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Games, Dialogue and Learning: Exploring Research Perspectives

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Abstract: Several studies of game-based learning in classrooms show that the role of dialogue is crucial in order to ensure valuable learning outcomes. This both pertains to dialogue between students and the game, dialogues between students playing games, as well as dialogues between teachers and students in game-based learning contexts. Moreover, the dialogic aspects of learning are both important during gameplay and around digital game activities. In spite of a growing interest in the dialogic aspects of games and learning, there exists no systematic overviews or focused theoretical discussions on the why, how and what when enacting and studying dialogue around digital gameplay within educational contexts. In this paper, we will outline and discuss key theoretical approaches to conceptualising games, dialogue and learning and discuss the possibilities as well as limitations of different approaches as exemplified by selected case studies within the context of primary and secondary education (K-12). Moreover, we will discuss key aspects that need to be considered, when researching dialogue in relation to digital games and learning. First of all, researchers need to clarify what they mean by dialogue, when researching digital games and learning. This involves discussions of related concepts such as conversation, discourse, interaction, communication, debate, and discussion. Secondly, it is necessary to discuss how dialogue is shaped in a complex relationship between specific game affordances and pedagogical approaches that may potentially both open as well as close possibilities for meaningful dialogic interaction. Thirdly, it is important to bear in mind that the notion of dialogue in dialogic education may be based on different theoretical assumptions - i.e. the term may both refer to ontological aspects (e.g. relationships between participants) as well as epistemological aspects (e.g. knowledge construction). The paper marks a preliminary first step in an ongoing work that aims to conduct a systematic review of empirical work on digital games, dialogue and learning. Consequently, the paper concludes by outlining key areas of interest for further exploration of the complex relationship between digital gameplay, dialogue and learning.

Keywords: Dialogue and games, dialogic education, game affordances, pedagogical approaches

1. Introduction

Research on games and learning within K-12 contexts has been going on for decades as summarised in several reviews (Young et al., 2012; Connolly et al., 2012; Boyle et al., 2016; Clark et al. 2016). One of the key findings is that the learning outcomes of using games for learning is not only dependent on the learning possibilities of specific game affordances (e.g. game mechanics, game narrative, visual design etc.), but also on how games are facilitated in the classroom (Clark et al. 2016). In this way, the pedagogical design for introducing, enacting and evaluating games in classroom contexts is highly important to the quality as well as the outcome of the students' learning experiences. At the same time, it is often not clear from the research on games and learning, how students' game experiences are linked to curricular aims through specific instructional strategies or pedagogical activities.

In this paper, we take a dialogic and sociocultural approach to games and learning, which assumes that the fundamental vehicle for learning is the social interaction as it unfolds in the complex relationship between the teacher, the students and the game (Steinkuehler & Tsaasan, 2020). More specifically, we are interested in discussing and conceptualising the *dialogic* aspects of gaming practices in educational contexts (Arnseth et al., 2018).

It is well-established within educational research that dialogue in its many forms plays a key role in supporting students' learning and knowledge construction as well as their possibilities for participation in specific learning contexts (Mercer et al., 2019). Consequently, it also makes sense to explore the relationship between games and learning from a dialogic perspective. Our research interest in the dialogic aspects of games and learning builds on three assumptions:

1. Games are dialogic tools in the sense that they can be used to create dialogic spaces that allow students-as-players to explore worlds, ideas, choices and consequences as well as engage in communication with themselves and others (Arnseth et al., 2018). Drawing on the work of Bakhtin (1986), learning through

games can be understood as a process through which players are able to communicate and explore different voices as well as viewing themselves through the perspectives of others – e.g. by assuming different ideological positions in a political role-play (Hanghøj, 2008) or by enacting different social roles as “helpers” or “leaders” in relation to their classmates when playing the co-op action-roleplaying game *Torchlight II* (Hanghøj, 2015). In this way, a dialogic perspective on games and learning both refer to the communication between social actors in the classroom as well as their possibilities for participation.

