Learning Ecologies in the Digital Era: A Challenge for Primary Education in Low-Income Contexts

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Abstract: This research focused on the study of learning ecologies utilizing digital technology. The qualitative methodology used has allowed the analysis of the interactions children establish with digital technologies and the manner in which they construct a learning ecology. A total of 46 12-year-olds, their families, and their teachers participated in this study. The children’s schools and homes were in neighborhoods where structural situations of poverty and social and cultural marginality concurred. The children integrated researchers into their digital community, which allowed access to the events that the community was developing through digital technologies for two years. This information was complemented by the development of systematic observations and interviews with each participant. The participants’ multimodal linguistic and literacy practices were analyzed using a social semiotics approach. The results of the research describe and interpret the interactions that took place between participants and digital technologies. The research has identified the processes of recontextualization, transduction, and transcontextualization of the discourses developed in the frame of the participants’ learning ecologies. Digital ethnography has been revealed as an adequate method for studying learning ecologies.

Keywords: primary education; ethnography; literacy; learning ecology; event; digital technology; social networks; socioeconomic status

1. Introduction
1.1. The Ecology of Digital Learning

Ecological theories were redefined by David Barton (2007) [1] to shape the concept of literacy as a part of everyday human activity. Barton’s analysis distinguished between psychological and sociolinguistic categories on the one hand and conceptualizations centered on people or systems on the other [2]. Our current research has focused on both sociocultural categories and people-centered conceptualizations. Thus, the analysis of children’s practices is closely related to their context, in which social phenomena have proven to be closely related to a global consumerist culture [3]. For this reason, the limits of local ecology [3] were overwhelmed by the new practices of social interaction proposed by Brandt and Clinton (2002) [4] at first and taken up by Kell (2015) [5] a few years later. The impact of globalization on children has transformed literacy learning environments and made it possible to observe a continuous transfer (or ‘transcontextualization’) between cultural and linguistic materials across different places [6]. This circumstance has distorted the conceptual description that allowed the delimitation of home and school; local and translocal; material and immaterial; and formal, informal, and nonformal learning [7,8]. Consequently, current research from an ecological approach addresses literacy processes as the study of events through space and time [9]. This ecological approach requires considering not only the emergent learning of children but also the interaction that they develop between human and nonhuman matter to weave a network [10]. González-Sanmamed et al. (2018) [11] and
González-Sanmamed et al. (2019) [12] highlighted how a true metamorphosis has taken place in the ways of learning, with changes being accelerated by the connectivity of the networks, the empowerment of the student in decision making regarding their learning, the overcoming of where and how to learn, and the assumption that there is a type of learning (not perceived, informal, invisible, and silent) that allows one to acquire fundamental skills.

Changes in children’s communication have questioned researchers’ approaches to current literacy events. The characteristics of digital communication (described by Merchant (2013) [13] as multimodal, linguistically innovative, remixed, jovial, participatory, and connected) require in current research a change in the unit of analysis that allows studying the ‘transcontextual’ complexity of literacy events [14]. Presently, the use of mobile phones has profoundly changed children’s literacy events, turning them into something hybrid, emergent, fluid, and affective [15]. These circumstances have made it possible to approach communication from different perspectives, such as Kell’s ‘traffic of texts’ (2011) [6], or the development of ‘mapping new mobilities’ [16], which analyzes the changes in the children’s learning spaces. Recently, Burnett and Merchant (2018) [17] addressed this question by raising the differences between literacy events and literacy-as-event. Our research began with the second of the concepts described by Burnett and Merchant (2018) [17], literacy-as-event, which has three fundamental characteristics: (1) event is generated as people and things come into relation; (2) what happens always exceeds what can be conceived and perceived; and (3) implicit in the event are multiple potentialities, including multiple possibilities for what might materialize as well as what does not’ (p. 5).

