

TEACHERS' FRAMING AND DIALOGIC FACILITATION OF *MINECRAFT* IN THE L1 CLASSROOM

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Abstract

A fairly large body of research has documented how digital games can be used in L1 education. However, there is still a lack of detailed studies on how literacy teachers go about teaching with games as multi-modal texts in the classroom. Revisiting earlier empirical work on the use of the sandbox game *Minecraft* in primary school, the aim of this paper is to explore how a specific game challenge is enacted in practice as seen from a dialogic perspective. Drawing on theories on games and literacies, dialogic education, and teachers as professional practitioners, the paper presents the Game as Educational Challenge (GEC) model in order to understand how L1 teachers frame specific game challenges and facilitate dialogue with the students in relation to their game experiences. The model is used to reanalyse empirical examples of how teachers from three primary schools adopted a teaching unit with *Minecraft* through different pedagogical approaches. The findings show not only how the teachers' framing of the game challenges reflected their familiarity with the game, but also how they taught and related the game challenges to curricular aims in different ways. Moreover, it is found that the teachers negotiated authorial positions quite differently when facilitating classroom discussions with students about their game experiences.

Keywords: digital games, dialogic education, educational framing, teacher facilitation, *Minecraft*

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Hanghøj, T. (2022). Teachers' framing and dialogic facilitation of Minecraft in the L1 classroom. Contribution to a special issue Gaming and Literacies, edited by Thorkild Hanghøj and Sandra Abrams. L1-Educational Studies in Language and Literature, 22, 1-31. <https://doi.org/10.21248/l1esll.2022.22.2.364>

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It is a well-known fact that children all over the world spend a considerable amount of time playing digital games outside school – often more than two hours each day (WHO, 2016). Moreover, it is often argued that the multimodal communication that takes place during videogame play also extends beyond the actual game activities (e.g., Enslinn et al., 2019; Gee, 2003). In this way, it is not surprising if teachers choose to use commercial digital games in L1 education to engage students in meaningful literacy activities, which build on and extend their out-of-school game experiences in relation to curricular aims. As the two reviews by Bacalja (2022) and by Hanghøj et al. (2022) in this special issue find, several case studies have shown how the use of commercial games might support students' learning of literacies in L1 classrooms. Key examples include students analysing and interpreting games as fictional texts (Berger & McDougal, 2013); students searching for, reading, and producing various types of game-related paratexts, such as game journalism (Hanghøj et al., 2020) or imaginary expansion packs to existing games (Beavis, 2007); students designing their own game concepts by combining programming skills with narrative ideas (Burn, 2007); or students developing critical literacy by producing game-related Let's Play videos on YouTube and gaining insight into the commercial aspects of the business models surrounding games (Burwell, 2017). As the variety of these examples suggests, digital games represent complex texts and flexible tools that can be linked to the curricular aims of L1 education in multiple ways.

There exist several different ways of defining games. However, Deterding (2015) argued that many definitions of games assume that "a game consists of one or more interconnected *challenges* a player is trying to overcome, which emerge from the player taking *actions* in pursuit of *goals*, and *rules* and *objects/opponents* that make attaining those goals challenging" (2015, p. 299; see also Plass et al., 2015). In this way, a game's challenge, which could be a specific kind of difficulty or resistance requiring nontrivial effort and skill to overcome (e.g., solving puzzles in an adventure game), is at the heart of its game play experience. Building on this definition, I use *digital game* as an umbrella term for any type of game that is being played on an electronic device (computers, phones, consoles, and handheld devices), which includes both videogames and computer games.

Studies on digital games in L1 classrooms often focus on students' experiences and learning processes. But how do L1 teachers go about using digital games in their classrooms to teach literacies? Drawing on literacy research as well as game research, Apperley and Beavis (2013) have argued convincingly that teachers using games need "gaming literacies," which involve both "textual" literacies (e.g., when reading/playing or writing/producing multimodal texts in and around games) as well as literacies that are "specifically linked to the *action*-based processes of digital game play" (p. 2). In contrast to many other types of texts in the expanded text repertoire of the L1 curriculum, the authors emphasised how digital games cannot be understood simply on textual terms. This means that teachers using games in the classroom must pay attention to the action layer of games—how the specific games are

played in the classroom and how that relates to students' out-of-school gaming practices.

Apperley and Beavis described several important aspects of the *games-as-text* and the *games-as-action* layers in order to help "build classroom activities" that involve both curricular aspects and "young people's out-of-school experiences of digital games and gameplay" (p. 9.). Their theoretical work has inspired several other researchers working with games and literacies (e.g. Bacalja, 2017; Elliott, 2018; Marcon & Faulkner, 2016), which makes it a highly valuable and influential contribution to the research on games and literacies in L1. However, even though Apperley and Beavis's work has been used extensively to describe literacy teachers' different approaches towards games (e.g., Beavis et al., 2017), their theoretical framework provides relatively limited analytical insight into how teachers frame and adopt digital games or facilitate dialogic interaction with students about their game experiences in classroom contexts. At the same time, several studies have pointed out that it is highly important to understand and provide more detail on how teachers try to create meaningful integration between facilitating games and achieving curricular aims (Arnseth et al., 2018; Bacalja, 2022). It is often unclear from the research how teachers manage (or fail) to link particular games with curricular aims and how they facilitate games in the literacy classroom. In this way, there is a need for a more contextual understanding of game-based teaching in the L1 classroom, which maps how teachers create coherent connections between games as texts and as social actions when planning and facilitating specific game-related units.

This paper explores a practice-oriented perspective on game-based teaching through a theoretical framework and an analytical model that focuses on understanding how literacy teachers integrate games as a part of their teaching. In order to do so, I will pursue a *dialogic perspective* on how teachers frame, enact and facilitate discussions on students' game experiences in the classroom (Arnseth et al., 2018). Furthermore, I will argue that specific *game challenges* represent a key focal point when L1 teachers frame and enact games in their teaching, which involves creating meaningful links between game goals and educational aims, as well as between game design (textual) aspects and social, action-oriented aspects of meaning.

The empirical focus of my paper is based on a research project involving *Minecraft*, which is a widely used and studied digital game within L1 education. The game is an open world (also known as a "sandbox" game) that offers the player a wide range of possibilities for exploring worlds, finding and crafting resources, and building new constructions through interactions with other players. The game has sold more than 100 million copies and has a wide appeal among both girls and boys between the ages of six and 12 (Mavoa et al., 2018). Given the huge popularity of the game and its flexible design space with almost unlimited possibilities for world-building activities, it is not surprising that many L1 educators and researchers have taken a keen interest in the game. Moreover, there exists an educational version of the game specifically for schools, which has made the game more accessible to thou-

sands of educators and students all over the world. In this way, *Minecraft* has become a game-changer, which demonstrates that it is possible for teachers who are not necessarily specialised “teacher-gamers” (Holan Lucci, 2018) to access and teach with complex commercial games in the classroom.

The paper draws on my earlier empirical work on using *Minecraft* in the primary literacy classroom. Previously, I analysed how primary teachers positioned themselves through different pedagogical approaches by executing, improvising, and transforming a game-based teaching unit (Hanghøj, 2017) and how the same group of teachers facilitated students’ writing of diaries in relation to their game experiences (Hanghøj et al., 2018). In this paper, I revisit and reinterpret the empirical data through a dialogic perspective by introducing a reworked version of the Game as Educational Challenge (GEC) model, which I have presented in an earlier version elsewhere (Hanghøj, 2017). In this way, I use the GEC model as an analytical tool in order to explore how the literacy teachers framed and enacted specific *Minecraft* game challenges in relation to game goals and curricular aims and how they assumed different dialogic positions when facilitating the students’ game experiences in the classroom. The analysis is guided by the following research question: When teaching with *Minecraft* in an L1 classroom, how do literacy teachers frame and enact game challenges as well as facilitate dialogue with students about their game experiences? It is my hope that the theoretical and empirical insights that follow from reinterpreting the data through the GEC model will provide valuable perspectives on how teachers bring digital games into the L1 classroom. In this way, the paper aims to provide a more detailed understanding of how teachers do not simply use games as neutral tools, but adopt them by negotiating the meaning of specific game challenges and by orchestrating classroom discussions with students around their game experiences.

