

“It's so much app that I don't know anymore”: Pedagogy students' cultural practices mediated by digital devices

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ABSTRACT. This article is showing and discussing the data related to an axis of investigation of the research project 'Cultural Practices and Teacher Education', i. e. that destined to mapping the cultural practices mediated by digital devices related to students of two in-person Pedagogy courses, offered by a public institution and a private institution, situated in a São Paulo State city. Among the methodological procedures are bibliographical and conceptual research and quantitative data production. The study, to an exploratory type, collected social and economic data from the form of the National Exam of Students Performance (ENADE). Through a specific instrument collected pieces of information about the use of mobile devices in the classroom, the use of social networks, the relationship to technology with leisure time and consumption and study activity, among others. In the analysis of data are pointed out elements of the process of cultural incorporation and the process of building meanings that, in general, occurs at formative institutions. We hope that the results, besides describing elements of the cultural repertoire of Pedagogy course students', may contribute with valuable information to the thoughts about curriculum issues and professionalization of teaching and, consequently, with the improvement of the education quality. We hope too that in the crisis time, that raise the technology to a significant media communication between people, the data may offer parameters to evaluate its efficacy and its sedimentation as a cultural practice.

Keywords: teachers training; pedagogy course; cultural process; digital culture.

“É tanto aplicativo que eu não sei mais não: práticas culturais de estudantes de Pedagogia mediadas por dispositivos digitais”

RESUMO. Neste artigo são apresentados e discutidos dados referentes a um dos eixos de investigação do projeto de pesquisa 'Práticas Culturais e Formação de Professores', qual seja, aquele destinado a mapear as práticas culturais intermediadas por dispositivos digitais de estudantes de dois cursos de Pedagogia na modalidade presencial, oferecidos por instituição pública e instituição privada, em uma cidade localizada no interior do estado de São Paulo. Entre os procedimentos metodológicos estão a pesquisa bibliográfica e conceitual e produção de dados quantitativos. A pesquisa, de natureza exploratória, coletou dados socioeconômicos do questionário do Exame Nacional de Desempenho de Estudantes (ENADE) e, por meio de instrumento elaborado para tal fim, coletou informações sobre o uso de dispositivos móveis em sala de aula, o uso das redes sociais, a relação da tecnologia com o lazer, com o consumo e com os estudos, entre outras. Na análise dos dados foram apontados elementos do processo de incorporação cultural e da construção de significados que, em geral, ocorrem em instituições formadoras. Espera-se que os resultados obtidos, além de descrever elementos constitutivos do repertório cultural de estudantes de Pedagogia, possam contribuir com informações relevantes para a reflexão sobre questões curriculares ou concernentes à profissionalização docente e, conseqüentemente, com a melhoria da qualidade da educação fundamental. Espera-se também que, nestes tempos de crise, que elevaram a tecnologia ao principal meio de comunicação entre pessoas, os dados possam oferecer parâmetros para avaliar sua eficácia e sedimentação como prática cultural.

Palavras-chave: formação de professores; curso de pedagogia; processo cultural, cultura digital.

“Es tanta aplicación que ya no sé”: prácticas culturales de estudiantes de Pedagogía mediadas por dispositivos digitales

RESUMEN. Este artículo presenta y discute datos relacionados con uno de los ejes de investigación del proyecto de búsqueda ‘Prácticas Culturales y Capacitación Docente’, es decir, el que pretende mapear el destinado a mapear las prácticas culturales intermediadas por dispositivos digitales de estudiantes de dos cursos de Pedagogía, en la modalidad presencial, ofrecidos por instituciones públicas y privadas, en una ciudad ubicada en el interior del estado de São Paulo. Entre los procedimientos metodológicos se encuentran la investigación bibliográfica y conceptual y la producción de datos cuantitativos. La investigación, de tipo exploratorio, recolectó datos socioeconómicos del cuestionario del Examen Nacional de Desempeño Estudiantil (ENADE) y, utilizando un instrumento diseñado para ese propósito, recopiló información sobre el uso de dispositivos móviles en el aula, el uso de redes, la relación entre tecnología y ocio, consumo y estudios, entre otros. En el análisis de los datos, se señalaron elementos del proceso de incorporación cultural y de construcción de significados que, en general, ocurren en las instituciones educativas. Se espera que los resultados obtenidos, además de describir los elementos constitutivos del repertorio cultural de estudiantes de Pedagogía, contribuyan con información relevante para la reflexión sobre temas curriculares o relacionados con la profesionalización docente y en consecuencia, con la mejora de la calidad de la educación básica. También se espera que, en estos tiempos de crisis, que elevaron la tecnología como el principal medio de comunicación entre las personas, los datos puedan ofrecer parámetros para evaluar su efectividad y sedimentación como práctica cultural.

