New actors and new learning spaces for new times: a framework for schooling that extends beyond the school

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Abstract
Taking the ‘breakdown’ in regular schooling as a result of the Covid pandemic as a catalyst to reimagine education, this article formulates a theoretical framework, using design research, that enables a fundamental reconceptualization and introduction of new actors into the space of schooling, which is a learning environment that traditionally has maintained rigid boundaries. Recommendations are proposed for bridging formal and nonformal education for practitioners and policymakers, bringing together teachers and youth workers to co-construct a learning environment. In creating a prototype for learning that involves a more joined-up and connected paradigm in education, as well as bridging the gap between learning in formal and non-formal contexts, we create a shift towards reimagining and recognising the importance of a holistic view of education by re-evaluating and supporting a broader range of actors who can participate in the education of children and young people.

Keywords Formal education · Inclusion · Nonformal education · Youth work

Introduction
There have been disruptions on a global scale caused by the Covid-19 pandemic that for many people have been deeply unsettling because they brought into focus the precariousness of our everyday lives. In education, this disruption has led to something that had been called for by many for a very long time—an interruption of the sedimented and hegemonic patterns of the everyday rituals and practices of schooling to an extent that was unimaginable previously (Brookfield, 2009; Giroux, 1981; McLaren, 1999). The abrupt closing of schools meant that this key part of life either came to a halt or was significantly altered in terms of the ‘doing’ of school for children and young people. In this, education

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as commonly understood, or at least the schooling part of education, was exposed as a single point of failure; when schools closed, the continuation of education was left with little or no recourse to a plan B. The manner in which ‘education’ had become coterminous with ‘schooling’ became increasingly apparent as students, teachers and parents struggled to negotiate a dramatically-different way of learning (Flynn et al., 2021). The challenges encountered in attempting to ensure the continuation of education pointed both to how limited the educational practices of schooling were once physical schools were closed, but also to how much broader a societal role schools play than merely that of schooling.

While school closures had negative implications for most young people, the effects are of greater consequence for some, leading to a magnification of marginalization for many groups of learners. As the crisis revealed, the non-formal youth work sector was able to continue to support students when school did not manage to reach certain groups (Detyna et al., 2022; O’Regan et al., 2022). Given this, it appears apposite to include the expertise of the non-formal sector in a more-integrated and sustainable way into a new learning model that is embedded in schools but retains open links with alternative learning environments adding to the literature in this field (Keser Aschenberger et al., 2022).

As the experience from March 2020 has shown, a time of crisis can act as a catalyst for a questioning of that which was previously taken for granted. We argue that, beyond the immediacy of school closures, a more-transformative schism has actually happened. The ongoing effect of the pandemic on education systems has brought forth a much-needed examination of well-established and seemingly-immutable models of schooling. The forced disruption of the core practices of schooling offers a window of opportunity for reconsidering how schools can better serve the diverse needs of learners. It is essential now to grasp this opportunity to move away from deeply-unequal education systems that have consistently served the needs of select and selected groups of learners instead of a system that achieves more for all. To this end, this paper sets out a theoretical framework that can facilitate a reconceptualization of schooling, bridging formal and non-formal education for practitioners and policymakers to co-construct a learning environment that better meets the needs of students. The inclusion of youth workers as new partners in this reimagined learning space recognizes the role that this group of professionals play in the extended social world of young people’s life-wide learning and the strengths of youth work approaches in the teaching of global competencies needed for the twenty-first century (Barnett, 2011).