The characteristics of literacy-as-event underline how the thoughts, feelings, and lives of subjects are developed through the interaction between different people and between people and artifacts [18]. Thus, events are constructed from the intersection of thought, the body, and the environment, as well as intensity [19]. Once constructed, these events have numerous re-elaborations and re-semantizations in various learning spaces, producing a deep process of transduction and the creation of new (material and immaterial) artifacts [20]. These (im)material artifacts bring the researcher closer to different social, material, and semiotic elements that make up the artifact [18]. Consequently, our approach to children’s literacy-as-event is based on a social semiotic multimodal approach [21], as the way in which it is possible to deal with the complexity of a hybrid literacy ecology [22]. The social semiotics approach allows us, as Bezemer and Cowan have underlined (2021) [23], ‘( . . . ) to explore the systems, principles, and resources that people develop to make meaning of, in, and with the world around them. It examines the mechanisms through which material formations are made to mean, that is, how people conjoin forms and formations with meanings. ( . . . ), and that it is possible to describe, at a more abstract level, common principles for making meaning, considering, for example, the commonalities and differences between writing on paper, drawing on an iPad, communicating on a video conferencing platform, and building with Lego blocks’ (p. 107).

From this perspective, the texts with which children interact in their everyday environment play a key role in the construction of spaces [24]. In turn, these everyday texts have a multimodal character and are related to social networks, which induces us to rethink the act of reading and writing in childhood [25].

1.2. Creation of Spaces as Social Interaction

The study of digital learning spaces from an ecological approach avoids the construction of a binary system composed of events inside and outside the school. Contrastingly, ecological analysis brings us closer to literacy-as-event in relation to multiple processes where both humans and objects interact [22,26]. This implies that these practices have a purpose and are born connected to space [27]. In turn, this space is ‘materialized’ in events, since it is difficult to separate literacy-as-event (such as updating status on WhatsApp) from material learning that requires the use of digital technology [28]. This approach, where space is ‘materialized’ in an event, was born from the concept of social space proposed by Henri Lefebvre (1991) [29], the co-construction of space and time by Edward Soja.
In this sense, the literacy-as-event space belongs to the sphere of multiplicity, where children create open spaces in constant reconstruction, based on interactions with the people and things that surround them.

These spaces for social interaction are unique, as their results cannot be extrapolated to other situations. The children’s events recreate new discourses based on the process of transduction and representation of their community’s logonomic codes. In this way, these children derive a good part of their identity representations from the materialization of space as interactions. Thus, digital technologies have promoted the construction of new spaces for interaction, where experiences of online and offline events are intermingled and where children construct and reconstruct new meanings for their own events.

Informal and nonformal learning spaces have been developed through literacy-as-event. Children develop informal and nonformal learning in places such as family homes or communities or during recreational activities, making use of different models of informal and nonformal learning. Thus, the social integration of children is subject to the creation of spaces for both human and material interactions and the way in which they interact with their environment. This circumstance requires children to learn numerous informal or nonformal logonomic codes, elements of communication with which they interact and build their identities. The social semiotics perspective allows our study to relate the construction of meanings to the multimodal social space in which communication through ICTs takes place in childhood. This approach shows the complexity of digital learning ecology in childhood, on the one hand, and the role of digital media in nonformal and informal learning environments, on the other.

In short, our study focused on the analysis of the discourse of relationships mediated through digital technologies, such as the instantiation of life. To this end, we ask the following research questions:

1. What interrelations are established between children and digital technologies in informal learning environments?
2. How do children construct meanings through digital technologies in informal learning contexts?
3. What does digital ethnography contribute to the investigation of literacy-as-event within the framework of the ecology of informal learning?

2. Materials and Methods

2.1. Our Research

The study of literacy-as-event is related to the complexity of literacy and the heterogeneity of the situations mediated through digital technologies in childhood. Our article has adopted an approach based on ethnography in general, and on digital ethnography in particular. This digital ethnography involves two types of contact: direct (interviews and observations) and mediated (through information and communications technology). Our research is based on evidence collected from participating children (photographs, videos, blogs, web pages, WhatsApp, YouTube channels, etc.), and it analyzes how digital technology is part of their material, sensory, and social environment. In this way, digital ethnography approaches literacy-as-event research as multiple social practices (there are multiple ways of relating to digital spaces), not exclusively focused on it (but in its context), open to the creation of new spaces for social interaction, reflective of the relationship between a digital–material–sensory environment and attentive to alternative forms of social communication.

