

A systematic review approach to the understanding of intercreativity as an educational resource

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Intercreativity is a relevant phenomenon with significant social, cultural and educational implications in the postdigital era. Its meaning refers to the fact of solving problems and making a collective production. However –in a historical and philosophical context that has led to the rise and importance of knowledge production– intercreativity is a phenomenon insufficiently analysed. Searching a variety of interdisciplinary databases, this paper summarises a systematic review conducted among 49 scientific publications that mentioned the term intercreativity and associated it to other theoretical concepts. The period of time covered was 2002-2021 and peer-review papers in Spanish and English languages were collected following the PRISMA checklist and flow diagram. The results suggest that applying intercreative strategies in educational practice is crucial in a social context where participation and communication are essential and in which education moves to digital spaces that are by nature open and cooperative. Not restricted only to digital environments, the nature of these spaces tends to support the intercreative practices as well as the values derived from it. Intercreativity in education entails an intersubjective production of knowledge, collaborative strategies and the development of critical pedagogies that position education in digital environments as a vehicle for social transformation towards solidarity and community.

Keywords: education; intercreativity; interdependence; postdigital; systematic review

Introduction

It is widely recognised that digital processes have taken on superlative social importance since the emergence of COVID-19. One of the pandemic's most controversial effects has arisen at the educational level, as teachers and learners across the globe have been pushed towards online learning. According to Jandrić (2020), the global pandemic has brought an unexpected opportunity for collaboration and collective processes, and in the educational and digital realms, it has been urgent and essential to reflect on them. Our pandemic era has visualised the need for a collaborative and supportive society, in need of intersubjective and reciprocal

actions, but these characteristics of social construction are countered by an institutional educational system that on an international scale is still rooted in an ethic and pedagogical praxis related to patterns of individuality and competitiveness (Jandrić, 2020). This is a system located in the coordinates of the so-called postdigital society, where the digital and the natural, the old and the new converge. It is a system with a hybrid social nature that is inevitably penetrated by the network and its algorithm, and one in which education has moved its banking modes from the offline space to the online context (Escaño, 2021; Jandrić et al., 2019). This conceptual struggle challenges us as teachers and researchers, and it is in this framework that we position the idea of intercreativity, a concept that by definition remains related to interrelational and mutually supportive social modes, but which, even with its intellectual weight, has not yet been explored in conceptual depth. Berners-Lee (1999) linked intercreativity to collective creation, defining it as a process by which we create or solve problems together on the web. It is a continuous process of construction and deconstruction (Bugshan, 2015; Rennie, 2003) with a social and cultural dimension, which at the same time is an experience of collective knowledge.

On this basis, this study describes intercreativity as a strategy for generating knowledge, but also as a common good at the service of society, and analyses its potential to be a transformative tool used in collaboration, community practices of participation and collectivity in educational processes (Gil-Quintana & Osuna-Acedo, 2020; Osuna-Acedo & Camarero-Cano, 2016), committed to the critique of banking pedagogical praxis. Intercreativity is a pedagogical strategy that can provide insights and, therefore, improve educational praxis in today's postdigital world, as well as facilitate multiple potentialities in learning processes in general, and in digital learning in particular (Mentasti, 2021). Consequently, our priority in this study is to organise a first conceptual framework that reflects on the scientific status of the term and its relationship with other related notions – hence the relevance of a systematic review.

We consider this systematic review as a research exercise through which we examine the relevant scientific literature on conceptual grounds in order to more accurately elucidate a premise on which to establish the conceptual foundations of intercreativity and to infer its educational characteristics. Following Petticrew & Roberts (2006), we identify, evaluate and synthesise those studies related to the intercreative conceptual juncture. We approach the systematic review by adapting and framing it in the PRISMA checklist and flowchart (Moher et al., 2009), in order to improve transparency and reporting in our review (see Pusey et al., 2020).

