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# Cyberethnography in Primary Education Digitally Mediated Classrooms

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## Abstract

This paper focuses on the methodological choices, obstacles and solutions in our attempt to develop of a methodological framework for cyberethnography, while researching the pedagogical practice in digitally mediated classrooms in primary education. The paper, at large, is an account of our initial attempt to research digitally mediated classrooms. We aim to discuss the notion of cyberethnography both in terms of methodology (Addeo & D'Auria, 2022) and the process followed for the acquisition of access in the digital classrooms. Finally, we will discuss how "fast-tracked" policy implementation and realisation affects not only the act of schooling but also the research around schooling and education, by minimising access and possibilities of research. Theoretically, in this paper we made the choice of using the notion of cyberethnography over the notion of digital ethnography (Delli Paoli, 2022). We use and understand cyberethnography, as an ethnography realised in virtual spaces and digital ethnography as an ethnography that uses digital means. This distinction aims to support a methodological ethnographic research approach in a rapidly digitalised education system.

**Keywords:** cyberethnography, digitally mediated classrooms, education policy, primary education

## Introduction

Due to Covid-19 pandemic several European countries shifted to the use of distant learning in primary education. In Greece distant education took the form of digitally mediated classrooms, named "tele-education" within the Greek policy context. The Greek case is presented aiming to offer the Greek experience for discussion and comparison. This paper discusses how the implementation of a "fast-tracked" education policy for the enabling of digitalised education due to the COVID-19 Pandemic affected qualitative educational research, and particularly the possibility of school ethnography and classroom observations. The paper derives from the research project "Policy Enactment and Pedagogical Practice". The aim of the project is centred around the organisation of the pedagogical practice within primary education classrooms focusing on the role of time and space, symbolic interaction, and education policy.

In March 2020 the first COVID-19 lock down was imposed in Greece and within two months digital education was established through numerous and diverse in focus legislations (Eleni, 2023) for primary and secondary education for the first time. This paper focuses on the methodological choices, obstacles and solutions in our attempt to develop of a methodological framework for cyber ethnography as the methodological design for the research of the pedagogical practice in digitally mediated classrooms in primary education. The need for this methodological exploration is highly linked to education policy, as at the time, the newly introduced policy of digitally mediated classrooms was realised within primary school classrooms for the first time, introducing a new set of research obstacles for qualitative educational research.

## Setting the context of the research

The paper derives from the research project "Policy Enactment and Pedagogical Practice", project code: 5600.02.10.01, funded by the Department of Primary Education, University of Thessaly and at large, is an account of our initial attempt to research digitally mediated classrooms. The research project was initially designed and developed as a basic ethnographic research utilising in-classroom observations within primary school classrooms, face-to-face interviews with teachers and school principals, and collection of sociocultural information related to each school and its population. The aim of the project was centered around the organisation of pedagogical practice focusing on the role of time, space, symbolic interaction, and education policy. Due to the COVID-19 lockdowns, the project was methodologically redesigned in terms of the methodological techniques utilised, while simultaneously attempting to keep the epistemological elements of ethnographic research.

The methodological redesign starts after the initial lockdowns and at the time whereas the education policy legislation established the widespread use of distant education as in Greece the educational structures remained closed approximately for 37 weeks. Tele-education, that is the term used in the Greek education policy for the description of distant education during the Covid-19 pandemic was developed via a set of policy decisions (Circular 151977/ΓΔ4/2020; Joint Ministerial Decision 120126/ΓΔ4/2020; Law 111525/ΓΔ4/2021; Law 4675/2020). These policy decisions illustrate the evolving governmental response to maintaining educational continuity during the COVID-19 pandemic in Greece, highlighting the shift from optional to obligatory digital learning and the technological frameworks supporting it. During the initial phase of distant education in primary education, there was an attempt for tele-education to retain a pedagogical structure close to the face-to-face classroom methods. However, inevitably there were also some adjustments such as the reduced lesson time and the different classroom management techniques.

## Methodology

Methodologically, this paper offers a reflexive account of research in relation to policy, using policy sociology (Ball, 1997). It derives from ethnographic research adapted for virtual and digitally mediated classrooms (Kolokitha et al., 2025). To examine pedagogical practice in these environments during crises, we adopted cyberethnography rather than digital ethnography (Delli Paoli, 2022), distinguishing cyberethnography as ethnography conducted in virtual spaces, and digital ethnography as research using digital tools. This distinction supports an ethnographic approach amid rapid digitalization in education.