Palabras-clave: formación de profesores; curso de pedagogía; proceso cultural; cultura digital.

Received on April 1, 2020.

Accepted on July 15, 2020.

[...] o pensamento é nuvem / o movimento é drone / o monge no convento / aguarda o advento / de deus pelo iphone / cada dia nova invenção / é tanto aplicativo que eu não sei mais não (Gil, 2018).

Introduction

In the late decade of the twentieth century, the dissemination of personal technological devices, major or minor, that caused cultural changes, the extent of which is undeniable, but not yet sufficiently known, can be found. The use of these technologies in education and, more specifically, in classrooms has caused strangeness, tension, and more questions than answers.

Although uncontroversial, the relationship between culture and schooling is quite complicated and encourages exploratory investigations to compose an articulated framework of quantitative and qualitative information that describes the use of technologies, manifested inside and outside the school environment and objectified in attitudes, discourses, symbols, and values (Azanha, 1991). In the research project 'Cultural Practices and Teacher Training', this perspective was adopted, and the mapping of the cultural practices of students in the Pedagogy Course was made, understanding them as the bases - glimpsed, but little or partially described in the bibliography - on which the academic training of young people is developed, which, in the future, will be responsible for the education of children who attend kindergarten and the first cycle of elementary school. In understanding education as a field marked by cultural practices, it is also highlighted that school practices go beyond educational institutions (Nunes & Carvalho, 1993) and that they are institutionalized practices that have specific regulations, differentiating them from the others.

This article presents and discusses data related to one of the research axes, that is, the one designed to map cultural practices intermediated by digital devices of students from two Pedagogy courses in person, offered by public and private institutions, in a city located in the interior of the state of São Paulo. Without the intention of hierarchizing the importance of the problems that affect the teacher's education in Brazil, it is expected that focusing on elements constituting the cultural repertoire of Pedagogy students can contribute with relevant information for the reflection on curricular issues or concerning the professionalization of teachers and, consequently, with the improvement of the quality of basic education. It is also expected that, in these times of crisis, which elevated technology to the primary means of communication between people, the data can offer parameters to evaluate its effectiveness and its sedimentation as a cultural practice.

Technology and culture

It is possible to select some economic and social development milestones to exemplify the cultural changes brought about by technology. The relationship between printing techniques and the circulation of books and newspapers is an unavoidable example of this process. It could also mention that knowledge about the nature of electricity enabled the creation of radio and wireless transmission in the 20th century, breaking physical distances. Although surpassed by television in this characteristic, radios transformed into mobile and portable devices that allowed simultaneous activities, so their proliferation in kitchens, cars, offices, and other places. Television has also spread rapidly since the 1950s and, despite its high price compared to that of radio. It had the advantage of adding an image to the voice; adding even more technology, this device maintained its presence in society through successive applications of scientific knowledge, such as the creation of retransmission antennas, the process of recording on magnetic tape, the creation of networks and the selective and thematic diffusion of content, alongside mass distribution (Hoineff, 1992). If until the 1980s, television broadcasts still held people in certain places, a new technological leap with the creation of coaxial cables, fiber optics, and remote controls, shuffled objects and content, as the viewer could also be the programmer, moving between possibilities and schedules outside the pre-established grid (in addition to the pay-per-view systems). Thus, at the same time that they consolidate their symbolic value, new forms of transmission, more than networks, weave cultural webs.

However, it is with the Internet, or the worldwide web, that transformations gain unprecedented speed and breadth. From the 1990s, with the worldwide web and the possibility of creating links and storing data, computers started to gather in a single object all the technology specialized in other equipment and add new languages (Araya & Vidotti, 2010). It is, therefore, the time for new and variable devices created by the technological development convergence. The wi-fi or personal Internet arrives associated with various devices - personal computers, notebooks, tablets, and smartphones. The big computers produced in the 1980s, intended for institutional use, have become small multifunctional objects that are, simultaneously, ways of communication, information repository, means of entertainment, learning, and content production, to mention the most common functions (Monteiro, 2020).