The paper is structured as follows. First, I review relevant research on using *Minecraft* in L1, as well as research on how teachers teach with games. Next, I describe dialogic perspectives on game-based teaching, as well as how teachers frame games as a part of being reflective practitioners. Based on these theoretical perspectives, I then introduce the GEC model for conceptualising how game challenges relate to different aspects of game goals, curricular aims, games as designs (texts), and games as social actions. Third, I present an empirical case involving design interventions with a *Minecraft* unit in primary education. Using the categories of the GEC model, I then present two analytical themes that address teachers’ framing of game challenges in *Minecraft* and their dialogic facilitation of classroom discussions in relation to the game. The paper concludes with a discussion on how *Minecraft* and other commercial digital games can be meaningfully related to the L1 curriculum, as seen from a dialogic perspective.

1. TEACHING *MINECRAFT* IN L1 CLASSROOMS

There exists a growing body of literacy research on the use of *Minecraft*, which shows that the game can be used for teaching literacies in many different ways across primary, lower-secondary, and upper-secondary education. Some studies focused on using *Minecraft* to increase student interest in working with literary texts, such as by letting upper-secondary students recreate and interpret Susan Hinton's novel *The Outsiders* (1967) in the multimodal 3D game world (Marlatt, 2018) or by inviting lower-secondary students to read a book with a *Minecraft* theme in a reading club (Stufft, 2018). Other studies documented how primary students learn to write diaries or log entries by combining text and images in response to their game experiences in the *Minecraft* world (Dezuanni & Zagami, 2017; Hanghøj et al., 2020). In this way, the literacy focus is sometimes on creating multimodal designs in *Minecraft* inspired by existing literary texts and sometimes on letting students write their own texts based on their experiences in the game world.

Several studies focused on how the game can be used to appeal to different groups of students who might not be engaged in L1 education. One study documented how teaching with *Minecraft* can engage disadvantaged lower secondary students in the literacy classroom by drawing on their existing knowledge of the game outside school and positioning them as game experts (Elliot, 2016). Similarly, Marcon and Faulkner (2016) explored how *Minecraft* appealed to lower-secondary boys and girls, who worked strategically and collaboratively as they immersed themselves in the game and engaged in problem-solving activities, as well as distributed forms of learning by linking their game constructions with social media. Other studies have explored how children's game play in an after-school setting with *Minecraft* employs a broad range of different modalities and collaborative performances (Bailey, 2016) or how the learning of literacies takes place when children play the game at home with their peers (Abrams, 2017; Dezuanni, 2018). Taken together, these findings indicate that *Minecraft* is well suited for engaging students across different age levels and for teaching many forms of literacies (e.g., reading, writing, or multimodal production), whether the learning context is formal, informal, or a combination thereof.

Although there is rich potential for using *Minecraft* to learn literacies, several studies also mention that it can be quite demanding for teachers to facilitate such a complex game (Hanghøj, 2017; Prestridge, 2017). In their recent cross-disciplinary review of research on *Minecraft* in education, Baek et al. (2020) pointed to several issues that teachers should consider when teaching with the game. First, teachers need support when learning how to play and teach with *Minecraft*, as the open-ended game world can be overwhelming at first. This might involve getting help from more capable colleagues or students. Moreover, students often will have different levels of expertise in relation to the game, with some students being novice players ("noobs") and others being expert players. In this way, teachers must consider pedagogical strategies for including students who are less familiar with the game to seek

help from more capable peers. Consequently, teacher preparation is crucial when planning students' learning activities and establishing meaningful links between the game and the curriculum. Baek et al. (2020) also emphasised that there might be curriculum inflexibility when teaching the game, as it is not necessarily obvious to teachers or students how the game aligns with particular standards. Moreover, there might be incompatibility between the knowledge practices of formal literacy education and children's informal game practices, which involve different domain-specific norms and values on what counts and does not count as valid knowledge (Bacalja, 2020; Hanghøj, 2011).

In general, research on teachers' use of games documents the importance of teachers' game literacy, as well as their pedagogical approaches to games. A survey conducted in the U.S. found that teachers who are not familiar with commercial games are far less likely to be using them for educational purposes (Takeuchi & Vaala, 2014). Likewise, a qualitative review of research on game-based teaching emphasised the importance of teachers' reflection on different pedagogical activities when using games, which involve planning game units, orienting students towards relevant aspects of the game, and facilitating game play and post-game reflection (Kangas et al., 2017). These examples illustrate how the discussion has shifted during the last two decades from trying to argue *why* it might be a good idea to use games for learning literacies (Gee, 2003) toward developing practice-oriented perspectives on *how* teachers could be teaching with specific games and in relation to *what* curricular aims and topics (Arnseth et al., 2018). Consequently, there is a need for more studies that go into detail exploring and understanding the messy realities of how teachers adopt games in the literacy classroom.

2. THEORETICAL FRAMEWORK

I will now present a theoretical framework for analysing how literacy teachers might use *Minecraft* and other digital games in the classroom. This involves bringing together theories on dialogic education, as well as on teachers' framing of games as a part of their professional practice. Building on earlier studies (Hanghøj, 2008, 2017), the framework will be linked to the GEC model, which is used to describe different aspects of how literacy teachers frame, enact, and facilitate *Minecraft* in the classroom.

2.1 A dialogic perspective on games in the classroom

Digital games represent multimodal texts designed to offer specific affordances in terms of game aesthetics, narrative structures, and game mechanics that allow players to navigate and interact with the game world (Apperley & Beavis, 2013; Burn, 2007; Toh & Lim, 2020). At the same time, it is problematic to assume that game designs, themselves, have direct effects on pedagogy and learning, as the potentials

of games need to be facilitated and realised in educational practice (Clark et al., 2016).

Following a *dialogic perspective*, I assume that digital games should be viewed as flexible designs or tools, which might take on myriad dialogic meanings to be explored, negotiated, and legitimised when specific games are taught, played, and “talked into being” in the context of the classroom (Arnseth et al., 2018, p. 126). Research on dialogic education comprises a broad field that involves several theoretical frameworks and research traditions (Mercer et al., 2019). For the purpose of this study, I am interested in how educational game experiences can be used to create *dialogic spaces* in and around the game being played (Arnseth et al., 2018; Hanghøj, 2008; Staaby, 2020). The notion of dialogic space refers to how talk is used in the classroom to create and explore difference as a shared meaning space “of uncertainty, multiplicity and potential” (Wegerif, 2010, p.346).

The conceptualisation of games as enablers of dialogic spaces is highly inspired by the work of Bakhtin (1981, 1986). Bakhtin’s dialogic philosophy is grounded in the understanding that dialogue always is based on a “mutuality of differences” (Holquist, 2002, p. 41), which revolves around a preoccupation with how the juxtaposition and “inter-animation of different voices” allow new meanings to emerge and develop (Bakhtin, 1981). Moreover, Bakhtin (1986) argued there can be no final word in dialogue, which makes dialogue inherently creative. This means that whilst each dialogic space is unique, what they all have in common is their potential for infinite meaning (Wegerif & Major, 2018). In this way, games can be used to create shared dialogic spaces that allow different voices among teachers and players to interact, where learning may occur.