Method

As we have emphasised above, our major purpose is to establish a conceptual framework for the notion of intercreativity, reflecting on its scientific status and its relations to binding as well as educational concepts. Accordingly, we propose a systematic review to explore the existing literature on theorisations or practices of intercreativity. As explained by Petticrew and Roberts (2006), a systematic review ‘can be used to summarize, appraise, and communicate the results and implications of otherwise unmanageable quantities of research’ (p.10). The review was designed with a pragmatic purpose: examine approaches to the ways of generating common knowledge in the postdigital and educational sphere, thus guiding and establishing a contextual demarcation of the term intercreativity.

Eligibility criteria

Eligibility criteria are based on the scope review conducted by Pusey et al. (2020) and shown in Table 1. The systematic review was initiated in 2000, which corresponds to the date of the first publication collected in this paper.

[Table 1 near here].

Information sources

The search was conducted in the following academic databases: ProQuest, Dialnet, Directory of Open Access Journals (DOAJ), Scopus, Web of Sciences (WOS), Education Resources Information Center (ERIC) and SciELO. These databases were chosen for the reliability, quality and relevance of their sources. The most recent search was conducted in October 2021.

Search

The term ‘intercreativity’ OR intercreatividad (its translation in Spanish) was used exclusively, since the majority of studies regarding this issue have been mainly addressed in these two languages. The search resulted in many records that had to be excluded for the following reasons (see also Table 1). A four-stage documentary analysis was carried out, as proposed by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), in order to review the secondary sources (see Figure 1).

Selection of sources of evidence

Recognising the minimal theoretical and practical development of the term intercreativity but also the efficiency of intercreativity in improving the digital learning experience (Luo et al., 2019), this paper includes any study that establishes a discussion that can favour the development of the term. We understand intercreativity as a process, a strategy with a clear pedagogical potential, and one that is not only inherent in educational practice.

Results

Study selections

The diagram in Figure 1 shows how the selection of sources progressed from the initial database search to the final retained studies.

[Figure 1 near here].

Discussion

Summary of evidence

The following discussion takes a qualitative descriptive approach. This assessment was conducted with the objective of pinpointing the main discourses surrounding the intercreative phenomenon and establishing future lines of research. The utility of this qualitative description is that (1) it stresses which concepts are closely associated with the intercreativity phenomenon and (2) sets a contextual framework that allows for a reflection on intercreativity and its potential.

Theoretical foundations

In order to achieve the main objective in this study, the relationship between intercreativity and other relevant concepts has been examined. After the main concepts and themes of the papers that have referenced intercreative processes are reviewed, the final categorisation can be seen in Table 2.

[Table 2 near here].

The research context of the papers analysed is significant, as it allows us to discern the perspectives from which intercreativity is addressed. It is important to determine that the intercreative practice takes place primarily in two major spaces, as can be seen in Figure 2.

Being both contexts mediated and in constant relation with technological devices, it is necessary to begin by situating ourselves in the postdigital present and in this way help us to understand the need for intercreative processes.

[Figure 2 near here].

The postdigital context and the educational present

The connections between intercreative processes and technological devices in educational and media environments help us to clarify a first point: the current socio-technological situation has reconfigured the ways in which we communicate, relate to each other and, therefore, the way we approach education. It is worth mentioning that this socio-technological present is of a postdigital nature: the analogue and the digital are imbricated and form part of the same reality. This situation has been enhanced as a result of the global crisis caused by the COVID-19 pandemic, which has made visible a digitised humanity that, although unable to access the latest consumer gadgets, is influenced by new social modes (Jandrić et al., 2019). Since the end of the 20th century, global society has been facing a technological paradigm in which the network is the main organisational entity (Castells, 1996) and which, in its accelerated evolution, promotes a clash and convergence between digital and non-digital devices (Peters & Besley, 2018).

