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INVESTIGATING EFFECTS OF EDUCATIONAL TECHNOLOGY USE ON THE LEARNING EXPERIENCES OF QUEER INDIVIDUALS IN PAKISTAN

MA Thesis

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Abstract

Title: ***Investigating Effects of Educational Technology Use on the Learning Experiences of Queer Individuals in Pakistan***

This research focuses on the edtech use by the queer community and its impact on their lived experiences. Based on 5 qualitative interviews, the research covers usage patterns, needs and preferences; motivations; and barriers in navigating digital learning environments. The findings illustrate how education technology can enable queer community identity exploration, emotional support, and community building. It also unravels that queer learning potential is constrained by infrastructural, cultural, and language barriers. The study challenges traditional models of technology adoption by addressing safety, accessibility, and representation. It makes a compelling case for inclusive, culturally relevant, and emotionally responsive edtech design and implementation to support marginalized learners. The study bridges the gap in learning and empowerment of marginalized communities.

Keywords: educational technology, queer education, Pakistan, digital learning, intersectionality, LGBTQ+, digital divide, inclusive education

Contents

Introduction

The rapid evolution of new technologies is creating new opportunities for society, especially for marginalized groups like queer communities (Arcus Foundation & ILGA World, 2025; Amnesty International, 2023; CIGI, 2022). It has improved their access to education, fostered more inclusive environments, and increased their visibility (Arcus Foundation & ILGA World, 2025). The use of technology for educational and informational purposes changes the way learning occurs, and empowerment is experienced (OECD, 2023). For true understanding of how queer individuals interact with digital spaces for education, we need to acknowledge various ways technology impacts their lives (CIGI, 2022; OECD, 2023). Across the globe, two emerging trends significantly impact the LGBT community's digital engagement. On one hand, gender minorities are subject to various forms of oppression and discrimination in several countries worldwide, and conservative societies such as Pakistan are at a higher risk (Muhammad, Waqar, & Anis, 2024; Populism Studies, 2023). Concurrently, there has been a proliferation of digital resources globally, which offers an unprecedented opportunity for gender minorities to navigate their identities and expressions, seek community and connection, and access supportive resources (Arcus Foundation & ILGA World, 2025; The Trevor Project, 2023). However, barriers such as invisibility and repression restrict their access to digital resources, which can otherwise enable them to learn about their true selves, live the lives of their own choice, find resources for mental well-being, and learn pathways to combat homophobia and transphobia (CIGI, 2022; Populism Studies, 2023).

Digital engagement for informational purposes affects gender minorities in traditional societies in the Global South like Pakistan. Central to this research is a comprehensive attempt to rigorously understand and contextualize the use of digital educational resources within the queer community. In this pursuit, the investigation intends to i) discern the common trends of usage, needs, and attitudes of the queer individuals; ii) analyze the major barriers to interaction with edtech tools; and iii) uncover the factors that influence their willingness to leverage digital education. The study acknowledges that edtech or digital media symbolizes much more than a utilitarian tool for the queer community; it intertwines with their identity and serves as a vehicle for combating trauma and systematic discrimination (Berger et al., 2022; Paré, Windsor & Craig, 2022). However, the study rigorously examines the contradictory nature of technology (Bacaj et al., 2024) and recognizes that while it enables increased learning access and promotes the rights and well-being of queer individuals, it can also exacerbate pre-existing societal challenges (CIGI, 2022; Arcus

Foundation & ILGA World, 2025). There is evidence that EdTech has the capacity to reinforce and perpetuate normative structures rather than challenging them within educational environments (Technology and Queer Education, 2020; UNESCO, 2021). This in-depth exploration seeks to elucidate how technology can either uphold traditional norms or serve as a catalyst for disruptive change (Queered Science & Technology Center [QSTC], 2025).

While education technology offers many advantages, there is a lack of research on its impact on alternative gender identities and its socio-cultural dynamics. The study fills this knowledge gap and identifies unique pathways for the queer community to effectively leverage and navigate edtech tools. Within this context, this inquiry is not only relevant and timely, but also presents profound opportunities for experts, researchers, and educators to enable a more inclusive and gender-affirming digital education landscape through analysis of queer behavior and their interactions with education technology.

Contextual Background

The queer community in Pakistan faces serious social challenges, such as fear of social stigma, bullying, harassment, and systemic discrimination (Amnesty International, 2023; UNFPA, 2023). These challenges stem from deep-rooted social, cultural, and religious forces that prevent them from living safely and expressing themselves openly (ILGA World, 2025; Outright International, 2022; Human Dignity Trust, 2024). Cultural norms and societal expectations shaped by conservative religious ideologies stigmatize and exclude non-heteronormative identities. This exclusion compounds the challenges faced by the queer community in mainstream society (ILGA World, 2025; Outright International, 2022; Mahmood, 2023). These pressures are further intensified by harsh legal systems that not only fail to safeguard gender rights but also actively penalize sexual and gender minorities for living as their authentic selves (Human Dignity Trust, 2024; ILGA World, 2025). In Pakistan, laws criminalizing all forms of same-sex relationships and gender expression increase the existing vulnerabilities of queer individuals (Naz Male Health Alliance, 2016; Noreen & Rashid, 2024). Numerous reports provide evidence for the lack of integration of inclusive and rights-based approaches to combat violence, social exclusion, and disparities in healthcare, education, and employment opportunities in this context (Amnesty International, 2023;).

In the absence of comprehensive information on these issues, digital tools offer opportunities that once seemed impossible, such as learning various skills, increasing gender awareness, and building supportive communities through discussion forums (Arcus Foundation & ILGA World, 2025; Munir, Kiran, & Ibrahim, 2024). However, censorship and algorithmic content moderation often suppress queer voices and can possibly cause serious harm by converting online platforms into echo chambers of erasure rather than spaces of expression (CIGI, 2022; EDRi, 2019; Human Rights Watch, 2025; Human Dignity Trust, 2024). Furthermore, the queer community finds the lack of queer representation in educational content alienating. Most edtech tools and digital learning platforms do not reflect queer experiences, which limits the community's capacity to fully benefiting from their value (GLSEN, 2021). Likewise, the absence of specifically designed and targeted trainings further amplifies their sense of alienation (Munir et al., 2025). As a result, many are denied the opportunity to learn, connect, and build relationships through digital educational media (Munir et al., 2025).

Theoretical and Conceptual Overview

The research develops a theoretical framework to structure the discussion on use of educational technology by the Pakistani queer community. To this end, the framework borrows theories from different disciplines to explore multi-faceted nature of technology engagement of the queer community. Intersectionality (Crenshaw, 1989;) sets up the foundational lens to analyze the effect of age, language, socio-economic status, and urban or rural location that led to challenges that queer community faces (Crenshaw, 2013; Cho et al., 2019; Collins & Bilge, 2020; Shrodes & Paré, 2022). The theory emphasizes social and cultural identities. Likewise, Queer Theory (Butler, 1990) leads to deconstruction of normative conception of identity and sexuality (Butler, 1990; Muñoz, 1999; Puar, 2021). In doing so, it explains robust clarification various ways queer community connects with and navigates edtech ecosystem. Another two influential theories included in the conceptual analysis are: Technology Acceptance Model (TAM) (Davis, 1989), and Cultural Capital Theory (Bourdieu, 1986), which unpack the major determinants influencing adoption of educational technology. They also examine the perceived usefulness and societal attitudes toward technology engagement, and as extension can be relevant to the context of EdTech. (Davis, 1989; Venkatesh et al., 2020; Bourdieu, 1986; Lareau, 2019). Digital Divide Theory underscores how perceived willingness to leverage edtech is determined by individual factors such as digital literacy