For Bakhtin, a *voice* does not necessarily imply the spoken or written words of a person but is a broader theoretical construct that refers to the position of the speaker: where the utterance is coming from and how it is responsive toward other voices. Bakhtin’s (1984) key example is an analysis of how Dostoevsky’s novels are *multivoiced*, as they are populated with many characters, each speaking in their own distinct voice, coming together through dialogic imagination to create a polyphonic work of art. Similarly, game designs might also appeal to the player through multiple voices attributed to specific game characters, game narratives, or intertextual references to other texts (Coelho, 2015). Educational researchers have extended Bakhtin’s notions to school contexts in order to describe how classrooms are multivoiced in the sense that each student brings different voices with them, which might or might not be given attention and offered possibilities for articulation by the teacher (Dysthe, 1996). In this way, teaching with a game in a classroom involves not only the voices of the teacher and the students, but also the voices embedded in the game and the interanimation between these voices (de Sousa et al., 2018; Lacasa et al., 2008; Silseth, 2012; Staaby, 2020).

In addition to identifying the interplay of voices as a key aspect of communication, Bakhtin’s dialogic philosophy addresses different aspects of *authority*, which are also central to understanding how games can be used in L1 education. Bakhtin

writes about the dialogical tensions between authoritative discourse, which he also describes as monologic, and what he terms internally persuasive discourse, which refers to language use directed towards mutual communication and the mutual construction of knowledge by revealing “ever new ways to mean” (Bakhtin, 1981, pp. 345-6). In this way, Bakhtin was interested in how humans author themselves and each other in the ongoing negotiation between dialogic and monologic meaning making. Similar to embracing the concept of voice, educational researchers have also adopted Bakhtin’s analytical focus on authorship within the context of classroom dialogue (e.g., Matusov, 2011; Morson, 2004; Skaftun, 2019). The assumption is that teachers and students continually author each other through negotiation between many authorial positions, with the teacher having the overall authorial responsibility. Similarly, when working with digital games in the classroom, teachers need to balance dialogically the authorial positions in relation not only to the students, but also to the authorial positions offered and denied by the specific game being taught. The focus here is not on teacher authority, understood as the isolated pedagogical practices of the individual teacher. Instead, I am interested in understanding authorial positions as a relational phenomenon among teacher, student, and game, to be challenged and maintained within particular classroom contexts. This means that different authorial positions typically are present as a defining aspect of classroom discourse. However, it is important to define empirically the purpose and nature of authorial positions and how they might serve valid educational ends. For the purpose of this paper, I am mainly interested in how L1 teachers facilitate dialogue with students’ about their game experiences in the classroom and how this involves negotiation of mutual dialogic positions between teacher, game, and students.

This brings me to one last assumption of Bakhtin’s dialogic philosophy, which is highly relevant when describing teachers’ use of games in the L1 classroom. According to Bakhtin (1981), all forms of communication and culture are subject to *centripetal* (or unifying) and *centrifugal* (or disunifying) forces. A centripetal force is the drive to impose one version of the truth, while a centrifugal force involves a range of possible truths and interpretations. Classroom dialogue is affected by both centripetal and centrifugal forces in the ongoing negotiation of “truths” between teachers and students. In the words of Bakhtin, “Truth is not born nor is it to be found inside the head of an individual person, it is born between people collectively searching for truth, in the process of their dialogic interaction” (Bakhtin, 1984, p. 110). Digital games represent a similar duality, as they involve centripetal forces, such as rules, constraints, and procedures designed to achieve order, as well as centrifugal forces, such as unexpected or disruptive events that might undermine order for no particular reason and allow for new meanings to emerge (Jensen, 2013, p. 75f). The dynamic between centripetal and centrifugal forces in a digital game opens up a productive dialogic *possibility space*, wherein players need to orient themselves toward the designed constraints of the game *and* take new possible actions, which might be more or less surprising. In this way, teachers need to facilitate games in the classroom by striking a balance between maintaining the centripetal, or rule-regulated

aspects of digital games, and embracing the centrifugal, or open-endedness of unexpected game events (Hanghøj, 2008).

2.2 Framing game challenges

In order to provide a detailed understanding of literacy teachers' dialogic approaches to games, I argue that teachers need to identify and frame *game challenges* in relation to local educational aims. As mentioned, games open up possibility spaces that involve productive tension between centripetal and centrifugal forces. I further argue that Bakhtin's philosophical terms are particularly relevant when trying to understand how the learning potentials of digital games revolve around specific game challenges. Game challenges carries three overall meanings, which all resonate with the dialogic perspectives presented above. Generally speaking, a challenge signifies a call or invitation to participate in a demanding situation. Consequently, digital games have been designed to offer challenges that involve a sense of *agency* (Deterding, 2015; Plass et al., 2015). This means that a player actively must choose to engage with particular aspects of a given game, which comes close to their voice and how they see themselves as a player. This also involves relations to other players, as well as specific choices and consequences to be explored in the game. Similarly, teachers must familiarise themselves with the game in order to author and facilitate specific educational challenges that students encounter within or in relation to a game. Finally, the word, challenge, also denotes different ways of disputing the truth or authorial position of something. Teachers and players might have different experiences and productive disagreements about the rules, strategies, or outcomes of a game. In this way, game challenges might serve as useful drivers for promoting dialogue and discussion in the classroom through the interanimation of different voices and experiences. In summary, the notion of a game challenge in an educational context might refer to (1) the possible in-game challenges embedded in a specific game design, (2) the players' interpretation, acknowledgement, and exploration of specific game challenges, and (3) the teachers' linking of specific game challenges to educational aims.

If we take *Minecraft* as an example, the game offer players numerous in-game challenges that teachers need to identify and consider when bringing the game into the classroom. When teachers and students play the game in Survival Mode, the core game challenges concern being able to survive in the game when fighting monsters, getting enough food, and building a shelter to be safe at night. In Creative Mode, the in-game challenges relate less to surviving and more to selecting and using resources (e.g., mining iron and crafting tools) or creating constructions that have specific aesthetic qualities. Based on the mode of play, the game challenges of *Minecraft* are offered to the player by the affordances of different game elements (e.g., game rules, navigation, and game mechanics) and textual elements (e.g., the meanings of the game narrative, the game aesthetics, the players' avatar, and the cultural aspects

of the game). However, in the L1 classroom, game challenges relate not only to interaction with game design features or interpreting textual aspects, but also to how they are enacted and negotiated through the participants' *social actions*, which involve dialogic interaction between the players and the teacher in the classroom context. When L1 teachers use *Minecraft* in the classroom, game activities might involve students'/players' knowledge-sharing or co-construction of buildings, often supported by written (e.g., chat) or spoken forms of communication.

Following the work of Schön (1983), I argue that educators adopting a game for their teaching need to *frame* the game in relation to specific game challenges. According to Schön (1983), teachers act as reflective practitioners who continually analyse the interpretive frames of classroom interaction in order to name (identify) and frame pedagogical approaches that address unexpected situations or problems. Schön argued that teachers should not be seen as rational problem-solvers, as it is impossible to apply pre-defined knowledge that can cater to all the unexpected situations that arise when teaching. Instead, teachers need to *set* the problems for which they try to design solutions:

When we set the problem, we select what we will treat as the 'things' of the situation, we set the boundaries of our attention to it, and we impose upon it a coherence which allows us to say what is wrong and in what directions the situation needs to be changed. Problem setting is a process where we *name* the things to which we will attend and *frame* the context in which we will attend to them (Schön, 1983, p. 40).