The paper contributes to the theoretically-motivated arguments of learning environments. Historically, this field of learning environments is attributed to the work of Herbert Walberg and Rudolf Moos (Fraser, 2018) wherein they developed the Learning Environment Inventory (LEI) (Walberg & Anderson, 1968) and Classroom Environment Scale (CES) (Moos, 1974). Subsequent to this research was Lewin’s (1936) contribution to field theory in business settings. “Lewin’s formula, B = f (P, E), stressed the need to consider behaviour as a function of both the person and the environment” (Fraser, 2018, p. 2). More contemporary research provides a holistic conceptualising of learning environments (Keser Aschenberger et al., 2022; Manninen et al., 2007; Mogas et al., 2021; Valtonen et al., 2021) infusing physical, technological and informal learning spaces. In this paper, we identify the rationale or need for the re-design of learning environments, drawing on the literature in relation to educational inequality and the potential of youth work approaches informed by a global competencies model. The core principles in each of these can be seen to center on learner agency, responsiveness to context, and adaptability. We then present the framework that explicates the transformative potential of bringing these approaches together. The model is underpinned by the Reggio Emilia approaches (Brookes & Hardy, 2002), advances education from the fourth industrial revolution, termed Education 4.0 (Salmon,
2019), the theory of infrastructuring (Penuel, 2019a, b; Star, 1999) and technological innovation, which seek to build new educational relationships with the aim of transforming practice and the learning environment (Keser Aschenberger et al., 2022; Mogas et al., 2021). Key to such a framework is the introduction of new actors into the space of schooling. By bringing together teachers and youth workers to co-construct a suite of learning activities, we explore the potential benefit of creating online learning spaces that complement and extend the physical spaces of schooling.

**The problem: Why the need for new learning environments?**

In the first part of the paper, we make the case for why new learning environments are needed, focusing firstly on research relating to educational inequality before moving to research on youth work and global competencies.

**Educational inequality**

Many critical perspectives, over decades, coalesce on a number of key issues such as the reproductive role that schools play in: ensuring the transmission of dominant ideologies and forms of knowledge and the distribution of skills that ensure that social division and patterns of privilege are maintained (Giroux, 2019). Schools in essence function as agencies of social and cultural reproduction (Bourdieu, 1990; Lampert, 2016; Laureau & Goyette, 2014; Reay, 2006, 2018; Reay et al., 2007, 2011) and schooling is a series of preparatory experiences that set many groups of children and young people up for unequal futures (Apple, 2012; Supovitz & McGinn, 2019; Thomson, 2007; Willis, 1977). Schools and the process of schooling therein are exposed as institutions that individualize failure and the responsibility for failure (Labaree, 2012; Paredes Scribner & Fernández, 2017; Reay, 2018; Thomson et al., 2012; Wrigley, 2012). In this, the blame is located firmly at the level of the learner, who can be positioned as failing to ‘fit’ the dominant modes of schooling. This is often linked to the learner’s perceived deficit of the necessary cultural or social prerequisites to be a successful learner. Many schools are identified in research as exhibiting patterns of exclusion and inequity that are so deeply embedded in the fabric of school life and repeatedly made manifest by rituals and practices that they are often fully invisible even to those who are most-negatively impacted by them (Giroux, 1981). This lack of visibility means that the patterns also remain obscure to those whose actions enforce and reproduce these hegemonic forces so effectively.

Of course, it can be argued that some of these perspectives on social reproduction are overly deterministic and that they downplay the potential of individual agency by which people can intervene, resist and redirect a particular predetermined pattern. However, in the case of certain groups of children, this level of determinism continues to be borne out in the evidence of outcomes globally (Le Blanc, 2016; Slee, 2001). Social class, for example, continues to determine the nature and degree of success in schools despite multiple efforts to mitigate against the consequences of this positioning (Reay, 2018).

Slee (2001, 2011) and Slee and Thompson (2018) argue for more-inclusive models of education and call for radical system reform. Others (Allan, 2008; Graham & Slee, 2008; Graham, 2020; Lynch et al., 2016; Mac Ruairc et al., 2013; Mac Ruairc, 2010, 2020; Norwich and Koutsouris, 2017) echo the need for a seminal shift at system level to interrupt current paradigms, in order to bring about more profound shifts in practice. Critical
pedagogues, drawing on and developing the work of Freire (1970, 1997), argue for emancipatory alternatives in which conscientization results in a critical awareness of context that can be mobilized for the purpose of transformative reflection and action (Biesta, 2017; Giroux, 2019; Le Blanc, 2016).