and access to technology (van Deursen & van Dijk, 2019). Following this, the research analysis is complicated through the study of the inclusion of multiple languages and culturally relevant content in use of edtech to examine factors determining accessibility, inclusion, and engagement. These elements collectively account for not only the access but also the nature of interactions. In the same vein, Social Constructionism (Berger & Luckmann, 1966) delves deeper into ways social values and culture shapes perception of technology (Berger & Luckmann, 1966; Burr, 2015; Hacking, 1999) whereas Critical Pedagogy (Freire, 1970) emphasizes emancipation of the disadvantaged communities (Freire, 1970; Darder, 2021; hooks, 2019). Postcolonial Theory (Said, 1978) calls for dismantling the colonial legacies that perpetuate educational injustices and advocates for alternative decolonized knowledge and practices (Said, 1978; Bhambra, Gebrial, & Nişancıoğlu, 2018; Mignolo, 2011). Grounding the investigation in this multi-pronged framework, the literature review ensues how the existing research aligns with the objectives of the research. Queer Literacy Framework (QLF) elucidates the critical role of intersectionality in education and points at non-hierarchical environments supportive of evolving gender identities (Miller, 2016; Miller, 2019; Haraway, 1991; Haraway, 2019). Integrating Donna Haraway's concept of techno-science further enriches this framework. The framework suggests that technology is deeply connected with social, cultural, and gender identities (Haraway, 1991). Media theories play an important role as gender identity is mediated through media on digital media, especially on the internet by providing a vast spectrum of narratives and communities validate their expressions and desires (Nakamura, 2002; Gary, 2009). Lastly, Sex education when grounded in inclusive approaches is fundamental in filling the unique needs of the queer community through edtech (Allen et al., 2020; UNESCO, 2021). It enables access to specifically targeted information and supports diverse sexual orientations/gender identities. Together, these frameworks and models provide a robust theoretical foundation for exploring digital education engagement and within the queer community through multi-layered analysis.

Literature Review

The literature review for the research analyzes the confluence of education technology and queer theory. The key focus areas of the review delve into usage patterns, needs, and impacts; challenges faced; and factors enabling the effective usage by the queer community. Drawing upon the academic resources, books, and research scholarship, the review analyzes how these technologies facilitate or fail to meet the unique needs of queer learners.

Usage Patterns, Needs and Attitudes

A key benefit of edtech is to that it offers learning experiences that respect the diversity of the queer community (Stonewall, 2025; Mondo, 2023; LGBT Tech, 2016–2025). Educational technology tailored to the needs of queer community enhances access to information and awareness about their physical, mental and social well-being (Craig et al., 2021; ISTE, n.d.); U.S. Department of Education, 2023; Future of Privacy Forum & LGBT Tech, 2023). The synergy of technology and queer education emphasizes the potential for technology to subvert adverse educational norms and oppose repressive dominant structures (Planella et al., 2020). As a result, such technology reaffirms individual identities, which are vital for fostering a sense of belonging and extending validation (Bates, Hobman, & Bell, 2020; GLSEN, 2019). In comparison to the physical mediums, the privacy and anonymity by online platforms facilitate a safe space for exploration and self-discovery, allowing learners to engage with relevant content and connect with peers in a supportive, discrimination-free environment. This aspect is particularly valuable in reducing feelings of isolation and bolstering community support, contributing significantly to the mental and emotional health of queer learners (Craig et al., 2021).

Furthermore, Edtech extends the ability to access a broad range of resources and networks. This fact is most useful for the queer individuals to find support networks and communities to share (Alix, 2021). Another benefit edtech offers is that it serves as a representation for queer advocacy and allows learners to share their narratives and participate in wider societal dialogues by adding their contribution. Consequently, the queer individuals develop self-efficacy and work towards social change (Robinson & Davies, 2021). Integrating queer perspectives and content into edtech enable combating the marginalization of queer experiences, which leads to a more inclusive curriculum. Digital storytelling, in this regard, is a powerful avenue for learners to communicate their narratives, promoting empathy and mutual understanding, and working towards effective mental and emotional wellness within the queer community (De Jager, Fogarty, Tewson, Lenette, and Boydell, 2017).

The powerful impact of edtech to support empowerment and identity formation of queer learners is proven (Craig et al., 2021; Robinson & Davies, 2021). The access to Edtech resources highlighting queer experiences facilitates the learners in embracing their authentic selves (GLSEN, 2019), heal from feelings of rejection (Ancín-Nicolás, Collado, Lopez-Sáez, & Gonzalez, 2025), and cultivate a strong sense of personal agency (Craig, McInroy, McCready, & Alaggia, 2015).

Through edtech, queer learners find not only educational support but also learn to express and share their identities, which, overall leads to a holistic sense of self and community belonging (Hill, Fish, McInroy, and Paceley, 2022; Eickers , 2023). This focus on empowerment and identity formation is essential for the comprehensive well-being of queer individuals and accentuates edtech's transformative potential (Alix, 2021).

Barriers and Enabling Factors

Although education technology promises immense advantages, the queer community still faces various obstacles to access these resources (LGBT Tech, 2025; Gower et al., 2023; ILGA World, 2024). Economic disparities, socio-economic status, and geographical locations (Robinson, Cotton, Ono, Quan-Haase, Mesch, Chen, and Stern, 2015; van Deursen and van Dijk 2019; UNESCO, 2024) widen the gap of technological use for educational purposes (The Trevor Project, 2024; Future of Privacy Forum & LGBT Tech, 2023). Consequently, the resources to invest in technology such as broadband become limited (LGBT Tech, 2025; Gower et al., 2023). Moreover, the dominance of cis gender and heteronormative attitudes in digital content leads to isolation and exclusion of queer students ((Bakka, Bouchard, Chou, and Borrego, 2023; Callahan, 2019). This fact necessitates educational technologies to move beyond traditional gender and sexuality frameworks (Stonewall, 2025). One of the common factors underscored in literature is the weakness or lack of institutional policies to facilitate gender diversity and ensuring protection of rights of queer learners (Shattuck, Paceley, Winger & Willging, 2023; UNESCO, 2023). In turn, this discriminates the queer community and brings to forth the vital need for development of structures and policies within educational institutions – which would translate into digital platforms (UNESCO, 2023, Cardinal, 2021, Kuhlemeier, Goodkind, & Willging, 2023). It is stressed that challenges such as including digital literacy and online safety concerns are important when it comes to technological access of queer individuals (INQYR, 2024; Future of Privacy Forum & LGBT Tech, 2023). In various parts of the world, content censorship is a major reason of access restriction to LGBTQ+ related digital content (Future of Privacy Forum & LGBT Tech, 2023; Stonewall, 2025; Electronic Frontier Foundation, 2024). This access plays a pivotal role in education and development of queer students (Stonewall, 2025; Gower et al., 2023). These restrictions cause severe deprivation of valuable resources for queer individuals for their identity exploration and formation of community connection (APA, 2023; The Trevor Project, 2024). Furthermore, cyberbullying and privacy violation in digital spaces pose major threats to the safety

and well-being of queer students (Gower et al., 2023; INQYR, 2024). Therefore, it is imperative to ensure secure digital environments and make it a critical priority (INQYR, 2024; UNESCO, 2023). Another major concern is the dearth of educational resources that adequately cover queer topics focusing on queer pedagogies. All these factors hinder queer students' effective interaction with the digital education resources (LGBT Tech, 2025; Future of Privacy Forum & LGBT Tech, 2023). Facing the major brunt of all these challenges the Trans students are subject to adverse oppression and heteronormativity within digital spaces (Jenzen, 2017). These above-mentioned factors compound together and replicate the challenges of physical space to the digital, which results in a significant compromise the safety and well-being of Trans students (Brockbank, Fujarczuk, Barborini, & Wang, 2023). This condition is sustained by Trans oppression, creating a complex matrix of oppression that (The Trevor Project, 2024). Lastly, following a traditional education system, the emphasis is mostly on testing and a curriculum that marginalizes queerness further isolates the queer youth (Stonewall, 2025).