Moreover, Schön also stressed that teachers must be able to *reframe* problems or situations through reflection-in-action. Teachers' ongoing processes of naming, framing, and reframing problems are very important when teaching with complex games such as *Minecraft*, as the interaction patterns of the social participants in a game world involve different interpretive framings than everyday classroom interaction (Goffman, 1974; Hanghøj, 2008). When playing *Minecraft*, students-as-players might die by falling off a cliff, and teachers might choose to teleport themselves into different positions on the virtual game map in order to visit and help students at their different locations. In this way, it is important for teachers to name the main game challenges in *Minecraft* and decide how to educationally frame the game challenges in response to specific curricular aims that might be pre-planned or arise from unexpected situations.

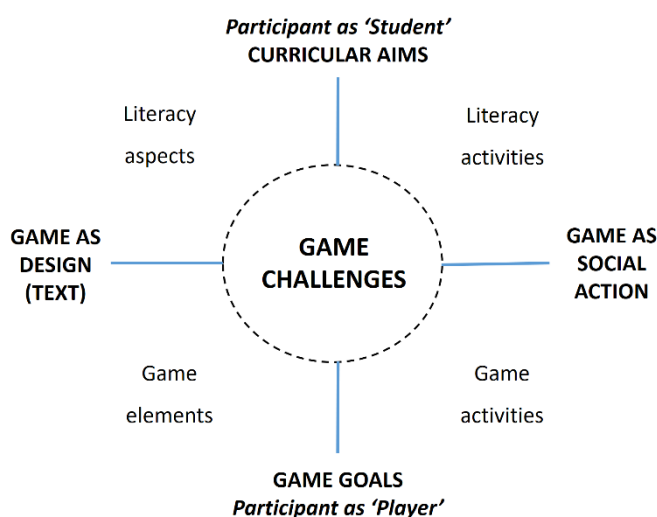
3. THE GAME AS EDUCATIONAL CHALLENGE MODEL

Drawing on the theoretical perspectives outlined above, I now present the Game As Educational Challenge (GEC) model that can be used to understand how digital games are enacted in the literacy classroom. Elsewhere, I have presented other versions of the model in order to describe how teachers position themselves and choose different pedagogical approaches when facilitating games in the classroom, such as by executing, improvising, or transforming a game-related teaching unit with *Mine-*

craft (Hanghøj, 2017). Although previous versions of the model were used for analytical purposes, this work lacked a comprehensive theoretical foundation. Thus, in this article, I adopt the GEC model to exemplify how the model can be used as an analytical tool to explore how L1 teachers frame game challenges and facilitate students' game experiences.

The GEC model (see Figure 1) is based on the assumption that the enactment of games in the L1 classroom requires teachers to identify and to create meaningful links between selected game challenges and relevant educational challenges.

Figure 1. The Game as Educational Challenge (GEC) model



Moreover, it is assumed that teachers address specific game challenges through a dynamic interplay of two different dimensions of meaning making, which are shown as vertical and horizontal dimensions in the model. The vertical dimension illustrates how teachers orient students towards specific game challenges by balancing a continuum between *curricular aims* and *game goals*. This distinction is based on an earlier study of digital games in L1, which showed how teachers and students experience meaningful integration, as well as clashes of meaning and expectations, when faced with the mixed intentions of curricular aims and game goals in a classroom context (Hanghøj, 2011). Seen from a dialogic perspective, the vertical dimension can be used to analyse how teachers facilitate discussion on students' game experiences that address different voices in the L1 classroom, such as voices that primarily relate to being a "student" or being a "player." Informed by Schön (1983), the vertical dimension of the model also can be used to analyse how teachers frame specific in-game challenges by balancing game goals (e.g., survival in *Minecraft*) in relation to curricular aims (e.g., learning about the narrative structure of a survival story).

The horizontal dimension in the model refers to teachers' facilitation of game challenges between focusing on the *game as design (text)* and the *game as social action*. As mentioned, digital games might offer numerous affordances for interaction in terms of game mechanics or game narratives (Toh & Lim, 2020). Seen from a literacy perspective, the multimodal design features of digital games can be conceptualised and understood as textual aspects that relate to students' existing knowledge of games, as well as broader game discourses and meaning making (Beavis & Apperley, 2013; Burn, 2007). This means that L1 teachers using games in their classroom must both address the affordances of specific games (e.g., the game structure and mechanics of *Minecraft's* open-ended game world) and how the game relates to relevant literacy concepts (e.g., establishing connections between the *Minecraft* game structure and the generic narrative structure of a Robinsonade story). In this way, "game as design/text" might refer to the affordances of specific game elements and/or textual aspects, depending on which aspects are emphasised in the classroom. This implies a *situated* understanding of how teachers and students experience games as design and/or as text in the classroom, which differs from the more abstract theoretical distinction between games-as-text and games-as-action suggested by Beavis and Apperley (2013).

Moreover, the horizontal dimension of the GEC model addresses how the use of specific digital games in educational contexts is enacted and explored as *social action*. This refers to the game play practices that emerge when teachers and students explore a given game world and how specific literacy activities are organised in relation to the students' game experiences. Here, it is useful to distinguish between game activities that take place *within the game* (e.g., when students communicate or build constructions in *Minecraft*) and literacy activities that take place *around the game* (e.g., when students' game experiences in *Minecraft* are linked to writing diaries, Dezuanni & Zagami, 2017; Hanghøj et al., 2020). It is important to bear in mind how teachers' and students' game play practices are influenced by their interest in, knowledge of, and previous experiences with games outside school, which might be used to "bridge" literacies across school and non-school domains (Abrams & Gerber, 2014; Hanghøj et al., 2021).

This dual focus on viewing the use of games both as designs/texts and as social actions that relate to specific contextual framings (in-game and off-game) is inspired by Scollon (2001), who has insisted on the analytical importance of foregrounding social actions when conducting discourse analysis and not only focusing on the meaning of texts (or designs or discourses). This analytical distinction makes it possible to account for how games are *enacted* not only as designs/texts, but also as local practices that are accomplished with teachers and students in relation to other pedagogical practices in the classroom context (Hanghøj, 2008). In line with the dialogic perspective presented earlier, the horizontal dimension of the GEC model addresses how teachers engage in dialogue with and facilitate students' game experiences in relation to their understanding of game designs (e.g., specific game elements or textual aspects) or the social actions that unfold inside or around the game.

Similarly, the horizontal dimension of the model can also be used to analyse how teachers frame game challenges by orienting students towards game design aspects (e.g., specific game elements or literacy aspects in relation to *Minecraft*) or towards specific activities that take place inside or around the game.

The relations between the two meaning-making dimensions when teachers facilitate game challenges in the L1 classroom are illustrated in the GEC model shown above. There exist no sharp ontological distinctions between the two dimensions (horizontal and vertical) and four different aspects (literacy aspects, game elements, game activities, and literacy activities), as the different categories will overlap in actual practice when teaching with games. Instead, the different dimensions and aspects should serve to establish analytical focal points when trying to describe and to understand how teachers bring games to life in the classroom through dialogic interactions with games and students. The model does not assume specific pedagogic values or norms in relation to how teachers should introduce specific games as designs (texts), facilitate game/literacy activities, or establish and assess meaningful links between game goals, game challenges, and curricular aims. In this way, the GEC model is mainly intended as a descriptive tool for analysing and qualifying an understanding of how teachers frame, enact, and facilitate game challenges in the literacy classroom.