2.2. Participants

The sample used for our research comprised 46 primary education students (12 years old), their families, and their teachers. The children were enrolled in two schools in a periurban town in the province of Seville. The centers had low socioeconomic and cultural
indexes (Center #1, −1.02 out of 1.55; Centre #2, −0.72 out of 1.55), and they are in two outlying neighborhoods, with structural situations of poverty and social and cultural marginalization (many parents do not have an education). Children live in social housing, which sometimes does not meet the minimum safety and health requirements. Men are the main breadwinners of the family, and most of them do seasonal work (for example, picking olives, strawberries, etc.), street vending, and construction, while women mainly play the role of housewives. The economic situation of these families is defined by great instability, which is why they have to resort to social assistance to provide for basic needs at home. Despite living in buildings that are over 50 years old, where hygiene is poor and power cuts are frequent, all families have several televisions, mobile phones, Internet connections, and even pay-TV channels.

2.3. Data Collection

The information-gathering process, guided by the principles of digital ethnography, was carried out over 2 years (2016–2018). The researchers accessed homes and schools regularly twice a week for the first six months and once a month for the remaining time. The children integrated the researchers into their digital community, which allowed them to record the events developed by the community on social media (WhatsApp, Facebook, Instagram, Snapchat, and YouTube). This information on literacy in a digital environment was supplemented by observations and interviews conducted in the schools, children’s homes, and their neighborhoods. These observations and interviews were preserved using audio and video recordings. Table 1 shows a list of records made according to the three locations analyzed.

| Common documentary evidence | Home | School | Neighborhood |
|-----------------------------|------|--------|--------------|
| Photographs and videos of digital literacy events and artifacts | Photographs and videos of digital literacy events and artifacts | Photographs and videos of digital literacy events and artifacts |
| ‘A day in the life’: home digital events | ‘A day in the life’: digital events at school | ‘A day in the life’: digital events in the neighborhood |
| Progressive interviews with each family | Progressive interviews with each student/teacher | Progressive interviews with neighbors/important figures in the neighborhood/library director |
| Screenshots: Children’s literacy events on social media | Screenshots: Children’s literacy events on social media | Screenshots: Children’s literacy events on social media |
| Screenshots: WhatsApp conversations with the families | Screenshots: WhatsApp conversations with classmates inside the classroom | Screenshots: WhatsApp conversations with the neighbors |
| Photographs and videos of the different spaces and resources | Photographs and videos of the different spaces and resources | Photographs and videos of the different spaces and resources |

| Specific documentary evidence | | | |
|-------------------------------|-----------|---------------|
| Student’s biography | Class notebooks, index cards, exams, and report card | Reports on the history and changes in the neighborhood |
| Student’s literacy biography | Report card | | |
| Reading and writing passport | General diagnostic test results (Junta de Andalucía) | Report on the creation of a library and the demand for its services |
| Biography of each family | Discussion group with students | | |
| Literacy history of each family | | | |

This article focused mainly on the analysis of the information generated by children on social media. However, the remaining documentary evidence, both general and specific, has helped us contextualize children’s publications on these social networks.
2.4. Ethics

The children’s and their families’ participation in the project were voluntary and followed the ethical requirement for informed consent, which restricted the use of the information obtained for research purposes only and guaranteed the anonymity and confidentiality of the participants. Moreover, this research followed the internal regulations for the social sciences required by the Ethical Committee for Experimentation of the University of Seville.