On a positive side, the community can leverage resources for various reasons: to understand their self and identity, confront trauma, bullying and harassment, tackle systematic discrimination and activism to name a few (The Trevor Project, 2024; Craig & McInroy, 2014; Fox & Ralston, 2016). On the flip side, however, there are various potential concerns that can arise related to the use of educational content on digital spaces – presenting a complex array of ramifications for the community (Future of Privacy Forum, 2023). The digital tools that promise to empower the community can be abused to further marginalize it (Eickers & Rath, 2021). Perpetuation of online harassment, cyber-bullying, and spread of hatred against the queer individuals can potentially lead to misuse of digital spaces (The Trevor Project, 2024). Likewise, advanced algorithms and data analytics, which can be a valuable tool for personalization have several pitfalls that can lead to censor or isolate the LGBT related content (Future of Privacy Forum, 2023). Notwithstanding, a thorough understanding of the challenges of digital divide, pre-requisite of literacy and undermining privacy is paramount in examining the design and implementation of educational technology and its usage by the diverse gender groups (Stonewall, 2025; UNESCO, 2023). These considerations are critical to be accounted in the analysis to understand how queer community negotiates its access to educational technology in complex dynamics (INQYR, 2024).

Methodology

This chapter provides an exhaustive thematic analysis of semi-structured qualitative interviews with five queer-identifying individuals in Pakistan who engage with educational technologies. For the purposes of analysis, the data was coded inductively and has been analyzed critically. The findings are organized under twelve themes and integrate participant quotes, theoretical engagement, and socio-cultural context.

Research Philosophy and Rationale

Since the aim of the study is to explore how queer individuals navigate and make sense of digital educational technologies in a context marked by social and political constraint, qualitative approach is more suited. This approach relies on personal stories, lived experiences, and the meanings individuals attribute to their realities instead of statistical patterns and numbers. The research is based on a **critical-interpretive framework** and is further supported by **constructivist and emancipatory theory** (Denzin & Lincoln, 2011; Schwandt, 2000). A **critical perspective** allows to make sense of how power dynamics function in digital learning spaces and why queer voices are typically left out of mainstream learning ecosystem (Kincheloe & McLaren, 2011). Likewise, the **constructivist and emancipatory approaches** help to unravel how queer individuals in Pakistan emotionally connect with and assign meaning to educational technologies in relation to their socio-cultural realities and identities under injustices and systematic marginalization. This model is instrumental in going beyond the surface level understanding of personal experiences and highlights that people's use of technology is shaped by identity, structures, and other political, cultural and social forces.

Research Design

Given that the objective of the research was to unearth experiences, feelings, and underlying meanings of queer individuals, a qualitative design was more suited. The researcher was able to shed light on the personal and emotional connections of queer persons with Edtech tools. Instead of surveys or numbers, in-depth discussions were used to better understand their everyday life affairs. The study did not limit the scope to include utility but also incorporated whether it feels safe, welcoming, and meaningful through examining their behaviors, narratives and discourses.

Sampling Strategy and Ethics

The sample consisted of 5 self-identified individuals picked through purposive sampling. This method of sampling was selected to integrate diverse representation of ages, socio-economic statuses, and urban as well as rural geographical areas. Participants were identified through the researcher's existing connections within LGBTQ+ circle in Pakistan. Referrals from community contacts and trusted organizations were also useful to find volunteers for the interviews. Based on previous experience of the researcher, it is easier to reach out to individuals who are willing to participate in the research. Additionally, the LGBTQ+ organizations in Pakistan, social media platforms, and referrals, ensuring privacy and confidentiality will be maintained to ensure that there is no harm and disadvantage caused to any participant or community involved.

Data Collection

Data collection strategy was based on in-depth, semi-structured interviews conducted online over a three-month period. This format was chosen to ensure emotional comfort for participants, given the sensitivity nature of the topic and vulnerability of the community. Each interview lasted between 45–75 minutes and participant's consent were taken for the recording of the interviews.

Their major discussion focused on topics including access to technology, platform usage, safety, emotional engagement, and identity formation. Platforms such as WhatsApp and Zoom were used, keeping participants' ease in consideration. All interviews were conducted by the researcher himself, and the participants were selected based on his networks in Pakistan.

Instruments and Procedure

The interview guide served as the primary data collection instrument consisting of 30 items. All questions were open-ended and asked in a semi-structured way. The questions were organized around themes such as queer access to digital tools, frequency and mode of use, perceived usefulness, barriers encountered, emotional responses, and social dynamics around technology use. analytical frameworks like intersectionality, queer theory, and the Technology Acceptance Model were used to inform the main content of interview guide. It aimed to explore queer personal narratives, discourses and experiences around technology use and its impact on their identity and social connections. A pilot study comprising of two participants was conducted and participants were consulted to test clarity, emotional relevance, and cultural appropriateness. Based on their feedback, certain items were rewarded for inclusivity and emotional safety. Each participant received a brief prior explanation of the study's purpose and protocols, and their

participation was entirely voluntary. All interviews were conducted remotely in Urdu, English, or a mix of both, depending on participants' preference. Audio recordings were transcribed verbatim and pseudonymized during processing.

Data Analysis

The data was analyzed comprehensively using inductive thematic analysis and was modeled after Braun and Clarke's (2006) six-phase model: familiarization with data, generating initial codes, searching for themes, reviewing themes, defining themes, and writing up. Transcripts from the five interviews were scanned thoroughly to identify initial patterns. Later they were coded manually to avoid risks related to contextual sensitivity. The researcher used NVivo software to organize and manage the codes. The thematic clustering of codes was done based on main research questions – particularly those related to informants' motivations, barriers to access, and emotional responses to digital learning tools. Common patterns like digital safety, cultural relevance, and emotional labor appeared in many interviews. These themes were then mapped onto theoretical constructs like intersectionality and performativity to better understand the deeper meaning behind queer participants' experiences. To strengthen the reliability of the study, peer debriefing was conducted with academic colleagues familiar with qualitative methods and queer research in Pakistan. This exercise helped maintain analytical awareness and minimize potential researcher bias. Interview quotations were carefully selected by the researcher to highlight depth and thematic clarity across the range of diverse identities.

Following transcription, thematic analysis was conducted to identify recurring themes and patterns in the dataset. This approach allowed the researcher to deeply examine how different factors such as socio-economic status and cultural norms influence the engagement with educational technology. Moreover, it helped the researcher uncover nuances, dynamics and relationships between different factors in detail by offering a deeper understanding of complex realities of queer individuals.

Research Ethics, Quality, Validity and Reliability

Ethical considerations were a top priority to protect participants' confidentiality and well-being in a highly vulnerable milieu throughout the project. Informed consent was obtained from all participants. Moreover, clear objectives of the research purposes, the right of participants to

withdraw at any time during the research, and protocol for anonymity and data security were duly followed and shared with the participants.

The quality and reliability of the research was ensured through diligent methodological design and continuous reflection. Full triangulation for cross verification purposes will be challenging owing to the dearth of alternative sources of data on the subject.

Reflexivity and Limitations

As qualitative interpretive research, reflexivity carried significant weight in the process. The researcher's prior familiarity with the queer advocacy and policy work in Pakistan helped easier access to participants and allowed to navigate sensitivity to context. This positionality enabled trust and better quality of responses. However, it may have been impacted by interpretive bias and therefore continuous improvement and rethinking of assumptions was done through discussion with colleagues working in these domains.

The researcher was aware of power dynamics during the interview and made conscious effort to balance between listening empathetically and maintaining an appropriate level of academic objectivity. To achieve this, the study employed reflective journaling to document researchers' changing thoughts, possible biases and emotional reactions that might affect interpretation. This process of self-reflection enhanced the analysis by making researchers aware of how his perspectives shaped the understanding of results.

While the findings present rich empirical insights into queer edtech use in Pakistan, they must be interpreted with caution. Participants were selected from a limited, self-selecting self-identified sample. Furthermore, there was representation across the LGBTQ+ spectrum across class, geography and age group which makes it harder for generalization of results. Some interpretative themes appear to be nuanced and open to multiple interpretations due to a high degree of subjectivity involved, which is expected in qualitative research. For instance, the conclusions drawn where latent meanings were inferred from discourse and narrative analysis. Future studies in this subject will highly benefit from triangulation of results with ethnographic research, mixed-method approaches, and participatory co-design methodologies with marginalized learners themselves to improve the depth and contextual validity of the study. Additionally, the depth and openness of participant discourses may have been compromised due to risk of privacy, safety, and emotional uneasiness. Even though this is a serious concern, it is inherent to ethical consideration

of research process in restrictive settings. Nevertheless, the study acknowledges it as part of the research's methodological integrity.