It is worth recalling Jenkins' (2009) concept of convergence culture as a collision between old and new cultural paradigms, which serves as a binding antecedent and in turn facilitates an understanding of the postdigital. In the last three decades, we have witnessed an increasingly dynamic process of technological and media hybridisation and interrelation that has become a defining characteristic of the social habitat. From the evolution of web 2.0 to the current 4.0, informational and cultural action, as well as their forms of consumption and

production, have been associated with collective, co-productive and relational exercise. It is in this clash – or encounter – that the postdigital happens, characterised, as we indicated above, by blurred relations in which the digital is taken for granted and influences all levels of our social sphere (Jandrić et al., 2019). Accordingly, educational processes will always involve emotional and social experiences, and by extension, will be intersubjective, shared, heterogeneous and reciprocal. Assuming this social, cultural and communicative background, we will be facing processes where users share, edit and redistribute information in dynamic systems for the co-creation and co-production of knowledge, both outside and inside digital environments. This situation was already associated with the concept of the network society (Castells, 1996), but the pandemic scenario has enhanced and overexposed its characteristics in the digital sphere. In this way, education on the network is more clearly evidencing teaching and learning experiences in which participation, convergence and interactivity, as central forces, lie in what Lévy (1999) called collective intelligence. Such intelligence manifests the importance of sharing resources and combining skills (Lévy, 1999). In other words, it makes clear not only that knowledge production emerges from the collective, but that the collective is a necessity in that production.

The prominence of the term 'collective intelligence' is visible in most of the articles reviewed (see Table 2). The intercreative development enables the flow of collective intelligence thanks to the digital technologies that unite individual intelligences working in common. This is evident in the studies by Angel & Barranquero (2016); Aparici & Osuna-Acedo (2013); Coronel-Salas & Mier Sanmatín (2016); Faßler (2016); Fernández Castrillo (2014); Gil Quintana & Martínez Pérez (2018); Hernández (2010); Marta-Lazo et al. (2018); Mentasti (2021); Molina Rodríguez-Navas (2012); Murillo et al. (2020); Osuna-Acedo et al. (2018); Osuna-Acedo & Camarero-Cano (2016); Palmgren-Neuvonen et al. (2017); Ramírez & Caicedo-Alarcón (2014); and Soler et al. (2015).

Scientifically established terms directly related to 'collective intelligence' also appear in the systematic review. These terms are used to advocate participation and collectivity, and are clearly linked to intercreativity (see Table 2):

- 'Participatory culture' – a term coined by Jenkins (2009) – has a clear connection to the research of Aparici & Osuna-Acedo (2013); Gil-Quintana & Osuna-Acedo (2020); Hajli (2018); Molina (2012); Voces (2015); Young & Collins (2010). The participatory web is the epitome of postdigital action in that it concisely summarises the hybridisation of the digital context with the social relationship, which is the defining key.

- 'Architecture of participation' is an idea developed by O'Reilly (2007). This idea is linked with the research of Ramírez & Caicedo-Alarcón (2014); Coronel-Salas & Mier (2016); Angel & Barranquero (2015); Gil-Quintana & Martínez (2018) and Mentasti (2021). The participative fact is associated today and always to the communicative evolution within the culture of participation (the base of the participative web). This evolution supposes the terrain of the conflict between homo economicus and homo collaborans, a space of technopolitical tensions where participation becomes, on the one hand, a zone of social empowerment and mutual help, and on the other hand an alienating mechanism (Peters & Jandrić, 2019).