4. ENTER: THE MYSTERIOUS ISLAND

In order to provide deeper insight into how literacy teachers go about teaching with digital games, I will now revisit earlier work (Hanghøj, 2017) revolving around an empirical case that explored how primary school teachers teach with *Minecraft* in L1. The case is based on data collected in a research project funded by the Danish Ministry of Education (2013–2015) as part of a larger research project on “ICT in the Innovative School.” The data were gathered at three different Danish schools from Grades 1 to 2 (age between six and seven years). Teachers from the three schools took part in design interventions with an open-world *Minecraft* game map entitled, “The Mysterious Island” (see Figure 2). The game map as well as a YouTube video introducing the island had been developed by researchers and game experts in order to create a game-related literacy unit in Danish (L1) that could support students' abilities of collaboration, creativity, and communication. Using The Mysterious Island in combination with a fictive Robinsonade storyline (Bell & Harkness, 2013), the teachers used the unit to invite students to explore and imagine surviving on a deserted island, with loose inspiration from Daniel Dafoe's *Robinson Crusoe* narrative.

Figure 2. Screenshot from a YouTube video introducing *The Mysterious Island*.



The unit involved the following activities. First, the students were introduced to the defining features of a Robinsonade narrative and what it means to survive on a deserted island. Next, the students created their own avatars in the game, which they characterised and related to the overall survival narrative. The teacher then organised the students into small groups, which entered the island at various entry points, where they could explore, find hidden objects, and become familiar with the navigation and the game mechanics. The students then left the game and engaged in brainstorming and discussion activities on what constructions they needed in order to ensure their survival on the island. During the unit, the teacher introduced the students to taking screenshots and keeping a diary of what they experienced on the island, to be presented at the end of the unit. In summary, the curricular aims of the unit focused on: (1) learning about the Robinsonade as a literary genre; (2) learning to collaborate and communicate with other students; (3) learning to argue for particular design choices for surviving on *The Mysterious Island*; and (4) learning to write diaries involving various multimodal literacies.

The methodological approach of the study was inspired by Design-Based Research (e.g., Squire & Barab, 2004), which stresses how context matters in educational interventions. Consequently, the study was organised around an iterative series of interventions with the game-related teaching unit in order to document and qualify educational design principles for teaching with games in L1 classrooms. More specifically, the design interventions aimed to generate knowledge and pedagogical principles on how L1 teachers in primary education could teach with *Minecraft*. The project was part of a larger research project involving 35 schools, which meant that each of the three schools was recruited through contact with the school principals. This meant that none of the teachers had actively chosen to be part of the research project with the *Minecraft* teaching unit, and each consequently felt quite different

senses of ownership toward the project. Moreover, all teachers were “non-gamer teachers” (Prestridge, 2017), as they had quite limited game experience. None of them had previous experience playing or teaching with *Minecraft* prior to the intervention. The project teachers took part in all-day workshops before and after the interventions, led by researchers and consultants from university colleges, wherein the teachers were introduced to and asked to reflect on *Minecraft*, as well as the teaching unit with The Mysterious Island. During the workshops, the teachers could explore the game map, ask questions, and receive advice on how to teach with the game. Moreover, they were encouraged to make changes to the teaching unit to meet local curricular needs and demands and ensure meaningful adaptation. The pedagogical choices involved in adapting the *Minecraft* unit to the local demands and interests at the three different schools were made collectively among the teachers at each school, who sometimes taught together in pairs, especially when introducing the game unit to the students.

The research team collected data by following the L1 teachers' enactment of the teaching unit in three different primary schools. This involved group interviews (two or three participants) with the literacy teachers at each school before the intervention and individual teacher interviews after teaching the *Minecraft* unit. Moreover, the research team conducted classroom observations at each of the three schools. The observations followed the enactment of the unit at each school and involved observations of selected lessons in two second-grade classes (age eight) at School 1 over the course of three weeks, two weeks of full-day observations in three, first-grade classes (age seven) at School 2, and a three-week observation period of selected lessons in two, first-grade classes (age seven) at School 3. In addition to taking field notes and collecting various texts from the students, the team documented the observations by taking photos, as well as making video and sound recordings of selected lessons.

Based on the collected data, studies have documented the teachers' different pedagogical approaches (Hanghøj, 2017), as well as the students' game-related literacy practices (Hanghøj et al., 2018). The data were analysed through thematic analysis (Braun & Clarke, 2006), which focused on mapping and coding significant patterns and events in the teachers' local practices and their facilitation of classroom dialogue when unfolding the teaching unit. In this way, the focus was less on documenting learning outcomes or the individual teachers' experiences or values and more on understanding the *relational aspects* of their dialogic interaction with the students as the game activities unfolded. Next, key events from the observations were selected for further thematic coding and analysis, which indicated important differences in the teachers' pedagogical approaches to adopting the game in the classroom.

For the purpose of this study, I will use the GEC model (Figure 1) to revisit the analysis of the teachers' pedagogical approaches to the game-based teaching unit (Hanghøj, 2017). In this way, I am interested in exploring how the teachers in the

research project framed the *Minecraft* game challenges and facilitated classroom discussions in relation to students' game experiences.

5. ANALYSIS

The analysis will use the GEC model to explore two analytical themes in relation to the teachers' pedagogical approaches to the *Minecraft* unit: (1) teachers' framing and reframing of game challenges in relation to curricular aims, and (2) dialogic positions when facilitating the students' experiences of challenges in and around the game. Each theme focuses on classroom events involving dialogic perspectives on the teacher and students' interaction in relation to the game as well as the teachers' authorial positioning.

5.1 *Framing and reframing of game challenges in relation to curricular aims*

This analytical theme involves two examples taken from two different schools in order to show how the project teachers chose quite different approaches to framing the game challenges in the *Minecraft* unit.

5.1.1 *Example 1: You can't survive when you can't die!*

The first example is from School 1, where the two teachers just introduced the teaching unit to the students and showed the short YouTube video designed by the research team in order to engage teachers and students in the survival narrative (see Figure 2). The video follows a ship filled with children, which is lost in a storm and eventually winds up on the shores of The Mysterious Island with no adults in sight. After viewing the video, the teachers asked the students to close their eyes and imagine that they were on the ship just about to stop at The Mysterious Island. The students, who were quite familiar with playing *Minecraft* outside school and eager to try the game, found it difficult to follow the teachers' directives. One student blurted aloud: "I'm not on the ship!" Instead, the students commented on different phenomena in the game setting shown in the video that they found interesting, such as the lava on the island. Next, the teachers opened up a general classroom discussion on what the students thought about exploring *Minecraft*:

Teacher 1A: Is there anything that isn't nice or that you don't like... [in *Minecraft*]?

Girl: Getting hit by others in *Minecraft*

Teacher 1B: That's the thing... if that was possible

Boy: Yes, getting whacked!

Boy: Can we whack each other?

NOISE*** (...)

Teacher 1A: But that's actually *what's good about* being in this world... that you *can't* actually, you *can't* die

Boy: *Aw!*

Boy: *Ugh!*

Boy: Aw, that's a downer!

NOISE***

Teacher 1A: So... What else could it be that you don't like?

Alma: ***

Teacher 1B: Alma is actually saying something. It's a *survival island* we're on... so we have to *survive*

Anders: *But, but... you can't survive when you can't die! You can't!*

Boy: Then it's easy to survive!