Results

This section explains all the findings and structures in themes according to the research questions mentioned earlier in the Introduction section.

RQ1: Usage Patterns and Attitudes

Theme 1: Platform Preferences

Participants described they started using platforms and content on recommendations from friends, partners, or online acquaintances which determined their digital educational trajectory. One participant shared, "I follow a friend's recommendation more than Google." These peer networks facilitated people in finding useful content, avoiding harmful or disturbing material, and feeling emotionally empowered. "I learn from people, not platforms," one participant explained. "A friend shares a video, and I trust it. That's how it starts." Online conversations, shared screenshots, audio messages, and shared files are some of the ways learning happens in the community. In these exchanges of information, the participants could ask questions openly and express their perspectives and offer advice on matters. "Sometimes it's just a meme that starts a whole discussion," said another. "We decode things together." Shared understanding among the participants meant they could feel understood and protected. Several mentioned that prefer to join a informal ways of learning like queer WhatsApp group than through formal structured learning such as taking an online course on Coursera or even Youtube. It appears it was much easy to share and discuss vulnerable thoughts about self-exploration without fear of judgment for them on informal platforms. "There's a language we speak that outsiders don't get," one person said. "It's not just words. It's a way of holding each other."

Theme 2: Trust, Tone, and Cultural Fit

It can be gauged from the discourse that queer users often select platforms and content based on how safe, affirming, and culturally relevant they are. Trust and cultural as well as emotional resonance played major roles in which platform or content they connect with. Anonymous access, Urdu language options, and content created by South Asian queer persons were consumed with higher appreciation.

Theme 3: Learning with Caution, Living with Hope

It was a recurring theme across the interviews that the queer community is typically more cautious in using digital educational tools due their negative potentials. Having mentioned that, they also expressed strong optimism about adoption. They consistently mentioned that the digital space was the only affordable and accessible source for queer education, health awareness, or freedom. EdTech was often referred to as a "lifeline" or a "secret teacher" by some participants. "It was better than the silence I lived in," described one.

Although they were concerned about the risk of exposure or content problems, still participants seemed to possess a sense of emotional satisfaction and intellectual growth when they browse online and exchange knowledge. One common thread was the possible threat of online bullying and harassment, which discouraged them from interacting online openly, commenting on social media and sharing their true self digitally. They particularly highlighted that even though most of the content felt irrelevant to the queer needs or too Western, all of them were still grateful for the access. It appears, they have adapted and learned over time to use what they could find, or shared it in group chats, and in the process assign some personal meaning to these digital symbols. “It does not kill their motivation to learn, and they freelance, and they pursue their lifestyle,” one explained.

RQ2: Barriers and Challenges

As mentioned above, digital educational platforms afford various opportunities for self-explorational and emotional comfort to the queer community. However, these platforms also came with various digital and social challenges. The participants were vocal in expressing their disappointment about what was not possible or accessible for them. They listed various factors that hindered them from fully benefiting from the use of edtech resources. Those factors included lack of resources, cultural silence, and emotional stress.

Theme 1: Infrastructure and Inequality

Many individuals felt that socio-economic challenges were the most prominent barrier to access of edtech resources. They also noted that individuals from underserved communities or from rural areas did not possess the skills or confidence needed to use educational platforms properly. "Many transgenders do not use it because they think they need a computer and they are not aware," noted one participant. Limited financial resources also meant restricted or no access to high quality paid-edtech content.

Several participants have to use shared family devices; they borrowed smartphones; or low-cost secondhand phones, which have limited storage or out-of-date software. “My phone is old,” one said, “If I download a video, I have to delete three apps first.” Some also highlighted cases where relatives could check their devices periodically, which made privacy difficult. Shared accounts as well as lack of physical and emotional space to explore the web safely were described as examples of such scenarios. These structural inequalities shaped their behavior on when, how and what they use. “I only have internet at night,” someone noted. “And even then, I can’t use it freely. I’m always watching over my shoulder.”

Limited bandwidth, lack of quality Wi-Fi, and inconsistent mobile data packages resulted in the fact that they couldn’t always access the queer relevant content they wanted to. “Streaming a video used up all my data,” said one, “so I had to choose between watching and replying to messages.” In low-income households, some basic tools like secure messaging apps or VPNs were sometimes unaffordable or inaccessible high cost or technical lack of knowledge.

Theme 2: Cultural and Linguistic Exclusion

Apart from infrastructural and socio-economic barriers, language emerged as a deep-rooted structural barrier. Majority of learning materials that participants refer to, particularly inclusive educational content was produced in English and was always based on Western contexts. For those participants who were not fortunate enough to be educated in private schools and could only understand Urdu or regional languages, the content had limited meaning. “They were talking about pride parades and coming out to their dads over dinner,” one participant said, “but I don’t live in that world. I don’t even have the words to come out.” Even in cases where the content was relevant, it did not reflect the socio-cultural realities of being queer in Pakistan. For instance, terms like “gay,” “trans,” or “non-binary” did not have parallel understandings of gender relationships, identities and kinship. Some mentioned that the tone in the content felt too foreign or “NGO-like.” “It’s not that I don’t understand English,” one participant clarified, “it’s that I don’t see myself in their stories.” They expressed their aspirations for representation and emotional resonance from their own communities.

Another area where they raised many concerns was about stereotypical portrayal and misrepresentation of queer lives as hypersexualized and tragic in digital content. "The problems shown on Netflix are not my problems," said one participant. Another reflected, "Content creators

are not exposed to the ground realities... they believe in perceptions." Likewise, many highlighted the lack of structured content tailored to key queer topics. "Queer sex education is missing in Pakistan. Like the use of condoms. No one is aware of the horrors of HIV and STDs," explained one participant.

Interviewees noted that digital materials mostly overlooked issues of class, geography, and other facets of identity. "Trans people are uneducated, gay people are more educated. They do not intermix," one person noted to highlight the need to maintain sensitivity about these nuances into consideration.

Theme 3: Censorship, Surveillance and Institutional Distrust

One recurring theme was that most participants were apprehensive about privacy and safety. Each participant expressed concerns about continuous policing of their digital footprint. Many participants expressed a strong sense of institutional distrust toward formal systems - including NGOs. They cited concerns with weak support, lack of transparency, and more critically, fears that their data and digital identities might be exposed. Furthermore, family expectations acted as a strong form of censorship. Traditional norms around gender and sexuality, and what was considered 'appropriate' decided what could be accessed and engaged with online.

Although the emotional engagement with digital “educational” resources was useful, it came with an increased risk. Watching, saving, or liking queer-related content online was always precarious for the community. There were multiple types of fears they perceived: being caught, interrogated, or outed by those who suspect their identity. As one participant explained, “I clear my browser history every time. It’s like second nature now.” Other participants described renaming app folders to avoid being detected, hiding content in cloud storage, and creating alternate social media profiles with pseudo descriptions. “I have two accounts,” a respondent noted, “one that looks straight, and one where I can breathe.” This was a strategic mechanism to use digital spaces to conceal identity. But more crucially, it was also a way to survive against the hostile reaction at homes, schools, and communities. This measure can be understood by the community to balance being visible but discreet at the same time. Some examples shared by the participants included browsing the web late at night, muting stories and avoiding making comments on public forums. “Even watching a video felt risky,” one explained, “because what if the algorithm shows it to someone I know?” “It’s exhausting,” said one participant, “you’re always managing what others might see, even when

you're just trying to learn." On another incident someone mentioned, "I once forgot to close a queer blog, and my brother opened the browser the next day," one participant recalled. "It was a disaster. I still feel sick thinking about it." Some of them stopped using LGBT websites altogether.

Multiple times, they alluded to the fact that ensuring their safety and privacy is exhausting. "You're constantly trying to learn and unlearn at the same time," someone explained. "You want to understand yourself, but you're also trying not to be found out." Moreover, all the participants mentioned instances of state censorship. One participant noted, "The country is still lagging behind... there was a boom for YouTube and the whole world was making money and, in my country, it was banned." Another added, "There is always operative censorship. Also, good & authentic resources are paid for." Furthermore, fear of surveillance actively discourages the community from adopting and using edtech resources. "The fear of it is there all the time," noted a participant while discussing data privacy and governmental tracking.

