienen internet contratado en tu casa? *

Tu respuesta _____

¿Tienes acceso a internet en tu escuela? *

Tu respuesta _____

Appendix C - Interview Guide

1. ¿A los cuántos años usaste celular o computadora por primera vez?
 - ¿Los usas en la escuela, para aprender?
 - ¿Qué opinan tus maestras o maestros? ¿Te piden que los uses?
 - ¿Y qué hay del internet?
 - ¿Qué tal te funcionan?
 - ¿Sientes que aprendes mejor? ¿Por qué?
2. ¿Qué tan seguido usas tu celular y/o computadora?
 - ¿Y para aprender?
 - ¿Te sientes cómoda(o) usándolas, te gusta? ¿por qué?
3. Ok, ahora cuéntame un poco de qué tan hábil te sientes usando estas herramientas que mencionas (recapitula)
 - ¿Y para hacer tareas y trabajos de la escuela?
4. ¿Dónde y cómo aprendiste a usar tus herramientas digitales?
 - ¿Te enseñaron en la escuela?
 - ¿Cómo se llamaba la clase?
 - ¿Cuál fue tu experiencia en la clase? profundiza en los detalles.
5. Ahora me gustaría que pienses en cuando has usado internet en la computadora o el celular para trabajar en tus clases ¿Hay algo que te parezca difícil cuando utilizas estas herramientas o algo que sientas que te falta aprender para usarlas mejor?
6. ¿Cuál es tu meta al estudiar, tú para qué estudias?
 - ¿por qué? ¿Qué tan importante es para ti?
 - ¿Sabes a qué te quieres dedicar? y/o ¿Qué expectativas tienes del trabajo que harás?
7. ¿Para lograr esos objetivos que mencionas (recapitula los objetivos mencionados), cuáles son los temas o habilidades que necesitas aprender?
8. ¿Has escuchado hablar de la alfabetización digital?
 - ¿Qué has escuchado/crees que sea? Si no está ni cerca, dale una explicación simple: navegar las herramientas digitales
 - ¿Crees que puedes utilizar la alfabetización digital en tu vida diaria?
 - ¿Qué papel crees que juega la alfabetización digital en tu futuro?
9. ¿Te gustaría o te interesa recibir entrenamiento de alfabetización digital? ¿Por qué?

-
1. How old were you when you first used a cell phone or computer?
 - Do you use them at school to learn?
 - What do your teachers think? Do they ask you to use them?
 - What about the Internet?
 - How does it work for you?
 - Do you feel you learn better? Why?
 2. How often do you use your cell phone and/or computer?
 - And to learn?
 - Do you feel comfortable using them? Do you like it? Why?
 3. Now, tell me a little about how skilful you feel using the tools you mentioned (recap).
 - How about for homework and schoolwork?
 4. Where and how did you learn to use your digital tools?
 - Were you taught in school?
 - What was the name of the class?
 - What was your experience in the class? Go into the details.
 5. Now, I would like you to think about when you have used the internet on your computer or cell phone to work in your classes. Is there anything that you find challenging when using these tools or anything that you feel you need to learn to use them better?
 6. What is your goal in studying, what do you study for, and why?
 - How important is it to you?
 - Do you know what you want to do for a living? And what are your expectations of the work you will do?
 7. To achieve those goals you mention (recap the goals mentioned), what are the topics or skills you need to learn?
 8. Have you heard of digital literacy?
 - What have you heard/do you think it is? If it's not even close, explain simply: navigating digital tools.
 - Do you think you can use digital literacy in your daily life?
 - What role do you think digital literacy plays in your future?
 9. Would you like or are you interested in digital literacy training? Why?