Educators and educational practices must now start to look beyond cultural appropriateness and become culturally responsive in designing learning environments. The increasing attention to the importance of cultural responsiveness in education is illustrated by the extensive list of cognate terms emerging from the literature, such as culturally respectful, culture-sensitive, culturally rooted, culturally relevant, and culturally congruent (Gay, 2010; Ladson-Billings, 1992, 1995; Yamauchi, 2005). Notwithstanding the differing terms, the underlying assumption is the same—respect for multi-cultural knowledge, skills, and cultural diversity in educational practices. Culturally-responsive education has significant potential in bridging the gap between home and school, particularly for learners from marginalized groups whose experiences of schooling might not reflect their home cultures. There are also compelling imperatives to reconsider current models of schooling based on perspectives related to diversity, equality/equity, and social justice, among others. Education systems are always changing and always reforming towards more equitable goals, yet fundamentally not changing very much and certainly not impacting the asymmetrical patterns of attainment and outcomes between different groups. Recent moves towards more intersectional examinations of educational outcomes are revealing the deeply-embedded and -compounded nature of marginalization in schools and the profound and enduring impact of both negative and positive school experiences on people’s lives (Gillborn, 2015; Spillane et al., 2019a, b). Singh (2011) states:

[w]hen students perceive that the school setting is hostile and incongruous, or when there is a cultural mismatch or cultural incompatibility between students and their school, there inevitably occurs miscommunication; confrontations between the student, the teacher, and the home, leading to hostility, alienation, diminished self-esteem, and eventual school failure. (p. 14)

The desire to ‘return to normal’ after the Covid-19 disruption to education becomes problematic in the context of these deeply-rooted inequities. Although the arguments for fundamental change in learning environments are abundant, what requires more-explicit consideration is how to achieve this level of change and this breadth and depth of reform.

**Need for global competencies and youth work education**

As a consequence of globalization and the technological revolution, we are living in a precarious world of unpredictable and often sudden social, political, economic, and environmental shifts (Bauman, 2011). It is the task of educators now on a global level to prepare young people to be adaptable to the social life of the twenty-first century. Dill (2013) describes a global consciousness approach as one which seeks to provide students with a global orientation, empathy and cultural sensitivity stemming from humanistic values and assumptions. Global Competencies are a set of skills, values, and behaviors needed to prepare young people to thrive in a diverse, interconnected world (Pisa, 2018). They include an ability to examine local, global and intercultural issues, the capacity to understand and appreciate the perspectives and world views of others, the ability to engage in open, appropriate and effective interactions across cultures and a willingness to take action for collective well-being and sustainable development (Boylan et al., 2019; Pisa, 2018). Bruhlmeier
(2010, p. 3) argues that, by cultivating natural and unique gifts in individuals, educators can enable children and young people to realize their vocation or role in society and develop in them independent personalities with all their human potential to achieve a good quality of life. There is a need for educational activities to be meaningful, to resonate with young people, and to give them a sense of excitement, pleasure and fulfilment, which can be done by transcending purely functional activities to reach a new ‘higher’ level guided by ethical and aesthetic values.

Youth work can play an important role in providing spaces for the cultivation of human potential and the acquisition of global competencies that young people might not have access to in the formal education system (Brady et al., 2020). As a type of non-formal education, consisting of educational and developmental activities and programmes that are different to but complementary to the formal education system, youth work involves “open-ended engagement with young people in peer group settings, that starts from their starting points rather than from pre-defined outcomes or agendas” (de St Croix, 2018, p. 418) and emphasizes principles such as voluntary participation, accessibility, empowerment and equality (Furlong, 2013). Influenced by Freire, youth work is also about working with young people to understand the structural and political forces that shape their everyday experiences and opportunities, and to develop their interest and skills in seeking to promote social change (Brady et al., 2020; Davies, 2019). Youth spaces, such as youth clubs, projects and cafes, are attractive to young people because they provide them with social and recreational outlets and opportunities for non-formal learning, and they are arenas in which relationships with others can be developed and maintained (Furlong, 2013; Brady et al., 2018). UNESCO (2019) emphasizes the importance of the creative experiential methods used in non-formal education in the building of more peaceful, tolerant, inclusive, secure, sustainable societies and to “instill in learners the values, attitudes and behaviors that support responsible global citizenship: creativity, innovation, and commitment to peace, human rights and sustainable development.”