Girl: *Well, that's not the purpose, is it, Anders?!*

As the example shows, some of the students, particularly the boys, had very high expectations about playing *Minecraft* at school and spontaneously engaged in loud comments and discussions about the game with their classmates. They became quite disappointed when they found out that they were not able to "whack" anyone in the game, which is how the game is played in Survival Mode. Instead, the students had to imagine their "survival" was a part of the storyline narrative, which is different from *actual* in-game survival. In contrast, the teachers presented the lack of dying as a "good thing" about The Mysterious Island, as they wanted the island to be a safe place for all students, a premise that they shared with several of the girls but not the boys.

The example illustrates how the students had quite different expectations of the game, presumably based on their different game experiences outside school. In this way, bringing the commercial game, *Minecraft*, into the classroom calls for the negotiation and reframing of specific game challenges in order to make the game meaningful as a learning resource within the school domain. However, the two teachers were quite unfamiliar with the game, and their reluctant framing of the "survival challenge" did not make it clear to the students what actions they were expected to accomplish in the game world as a part of the Robinsonade storyline. The lack of framing becomes even clearer when a student later on in the same lesson directly asked the teachers: "Why are we actually working with *Minecraft*?" One of the teachers responded rather bluntly: "Because we're working with the Robinsonade in Danish class." This monologic response narrows the aims of the unit to understanding the Robinsonade as a well-established literary genre within the school subject, thereby reducing the game challenge to learning a narrative text. In relation to the GEC model, the teacher is mainly focused on linking the game challenge to the literacy aspects of the unit as shown in the left upper quadrant of the model (Figure 1). In this way, the teacher omits to acknowledge the other important literacy and

game activities of the unit, which are linked to *social actions inside and around the game*. This included the students' collaborative exploration of the game map (in game), brainstorming and planning ideas for survival (outside the game), building constructions (in game), using screenshots to document creations (in game), and writing about game experiences (outside the game). Based on their limited familiarity with *Minecraft*, the teachers presented the game as a resource for literacy activities, but primarily framed the game world as a safe place, which implied a centripetal orientation (i.e., unifying focus) towards ensuring social order and following agreed-upon rules.

5.1.2 Example 2: Staging a "crisis"

The next example comes from School 2, where the three teachers opted for a radically different approach to adapting the teaching unit. In comparison to the teachers at School 1, who primarily executed the teaching unit through a reluctant and relatively passive approach to the game as a narrative text, the three teachers at School 2 decided to "go all in," as one of them remarked in the pre-intervention interview. This meant that the teachers not only engaged with the demanding task of becoming familiar with the navigation, mechanics, and teacher interface in the *Minecraft* game design (cf. the left lower quadrant of the GEC model), but also further decided to redesign the use of the whole unit. Their transformed unit involved careful scaffolding of the students' literacy activities (mainly diary writing), additional cross-curricular activities that included physical education and music lessons, and a physical redesign of the classrooms and hallways in order to immerse the students in the blending of the interpretive framing of the game design with the storyline narrative (see Figure 3).

Figure 3. Photo of hallway outside the classroom redesigned by the teachers.



Moreover, the teachers' transformative approach to the unit involved a clearer focus on linking the key game challenge to the educational aims, especially in relation to teaching narrative structures. The teachers decided that they wanted to use the teaching unit for educating students about the classical narrative structure of a story with a beginning, a middle with a crisis, and an ending. Because *Minecraft* is an open-ended sandbox game with no pre-set goal, the teachers lacked a clear "crisis" on The Mysterious Island for the students to overcome. Not wanting the students to get killed by each other in the Survival Mode of the game, they, instead, chose to engage with a team of experienced *Minecraft* players from Grade 8 who were interested in helping the teachers. Unknown to the Grade 1 students, the Grade 8 students logged into the game from computers at another location and suddenly appeared as strangers ("cannibals") on The Mysterious Island, where they had been given permission by the teachers to use TNT blocks to blow up some of the Year 1 students' in-game constructions. This unexpected visit caused considerable chaos and frustration among the Grade 1 students, and the event was later labelled "the crisis" when the teachers evaluated the survival narrative with the students (see Figure 4).

Figure 4. 'Oh no, we've got enemies'



Note: The image is an excerpt of poster made by the teachers, which illustrates "the crisis." The screenshot shows an example of one of the student's construction sites after a TNT explosion.

Having caused havoc and destruction, the cannibals disappeared, but the Grade 8 students then returned to the game map as helpers who offered the younger students assistance with reconstructing their buildings. The rebuilding process was organised through online communication in the in-game chat, with which the Grade 1 students had only limited experience prior to the event. An excerpt of the chat communication between helpers and students is shown below, which illustrates how the teacher stepped back and supported the students' engagement in authentic communication with the helpers:

<Hole> do you want roof on Noah?
 <noah> yes
 <Teacher 2A> It is nice that you help us Hole
 <Hole> no problem
 <Frederik> aw whatabout 2 fish then
 <xpfreva> what else
 <Hole> what about light noah?
 <noah> yes
 <isabella> hole help us
 <lival> hi Hole will hailp [help] lival
 <Hole> mr.bean helps you lival:-)
 <MrBean> What should I help you with?
 <MrBean> Can I help you Lival? :D

<Frederik> ghost you can buy things by xpfreva [player's screenname]

<Hole> should I help Robina?

<Robina> yes

These data excerpts show how the teachers managed to organise game activities that created a meaningful crisis, which combined in-game actions (e.g., TNT explosions and rebuilding activities) with the imagined survival in the overall storyline narrative. Even though there were considerable differences between the language skills of the grade 1 and 8 students, both groups found the communication meaningful. In summary, the teachers at School 2 actively staged and redesigned the teaching unit by not only identifying, but also *reframing* the key game challenge in order to fit their local needs and aims. In contrast to the teachers at School 1, who did not engage with the in-game challenges and mainly focused on presenting the game as a safe and orderly experience, the teachers at School 2 introduced a new threat (the “cannibals”), which enabled the students to experience a crisis in order to learn about narrative structures. In this way, the three teachers actively promoted a disruptive form of game play with a strong centrifugal or open-ended orientation, which simultaneously served a clear educational purpose. Viewed through the analytical lens of the GEC model (Figure 1), the teachers reinterpreted and reframed the overall game challenge of the unit in a way that both created more meaningful links to the game goals, game elements and game activities (cf. the lower half of the model), as well as to their planned curricular aims, literacy aspects and literacy activities (cf. the upper half of the model).

5.2 Dialogic positions when facilitating students' experiences of game challenges

This second analytical theme focuses on how the teachers assumed different authorial positions when orchestrating discussions with the students about their game experiences. In this way, the focus is on how the teachers facilitated dialogic spaces that enabled the students' different experiences of the game challenges to emerge, which involved shared negotiation of meaning and an interplay of different voices in the classroom.

5.2.1 Example 3: Teachers as learners

The example is taken from School 3, where the two teachers chose an improvisational approach to the teaching unit in the sense that they did not know much about *Minecraft* but were interested in learning about the game and reacting to it as the game play unfolded. In this way, they positioned themselves by adopting the voice of a *learner* in relation to the students-as-players' knowledge about the game. As one of the teachers said in the interview before the intervention:

Then I can just tell the students, “But, hey, I’m quite simply no good at *Minecraft*, it’s not me...When I was little, I used to play with...” In that way, I can pull myself out and then kind of pass it on to them [the students], so that they find solutions on their own.

In order to achieve deeper insight into and support for using the game, the teachers teamed up with a student from the Grade 5, who showed the teachers how to build in the game and how to make cows mate and produce offspring. The teachers used this knowledge as inspiration for an unfolding fairy-tale storyline, which they decided to develop around the game activities on The Mysterious Island together with the students.