It is possible to attest daily and personally, the changes in the consumption of art, news, reading, and religious cults, among others, which generate niches and segmentations to face the avalanche of offers. The survey by Jordão and Allucci (2014) pointed out that they found more adherence in Brazilian society, cultural practices, and consumption carried out at home. There is an ironic note in a technology that, betting on the dissolution of geographical barriers, ends up locking each one in their place; on the other hand, attention must be paid to language, to the transformation of adjectives into nouns, in order not to lose the north of the transformations. When released, the iconic object of these fast times, it was designated as a cell phone to differentiate it from other types of phones already known; over time, the adjective became a noun, and the object was designated only as cell phone, given the growing distance from the original object in terms of the functions it offered, until a new word, in a global language, was created to summarize the ability to perform multiple functions that no longer need to be specified: the smartphone.

Unrestricted used in society, mobile devices are present in the academic environment as personal objects, along with other specific elements of this space, such as computer labs, whiteboards, and digital texts, which stimulate inquiries about the dynamics of transforming everyday objects into didactic objects and the inherent logic.

The highlighted milestones allow us to raise questions about the meanings and cultural problems that emerge from such a scenario, outlined in broad strokes. The studies by Daniel Roche (2000) and Anne-Marie Chartier (2016), among other authors, attest that changes in cultural practices can be detected at the confluence between technological change and social change. Transformations in architecture, furniture, and clothing resulted from the mastery of new technologies and new materials and introduced new practices through these spaces and objects. The discourse's materiality causes changes in the gesture of reading, from the papyri to the computer page. So far, the analyzes are more about verifying the changes in practices than properly speaking, assigning them specific meanings, or affirming what changes the digital gestures produce in the act of reading.

The study of these cultural transformations could, in general, lead to Paulo Rossi's proposition: (2014, p. 23):

[...] human beings always do the same thing: they sleep, build shelters against heat and cold, look for food, eat, mate, laugh and cry, raise their children, establish rules with rewards and punishments for those who do not respect them, attack and they are attacked, they make war and bury their dead, they bow in various ways to divine and invisible beings. In reality, each of these things is done in ways so diverse that they sometimes go beyond any imagination.

Contributions by Raymond Williams (2011) can be taken as a guide for analyzing more specific issues. This author uses the expression 'practical continuities' to describe, in the process of cultural incorporation, the elements directly experienced by the subjects, who act in the elaboration of meanings and cover both the doctrinal concepts and the way of practicing them and, in general, they are managed in institutions and other training spaces. In this perspective, ideas are tied to practical continuities, and through them, they can be recognized. However, this process runs through tensions, adhesions, refusals, and conflicts when new values start to be incorporated and question those already settled. Therefore, it is not a matter of identifying continuities or ruptures in cultural processes, but of detecting the existence of possibilities for the analysis. It is in the flow of behavior and, more precisely, of social action that cultural forms are articulated and have empirical access (Geertz, 2008).

Thus, the collection of empirical data in the research reported here aimed to understand the rooting of values perceived in actions, understanding that practices lead to the inflection of the term and its use in the plural: cultures and that inquiring about the devices used by the subjects would be a promising path for identifying practices.

Research context and methodological procedures

The research took as subjects of the sample students enrolled in the Pedagogy course of two institutions, one private and one public, both located in a city in the interior of the state of São Paulo, which, according to data from the Brazilian Institute of Geography and Statistics (IBGE, 2016) has about 230 thousand inhabitants and was classified, according to the Human Development Index (HDI), in 18th place in the state rank and 22nd in the national rank, in 2016. It is an economically strong region due, mainly, location, infrastructure, and educational network, at all levels, with public and private initiative.

Two higher education institutions (HEIs) collected data, one maintained by the private sector and the other by the public sector, both with academic support based in the region. The first was created in the 1940s offering high school education and, over time, it adapted to the expansionist demand that occurred throughout the country (Raiman, 2008) and, in 1970, it became a College, later a University Center by expanding the range of courses and careers and, finally, a University. The second institution was created in the 1950s and transformed into a university in 1976, by incorporating of Isolated Institutes of Higher Education in the State of São Paulo.

Both offer courses in different knowledge areas operating at undergraduate and graduate levels, integrating different administrative categories with different work regimes, and their consequences for teaching, research, and extension activities, and seek to meet regional demands. It is important to note that the only undergraduate course in both institutions is the Pedagogy Course.