A large number of the papers examined in this review are clearly bound up with this postdigital context, and make connections between intercreativity and technology (see Table 2). They offer demonstrations of technological influence and the establishment of the postdigital context mentioned above. The technological presence has undoubtedly been reinforced in the immediate response to the global pandemic, but as we observe throughout this review, a number of social and critical issues have also emerged, and now present numerous potentialities. In this way, through intercreative and technological processes, we find social

issues such as group identity (Lazaraton, 2014), social support (Hajli (2018), new community models (Pan & Davenport, 2000) or how technology mediates from a moral point of view. Technology is understood as a participatory agent that enables democracy, and intercreativity as one that enhances civic engagement (Magnani & Bardone, 2008). The digital gap is examined in depth in relation to the possibilities of democratisation offered by technologies (Dutton et al., 2004), and policies of decentralisation and openness in technological matters are demanded (Bugshan, 2015; Rennie, 2003; Valderrama, 2013). Studies on the Internet as public and private digital spaces are taken into consideration (Lazaroiu, 2008, 2009), as collective creations and resources deposited on the Internet generate controversies and discourses that closely examine amateur practices and intellectual property (Collins, 2010; López-Cepeda et al., 2019). According to Bertolotti et al. (2011), the Internet exhibits some kind of intercreativity, the digital context provides new ways of activism and civic engagement, and it is at this point that citizens stop being mere consumers and start participating in producing knowledge. In this way, intercreativity is associated with collective and participatory processes, which evoke values such as solidarity and democracy (Rennie, 2003; Voces, 2015).

The possibility of generating transmedia content (Rodríguez Ferrándiz & Peñarín, 2014) in high-quality formats means that we have to become accustomed new audiovisual languages (Montemayor Ruiz & Ortiz Sobrino, 2016). Although the use of technology is instrumentalised in some cases, the educational sphere, aware of the possibilities it offers, demands a pedagogical and non-instrumental use (Mentasti, 2021), claiming that technology does not generate new ideas but connects them (Faßler, 2016). We speak of collaborative learning processes (Mostmans et al., 2012), and of collective creation not only mediated but also influenced by technology. Thus, new conceptual frameworks that do not overlook this systemic coupling of creativity are demanded (Faßler, 2016).

Intercreativity (as an educational strategy for the postdigital context)

As previously mentioned, this study explores the concept of intercreativity in relation to its postdigital context, examining the phenomenon and its pedagogical bonds with collectivity and collective creation. However, rather than framing it as a collective exercise of creation, it implies, from the point of view of the production of knowledge, an assumption of interdependence. That is to say, it emphasises the importance of becoming aware of what Freire (1970) stated decades ago: the self is always constituted by the other, and this shows that, in our postdigital reality, the connection between people, more than the technological framework, is really the core of the network (Knox, 2019): the support structure of the network is the underlying social interdependence. Thus, intercreativity and education are two closely related phenomena, as we are exposed to a teaching-learning process through a series of standardised social interactions to achieve a common goal.

[Figure 3 near here].

For this reason, one of the potentialities of intercreativity as a pedagogical resource is its clear social and interdependent component. Intercreativity is understood as an intersubjective production of knowledge or concepts related to collective creation (see Table 2). In this way, intercreativity is part of an open innovation process, due to the massive participation of users in the Internet and their involvement in content production. However, as Collins (2010) and Sedeño-Valdellos (2021) point out, new forms of creativity in the digital sphere have led to massive prosumerism. Despite the amount of amateur participation, intercreativity makes possible social democracy thanks to open systems, since the Internet is just not a medium but an intercreativity itself (Magnani & Bardone, 2008). Understanding the

digital as an intercreative process which is constantly made and unmade, intercreativity is unfinished; it is not a closed process (Bugshan, 2015; Rennie, 2003). Intercreation is vital, an urgent process that enables collaboration within the postdigital educational sphere. This is a context that offers new opportunities for formal and informal learning, as it allows for greater interaction and the opportunity to create together in a collaborative and communicative way (Mostmans et al., 2012).

As Ferri et al. (2020) note, intercreative practice has been applied in primary education by committing to a practice that goes beyond cooperation or collaboration in education (Mattus, 2014). Intercreating involves shared meaning-making and group flow (Palmgren-Neuvonen et al., 2017), and goes beyond interthinking by committing to what Valcarcel (2017) calls a plausible cultural solidarity thanks to intercreative strategies. Therefore, applying collective dynamics of joint creation can be beneficial in terms of education and the production, distribution and consumption of knowledge, as we recognise in the notion of homo collaborans (Peters et al., 2018).