Youth work activities can be potent forces for social change, facilitating young people to question contemporary society, discuss local and global issues, and take on a different perspective as a result of sharing and discussing issues within a group setting and promoting change through collective action (Wright et al., 2019). Working from a strengths-based approach, youth work positions youth as social actors who exhibit agency, the ability to influence their own lives, the lives of others, and the societies in which they live (Davies, 2019; Lee et al., 2020). Non-formal education has been shown to bring a range of benefits, including the acquisition of new knowledge, enhanced critical awareness of community, improved self-perception and expanded social networks and opportunities (Lee et al., 2020; Wright et al., 2019).

Extending the learning environment: framework and theoretical underpinnings

Our framework proposes the creation of a professional learning community of teachers and non-formal education sector professionals with a view to supporting learning by enabling more diverse approaches to engagement with learning and helping second-level students to utilize a broader suite of effective learning spaces than before. Relationships are created between formal and non-formal education settings by bringing together youth workers and teachers to co-develop a suite of learning activities for young people. This involves

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delivering learning activities collaboratively by teachers and youth workers in the formal space of the school classroom, the non-formal space of youth centers, and the in-between or bridging space of an online learning environment. Aligned with this is a need for teacher and youth worker participants to co-construct the programme outcomes, ensuring that content aligns explicitly with the imperatives of day-to-day professional practice. A potential framework needs to incorporate coaching support in order to ensure that (a) all participants are making effective use of programme materials in practice and (b) the learning outcomes of the programme remain calibrated and aligned to the demands of the new more-varied learning contexts and modes of engagement. In partnership with educators and all actors, the design of a social, cultural and technical infrastructure to promote collaborative learning in classrooms and out-of-school settings is central to a framework, illustrated in Fig. 1, creating regional hubs that are supported by technology. Educational technology should place emphasis on carving space for experimenting with ‘alternative’ ways of thinking about what learning environments are and what they could be. We propose to address the imperative by establishing a strong and sustainable interface for learning that aims to bridge the gap between formal and non-formal learning, focusing in particular on creating safe learning environments for vulnerable learners from marginalized contexts.

The third teacher and education 4.0

The innovative pedagogical approach of Reggio Emilia denotes the learning environment as a pedagogue or ‘pedagogist’ between child, teacher, and parent. Indeed, the learning environment can be described as a ‘third teacher’: ‘[t]he importance of the physical learning environment to learning in Reggio schools cannot be overestimated; it is considered the ‘third teacher’’ (Brookes & Hardy, 2002, p. 23). In the context of this paper, the learning environment encompasses the school classroom and youth centers, with the online space acting as a bridge between these formal and non-formal spaces. Mindful of the ecosystem and environment as an educator, we can notice how our surroundings can take on a life of their own that contributes to young people’s learning (Strong-Wilson & Ellis, 2007). Central to this pedagogical approach, the young person, when engaging in authentic
project-based learning approaches, assumes the role of protegazzione (or active protagonist) in his/her own learning. The centrality of learner agency in this educational approach aligns itself with the youth work approach, particularly in that both take the young person’s social reality as a point of departure in learning. This democratized form of knowledge production decenters the teacher, allowing other actors to become active in the construction of learning. The teacher is not removed from learning but rather there is a parity of agency, with knowledge not being seen as residing only with one group of actors (teachers) but as being actively co-produced by a collectivity of actors (learners, teachers, peers).

Learning environments have undergone constant development with the emergence of new technologies which offer potential for developing new understandings of the relationships between the learner and the ‘third teacher’. The emerging challenge with advances influenced by the fourth industrial revolution, namely, the provision of educational platforms charged by artificial intelligence and machine learning and ‘the absolute necessity of saying goodbye to disciplinary silos’ (Salmon, 2019), underpins challenges for our new learning environments (Mogas et al., 2021). Fisk (2017) explains that the new vision of learning facilitates learners to acquire not only the skills and knowledge that are needed but also to identify the sources through which they can learn such skills and knowledge. Learning is built around them as to where and how to learn and tracking performance is done through data-based customization. Peers become very significant, learning together and from each other, while teachers assume the role of facilitators in their learning (Fisk, 2017). Because there is a bi-directional relationship between pedagogical beliefs and technology use, we must combine the best technology with the best human teaching (Salmon, 2019). Productively exploiting the advantages offered by technology in terms of creating adaptive and responsive learning environments supports learning approaches informed by the global competencies model, in which learners are exposed to a broader and more-diverse range of learning experiences and social interactions than might be the case in a physical learning environment.