The face-to-face Pedagogy Degree course at the private institution has been offered since 1968 and currently operates exclusively at night, with 120 annual vacancies; the Pedagogy Degree from the public institution is offered exclusively in person and offers 100 annual places divided between the afternoon and day shifts. Although the present analysis sample is limited to these two institutions, it is worth mentioning that the correlation between course and type of institutions is the same in three other medium-sized cities located within a radius of 100 km in the same geographic region. This situation allows us to state no pent-up demand for teacher education for early childhood education in the first years of the elementary cycle.

The research dialogues with a bibliography on teacher training (André, 2009; Gatti, Barreto, & André, 2011; André, Simões, Carvalho & Brzezinski, 1999; Brzezinski, 2014), notably, that produced by the Graduate Programs in Education and located at the CAPES Thesis Bank and the SCIELO Portal, as well as in discussions on legislation and educational policy (Scheibe, 2007; Ferreira, 2006). The results obtained in this review endorsed the objective of considering, in a specific and exploratory study, the perspective of students, recipients, and ultimately, the training offered by the institutions¹.

¹ Although the focus of the research was the Pedagogy course's data and the training of teachers, in different stages these data were compared with those from other courses for comparative purposes (Monteiro, 2020), a procedure not covered in this article.

The quantitative and sample data collection was carried out in 2016 from the ENADE data, obtained from the INEP portal and in 2017 through an instrument designed for that purpose, containing 42 open and closed questions that aimed to outline the students' socioeconomic profile, the use of mobile devices in class, the use of social networks, the relationship between technology and leisure, consumption and studies. After being tested and subjected to specialist evaluation, the instrument was applied, and the final sample was composed of 45 students from the evening Pedagogy course of the private HEI, 39 students from the evening Pedagogy course, and 40 from the daytime of the public HEI, that is, 124 students taking the third year of the Pedagogy course. Using the MS-Office Excel program, the data tab facilitates the application of analysis filters and the preparation of graphs and tables. The open questions were analyzed one by one, and the answers were categorized using the number of incidences as a criterion.

The answers given to the ENADE questionnaire by the students of the Pedagogy Course were used to characterize the student's socioeconomic profile, regarding the self-definition of skin color, sex, individual and family income classified by national minimum wages, study funding, parents' schooling, and the type of school attended in high school.

Students and use of devices

The first data, it can be said, that characterizes the sample is almost entirely female since only five subjects identified themselves as being male. This percentage does not constitute a new or surprising data (Gatti & Barreto, 2009). Nevertheless, it is necessary to emphasize its social relevance since it positively interferes in the general indexes of the female presence in national higher education, given that the Education area occupies the second place in the country regarding the offer of vacancies. Teaching also constitutes a significant professional option for women because it continues to employ large contingents, which correlates to the students' family income, for a large portion, chances of economic growth.

Based on the data, we can conclude that most students identify themselves as white (86.1% in public HEI and 80% in private HEI), with the percentage of students who define themselves as black is higher in the private institution (8.5%) and that of mixed race is higher in the public institution (16.7%). Such information attests that the impact of recent policies to expand access to black and brown people to higher education is still low.

As for the age group, the students enrolled in the daytime are the youngest, since 76% are between 17 and 21 years old and, although this is the age group that also predominates among those enrolled in the evening period of the two institutions, there is distribution among other age groups, students over 30 years of age are more present in the private institution (20%) than in the public institution (3%). Another significant finding is that 87.7% of students from the private institution and 67.1% from the public institution completed high school in public schools, given a strong correlation with family income and, compared with the age groups, it is indicative that there was no interruption of studies between high school and higher education.

In the sample, students with family income between 1.5 and 3 minimum wages predominate, but, the distribution in the other groups show relevant differences: in the public institution there is a more homogeneous distribution among all groups, and in the private institution the percentage in the lowest income group - up to 1.5 minimum wages - occupies the second place (19.5%) while in the public institution, the range between 6 to 10 minimum wages is significant (17.7). Considering all the data, students from the public HEI concentrate their profile between 1.5 and 4.5 minimum wages (50.6%), while those from the private institution focus on income up to 3 minimum wages. If the comparison considers only students enrolled at night, the salary distribution range is similar in both institutions. Therefore, it can be said that the study time has a stronger correlation with income than with the type of institution, and the night teaching has proved to be a relevant path of access to Higher Education because it allows students to exercise paid work to bear the costs of scholarship.