2.5. Data Analysis

The data analysis was based on the literacy-as-event concept and was focused on digital communication developed by children in informal learning contexts. Children’s discourses, due to technology, mix words, sounds, and pictures (modes) in the body of the message; i.e., they are multimodal. Consequently, we developed a multimodal social semiotic analysis to reveal how children give material form to their discourses in interaction with others in a particular context [21,43]. According to the social semiotic theory, signs (which are a fusion of modes and meaning) would be motivated—not arbitrarily generated—and would arise from children’s interest [44]. We, therefore, sought to analyze the extent to which the digital modes used by children in sign-making are realized in social interaction and become part of the semiotic resources of their learning contexts. To do this, firstly, we identified the semiotic modes and strategies (reframing, imitation of logonomic codes, transduction, etc.) that children used for meaning-making, as well as their respective potential as signifiers in each literacy-as-event. Second, we interpreted the semiotic modes’ meaning potential in a context. For example, verbal clusters included as a part of a WhatsApp status (‘you’ll go far cousin’, ‘that Migue’), combined with a retouched image and visual cues (drawings of red hearts), are used as signifiers to express the signified ‘you’re the best’ for a community of motocross fans.

3. Results

The results of this study show how children spend most of their time interacting with digital technologies, especially mobile phones. This object–subject interaction is omnipresent in children’s lives, both when its use is allowed (outside school) and when it is discouraged or prohibited (at school). Mobile phones have become everyday objects that accompany children to school, despite being forbidden. Over 2 years, more than 3700 instances of literacy-as-event related to digital technologies have been recorded. This evidences the consumer and producer character of the digital artifacts that the children generate online. For this reason, our article aimed to study children’s use of mobile phones in different places and at any time of the day. Systematic monitoring of their actions has shown how these children interact with mobile phones both through WhatsApp and on social media (especially Instagram) or websites such as YouTube. The use of mobile phones by these children develops throughout the day but intensifies from the end of school until after 01:30 in the morning. These literacies-as-events have generated a particular learning ecology where children construct new knowledge of an informal nature.

3.1. First Example of Literacy-as-Event: Becoming a Professional Farmer through Internet

Figure 1 is a retouched picture taken from Manuel’s mobile phone. The upper half of the frame is a picture he sent to his contacts list to get buyers, while the lower half consists of two pictures showing his learning process: a book on the different uses of garlic, downloaded from the blog ‘La huertina de Toni’/‘Toni’s little vegetable patch’ (https://www.lahuertinadetoni.es/) (accessed on 10 February 2021), and a picture taken by the researchers, that shows how Manuel uses his mobile phone to send messages about his vegetable patch.
Manuel uses his phone to learn how to take care of a small vegetable patch his family owns in the countryside and to do business with it. The choice of pictures, videos and words in this literacy-as-event is not arbitrary but motivated by Manuel’s need to learn how to help his family: if the vegetable patch goes well, it produces food, and the surplus can be sold. Manuel has informally learned to care for it thanks to regular visits to the blog ‘La huertina de Toni’, where he obtains information on planting seasons, ecological remedies, beneficial insects for the vegetable patch, etc. On the blog, he also learned new skills related to composting or planting. Manuel is also a follower of the YouTube channel ‘La huertina de Toni’ (https://www.youtube.com/channel/UC8nVVwi8L7fPCjOMpSSNAM0Q) (accessed on 15 February 2021), where a weekly video is published, illustrating different tips for garden care. Manuel buys farm tools, seeds, or mulches on Amazon. These interactions take place within the framework of a learning ecology in which Manuel can acquire horticultural skills to become a professional farmer who grows vegetables and sells them on the Internet.

First, analyzing the information collected on this child has made it possible to identify the characteristics of the literacy-as-event associated with the literacy developed in the interaction between Manuel and his mobile phone. Second, literacy goes beyond what one might expect from a blog visit. Manuel carries out a reframing process in which he materializes the knowledge and skills that he has learned on the blog and YouTube (he buys utensils and products, performs DIY practices, etc.) in the vegetable patch. Lastly, Manuel has interacted with digital technology to obtain new knowledge related to horticulture in relation to digital technology. For example, while Manuel was looking for information on types of fertilizers on the blog, he found a link showing how to make compost, which opened new possibilities to him in the field of fertilizers. In this learning ecology, Manuel follows a conscious and intentional self-learning model, and the artifact generated as a product of this learning is material (the vegetable patch). Furthermore, Manuel also informally learned how to create a good network of contacts, how to set a price, how to deliver his products, etc.