Data collection involved systematic lesson observations and teacher interviews capturing the sudden shift to emergency remote learning during the Covid-19 pandemic/tele-education in real context (Yin, 2014). Two full-day observations occurred in rural primary classrooms (grades 1 and 2), with students aged 6-8, alongside interviews with their teachers (T1 male, T2 female, both permanent with ~10 years" experience). Despite limited observation days, these data represent rare, real-time insights into home-school interactions and parental mediation in pedagogical processes. As both schools were located in rural and remote areas suggesting that in terms of educational research, cyberethnography offered the possibility to access remote schools which had never been previously researched from a qualitative standpoint.

Observations focused on verbal and nonverbal interactions on the digital platform, including speech, gestures, camera use, and emojis, with timestamps and virtual space recorded. Two researchers simultaneously collected data during each session and the

subsequent teacher interviews, which were shaped by observed themes. Grade 1 included nine students all using cameras throughout, while grade 2 had five students, with only the teacher using the camera during the lesson; all participants used cameras before, after, and during breaks, enabling notes on home environments.

Ethical approval was granted by the University of Thessaly's Department of Primary Education Ethics Committee for the project "Policy Enactment and Pedagogical Practice" (code 5600.02.10.01). All participants provided signed consent. Approximately ten primary education teachers were initially contacted through established networks; however, despite positive responses, headteachers declined participation due to the absence of a clear policy framework for digital observations.

### ***Online observations***

Observations were carried out in two different grades. In the A grade classroom, there were nine students, including and two students of Albanian descent for whom Greek was not their first language. The mothers of these two students also did not speak Greek. During online lessons, all students in this class had their cameras turned on, allowing for a higher degree of visual engagement and interaction.

In the B grade classroom, the school operated with small, combined classes, and the observed class consisted of only five students. Among them was one student of Albanian descent, again with Greek as a second language and a mother who did not speak Greek. In contrast to the first grade, only the teacher had their camera on during online sessions, which significantly limited the level of visual interaction between students and the teacher. This was explained by the participants because they realised that there was not a distinct agreement between the Ministry of Education and the platform, which facilitated the tele-education, in relation to security of participants' personal data, the storage and future use of that data.

While the tele-education platform facilitated the rapid transition to remote learning in Greece, the unclear policy framework governing the use of data has implications of access and data collection and highlights significant ethical considerations while researching tele-education

### ***Online interviews***

In addition to classroom observations, online interviews were conducted with the teacher of each classroom. These interviews provided valuable insights into the challenges and dynamics of teaching in a digital environment, especially in rural and isolated settings where linguistic and cultural diversity, as well as technological access, play a significant role.

## **Results: Highlighting methodological and research issues**

The study identified several key results relevant to both methodological and research concerns in the context of digitally mediated schooling. As the research interest was centered around the organisation of pedagogical practice focusing on the role of time, space, and symbolic interaction, the brief presentation of results follows the same thematic areas.

In relation to time, it was clearly identified the compression of school time. The shift to online learning led to reduced teaching hours and the disappearance of traditional breaks, resulting in a much faster pace of instruction. Additionally, the virtual format introduced the possibility for students to leave the lesson at any time, often simply by switching off their cameras, which further complicated classroom management and engagement.

The extension of the school space into the digital realm was another significant development. Private spaces such as homes, rooms, and gardens became integral parts of the pedagogical practice. This shift meant that elements like household noise, the movement of people, furniture, and even the architecture and decoration of the home environment began to influence the learning process. Cultural and family dynamics, which were previously separate from the classroom, now openly intervened in educational activities. Furthermore, the digital mediation of school space became increasingly diversified, depending on the technology used by the student—whether a tablet, mobile phone, or personal computer. This technological variation contributed to differences in students' learning experiences and interactions.

The nature of classroom interactions was fundamentally altered. The absence of non-verbal cues—so important for knowledge transmission, correction, evaluation, control, and support—posed significant challenges. Interaction between teachers and students became minimal, especially when cameras were turned off, further reducing opportunities for meaningful engagement and feedback. Overall, these results highlight the profound methodological and pedagogical shifts brought about by the transition to digitally mediated education, raising important questions for future research and practice.

### ***Cyberethnography: Theoretical perspective***

Methodologically, the article uses an approach that can be described as "cyberethnography in digitally mediated classrooms." We chose to employ the concept of cyberethnography rather than digital ethnography, following the perspective outlined by Delli Paoli (2022). This distinction is important for understanding the nature of the virtual environments we study, namely the digitally mediated classrooms. Tele-education as presented before does solely lie to the virtual world but allows and promotes a blended environment attempting to align to "in vivo" classroom environments. This element diversifies digitally mediated classrooms from other virtual classrooms whereas the notions of virtual and/or digital ethnography have been used. For instance, in virtual worlds such as Second Life (Firat & Kabacki Yurdakul, 2011; Huang, 2024; Minocha et al., 2010; Sponsiello & Gallego-Arrufat, 2015) or World of Warcraft (Golub, 2014; Nardi, 2010; Pragnell & Gatzidis, 2012), which have been used for educational purposes and have been ethnographically researched (Pragnell & Gatzidis, 2012), users are represented by avatars rather than their real-life identities. Digitally mediated classrooms during tele-education also contrast with other digital spaces like chat rooms, where participation is voluntary, occurs on the users' own time, and is centered around selected themes. In chat rooms, participants can leave at will and are not subject to formal evaluation. These characteristics differ markedly from the structured context of primary education tele-education, where factors such as students' age and the socioeconomic status of their parents influence participation and engagement.