However, it is necessary to consider that the family income thus discriminated must provide for the payment of a monthly fee in the private institution and, in both, transportation (local or intercity) and expenses with school materials, such as books, copies, and prints, despite the existence of different programs for student aid (both self-initiated and federal). The night shift concentrates the working students, with the predominance of those who work in the area for which they are graduating: 42% in the private institution and 33% in the public institution, and, for these, attendance to classes is the most time devoted to studies.

As for parents' education, those who completed the first years of primary education (39.7%) predominate in private HEIs, followed by those with high school (27.6%), making up most of the sample, and 10.3% have Education Higher. Most parents completed high school (31.1%), among public HEI students, and 16.7% have higher education. In the private institution, the mother's education presents lower parameters, since 41.5% completed the first cycle of Elementary Education, 24.4% completed High School, and 14.7% have Higher Education, which does not occur in a public institution, as 35.4% of them finished high school, and 26.2% have a university education. Despite the differences in income and schooling, it can be said that a very significant portion of the students, at least 70%, are the first family generation in the process of completing Higher Education, which, if it does not guarantee social ascension, is a strong indication of cultural ascension.

The socioeconomic student's characterization is compatible with the data obtained in the responses measured by the questionnaire on practices that use digital media. For the shopping habit, which depends primarily on the economic condition, possession of a credit card, or at least, bank account, digital means seem to be gradually being incorporated. Talking about purchases made in the last thirty days, 36% of students at the private institution, 48% of night students, and 43% of those enrolled at daytime at the public institution did so. More than 50% of them prefer physical stores for purchases or alternate the two possibilities. Asked to comment on the phrase 'I buy products that are displayed on my social networks', the responses include: 'I do not buy through social networks'; 'I do not always buy; after all, not everything there is good, or I need' and 'I would not hesitate to buy them if I could.'

Internet activities were quoted as one of the relevant leisure habits performed both during and on weekends, which can be considered a crucial feature of recent times. It can be said that the network makes leisure and cultural activities accessible, previously more demarcated by the economic condition, such as going to the movies, listening to music, or reading. On the other hand, allowing simultaneous practices to be executed, tends not to differentiate the two-time markers. One good example of the change is watching movies that, before the Internet use, demanded going to a place - the cinema - and, consequently, a specific time, which increased its realization on weekends. When the movie could be watched on different devices and in a fragmented way, such activity was dispersed over time. The leisure activities that remain characteristic of the weekends, according to the students, are the frequency in bars and restaurants and dancing, related to the economic condition and the expansion of free time, besides, of course, requiring personal contact. It can also be mentioned that, among the private university students, the percentage of time dedicated to games and games on weekends increases. The expressive use of the Internet indicates its importance in cultural consumption and practices, which can be explained either by the low relative cost (compared to other activities) or by the simultaneous performance of activities.

Several questions of the instrument referred to the use of the different devices taken daily to the classroom, and we can say that, despite the smartphone being the most present (90%), 80% of the students use the computer for registration activities and materials. The notebook computer appears with a lower percentage of responses and only overlaps with tablets.

These answers allow us to suggest that the low presence of tablets is linked to the fact that their priority destination is reading and storing texts, leaving it uncompetitive compared to the students' multifunctional devices and the students' financial conditions. The notebook, probably due to its weight, is the least portable among the objects mentioned and is taken to class when there is an activity that demands it in the school agenda. The presence with a similar percentage between notebooks and smartphones denotes the coexistence in the school space of two emblematic cultural objects. The notebooks are used to record classes and activities and produce texts, and, for more than a century, they have become iconic school supplies. However, there are indicators of change, as around 40% of students use their smartphones to photograph summaries or explanations of content, and 10% mentioned that they record the classes.

Again, we must say that the dissemination of technology is inseparable from its modes of use and in a social relationship. The class registration in the notebook is more suitable for a class, notably expository, of which parts, summaries, or exercises. Classes that use electronic resources (PowerPoints, for example) are more conducive to the photographic record. The answers end up showing that the smartphone is the most used device in classrooms, but imposes limitations on the writing and typing of texts and works. In such a way, the institution and the teachers have a relevant weight in the use of the devices by the students, that meet the demands by choosing the task to be performed. However, it remains to be seen whether electronic devices are replacing the disciplinary logic of thought, typical of notebooks (Chartier, 2002; Santos & Souza, 2005) or whether a new logic is not yet clearly perceived.