3.2. Second Example of Literacy-as-Event: ‘Piloting’ through the Screen

Figure 2 shows a WhatsApp status update published by Manuel. Manuel lives in the least developed and peripheral area of his village, where houses are located in the middle of large tracts of land, and where the immense mounds are a great diversion for Manuel. In the neighborhood, Manuel uses his mobile phone to show off his skills as the pilot of a mini pit-bike with which he practices motocross. A friend usually records or photographs his pirouettes and later shares them on social media. Manuel is popular among his classmates, relatives, and neighbors. The posts on Instagram made from his phone receive likes, numerous comments, and suggestions on how to improve his skills as a rider. Manuel
also uses his mobile phone to play online video games, such as GTA. As he plays, he receives notifications about new posts on YouTube channels such as ‘DaniRep’ (https://www.youtube.com/user/TheDaniRep) (accessed on 15 February 2021). From this channel, Manuel can also access the Twitter account (https://twitter.com/DaniRep) (accessed on 17 March 2021), Instagram (https://www.instagram.com/danireprep/?hl=es) (accessed on 17 March 2021), and online stores of this YouTuber (https://danirepshop.com/) (accessed on 8 April 2021). Manuel’s hobby built new spaces for social interaction through his mobile phone. This socialization process helps him not only to broaden his motocross knowledge (accessories, circuit competitions, etc.) but also to build and project an image of his identity. The data analysis has made it possible to identify the characteristics of the literacy-as-event developed by Manuel, whose purpose is not only to improve his skills as a pilot but also to introduce himself into a community of motocross-related practices. To be able to belong to this community, Manuel has had to develop informal learning mediated by his mobile phone. An example of these events is found when Manuel publishes a new WhatsApp status. The published photograph (which represents an instance of his piloting on a pit bike) is constructed as a complex multimodal discourse (Figure 2). This artifact is composed of a visual cluster that incorporates image mirroring and zooming. It shows a precise strategy of imitation of the logonomic code that appears in the posts on Instagram of his idol DaniRep.

![Figure 2. WhatsApp status update published by Manuel.](image)

The analysis of Manuel’s posts has also made it possible to identify a second reframing of the photograph built from the first. The new artifact is a representation by Manuel’s relative (Figure 3). This publication incorporates new visual clusters (red hearts) and verbal clusters into photography (‘YOU ARE GREAT, KEEP IT UP. YOU WILL GO FAR COUSIN’, and ‘ese mige’, ‘that Mige’, the name of one of his favorite riders. The feedback that Manuel gets is similar to what DaniRep receives through social media (‘Good video, you’re the best, I’m comment number 1000!!!’). This type of feedback provides him with social recognition among his friends and family. The verbal cluster ‘ese mige’ aims to place Manuel in the same position as one of his favorite pilots (‘mige’), who occupies a relevant role in the local motocross field. The incorporation of a particular logonomic code (community of motocross fans) and the continuous process of reworking the discourse (WhatsApp status photo) forces Manuel and his environment to develop a complex transduction process, making use of numerous verbal and visual cues. These reframing processes have provided Manuel with new informal learning contexts related to the development of his skills as a pilot and the construction of his social identity through new spaces for interaction.
3.3. Third Example of Literacy-as-Event: Construction of Meaning through Digital Technologies on WhatsApp

The analysis of children’s interactions with their mobile phones has made it possible to identify how different learning ecologies develop. Within the framework of these ecologies, children construct meaning when they describe their actions, attribute a use to objects, and evaluate their behaviors and interactions with other children or adults. The construction of meaning occurs through different informal learning models. In the example below, a girl posts a WhatsApp status about child abuse, which elicits a supportive reaction from her classmates. This third example analyses literacy-as-event from another perspective: the way in which a group of children take a stance of ethical engagement before various situations they experience in their social environment. The study of the ecology of nonformal and informal learning in a digital environment shows how communication through WhatsApp generates complex discourses based on recontextualization, transduction, and transcontextualization. The third example of literacy-as-event begins with Alba’s denunciation of the situation of domestic abuse suffered by her 3-year-old niece. The communicative sequence is initiated by the publication of an image in which Alba appears accompanied by her niece, whose face is hidden with a red strikethrough. The image is accompanied by the text: ‘You can look, but don’t touch’ (Figure 4).