The use of the notion of cyberethnography in academic literature is rather limited in relation to educational research. For almost 30 years, cyberethnography has been used for the research of virtual communities (Ward, 1999) and virtual consumer communities (Akturan et al., 2009). However, one of the first instances of the notion related to education research is in 2011 by Keeley-Browne where she studied a Virtual Learning Environment focusing on the empowerment of professional educators (Keeley-Browne, 2011). During the COVID-19 pandemic the term reappears in limited educational research that focused on "pedagogical and practical concerns in remote higher education" (Trinidad et al., 2021). As no educational research focusing on primary education was identified we proceeded in defining cyberethnography as ethnographic research conducted within digital spaces that focuses on

the lived experiences and interactions occurring there. Cyberethnography is located within the qualitative interpretive paradigm (Keeley-Browne, 2011). In contrast, digital ethnography refers more broadly to ethnographic research that utilizes digital tools and methods but is not necessarily confined to virtual environments. Even though the two terms sometimes are used indistinguishably and utilised for research in both virtual environments and non-virtual, we move into their distinction as to highlight the need for a specific, solely virtual modality of ethnography, as that need was presented to our research during the pandemic.

Furthermore, the methodological distinction between these approaches lies in the techniques required to capture pedagogical and symbolic interactions, which are fundamental elements of the teaching practice—especially in the early years of primary education.

Both Hine (2015) and Pink et al. (2016) works define ethnography in digital contexts as a methodology that addresses the complexities of digitally mediated life, requiring new frameworks for fieldwork, interaction, and presence, and necessitating innovative, reflexive approaches attuned to the hybrid nature of social experience today. Suggesting that digital ethnography is a broader concept that includes research on digital technologies" roles in everyday life across online and offline realms, incorporating innovative multimodal and sensory methodologies, though cyberethnography often refers to ethnographic research focused specifically on online environments and networked sociality, treating digital platforms as the primary "field."

Cyberethnography demands specific strategies to observe and interpret these interactions as they unfold in virtual classrooms, where the dynamics differ significantly from traditional face-to-face settings. We hope that our attempt for this theoretical clarification helps frame the research approach and justifies the choice of cyberethnography as the most appropriate method for studying digitally mediated pedagogical practices in primary education.

### ***Cyberethnography: Techniques, instruments, and methodological obstacles***

The rapid implementation of tele-education policies during the COVID-19 pandemic created unique challenges for qualitative research as there was no pre-established methodology for qualitative data collection in such contexts beyond traditional interviews via digital means. At this section we describe the design and use of both interviews and observations within digital mediated classrooms. The interview structure retained the logic of in-person conversations but incorporated a dedicated focus on technological challenges. The interview included questions about how tools like sound, image quality, and internet connectivity directly impacted on pedagogical practices. This approach acknowledged technology as both a medium and a disruptor of teaching. It should be acknowledged that these challenges have an impact on research, with technology both as medium and as disruptor. For example, the sound quality has an impact on research practice, as well.

For the observations the research team had to reconceptualize the notions of time, space and interactions so that the concepts can include the virtual characteristics of the classroom. The key elements were related firstly to the compression of instructional time due to shortened online sessions but also to the freedom of students to "walk-in or out" of the virtual classroom at any point of time and with diverse time of absence.

Secondly, to the extension of school spaces into homes, a factor that introduced variables like household noise and family presence. Thirdly, a virtual set of non-verbal interactions (e.g., emojis, chat messages) were in place alongside physical gestures (e.g. movements, facial gestures) that required new observational techniques in order to be recorded.

Further to the above, we acknowledged further technical limitations related to the recording of sound which necessitated the use of multiple external audio recorders for accuracy. Finally, recording detailed observational notes for time, space and interactions was essential. As we observed consisted of a small number of students, two researchers observing simultaneously captured effectively the dynamics. However, in larger group settings, the complexity of digitally mediated interactions would demand the involvement of additional researchers to ensure comprehensive data collection.