Theme 4: Psychological Well-being

Being online can be emotionally burdening and exhausting for queer people and it negatively impacts community's mental well-being. Moreover, it leads to signs of anxiety and hopelessness after some time. "I just needed a break," said one. "It became too much. Too many tabs open in my head, always worrying who might see what." Others spoke of feeling isolated even within digital spaces, watching videos or reading posts but lacking the courage or safety to participate. "I never comment," one participant told the researcher. "I just save things and pretend I never saw them." According to them, their digital engagement fluctuates between days of intense use to long periods of withdrawal and silence due to strong emotional burnout.

In addition to it, some participants felt they weren't "brave enough" to be out online, or that they were failing in some way by not using digital spaces more actively. At the same time, they faced personal pressure of being visible and to educate themselves and for that purpose use digital tools. On the other hand, they also faced risks like online harassment, discrimination, or being outed, which limit their digital use. The fact that stands out the most in this discussion is the community's willpower and resilience to fight back for their rights. Their ability to continuously try defines their struggle very well.

RQ3: Motivations

Theme 1: Identity Exploration and Self-Discovery

During the interviews, the participants acknowledged that the main reason they were introduced with the digital spaces was because they wanted to know about themselves. Some mentioned that isolation and emotional confusion to find out about who they are, led them to search more through the web. Many recalled their earliest engagements with educational technology as not an intellectual exploration but as a form of soul-searching. “I didn’t even know what I was looking for,” one participant shared, “I just typed in ‘Why do I feel different?’ and the internet gave me a name.” For the respondents, these initial searches paved the way for their long-term engagement with digital content.

Theme 2: Emotional Learning

In all interviews, the respondents shared that the impact of learning was much higher when content resonated with them emotionally as opposed to through formal courses or structured curriculum, Videos, posts, or blogs that expressed their feelings were appreciated. “I saw a video called ‘Am I non-binary?’ and it was like someone had read my thoughts out loud,” one respondent mentioned. One common thread from their discourse was that identity cannot be revealed through a structured curriculum, instead it comes in different disintegrated sections through engagement and participation on digital platforms. The moment the content touched an emotional string with them; they felt a sense of satisfaction as it helped them process emotions. “I didn’t cry because it was sad,” said another, “I cried because for once, I wasn’t alone in my head.”

Participants’ digital engagement with the content was largely dependent on how emotionally connected the content is to their needs and preferences. It can be deduced that what is categorized as “educational” has different meanings and applications far beyond academically defined categories. A meme that represented internal conflict among queer people, a spoken-word or dance performance, or even a comment thread discussing gender dysphoria could be more meaningful than a formal online course. “Sometimes it’s a TikTok, like 15 seconds,” one informant explained, “but it hits you. It explains what no one else has said to you in your whole life.” These resources had much more implications than mere entertainment and enabled participants to accept themselves.

Theme 3: Peer Guidance and Community Support

One key theme that emerged from the narratives was that learning among participants took place with the help of peer support. These digital platforms were recommended by peer networks. Almost all of them said they would only use an app or follow a page if a queer friend or reference had recommended it. “If someone from the community says it’s safe, then I believe it,” one interviewee asserted. In other words, this social validation in the community acted as a confirmation for credibility of the content. The community takes sense of responsibility to inform others about any threat or nefarious concern related to social media or digital engagement. “We warn each other,” someone said. “If something’s harmful or fake, we spread the word fast.”

Content sharing was one of the many ways to learn from the peers. Another important aspect described by some participants was the development of informal mentoring relationships. For example, the senior queer friends introduced the beginners to changing trends, new platforms, as well as with different coping strategies. They also reported nature of materials that were exchanged included mental health resources, educational PDFs, memes, or meditation links. “We’re not just surviving alone,” a participant shared, “we’re learning together.”

These peer-led digital platforms also provided the participants with emotional support and ways to cope with mental health issues. When a participant faced disturbing content or faced difficult moments with their identity, they approached a friend through direct messaging or encrypted chats. “They get it,” said one person, “I don’t have to explain myself like I do everywhere else.” These conversations created educational opportunities as well as built a sense of community between the community members. In other words, the community co-created these spaces of understanding, care and validation which came with the advantage of learning at the same time.

The queer participants relied on vast amounts of digital material to manage emotional stress, uncertainty and fear of exposure. The participants were not seeking access to information but also a sense of belonging and recognition. “I didn’t just want answers,” said one participant, “I wanted to feel like I wasn’t the only one.”

For most, digital platforms are not passive or neutral mediums and serve as constructive spaces of resistance. These spaces offered them alternative pathways to ignorance, shame, and social isolation in their most struggling times. Several respondents described them as places where they first found their voices and where they began to believe and imagine that living differently was

possible. Despite the widespread risks and limitations associated with technologies, many participants emphasized the contribution of these tools in their lives in building connection, enabling freedom and maintaining hope.

Theme 4: Skills and Creative Empowerment

Some participants reported that through digital educational tools they have learned about graphic design, freelancing, and performing arts. Many felt that the traditional institutions lacked understanding of queer experiences or discouraged creative expression in the formal courses they offer. They shared their strong disillusionment and called them biased towards conventional gender norms and roles.

In contrast to them, digital platforms give them space to be independent and accepted. YouTube was praised by the participants for its tutorials and giving them exposure to success stories of people like them. Social media platforms such as Instagram and TikTok provided collaborative spaces and helped them in building portfolios and connecting with others with similar interests. They also learned how to monetize their skills and make earnings from it. As one participant who was into dance explained, “I couldn’t afford dance classes, so I learned on YouTube.” Others said learning digital marketing, video editing, and makeup skills helped them earn freelance income, which was mostly their only source of financial independence in a struggling economy.

These tools helped them channelize their expression. One participant said, “Designing posters or editing reels makes me feel like I exist.” Through various creative outlets, digital skills helped the respondents find purpose and visibility which gave them an escape widespread exclusion. Their stories clearly demonstrate they learned out of inquisitiveness, necessity, and passion. More notably, the online communities did not judge them for their work, which was a key source of motivation.

Aspirations

Even though participants shared various challenges and limitations, they also held a strong optimism about what digital education could offer. This section explores findings drawn from four core themes. Each highlights the desires and aspirations participants expressed for their expectations from digital education. One recurring theme was that they held determination and resilience about the use of digital technologies, and it was evident that edtech does not serve the

purpose of learning to the community. They experience their lived realities and support their sense of self through them. For this reason, they aspire to inclusive and empathetic digital spaces.

Theme 1: Relevant Content

One common suggestion from the informants was the development of culturally grounded content. Most participants noted most content they have used or seen was Euro-centric. In other words, it was not in accordance with their visual, language, and ideological preferences. “They talk about Pride parades and open relationships,” one participant said. “But I’m just trying to survive in a house where I can’t say the word gay.” Many raised concerns about disconnected tone with their identities or framing of content that does not cater to their realities. The expressed their desires for inclusion of narratives representative of their own cultural context such as stories of queer struggles and success stories, which are in Urdu, which are based in small towns, and are in Muslim families. In other words they show everyday Pakistani life. “Why can’t there be a queer Khan Academy in Urdu?” one person asked. They wanted to learn about gender and sexuality which is based on their language, and where they don’t have to borrow ideas from foreign cultures. Similarly, language was considered a crucial determinant for understanding and connection with the content. “I understand English,” one explained, “but I think in Urdu. When I hear something in Urdu, it hits differently. It feels real.” Another shared that they had tried to explain being queer to a friend using translated English terms and struggled to explain properly. “There’s a disconnect,” they said. “We need our own words, our own voices.”

Theme 2: Safety as Enabler

Participants noted that they are eager to benefit from digital content but were also alarmed by the safety and security challenges. They mentioned that their use of apps and web hinged on anonymity and protection. “If I don’t feel safe,” said one participant, “I won’t even open the app.” There was a great deal of awareness among the community on these issues, at least based on the narratives, and it can be observed that they have developed various strategies to protect their identity and cope with issue. A few of the examples included but not limited to the ability to hide or disguise apps, password-protect sensitive content, use without sharing personal information, avoid exposure through algorithms. “I don’t want to see ‘suggested for you’ content that outs me,” one explained. “I want full control.”