Collaborative learning in digital spaces

Generally speaking, intercreativity is a process that emerges in the digital sphere, and as a result, its relationship with digital education is unquestionable, as is shown in Table 2. The analysis identifies intercreation as an educational process that seeks to return to practices that are democratising, emancipatory and open to participation, so at this point we will stop to address intercreativity as collaborative learning in the framework of digital education (concepts outlined in Table 2). As Berners-Lee rightly notes when talking about the web, '[t]his concentration of power creates a new set of gatekeepers, allowing a handful of platforms to control which ideas and opinions are seen and shared' (Berners-Lee in Peters et al., 2018). We

cannot forget that in the development of digital educational practice in what we consider the Web 2.0 or social Web, cooperation and participation are fundamental axes of that web's nature (Molina, 2012; Ugwoke et al., 2019), so it is necessary to evolve practices within the web that enable participation and democratisation (Mentasti, 2021). Intercreativity thus goes beyond simple interaction, and a truly two-way flow of communication and a horizontal learning environment are necessary (Bertolotti et al., 2011; Coronel-Salas & Mier Sanmatín, 2016; Osuna-Acedo et al., 2018). Significantly, in these (critical) communicative processes, intercreativity involves all social agents, and it is necessary to generate new spaces for sharing in which critical thinking can be encouraged (Gil-Quintana et al., 2017; Gil Quintana & Martínez Pérez, 2018). Intercreativity is presented as a main feature in social relations (McGhie-Anderson, 2017). Accordingly, digital learning positions itself as a mode that favours intercreativity, due to its collaborative nature and the opportunities it offers for participants to be active and responsible in their own learning processes (Luo et al., 2019). The intercreativity process implies multidirectional dialogue, but it does not involve a certain type of interaction. In contrast, there are many different ways to evolve intercreative processes, and diverse levels of implication (Mattus, 2014). For example, intercreation through dialogue is understood as a pedagogical resource aimed at collaborating and expressing constructive critique (Jandrić et al., 2019), but it is also possible for intercreativity to represent relations between a poetic piece of work, images and texts (a network of sociomaterial relations).

A remarkable result to emerge from the data is that these different approaches support the idea that creativity and collective knowledge are the core of the postdigital university (Peters & Jandrić, 2018), and that other educational models such as social and transfer MOOC appropriate intercreativity as a fundamental axis for the conception. These types of MOOC emphasise a social model of learning and intercreative dynamics for the generation of significant learning (Gil-Quintana & Osuna-Acedo, 2020; Mañero, 2018; Marta-Lazo et al.,

2018, 2019; Osuna-Acedo et al., 2017; Osuna-Acedo & Camarero-Cano, 2016). Recently, some MOOCs – based on intercreativity as their main educational resource – have provided an innovative perspective by including chatbots for the intercreation of knowledge and for improving learning among participants (Pereira et al., 2019).

All of the above characteristics influence a collaborative conception of educational practice and the social construction of knowledge and reality (Escaño, 2013). As a consequence – moving from a traditional approach – the main educational challenge is to allow the individuals to freely transform their reality through exercises of reflection and criticism previously promoted by interaction inherent in the human being. The postdigital, as a philosophical and critical lens, offers education the opportunity to establish digital technology and therefore the dynamics of intercreation as a matter of social justice and educational improvement. This results in a challenging creation and interaction between not only human beings, but materials within the digital sphere based on a critical attitude. The intercreative process is reflected in social values and relationships with the digital, which have been largely absent from the digital education debates, as the digital has been seen as invisible and intangible (Knox, 2019). In this educational context, students employ intercreativity to weave a network in which they collaborate, exchange, create or modify information, turning it into increasingly complex knowledge.