Specifically talking about the use of smartphones in the classroom, it appears that almost 30% of the responses focus on the use of messaging applications, seconded by research for group work and, subsequently, to see posts from friends on social networks (between 16 and 19%). At the same time, the computer is mostly used for research and not for sending messages, with different percentages between institutions: 48% of the responses from students from the private institution and 60% in the night course, and 66% in the day time of the public institution.

The most widely used social network is Facebook and, the level of interaction varies: 58% of students in the Pedagogy course at the private institution access the full content, and at the public institution, about 50% do so. Access to blogs is small among students in the sample: an average of 10% said they use blogs, and among those, there are few coincidences. Considering similar data about Twitter, it seems that social networks that demand more writing are almost not used by students. Social networks are also used as a communication tool for preparing academic works by about 43% of students; they mention the efficiency of exchanging information as a justification. Contact with teachers through social networks also appears with a significant percentage, 28%, indicating changes in the teacher-student relationship.

98% of students say they use WhatsApp daily to exchange information, communicate with the workgroup, send files and calendar, schedule meetings, exchange ideas, divide tasks, exchange bibliographic references, and answer questions. If other data already indicated replacement devices’ existence, this application has replaced phone calls and tends to do the same to other forms of message exchange.

Final considerations

The data obtained with the various research instruments and data collection quantify impressions shared by everyone working in higher education and teacher training: the Internet and mobile devices have entered the academic environment. The responses aimed at detecting the flow of behaviors related to these resources attest to their strong presence in the students’ daily lives and indicate that their incorporation is not linear.

The use of digital devices impacted leisure activities in at least two ways. The first one refers to cultural consumption diluted in daily time; practices associated with entertainment (listening to music, games, watching films, series, news, television programs) can be performed at any time and simultaneously with other activities because they are always in your hand. The second sense concerns fragmentation in the perception of the works consumed and their character. Technology created a new space and generated changes in practices, but it did not necessarily expand the interpretation sharing about them, which is, in general, built-in dialogue with other perceptions. Also, access to cultural and entertainment productions has been widespread but is still riddled by economic conditions, since not all are free.

The results also suggest the need to qualify digital practices with care so as not to generalize them, as there are modulations, depending on each student’s individual use. The massive use of social networks and the profound change in relationship modes should not be confused with incorporating digital practices to their full potential. According to the students’ responses, what is more settled is a small portion of the available resources, restricted, basically, to communication between people.

The information obtained reveals that the impact of new technologies on institutionalized school practices has been less, or of slower incorporation, than those linked to cultural consumption. The devices gradually transform the students’ relationship with each other, with teachers, with the organization of knowledge and learning (both in the most creative activities and in those more linked to memorization), but they coexist with the notebooks, for example, which targets other school practices.

It remains to inquire about the changes that the new devices impose on school gestures. Chartier (2002) encourages to investigate what these devices allow to clarify about school practices. In this perspective, it is necessary to inquire, for example, which function the marks of the erased and redone tasks, the sketches and the slow writing, physical notebooks, they have in the knowledge process; or how to record the countless attempts deleted from the final form of a text; or how to safeguard the successive revisions that the learning process involves. Such questions demand another type of research, more focused on the continuous observation of classrooms and monitoring activities.

The new devices have not yet gone through the regulation processes specific to the academic environment, and their use does not appear to be framed in terms of learning and knowledge production. Often imposed by institutions, their importance and modes of use have not yet been adequately screened by the scrutiny of teachers who work in the different fields of knowledge and teaching.

Therefore, the challenge is to understand how to deal with technology pedagogically so that the use imposed by social life does not predominate in the school environment. Technology has opened doors never imagined for obtaining knowledge and opens up possibilities to access museums, libraries, and publications in the world with a click, but there is no evidence that this is happening, and it is not only due to language barriers.

The data allow us to state that, for such tools to be used in the production of knowledge and learning, educational institutions and their teachers must make a move to transform them into didactic objects and tools. It is worth noting that, between the preparation and publication of this text, there was a pandemic caused by the SARS-Cov-2 coronavirus that led the two higher education institutions analyzed to adopt remote education, using digital tools. It remains, then, when the pandemic ends, to transform the data presented here on a comparative basis to verify the meaning of the changes introduced in the knowledge process.

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NOTE:

The authors were responsible for the data design, analysis, interpretation, writing, critical manuscript review, and the final version's approval to be published. The grammatical revision was done by Olga Denise Bernardi, who graduated in Literature. The English translation was done by Fernanda V. Nakamura, who graduated in Literature.