Participants also emphasized that emotional safety was a priority for them. They intend to avoid consuming judgmental or shameful content. “Sometimes even the ‘educational’ videos make you feel like a diagnosis,” said one person. They also shared desire to use digital spaces that were warm and spoke to them. In other words, their focus was on learning that was relational and supportive. Several participants noted that when platforms felt, they felt shut down emotionally, “It reminds me of school,” one said. “And school was where I learned to hide.”

For the future, participants had preferences for the content that focused on co-creation and co-designed by queer people. Moreover, they mentioned they would prefer platforms that integrate content in multiple languages and materials that are designed for use on mobiles. They specifically mentioned that they prefer spaces where they do not have to tell their real names, or live under fear of tracking of data. “Like a digital community center,” someone suggested. “Where you can learn, cry, laugh without being watched.”

This chapter critically reflects on the findings in relation to the established theoretical frameworks of the Technology Acceptance Model (TAM), Digital Divide Theory, and Intersectionality, which are the basis of conceptual model discussed above. Another aim is to make sense of the findings through drawing on insights from works of bell hooks, Michel Foucault, Judith Butler, Sara Ahmed, Donna Haraway, and others.

The findings demonstrate that queer individuals face unique challenges in Pakistan when using edtech which go far beyond just issues of access or cost. Additional deeper factors such as societal barriers, the absence of supportive policies, and limited representation in digital content also make it harder for the queer community to access and adopt edtech resources. These challenges are even more severe for marginalized individuals when issues like class or geographic location overlap with their identities (EdTech Hub, 2023).

Synthesis of Empirical Insights

This study explores complex dynamics of queer community and their engagement with educational technology (Edtech) in Pakistan. The findings reveal mixed emotions of both optimism and potential risks. There is no doubt about the significant role digital education plays in enhancing access to information, community, and self-exploration. However, digital platforms have the tendency to mirror, even at times exacerbate the prejudice, surveillance, and ostracization experienced by queer individuals in real life. In addition to that, the results shed light on several

tensions in the use of edtech: the presence of both opportunity and risk, the need for both anonymity and visibility, and the dual nature of technology to control and to empower. It was consistently mentioned that a significant proportion of participants use edtech for learning and community support, however, it was also reported to cause increased incidents of anxiety and exposure to online harassment. These patterns bring to forth underlying vulnerabilities and risks with digital engagement and participation in a conservative society like Pakistan.

Another important theme that emerges from the discussion is that fact that despite these strong barriers, queer individuals show extraordinary resilience and agency. Their motivation to learn, explore, and connect is remarkable. They attributed the credit to their desire for personal growth, skill development, and community support. This points out the transformative potential of EdTech when it enables an inclusive and accessible ecosystem.

Revisiting Research Questions through Themes

The research was designed to examine how queer individuals in Pakistan engage with educational technologies, what barriers they face, and what motivations shape their interaction with digital tools. The findings reveal that queer users do not approach EdTech as a resource for learning skills alone. They perceive and interact with Edtech for their survival, identity, and connection. Their consumption of Edtech content relies on managing trauma, finding others like them and knowing about themselves. This finding adds new perspective to conventional understandings of "educational technology" by indicating the learning takes places informally, emotionally, and relationally for the marginalized individuals.

By and large, the research findings validate and extend existing literature on emotional and critical pedagogies (hooks, 1994; Ahmed, 2004), queer digital platform use (Duguay, 2020), and experiences of marginalized digital learners (Selwyn, 2011; Noble, 2018). Yet, the findings clearly challenge the common framing and portrayal of marginalized users as passive recipients of access. Instead, the findings highlight that these learners actively create and shape their own knowledge spaces under limited resources. More often they do it in defiance of the very systems and structures that were designed and continuously seek to exclude and silence them.

Where the Framework Worked

The Technology Acceptance Model (TAM) offered an initial model to understand how users interact with digital tools - particularly through ideas such as perceived utility and ease of use.

However, participants' experiences broadened these definitions to include emotional safety, peer support, and sensitivity to privacy. For example, a tool was only "useful" only if came if it could be used without risk of outing and harassment. Similarly, and only "easy to use" if it was recommended by a trusted queer peer. These insights show that TAM can be more meaningful when its logical assumptions are complemented with social and emotional experiences of marginalized users.

Digital Divide Theory was effective in identification and contextualization of structural barriers like limited access to devices, internet and information, financial constraint and infrastructural challenges. All these factors act as fundamental barriers and inhibit digital participation for the queer individuals. It also helped in laying background knowledge about underlying deeper and systematic causes and framing how broader inequalities across geography and class interact and intensify digital marginalization for the queer community.

Intersectionality was a poignant perspective in understanding how various dimensions of identity such as sexuality, gender, class, language, and location interact to shape user experience. It was of great help in making sense of role digital marginalization plays in lives of participants through multiple overlapping forces of identities

Reflexive Critique of Theoretical Models

While the selected frameworks in the conceptual model provided a robust starting point, they demonstrated limitations of digital engagement for queer users in Pakistan. It was gauged that TAM ignores the impact of factors emotions, psychological factors and learning through peers. Repeatedly, participants described that they didn't always adopt tools because of their potential benefits, their choices were based on tactful use – mostly based on intuition, emotional safety, or community dynamics. This challenges TAM's narrow focus on rational functional approach and aligns with Butler's (1990) theory of performativity, which argues that digital behavior is not a functional choice but can be a form of identity negotiation and survival.

Likewise, Digital Divide Theory presents a partial view of queer realities. It often frames access in terms of binary categories: connected or not connected. This binary thinking disregards the complicated way queer community uses digital tools. For instance, some participants had smartphones (connected) but not privacy; others had internet access but they were often vigilant of tracking and control. These accounts reflect Haraway's (1988) notion of situated knowledge,

which highlights that access is not just a material condition but can be an experience mediated by social and cultural expectations. In other words, the forces of identity, power and context shape access. In this queer context, this certainly appears to be valid.

Intersectionality theory effectively explains structures of overlapping oppression that shape digital experiences. However, it, sometimes, fails to capture the nuances of multiple identities and poses the risk of oversimplifying the complex realities of individuals. In essence, it reduces their lived experiences to fixed identity categories such as gender, class, or sexuality. As witnessed from the participant's discourse, a queer person in a rural area with limited English skills faced different, at times much harsher, barriers than an urban, English-speaking counterpart. Even though both shared the same identity label. An intersectional perspective must stay relevant to fluid, context-specific differences and the model must expand to incorporate for these specificities and intricacies of how identities are lived and experienced as opposed to reducing individuals to generic categories.

Importantly, none of the frameworks fully explained EdTech as a political space. Drawing on Foucault's (1977) analysis of power and surveillance, it becomes clear that digital learning tools are not neutral or apolitical entities of knowledge and are embedded in systems of control, normativity, and visibility. Participants unanimously described platforms as both enabling and threatening spaces of self-expression and self-censorship, of empowerment and exposure. This duality was notably sharp for queer learners that navigate fragile boundaries of identity and safety in repressive cultures.

Toward a Queer EdTech Perspective

Although development of a new enriched theoretical model was beyond the scope of this study, the findings point toward the necessity of evolving our frameworks to integrate complex realities of queer individuals.

It requires reconceptualizing our understanding of what constitute as 'marginalized'. In the traditional sense, it is defined as someone with lack of access or literacy in an educational context. However, that definition needs a revisit as the queer community is active, but they have been excluded by the conditions produced by cultural, linguistic, legal, and technological systems. Participants were not "left behind" they have been pushed to the edges and silenced through erasure, fear, and surveillance.

It also warrants a reimaging of the term 'education/Learning' so that it integrates learning that is informal, emotional, identity-based and survival-driven. Learning occurred through memes, reels, DMs, and vlogs. These are considered more valuable because they lead to a form of coping, healing, and finding meaning. In theory, bell hooks' (1994) vision of "education as a practice of freedom" explains this condition aptly.