### ***Cyberethnography and the acknowledgment of research stratification by class, language, age, and digital access***

Within the process of redesigning the data collection of the study we investigated the possibility of incorporating data from multiple digital communication platforms commonly used during tele-education, such as Viber, the school's e-class platform, and email. These channels were explored as in some schools they represented the primary means through which teachers, students, and parents communicated and managed schoolwork during remote learning, thus capturing a comprehensive picture of the tele-education experience. However, this data collection approach was ultimately deemed impractical due to significant stratification factors related to age and language proficiency. First, the age of the students posed a fundamental limitation, as younger learners were generally unable to independently access or use these communication tools. Second, the lack of written Greek-language skills among some parents in both classrooms further complicated the use of these platforms. This linguistic barrier led teachers to decide against incorporating social media and digital communication as a support mechanism of the digital lessons.

Moreover, both teachers consciously chose not to use platforms such as Viber or Facebook for school-related communication, viewing social media as non-institutional and thus inappropriate for official educational interactions. In addition, students were using diverse digital devices, mainly tablets and mobile phones, which they had to share with other members of their family. All the above, in essence underscore the necessity of acknowledging stratification by class, language, age, and digital access within cyberethnographic research. They reveal how socio-economic and demographic variables influence not only the modes of communication available but also the feasibility and design of research methodologies in digitally mediated educational contexts.

### **Conclusions**

Concluding our account on the use of the notion of cyberethnography as a methodological framework for ethnographic research in digitally mediated classrooms, we highlighted the major qualitative research-related concerns during the period of tele-education. The shift to tele-education during the Covid-19 pandemic brought about significant challenges and limitations in educational research, particularly in qualitative methodologies that led to the minimisation of qualitative ethnographic research due to the absence of an established online theoretical framework. This gap hindered researchers' ability to fully explore and understand the nuances of tele-education. This methodological constraint meant that more immersive and interactive research typologies, such as ethnographic and action research, were largely absent from educational studies throughout the two years of the pandemic. The lack of these approaches limited the depth and richness of insights into students' and teachers' lived experiences in remote learning environments.

Access to research participants and data was further complicated by fast-tracked policies implemented during the pandemic. There was a notable absence of a clear legal and institutional framework defining responsibilities for providing access to educational settings and data. This uncertainty, combined with penalisation elements embedded in policies, created obstacles that effectively excluded researchers from gaining necessary access. In particular, concerns over personal data protection led to the denial of access to visual data, as policy-level safeguards were considered insufficient.

Interestingly, access to tele-education research varied depending on the context. Small-scale rural schools found it easier to participate in studies, largely because decision-making rested with a small number of teachers and participation was seen as a form of support during challenging times. Additionally, cyberethnography emerged as a valuable method to study schools in remote locations, offering new avenues for research despite physical barriers. However, access to social media communications used in tele-education was restricted by age limitations, language and socioeconomic factors.

This study highlights the need for more up-to-date technology infrastructure to capture all possible interactions and the demand for more researchers in cyberethnography, as participants may be less likely to agree to be recorded, particularly when children are involved. Finally, the policy changes raised questions about who is authorised to have access and who authorises access to data. Our research underscores the need for flexible, ethically grounded cyberethnographic frameworks to study digitally mediated education. In our view cyberethnography emerged as a critical tool a) for the investigation of digital mediated classrooms and virtual pedagogical practices in real time, b) the recognition and documentation of inequalities arising from digitally mediated education and c) for the adaptation of methodological qualitative techniques to capture interactions in hybrid spaces.

This study has foregrounded the methodological evolution necessary for conducting research in digitally mediated primary education classrooms during the COVID-19 pandemic. Through our experience, we demonstrated that cyberethnography is not merely a transplantation of traditional ethnographic approaches into an online setting; rather, it is a distinct methodological framework that responds to the unique challenges and complexities of digital interaction. The methodological redesign, prompted by unprecedented school closures and the introduction of tele-education policy, led to the integration of new tools and techniques tailored for remote observation and data collection. Crucially, our approach retained the core epistemological values of ethnography – such as immersion, reflexivity, and attention to sociocultural context – while also engaging thoroughly with issues of digital ethics, consent, and data security. These methodological insights not only address the contingencies of conducting research through digital platforms but also extend the possibilities for qualitative studies in future educational contexts shaped by technology.

Finally, cyberethnography entails more than adapting ethnographic tools to a new environment; it fundamentally reconfigures the concepts of "field," "presence," and "interaction" within research. The mediated, asynchronous, and distributed nature of digital classrooms introduces phenomena – such as platform affordances, digital social cues, and the fluid boundaries of participation – that require a specialized methodological lens. Drawing on established literature (Hine, 2015; Pink et al., 2016), we argue that cyberethnography has developed its theoretical and practical toolkit for understanding digital sociality in ways that traditional ethnography does not fully capture. Therefore, our study positions cyberethnography as an autonomous methodological framework uniquely suited for investigating education in digitally transformed settings.

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