As the unit progressed, the teachers facilitated classroom discussions with the students about their constructions in *Minecraft*, which created dialogic spaces for letting different student voices and experiences emerge. In the dialogue excerpt shown below, the students talked about how to get the cows in the game to mate in order to increase their number, which could provide food for their hometown:

Student 1: Then how do we get the animals to mate?

Student 2: You use a potato, so you do it on a female or a male, and then when the male meets a female, they get married

Teacher 3A: Could you just explain the thing with the potato, Lucas?

Teacher 3B: I would like that, too

Teacher 3A: I was lost there

Teacher 3B: I was as well. What is it with the potato? Is it inside the game?

The example shows how the teachers invited the students to share their knowledge as game experts. In the discussion that ensued, Lucas explained how to get the cows to mate, and other students supported his explanation while negotiating different meanings of the specific game mechanic. The discussion ended with the teachers’ recognition of the students’ knowledge:

Teacher 3A: I am very glad for the explanation. I did not know any of it

Teacher 3B: Me neither

As the example shows, the two teachers at School 3 were quite curious and supportive of the students’ exploration of the game world and the fairy-tale narrative, which they co-constructed with the students. In this way, the teachers clearly tried to facilitate classroom discussions in order to create a collaborative learning experience that allowed different student voices to emerge. At the same time, it is clear from the interviews and the classroom dialogue that the teachers had rather limited knowledge of the different game elements in *Minecraft* (cf. the left lower quadrant of the GEC model). By following an improvisational approach and going along with the students, the teachers provided the students with limited knowledge of how their in-game actions should be linked to the educational aims, literacy aspects or literacy activities of the unit (cf. the upper half of the GEC model). When I inter-

viewed the teachers after the intervention, I noticed that they were slightly disappointed with the students' learning outcomes of the somewhat unpredictable unit and doubted "whether it was sound to mix up *Minecraft* with the fairy tale genre." Having assumed the authorial position primarily as learners of the game, the teachers found themselves up in a position where they felt unable to legitimise the students' game experiences in relation to the curricular aims of L1 education.

5.2.2 Example 4: Challenging students' game decisions

The final example is chosen to illustrate how other teachers facilitated dialogic spaces with students around their game experiences, which both acknowledged as well as challenged students' game decisions. Moreover, the example shows how in-game challenges can be contextualised into educational challenges outside the game. The example is taken from a grade 1 classroom at School 2, where the teachers had extended the teaching unit to include aims for citizenship education through group-work activities and democratic decision-making on what constructions to build. In the excerpt that follows, the students just finished their idea development, which involved brainstorming, intense negotiations, and democratic voting on what they should build in order to survive on The Mysterious Island. Several of the groups had decided to build police stations in order to secure their imagined life on the island. At the prospect of creating a new society on The Mysterious Island based mostly on police stations, the teacher decides to challenge her students' decisions while still playing along with the imaginary outcomes of the survival narrative:

Teacher 3A: Why do you think it's so important to have a police station?

Frederik: If there's a lot of people making trouble

Teacher 3A: Well, *you're* the ones who are making the trouble because you're the only ones living there...What could you be up to?

Frederik: We might end up hitting someone because we had too much alcohol or whatever

Teacher: Yes, and where would you get that alcohol from, Frederik?

Frederik: From a store or whatever

Teacher: Where would you get the store from, Frederik?

Frederik: I would get it from a company

Teacher: Where would you get the company from, Frederik?

Frederik: Er... I would build it (*laughs*)

Teacher: Okay, what are you going to build it with, Frederik?

Frederik: Wood

Teacher: Well, what's in the company, and where would you get it from, Frederik?

Frederik: Er... electricity?

Teacher: Where will you get electricity from, Frederik?

Class: *Laughs*

Teacher: Sometimes you all tend to forget what this is, and I can understand why. But you have to remember that you're sitting on a deserted island *with nothing on it*. Can you remember that we talked about what you were going to build? And you said, "You know, we need a fire station, and if something happens, we just call 911." But what are you going to call with? "Well, the phone." And I said, where will the phone come from? "We're just going to build that." With what? "Er... with iron." And I said: But are phones only made of iron? "No, we also need some electricity in it." But where do you get the electricity from?!

Class: *Laughs*

Teacher: So, you see, it's not that simple... that you just grab your iPad or phone and then you say: "Hello hello, can you come over, because there's a fire here!"

Eva: Well, it's enough with just one police station for the whole island. There also only needs to be one hospital

Through continual questioning of Frederik's design choice and his underlying reasons, the teacher tries to help him and the rest of the class reflect on the complex relations between needs, causes, and effects for different phenomena in a modern world when surviving on a deserted island. The teacher's persistent interrogation is held in a humorous tone, as she is deliberately asking an almost endless series of questions that verge on the absurd until Frederik and the class finally break down in laughter. What is important here is that the teacher is not so much seeking a predetermined answer as she is trying to open up a *playful dialogic space* for reflective thinking with the students while playing along in the co-construction of different solutions to the imaginary problem of surviving on The Mysterious Island. After the teacher wraps up the discussion, Eva's final comment indicates how some of the students have started reflecting on and reconsidering their choices by prioritising a broader set of needs and constructions to ensure their survival.

The example shows how the teacher dialogically played with the narrative framings of survival, both in relation to the possible actions in the *Minecraft* game world and the imaginary scenario of surviving on a deserted island in the real world. This last aspect also includes voices that relate to the students' everyday understanding, such as the need to feel safe from troublemakers by being able to catch them or the need for electricity in order to communicate. In this way, the teachers' dialogic facilitation implied authorial positions that both acknowledged the students' game design choices and challenged them by asking reasons for their choices in order to promote a wider variety of relevant ideas and constructions that fit with the survival narrative. Translated to the GEC model (Figure 1), the teacher is familiar with the limitations and possibilities when building constructions in *Minecraft* that might ensure survival (cf. the lower half of the model). However, instead of just acknowledging the students' game design choices, she adopts a playful dialogic position, where

she tries to broaden the students' game experiences in relation to the overall educational challenge of understanding what it means to reason and what it takes to survive in a modern world (cf. the upper half of the model).

6. DISCUSSION

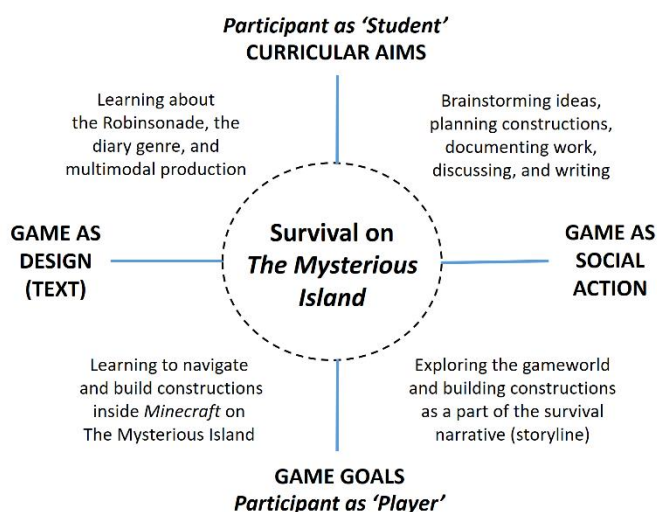
The analysis of the two themes—(1) teachers' framing and reframing of game challenges in relation to curricular aims, and (2) dialogic positions when facilitating the students' experiences of challenges in and around the game—points to important differences in how the L1 teachers from the three schools addressed the *Minecraft* game in their classrooms. There was striking variation in the teachers' understanding of *Minecraft* as a game design and as a narrative text, their understanding of how the game challenge could be related to curricular aims, and how the game unit could create a possibility space for emerging social actions (activities) in and around the game. Moreover, it is a key finding that the teachers' ability to name and frame the game challenge of the *Minecraft* unit was highly influenced by their experience and familiarity with the game. In this way, the teachers at School 1 and 3 remained "non-gamer teachers" (Prestridge, 2017), whereas the teachers at School 2 who went "all in" managed to develop expertise with *Minecraft* and *The Mysterious Island* and even reframed the game unit to fit with their local aims. Following the methodological approach of Design-Based Research (Barab & Squire, 2004), this key finding can be phrased as an educational design principle that might qualify teachers' use of digital games in L1 – namely, that literacy teachers need sufficient experience with the specific game being taught in order to understand the game as not only a *text*, but also a *design* with specific game elements (e.g., game mechanics, narrative structure) that involve specific *social actions* (e.g., collaboration, construction) related to specific game challenges (e.g., what it means to survive on *The Mysterious Island*). In this way, the teachers needed sufficient knowledge and understanding of specific game challenges to transform them into meaningful educational challenges that related to local curricular aims.