Notably, it can be inferred from the analysis that EdTech functions not as a neutral space. The queer community, however, views it is a contested space which exacerbates systematic inequalities, cultural dissonance, power asymmetries, and surveillance. The core problem in a conservative society is that digital platforms are reflective of dominant, cis-heteronormative, Western-centric, and commercial priorities. For queer individuals in Pakistan, digital engagement under these assumptions is devoid of their lived realities, safety needs, and cultural contexts. However, the community has developed an adaptive response mechanism by reappropriating these tools. Some of the responses entail bypassing algorithmic visibility, fostering peer-led support systems, and building emotionally resonant, open-source learning spaces and knowledge sharing forums. These acts can be explained by what Harney and Moten (2013) term *fugitive planning,* which is the creation of alternative educational pathways within and against systems as resistance.

Based on the analysis, it is safe to assert that EdTech typically promises to promote equity, access and empowerment. Nevertheless, it also possesses malicious potential to reproduce patterns of exclusion, surveillance, and control. Therefore, EdTech should not be viewed simply as a form of innovation and advancement, but also as a space where marginalized individuals negotiate visibility and safety, resist normative structures and digital control, and reimagine alternative uses of what education can mean and look like.

In the existing literature, the queer community is framed as passive consumes of knowledge, instead of active contributors (Kitzie, 2017). However, our findings challenge this fixed assumption. Through their active digital participation in the form of content sharing, peer mentoring, and discussions, the queer individuals were creating and exchanging knowledge. In doing so, participants helped build informal learning ecosystems that clash with the established academic belief about what and how education should look like. This transformation from recipient of knowledge to active agent is defined by Freire's (1970) as *pedagogy of liberation.*

Finally, it can be inferred from participants' narratives that at the heart of queer digital learning lies a deep emphasis on identity-based education. Although they value acquiring facts or conducting analysis, for them, exploration and discovery about themselves and connecting with others is a priority. In their view, learning is fundamentally about "becoming" and identity understanding. This view, however, varies from the traditional conception of education. In the conventional understanding of education emotional and psychological aspects such as discourse, identity, and lived experiences are not considered valid forms of knowledge. Ultimately, the aspiration for a dignified and respectful life, to be heard and understood is focused by them just as learning. These insights necessitate better educational models that view learning as an act that integrates emotional, embodied, and political dimensions.

The findings help in refining our preconceived notions of how the queer community interacts with digital media spaces - particularly edtech content, tools, and platforms. Based on the analysis above, it can be concluded that the community acts as a dynamic creator of knowledge. Contrary to the existing perception, they connect with digital environments much more actively and with a greater sense of empowerment, awareness of safety, and focus on identity. The findings reveal that that the community has developed survival and coping mechanisms despite hostile environment and continuously negotiate their power against social barriers. They are already actively learning, teaching, and resisting design. They engage in content creation and build emotional and learning support systems, which show their agency in digital participation.

By recognizing informal, emotional learning as an effective educational practice, the study opens new pathways for EdTech that are not only more inclusive but more attuned to the lived realities of users negotiating issues of power, identity, and access simultaneously. It, essentially, means revisiting traditional approaches and definition of education to better reflect and include queer perspectives and catch up with their realities.

However, the discussion above raised some practical questions about the real purpose of education and offered answers in the analysis section. If queer individuals are already learning, collaborating, and resisting through informal and digital spaces, it prompts us to ask: what, then, is education truly for? and if learning is already happening outside traditional systems, we must ask: what, then, is the true purpose of institutional education? who education is for, what counts as valid knowledge, and how learning happens. Another question arises because the kind of learning

happening in queer context is emotional, embodied, and rooted in identity. Is education just for transfer of information, or should it also consider emotional and identity focused knowledge and empower marginalized voices? Finally, it is safe to say based on the above analysis that existing systems often fail to serve marginalized queer communities (Imtiaz, Ahmed, & Rafiq, 2023). Queer individuals navigate actively and reshape digital tools to meet their own needs, in spite of risks and institutional exclusion. This raises the deeper issue of who current education systems are really built for and who is being left behind.

Conclusion and Recommendations

Summary of Key Findings

This study's findings suggest a need to rethink foundational assumptions in educational technology research and practice, especially when addressing queer learners in restrictive environments. First, it reframes *marginalization* as an active condition produced by socio-cultural systems such as language exclusion, algorithmic surveillance, and gender normativity, rather than merely a lack of access to tools or infrastructure. Second, it broadens the definition of what constitutes *education. Leaning for several queer* users is emotional, informal, and often driven by needs for safety, self-knowledge, and psychological survival. Third, it calls into question *EdTech itself as a non-neutral space, which shows* that platforms are not universally inclusive but shaped by systemic inequalities built in their design, moderation, and data governance. Fourth, the findings reveal that learners in marginalized contexts are not passive users but *active knowledge co-creators*, who navigate several risks, curate resources, and guide peers within distributed digital learning networks. Lastly, the study affirms that *emotional and identity-affirming learning* is fundamental to pedagogical engagement in digital spaces. Based on these insights, context-sensitive, safety-oriented, and culturally responsive approaches to EdTech design, policy, and pedagogy are much required to make reforms for the queer community.

Recommendations for Policy, Practice, and Research

The following set of recommendations can be instrumental in fostering an inclusive, safe and encouraging milieu for EdTech designers, educational institutions, and policymakers and practically translate insights from the findings to practical strategies:

Policy

1. **Legal Protections and Policy Frameworks:**

Ensure anti-discrimination laws and digital rights protections to protect queer individuals in the edtech context. This must include provision of anti-harassment laws within the broader digital policy framework and assurance of gender inclusion and mitigation of potential harm.

2. **Inclusive Curricula:**

Promote and foster gender, linguistic and cultural diversity through integration of inclusive educational content in digital spaces. These resources should encompass local realities and cultural histories available in regional languages. They should avoid the fallacy of one-size-fit-all Western approaches.

3. **Support for Grassroots Initiatives:**

Prioritize funding and infrastructure development of remote and underserved regions. Focusing on the development of low-cost and community-led digital literacy initiatives can help eliminate structural causes at the grassroot level.

Practice

1. **Digital Literacy and Safety Training:**

Develop community-led digital literacy and safety training programs catered to the needs of queer individuals, especially those in rural or low-income areas. These sessions can give effective trainings on protecting personal information, using secure communication tools, and reporting online harassment.

2. **Community-Led Content Creation:**

Actively involve queer individuals in creating and shaping edtech tools and content. When people contribute directly, the results better reflect their lived experiences, cultural context, and actual needs—making learning more relevant and affirming.

3. **Inclusive Content Moderation:**

Establish clear transparent content moderation and reporting systems to protect queer individuals from abuse. The objective of these systems should be to actively prevent censorship or silencing of queer voices and enhance their contribution.

4. **Trauma-Informed Pedagogies:**

Institutions and digital platforms should consider the challenges such as emotional strain and vulnerability placed on marginalized users that they face during digital learning process. The Design process must prioritize anonymity, participation from the queer community, and non-linear learning trajectories to them cope with the impact of emotional challenges.

5. **Peer-Led and Decentralized Learning:**

Promote peer-led and decentralized learning through moderated online groups, encrypted resource sharing, and user-curated content. These approaches help foster trust, resilience, and relational learning, especially in high-risk environments where safety is a constant concern.

Research

1. **Intersectional Analysis:**

Focus research highlighting queer experiences across gender, class, age, language, and location. Intersectional approaches provide enhanced frameworks to understand barriers and opportunities for marginalized communities.

2. **Emerging Technologies:**

Promote thorough research on the implications and create awareness about the potential threats and opportunities posed by new digital tools, platforms and emerging technologies like AI, mobile apps, encrypted messaging. The impact of these technologies on accessibility, privacy, and safety for marginalized groups must be prioritized.

3. **Co-Design and Participatory Methods:**

Future research should adopt participatory action research and co-design methodologies. This strategy would ensure queer individuals lead the process of future research outcomes and agendas and help reducing biases and enhancing research relevance.

To foster accessible and inclusive learning, stakeholders must address existing barriers. At the same time, they must promote and encourage the enabling factors mentioned above through targeted interventions, inclusive design, and supportive policies.