Infrastructuring the framework using design research

The theoretical framework proposed in this article aims to develop the alignments highlighted between the approaches above through a process of educational infrastructuring and design research. Responding to the cracks and flaws in existing education infrastructures, which were exposed by the pandemic, this process aims at transformation rather than merely repair. According to Penuel (2019b), educational infrastructuring involves activities that aim to reimagine the components, routines, and relations of schools and educational practices. The process of infrastructuring is at its core a relational process, because it focuses on how the various elements of systems interact with each other in the construction of practices and the production of knowledge. These processes are not limited to interactions between social actors; rather infrastructures and infrastructuring are “both relational and ecological” and are “part of the balance of action, tools, and the built environment” (Star, 1999, p. 377). Of course, in the decades since Star’s definition, the technological space has become a significant part of the balance in its own right, alongside the built environment, and this space is a key aspect of the infrastructuring in our framework. The infrastructuring design was based on the foundational ontological notion that there is a close, mutual interdependence between the physical environment of learning and the pedagogies enacting within it in the current digital world (Brühlmeier, 2010; Freire, 1997; Ketelaar et al., 2012; New, 2007; Penuel, 2019a; Salmon, 2019).
Bell (2019) outlines an infrastructuring project in which different actors are brought together to develop teacher learning about science teaching. He argues that the creation of new relations in the liminal spaces between teaching, researching, and community can be beneficial:

[infrastructuring as a shared collaborative design practice is inherently a contested and complicated endeavor, but it has a strong potential for productively working toward equity across networks of teachers, community members, and researchers (p. 682).]

This productive potential of infrastructuring is a key rationale for its adoption as a framework. Rather than mere attempts at repairing the disrupted infrastructure using existing models and hegemonic practices, bringing in new ‘components’ and new lines of relational practices has the potential to lead to pro-active transformation and productive renewal. By bringing together actors who typically do not collaborate in educational settings, it is likely that the process of designing and delivering new models of learning will involve contestation and tension. However, as Bell discovered, the friction in these liminal spaces of knowledge production has the potential to ‘desettle’ established practices and can have positive implications for equity in terms of voices being heard and knowledge being centered in the co-construction of educational practices. To achieve this ‘desetting’, it is necessary to be attentive to how power operates within existing infrastructures and to explore how the new relations created through infrastructuring can build towards a more equitable distribution of power. As argued by Penuel (2019a):

[...attending to power in infrastructuring requires a kind of analytic ‘inversion’ to make visible infrastructures and reconstruct the history of their development, to name who benefited and who suffered from the use of particular categories, and to make transparent and more democratic processes for re-design of infrastructure (p. 392).]

The direct societal impact of education in shaping the future of society demands innovative research methods which are impactful and capable of building new realities (Hogan et al., 2017; Wegerif, 2017). Thus, the ongoing evaluation and modification of the infrastructuring process is informed by a design research approach. The opportunity to improve the sustainability of innovations is a central challenge for design-based research (Penuel, 2019a). Involving the creation of tools for the improvement of practice and for theory development and knowledge building (Edelson, 2002) design is at the core of the infrastructuring process. Educational design research solves a practical educational problem by drawing on prior theoretical knowledge in developing and implementing an innovative intervention in a complex, real-life educational setting. Rooted in complex multivariate real-world settings, design research leads to the development of usable knowledge and has the potential to realize meaningful educational change by improving the relevance and robustness of educational research (McKenney & Reeves, 2019). Educational designers develop theories which help in understanding implementation, scale, and productive interactions between research and practice (McKenney, 2018). The theoretical understandings which are valuable to others are generated while a learning environment and ecosystem are being simultaneously implemented within a real-life learning setting (McKenney & Reeves, 2014).
Conclusion