However, the differences in the teachers' dialogic facilitation of classroom discussions across the three schools cannot be reduced to a question of familiarity with linking *Minecraft* challenges and curricular aims. Through their facilitation, the teachers dialogically took up different authorial positions on a continuum between enacting centrifugal forces through playful events (e.g., the 'crisis' that opened up new meanings of the narrative in the unit) and orienting themselves towards centripetal or ludic forces (e.g., ensuring rules for safe play), which strive for order and unity of meaning. In this way, the teachers from the three schools chose quite different dialogic approaches to enact authorial positions and thereby legitimising the students' game experiences (Hanghøj, 2008). This finding points to another design principle for teaching digital games in L1: Teachers might benefit from facilitating classroom dialogue around games, which strikes an authorial balance between playing along with and playing against the contingent possibility spaces of the challenges

that can emerge from a specific game world. Teachers should be able to accept the playful challenges offered by games but also be able and willing to facilitate the interanimation of voices from the students and the game in tune with their voices as teachers, which are shaped by their pedagogical values and professional expertise as reflective practitioners. The use of *Minecraft* or other digital games in the literacy classroom is not simply a question of embracing game worlds or categorizing them as texts according to different literacy aspects. Rather, the enactment of games in the literacy classroom requires teachers to engage in dialogue with students' experiences of different game challenges to create meaningful educational connections.

The analysis has shown how the dimensions and aspects of the GEC model can be adopted to describe and understand teachers' enactment of digital games in the L1 classroom through framing of game challenges and dialogic facilitation of students' game experiences. However, the GEC model can also be used as a teacher tool for identifying and providing an overview of how a specific digital game relates to curricular aims, literacy aspects, and literacy activities. In Figure 5, I have used the GEC model to interpret the intended game challenge, as well as the game and literacy aspects of the unit with *The Mysterious Island*.

Figure 5. Exemplified GEC model: *The Mysterious Island* unit



As the exemplified model shows, the *Mysterious Island* teaching unit involved the key challenge of surviving on the *Mysterious Island*. This challenge mainly referred to the imagined Robinsonade storyline, as the students played in the Creative Mode, which did not allow the players to die, in contrast to playing the game in Survival Mode. Moreover, the teaching unit involved learning about narrative aspects of the

Robinsonade and writing diaries, as well as various phases of multimodal design processes. Similarly, the game aspects of the teaching unit required the students to explore The Mysterious Island, learn how to take screenshots, and collaboratively build new constructions as a part of the storyline survival narrative. In this way, the GEC can serve as a tool or semiotic resource for helping teachers to create a metalanguage (Toh & Lim, 2020) that can establish conceptual links between digital games (as designs/texts and social actions) and curricular aims by relating them to specific educational challenges.

Finally, it should be mentioned that this empirical study has obvious limitations in terms of generalisability, as none of the teachers initially signed up for the research project but were pulled into it by their local management. The teachers' differing senses of ownership of the project meant that only the teachers from School 2 went "all in" when teaching with the game unit, whereas the teachers from the two other schools operated at the edge of their comfort zone. As mentioned by Baek et al. (2020), the *Minecraft* game world is quite complex and can be experienced as an overwhelming possibility space. Moreover, the teachers were given a rather limited introduction to the game unit during the project workshops, and not one of them was instructed in dialogic approaches to facilitating the game unit. In this way, the teachers had to dedicate considerable time on their own or together with colleagues, local ICT supporters, and/or expert student gamers in order to become familiar with the different game elements. This involved dealing with various practical and technical obstacles in relation to installing and running the game from dedicated servers, which required extra preparation time. The design of the teaching unit also might be criticised for creating insufficient links between the game challenges and the Robinsonade narrative as a literary genre, which sometimes led to confusion of narrative frames, such as the different meanings of surviving in the game versus in the storyline narrative. Arguably, the teaching unit could have benefitted from focusing more on the existing genres, paratexts, and literacy practices of the *Minecraft* ecosystem (cf. Bailey, 2016; Dezuanni, 2018), which the majority of the students were familiar with from playing the game outside school.

In spite of these limitations, the dialogic perspective on how teachers go about framing and facilitating the *Minecraft* unit presented here should have broader relevance when trying to understand how teachers use the game (and other digital games) in L1 classrooms. Even though the data were collected back in 2014, and digital games tend to come and go easily, *Minecraft* is still a popular game both inside and outside educational contexts (Baek et al., 2020). As the theoretical framework and GEC model suggest, it is important to generate more knowledge on how teachers enact *Minecraft* and other digital games in L1, which involves possible tensions between curricular aims and game goals, as well as different orientations towards games as designs/texts and games as social action. It is important to understand the meaning of these different dimensions and aspects, and how they relate *in situ* when teachers bring digital games and specific game challenges alive in the literacy class-

room. By mapping teachers' pedagogical practices and dialogic approaches to teaching with games, it becomes possible to unpack the black box of game-based teaching and provide more detailed answers to the question of what role digital games can or should play as a valuable, but also somewhat unpredictable, possibility space in L1 education. Seen from a dialogic perspective, digital games might contribute to the multivoiced classroom in ways that could, on the one hand, create more complexity and challenge teachers' authorial positions, but, on the other hand, enable meaningful dialogic spaces that allow different voices and new questions to emerge. In this way, teaching with digital games can open up engaging and even transformational learning experiences, which might provide teachers and students with new perspectives and understandings of themselves as well as of the L1 subject.

7. CONCLUSION

Though there exists an impressive body of research on the use of digital games in L1 education, there has been a lack of detailed studies on how teachers integrate games in the literacy classroom. In response to this gap, this study has presented theoretical perspectives and an empirical analysis in order to map how primary school L1 teachers approach *Minecraft* as a part of a game-related unit on narratives and multimodal production. The findings show how the teachers chose approaches to framing game challenges and facilitating students' game experiences, which differed in their centripetal (monologic) as well as centrifugal (open-ended) orientations toward game goals and educational aims. This suggests that teachers must be able to address games not only as texts or as narratives. Games always involve specific challenges that open up possibility spaces to be enacted through situated social actions in and around games, which means that teachers must relate to selected literacy aspects and activities through their dialogic facilitation. In this way, the study points to the need for further research on how L1 teachers might benefit from being familiar with the game elements of the games they teach, how they frame specific game challenges in relation to literacy aims, how they combine game activities with literacy activities, and how they assume different authorial (dialogic) positions when facilitating classroom discussions around games. This could help literacy teachers to understand how digital games represent not only a specific type of text, but also a valuable resource for developing a broad range of literacies and offering meaningful forms of participation in the multivoiced classroom.

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