This post is seen by her WhatsApp contacts, generating an immediate reaction from her classmates. Thus, one of her classmates (Hiba) replicates the text (‘You can look, but don’t touch’), but re-elaborates the meaning of the message in another context. Hiba posts a photograph of her petting her neighbor’s dog (Figure 5). The process of transduction carried out by Hiba (as a recontextualization of the discourse ‘You can look, but don’t touch’) now makes it possible to denounce animal abuse in her neighborhood.

Similarly, Diego publishes another status on WhatsApp, where he shares a photograph of garbage containers under the same slogan, to report the vandalism that hinders garbage collection services in his neighborhood (Figure 6). Finally, other children join the chain of messages by publishing other images with the text ‘You can look, but don’t touch’ in a spiral of constant rebooting of its sense of vindication and denunciation.
The process of transduction and transcontextualization of the text ‘You can look, but don’t touch’ concludes with the appearance of the hashtag ‘#my property’. This is the result of the exhaustion of the first text after the transcontextualization that involves the nonfulfillment of the receiver’s expectations, through the claim of the defense of nonhuman elements, such as the dog or the garbage can. In contrast, ‘#my property’ alludes to what is my own, that which is important to me and that I want to protect from others. In this sense, the transcontextualization begins with the configuration of the verbal cluster ‘#my property’, given that the object of my protection is a group of people, not a thing or an animal. This implies a return to a human agent with whom the individual maintains a relationship of friendship, affection, or love. The hashtag becomes a ‘virtual protective wall’ against the attacks that these people may receive in the social context in which they live. Figure 7 shows three WhatsApp statuses grouped under the hashtag ‘#my property’. First, a girl (María) tries to protect her closest friends. In the second, the photograph corresponds to a girl taken in for temporary adoption at the home of Nerea, María’s classmate. In this case, the hashtag ‘#my property’ expresses the wish that the girl remains in the foster family and does not have to return to her biological mother, who is serving a prison sentence for drug trafficking. In the last update, the image that accompanies the hashtag corresponds...
to a girl surrounded by hearts. This WhatsApp status was published by one of María’s classmates, Diego, who wanted to protect his friend and keep her from being mistreated by her father, as his mother and grandmother were.

Figure 6. WhatsApp status update published by Diego.

Figure 7. WhatsApp status updates with the hashtag ‘#de mi propiedad’, meaning ‘my property’.

The publication of Alba’s message generated an informal learning process based on an integrative model. The learning here is unconscious and intentional, since Alba’s classmates, although they maintain the verbal cluster of the message, modify the visual cluster that accompanies the said text. The publications of her companions suggest a process of transduction that allows the construction of new meanings at both individual and social levels. The analysis of the multimodal texts belonging to both ‘You can look, but don’t touch’ and ‘#my property’ show the use of interaction between visual and verbal clusters as a way of constructing a virtual community of children before the social and cultural context of adults. The communicative dynamics in which children construct new meanings also evidence features of a community identity constructed through conflict before adults. The creation of new logonomic codes (such as the use of strikethrough or filters to retouch
photos) and the constant recontextualization, transduction, and transcontextualization of verbal and visual messages make this discourse a communication with its own characteristics. In short, these children have developed a learning ecosystem in a digital environment that has allowed them to build a community.

4. Discussion and Conclusions

This article focuses on the study of learning ecologies using digital ethnography. The choice of this methodology has been motivated by the nature of the subject explored: the interrelationships established by children with digital technologies and the processes of construction of meaning within the framework of learning ecologies. The problem addressed has not focused on the knowledge of the frequency and use those children make of digital technology, but on the interactions (such as social spaces) generated from these uses [31]. These new forms of communication between children have generated a type of data (continuous, created in layers, and constant transformation) that requires digital ethnography, as it is a research method capable of analyzing literacy-as-event [17].