The desire to return to normal is understandable at a time when so much is uncertain. This is particularly true of education for which historical norms and expectations have led to deeply sedimented worldviews about what education should look like (Layder, 1997) and, more importantly, who has legitimacy to be part of controlling, shaping and enacting all of the moving parts within the education machine. While there have been some efforts of democratization in terms of social partnership in Ireland and elsewhere (Hyeong-ki, 2012) those who have the power to shape education typically are not drawn from broader societal interest groups. In most cases, teacher, leaders, ministry, inspectorates, curriculum designers and assessors are broadly aligned to normative forces and groups. Historical attempts at reform have revealed repeatedly that, within this consensus, any change that occurs tends to be surface-level or short-lived (Labaree, 2012). The conditions for meaningful change that lead to a more broadly inclusive system are unlikely to emerge unless the actors involved in driving educational reform are drawn from more pluralistic perspectives.

The project Bridging Worlds, Learning Spaces for New Times is a first step towards achieving the described learning environment (O’Regan et al., 2021). A focus of the project is broadening the base of actors in educational spaces in a more explicit way so that a diversity of voices and perspectives can be heard. The infrastructuring process underpinning the Bridging Worlds project brings together diverse actors, creates new relationships and harnesses collaboration allowing the democratisation of knowledge production in learning spaces. The project has demonstrated how the school programme and the local youth group can create a wrap-around model of support (O’Regan et al., 2022). The connections, between and amongst adult and young people not only provide increased scaffolding and support to these participants, but serve as an exemplar of how both sectors can continue to strengthen and enhance their connections into the future.

A focus of this article is broadening the base of actors contributing to and in learning environments more explicitly so that a diversity of voices and perspectives can be heard. Within this process, parity of esteem between actors is key. While this article starts from the recognition that there have been failings in regard to creating inclusive learning environments, the purpose here is not to apportion blame or claim positional advantage within this new conversation. Rather, the intent is to open up in order to rebuild in a different way how to use technology to support knowledge exchange in our educational spaces.

The imperative here is very straightforward; returning to the ‘normal’ practices and structures of schooling that have failed so many should not be the default. In addition to the vast amount of scholarship pointing to repeated failure of education systems (previously noted in this paper), we have learned, directly as a result of the crisis, that the normal practices of schooling were overly rigid when faced with the need to adapt rapidly to new circumstances. What innovation existed was ad-hoc and patchy, leading to a compounding of inequalities of educational experience among all learners, not just those from marginalized groups. Instead of a return to normal, then, what is called for is a reimagining of the normal, so that the capacity to adapt to changing circumstances is embedded within dominant models of schooling. This reimagining must capitalize on the reawakened recognition of the inequalities of the current system and examine new ways of addressing marginalization in education.

It is acknowledged that bringing together these two sectors will not be without its issues. If reactions from previous efforts at systemic reform are anything to go by (Byrne & Pendergast, 2020), there probably will be a strong pull amongst teachers to go back to the old
normal. This largely could be borne out of the understandable need for teachers to feel secure in the professional world and ‘on top’ of their professional practice in terms of their own performance in the classroom. Teacher identity has been to some degree wounded by the emergency move to online or blended modes of teaching. Concerns about performance impact identity very explicitly, producing a kind of teacher or system fragility that resembles the notion of white fragility (Di Angelo, 2011) and with a concomitant imperative to get the tried-and-tested equilibrium back. Youth workers too will undoubtedly experience risk identity issues arising from a more-explicit alignment with the formal world of schools.

Adopting an infrastructuring perspective will help to foster a productive collaboration between these two groups. Because infrastructuring design efforts can create conditions that support educators in making innovations. In other words, it is not a top-down approach but rather an approach through which relationships are established and actors are enabled to co-construct knowledge about their practices with the aim of creating innovations in those practices. Youth workers have demonstrated in this crisis that their expertise in engaging with marginalized young people can prove successful when formal education actors could fail. Rather than positioning these two types of actors in opposition to each other, this article establishes the conditions in which formal and non-formal settings can act as complementary partners in producing new understandings of inclusive practice. The proposed framework intervenes at this juncture not only with new actors but with a new script that draws on the transformative potential of dynamic spaces of knowledge production that are enabled by new relations formed through and with technological innovation.

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