Intercreativity has positioned itself as a successful teaching and learning method, as evidenced by its incorporation in high-profile projects. An example of this is the ECO project (eLearning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning), funded by the European Community “Competitiveness and Innovation Framework Programme” (CIP). The project trained teachers and implemented a new typology of online courses, the so-called sMOOCs during the period 2014-2017. The ECO project states that

intercreativity is a decisive factor in removing barriers in education (Osuna-Acedo et al., 2017). Another new type of MOOC, the transfer MOOCs, has emerged from this same project. These focus on the transfer of learning by generating interest in action and professional interaction, and are based on intercreative talent as a pedagogical tool (Osuna-Acedo et al., 2018).

Limitations

It is necessary to consider a number of limitations while interpreting the results of this systematic review. First, the current study has been limited by the small number of publications in which the intercreativity phenomenon is developed or deeply described. Second, a systematic review as a research method depends on the quality of the studies included in the analysis. Any bias on a primary data level will have an influence on the main results.

Furthermore, most studies assessed education or media studies and occasionally cited intercreativity without evolving its meaning or values. Regarding this issue, there were no possibilities for comparisons concerning specific domains. Outlining possible applications of our work, our data suggest that intercreativity and the terms related to this phenomenon could be used in order to develop and articulate a postdigital educational framework.

Outlining possible applications of our work, our data suggest that intercreativity and the terms related to this phenomenon could be used in order to develop and articulate a postdigital educational framework. We encourage exploring new categories of this phenomenon and its relations with other disciplines, as well as the implications of its ethical, political and educational values. It is necessary to begin to establish a precise and relevant theoretical framework that contributes to the field of research. To our knowledge, this is the first systematic literature review of the intercreativity term and the main strength of this study is the time period it covers (21 years).

Conclusion

This systematic review provides a conceptual framework related to intercreativity processes and their educational implications. The results obtained conclude that it has a place within different environments which makes it interdisciplinary, resulting in a powerful tool for the development of common and critical practices in the educational scenario. Although in recent years the term has acquired more popularity, we argue that further development of the intercreativity concept is necessary. The findings supplied in this paper have educational implications since they are related to cultural, social and technological issues. In this way, the results contribute to the description of a context for the reality of educational practice and where it should be headed.

The educational aspects with which intercreative practice is linked emerge with greater intensity and are more valuable as the number of participants increases. Intercreativity is always an open process – never finished – that accepts any social agent and is interested in being part of this communicative flow, both multidirectional and horizontal. We argue that intercreativity as a powerful process is immersed in the architecture and culture of participation, and empowers people once they move to being homo collaborans and invoke emancipation. The current COVID-19 situation has pushed us towards digital education, a context until now very limited by traditional pedagogies, but which is emerging as a space for collaboration and solidarity. Fostering intercreative strategies in educational practice is crucial in a social and cultural context where participation and communication are essential. Intercreativity goes beyond interthinking and bets on solidarity and democracy. It is not linked to a specific manifestation, but its practice induces collaboration and criticism and works on educational values that we must support if we move away from (digital) education with a merely instrumental aim.

In fact, Peters and Jandrić (2018) consider the Internet an ideal sphere in which to develop new modes of collective knowledge. Due to the potentialities of the concept, revising intercreativity results in a new plan of intervention. As proposed by Mentasti (2021), and as we pointed out earlier, intercreativity becomes a pedagogical strategy that provides keys to understanding and improving educational praxis in both digital and non-digital teaching processes. The complexity of the present moment and the global collapse demand social rethinking that leads to collaboration and collective creation. In a generalised way, the articles analysed here, regardless of whether they address media or educational contexts, manifest the need for intercreative practices. What is significant is not the final result or production, but rather the need for collectivity, the recognition of others. This is a fundamental value that education must address. If we have seen anything in recent times, it is that solidarity and interdependence will lead to social transformation. Addressing this in the postdigital educational sphere is necessary, and intercreativity is a strategy to do so.

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