Digital ethnography [15] has allowed us to approach literacy-as-events and describe the interactions that take place between children and digital technology. This approach is supported by the analysis of not only the event but also the context in which it takes place. The analysis of literacy-as-event has facilitated the description of the social spaces created by the children in the sample through their interaction on social media (blogs, YouTube, WhatsApp). On the one hand, Manuel has created a social space to respond to family needs: to get food and resources for his family. Thus, Manuel interacts in a learning ecology that has allowed him to acquire knowledge and skills related to the use of tools, planting, fertilizing the vegetable patch, etc. On the other hand, Alba created a different social space to protect her niece. The learning ecology in which Alba interacts has allowed her to learn to communicate her experiences (emotions, feelings, etc.) on social media to get the support of her family and friends. The analysis of these events requires a decentralization of research on digital technology in favor of the meaning and social value it acquires in the children’s environment [28]. This approach has allowed us to study both the construction of social spaces [29] and learning ecologies in low-income social contexts [14,45].

Literacy-as-event supposes the overcoming of the limits between the formal and the informal, the school and the home, the material and the immaterial, and the local and the global [5]. The complexity of this concept requires an approach such as digital ethnography [15]. Example 2 shows how Manuel learns to improve his skills as a motocross rider. The researchers’ monitoring of Manuel’s events has made it possible to identify how the social spaces in which he interacts are not subjected to the local–global dichotomy [34]. The artifacts generated by Manuel during these interaction processes (WhatsApp statuses, Instagram posts, GTA game videos, etc.) build a complex story from the perspective of literacy, which has allowed researchers to build an ecology of learning for this participant from his interaction with human and nonhuman elements [10].

The use of digital ethnography has facilitated the study of transcontextualization processes [6]. This methodology has made it possible to analyze how discourse travels in different contexts. The results obtained in the research show that the multimodal communication of the participants is the result of the re-elaboration and re-semantization of discourses [46]. This process of transduction materializes in various ways, such as embodiment, screen-based texts (mobile phones, tablets, or computers), or objects (objects or artifacts) [18]. First, an embodiment is created by Manuel in the social space, where the improvement of his skills as a motocross rider is the result of his learning on the web [19,47]. In the same way, this learning is transformed into screen-based text that is disseminated on social networks with the clear purpose of emulating his idols and gaining popularity in his practice community. Second, Example 1 of literacy-as-event shows how Manuel transforms his horticultural learning developed through the blog ‘La huertina de Toni’ into an artifact like a vegetable patch where he grows food [48]. Subsequently, it (the vegetable patch) is transformed into screen-based text with which Manuel advertises the surplus vegetables.
that his neighbors acquire [49]. Finally, Example 3 shows the creation of a social space in the screen-based text. The interaction carried out by Alba materializes in a WhatsApp status that she shares with her friends. Her multimodal discourse is the beginning of a transduction process among her friends who report situations of child abuse, gender violence, and animal abuse [50].

In conclusion, the analysis of these transcontextualization processes allows us to understand the complexity of children’s learning ecosystems. It has also shown dynamism in the construction of social spaces for interaction. The transits (interactions) that the participants have made from one context to another have placed literacy-as-event at the center of reflection on informal learning ecologies. This underscores the role of screens as the predominant element in informal literacy [51], with mobile technologies becoming the main source of informal discursive consumption among children [19].

5. Limitations

This study has several limitations. One of the most relevant is related to the difficulty in interpreting the events developed by children in social spaces in terms of learning ecologies. The semantic field created around concepts such as literacy-as-event, social space, or learning ecology is in a continuous process of reconceptualization, which makes the understanding of the interactions that take place between children and digital technology more complex. Similarly, digital ethnography is a recent approach that opens new possibilities for the study of complex realities, such as those represented by social spaces and learning ecologies. However, its development is still incipient, and its use will reveal its true strengths and weaknesses in the study of learning ecologies in the digital age.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Ethical Committee for Experimentation of the University of Seville.

Informed Consent Statement: Written informed consent has been obtained from the volunteers to publish this paper.

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