Limitations and Future Research

The study highlights valuable insights into the enabling factors and constraints of using digital learning for the queer individuals in Pakistan, however, it is not without limitation. Future research should illustrate the long-term impact of digital learning on queer identity development, mental well-being and community-building in more depth. It can also examine the effect of local, culturally relevant edtech solutions which are co-created with marginalized users on their understanding. Exploring the role of factors such as language, platform design, and algorithmic bias could underscore ways digital spaces exclude and discriminate against marginalized communities.

Final Reflection

The research reflects the complex nature of relationship between educational technology and queer learners in oppressed societies such as Pakistan based on narrative and lived experience of participants. The findings underscore ways through which access, safety and representation shape digital participation in the queer community. As educational technology evolves and presents opportunities to enhance learning opportunities, critical attention needs to be paid to the context under which digital learning occurs as educational technology mirrors deep rooted socio-cultural conditions. To address the unique challenges faced by LGBTQ+ individuals, inclusive policies, better representation in edtech context and targeted support can lead towards equitable learning environments.

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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.

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Appendices

Appendix I: Interview Guide with an Informant's Responses

In-depth interview Guide for Investigating the Impact of Educational Technology on the Queer Community in Pakistan

- Purpose: To examine and analyze the experiences and perceptions of queer individuals in Pakistan about their use of digital educational resources.

- Confidentiality: Highest level of confidentiality will be maintained and the use of anonymized data for academic purposes only will be ensured.

- Consent: By all means, the informed consent will be obtained and it will be ensured that the participants feel comfortable proceeding.

Section 1: Usage Patterns, Needs, and Attitudes

1.1 Background and Access to Technology

- How did you first come into contact with digital technology? What did you first think of it?

I first used in 2008 and Yahoo and Google

- What devices do you currently use to access online educational resources? Like smartphone, tablet, and desktop computer

- How reliable is your internet access, and how does this affect your ability to use digital educational resources?

1.2 Usage Patterns

- How do you find or choose the educational resources for queer purposes you use?

Exploring myself and trans documentaries and books, I read about transition, and I was exploring myself and transitioning. What other purposes? I used to learn dance and to know more people in the dance industry and I am learning dancers from India. I am using Zoom and Insta.

1.3 Needs and Preferences

- What prompted you to seek out digital educational tools initially as a queer person? Were there specific events or needs?

Because I did not have people around me to whom around me who can guide me and I could not express me and how I felt and know more.

- Which aspects of digital educational platforms as a queer person have been beneficial?

Meeting non judgmental people and people who listen and accept myself. People were listening.

What types of content on digital resources do you feel should be available to you?

Whatever I try to find I get information. But when there are not many resources on transitioning of examples from my own community and what they have been through but there have been inspiration from other countries. Now there is much better information.

To connect with people and to meet friends and I tried to connect people from India and Pakistan and they are working in other countries and being a dancer. They are professional dancers and choreographer.

1.4 Attitudes towards Educational Technology

- How satisfied are you with the digital educational resources for queer education currently available? What would improve your satisfaction?

I am really satisfied and when I compare it to five years back and the situation ios really good.

- Do you feel that these technologies cater to your specific educational needs as a member of the queer community?

- How do you perceive the role of digital education as a queer person in your personal and professional development?

Section 2: Challenges and barriers

2.1 Personal and Societal Level

- Do face problems in using digital educational resources? If yes, what kind of?

People are using digital resources like Youtube and whatsapp and Coursera. Many transgender do not use it because they think they need computer and they are not awareness. Underpriviledged transgender people dance at weddings and work as sex workers, they do not use computer despite the fact they have design diploma. They can use their phones.

Language barrier exists but they do not know how to sell it.

Internet connection in rural areas is another issue. I cannot have online classes from Indian teachers as a dancer.

- How do societal norms and prejudices impact your use of these resources?

I do not think digital resources is due to pressure from the society. Everyone is using tiktok.

- Are there specific incidents where societal attitudes have directly hindered your use of digital educational tools?

No, I have not faced any problem and digital technology when it comes to technology.

2.2 Content and Representation

- How well do you think digital educational content addresses issues relevant to the queer community?

No, Netflix and Youtube and social media is not relevant to my country. Even youtube documentaries focus on surface level issues but not the problems and challenges are not addresses. Content creators are not exposed to the ground realities, and they believe on the perceptions. Such as they are born these ways and use the stereotypes. Now, the transgenders are transitioning, and Netflix shows even see them in a stereotypical life. Misery is highlighted and their lives are not about miseries, but no celebrations are not highlighted. We are not talking about gays.

- Have you ever felt misrepresented or excluded by the educational materials you accessed online? Please describe such an instance.

As a classical dancer, I have been portrayed in the positive light in a conservative country and it has helped me get appreciation and respect and encouragement.

- What improvements would you like to see in the representation of queer identities in digital education?

Mental health issue a major issue and no one is talking about it.

Listening ears and jobs and awareness. Many queer people have learned dance and we can give them platform and representation can be improved and empower them in their rights and voices and awareness.

Why are more queer people in arts? Because they are more delicate and into aesthetics. May be it is the perception that they are good in arts many are not and common person can be better. But arts give themselves an escape and they create great art to express themselves.

How without changing the structures of the society how do you accept changing in uptake of digital resources?

Digital education can help the people to change their mindset and focus on work

2.3 Safety and Privacy Concerns

- Have you experienced any breaches of privacy or security concerns while using online educational platforms?

I am more aware. I am privledge and I can read and write. Online security is knowne to me that's why never a breach happened to me and people who are not aware, might be blackmailed.

- What steps do you think could be taken to enhance the safety and privacy of users like yourself on these platforms?

Awareness is one thing is very important. It is not limited to queers. But we need to inform about rrights, harassment and educational courses must be introduced in Urdu language. And we need to translate.

- How important is the anonymity feature in digital educational tools for you?

The anonymous is important as people are scared for their safety and we value that. It is fear that still prevails.

Section 3: Factors Influencing Willingness to Leverage Digital Education

3.1 Influential Factors

- What are the key factors that encourage or discourage you from using digital educational tools?

Not enough money and internet provided the reason to reach out to people. So financially problems led me and everything was free.

There were no teachers that I knew and I connected me to people and create professional opportunities.

Boundaries are created mental blockade. It is important to provide encouragement.

- How does your socio-economic status affect your access to and use of digital educational platforms?

To some extent, yes. Class system does not matter. I have faced many challenges because of lower middle class and in learning challenges but I stood firmly. I was bullied because of my rural class and lower class and because lack of exposure and network.

- Can you discuss any cultural or familial pressures that affect your engagement with digital education?

Cultural and familial may not affect social media. 100 ways to learn. When it comes to dating apps and connecting with certain communities, it can be a pressure. You have the ways.

3.2 Community and Support

- How do you leverage community support to improve your digital educational experiences?

It is essential and you create a circle and friends to have a support system. Community can help you in order to support you in case there is harassment and bullying. I was into drugs and people from the community helped me and they helped me to connect to professional therapists. We have to use them mindfully. I found Indian teachers through digital media through Insta, Youtube and Facebook.

- Are there online or offline communities that you participate in that focus on education for the queer community?

There are support groups in Karachi and other groups on learning group on facebook. There are whatsapp group for advocacy and employment for queer persons. The learning group focuses on were education and skills in a specialized field and we help each other. Also, for transgender.

- What role do these communities play in your educational journey?

Very supportive and positive role in terms of learning and wellbeing and having support.

The way transgender will use gay and transgender will use digital resources will use it for same reasons or different?

The rural queer people and urban people behavior patterns:

Access to sex is the main focus for rural areas. The focus on urban areas on identity exploration and professional development. But there are always exceptions

3.3 Future Expectations and Desires

- What changes or developments in digital education do you feel will most benefit the queer community?

- What are your personal hopes for the future regarding the use of technology in education?

- How could educational technology be used to combat discrimination and promote inclusivity for queer individuals in Pakistan?

Yes, it can play a role and we should make education more inclusive by sensitizing people about the challenges of the queer people.