2. Games (including different game formats, game genres and game elements) offer a variety of affordances that may both open up possibilities as well as create constraints for enabling dialogue in the classroom. In this way, we assume that there may be important differences in the dialogue that may unfold in the exploration of different game configurations. As examples, there may be large differences in the dialogue that emerges when individual players engage in a single-player game, when several players play against each other, or when players must collaborate in order to play the same game.
3. Learning through games happens not only during gameplay, but also in the communication and reflection as facilitated by teachers before, during and after students’ game experiences. In the words of David Crookall, long-serving editor of the peer-reviewed journal *Simulation and Gaming*: “If we accept the basic idea that the real (solid, lasting, meaningful, and deeper) learning comes not from the game, but from the debriefing, then we as gamers are shooting ourselves and our learners in the foot by neglecting the debriefing phase of the gaming process” (Crookall, 2010, p. 907). Crookall further claims that researchers have become so thrilled by the possibilities of digital game technologies that they tend to forget the importance of conducting proper debriefing after game activities. This underlines the key role of the teacher in supporting students’ learning when facilitating dialogue and reflection around their game experiences.

Within the last decade, there has been a growing interest in exploring dialogic perspectives on digital games and learning (Silseth, 2012; Arnseth et al., 2018; de Sousa, 2018). Similarly, dialogic perspectives have also been explored in relation to analogue game formats such as role-playing scenarios (Hanghøj, 2008) or board games in the classroom (Jensen & Andreasen, 2019). More researchers focus less on bringing new game technologies or game formats to the classroom and are turning more toward understanding the actual interaction and dialogue taking place between teachers and students in and around games. At the same time, there exists no attempts to systematically review the research that addresses dialogic aspects of games and learning. Thus, there is a lack of knowledge of the different dialogic meanings of games and learning as well as the outcomes of different pedagogical approaches to facilitating dialogue around games used in classroom settings. More specifically, there is a lack of categories for describing how games can or should be part of classroom dialogue. This brings us to the aim of the paper, which is to conceptualise and discuss theoretical aspects of the why, how and what when enacting and studying dialogue in and around gameplay within educational contexts. The current paper should be seen as the first step in creating a theoretical foundation or framework that aims to conduct a systematic review within this field.

2. Defining dialogue in relation to games and learning

We are interested in dialogue between students and the game, dialogue between students playing games, as well as dialogue between teachers and students in game-based learning contexts. Furthermore, dialogue can occur across various game-based learning contexts in and around games (before, during or after gameplay). However, before we address how dialogue relates to game based learning, there is a need to clarify and define the terms we use and how and why dialogue is relevant to understanding educational gaming practices more generally. What do researchers mean by dialogue when researching digital games and learning? This also requires a discussion of related concepts such as conversation, interaction, communication, debate, and discussion.

Dialogue is a diverse concept that is used in many different ways on several levels of abstraction. 1) According to Linell (1998), dialogue and dialogic in the tradition of Bakhtin, are epistemological and ontological concepts. That is to say, on an abstract and philosophical level the concept says something about what reality is and how we come to experience and know that reality. Reality and our experience of it is dialogic in the sense that the meaning of the world and our ability to act in the world, is historically and socially mediated. Our actions and meaning making practices represent a dialogue with the past and a projection towards possible futures. This means that every activity is seen as dialogic, such as reading or writing a text, listening to a lecture in class or making a group presentation together with your fellow collaborators. 2) Dialogue are concrete instantiations of

oral and written communication in the world with different types of structure and characteristics depending on the context where it occurs. 3) Dialogue can be perceived in more ethico-political terms, where engaging in dialogue is represent a particular attunement towards the voice of the other. In this latter sense, dialogue can be perceived as a specific form of normative orientation towards signs, such as trying to understand the position of the other, treating other's accounts with respect and seriousness, and it might also be about opening up for the possibility of being convinced by the better argument.

In our discussion of the literature, we primarily address dialogue as concrete instantiations of talk and text, but also as means for reaching educational goals and objectives. Dialogue in this sense constitutes a tool and medium for learning. This conceptualization makes it possible to compare and contrast different studies of social interaction in game based learning under the overall conceptual umbrella of dialogue. Talk, collaboration and discussion all represent diverse instantiations of language use, which can be compared and discussed using dialogic concepts. In our discussion of dialogue and game-based learning, we are primarily interested in reviewing studies that have addressed how people talk in and around games and how they pursue particular educational goals and aims in and through their game play.

3. The interplay of game affordances and dialogue

Games represent a broad family of highly different phenomena, which may share varying resemblances. The variation spans game formats (e.g. analogue or digital games, single-player or multi-player games), game genres (e.g. action, strategy, construction etc.), as well as game elements (e.g. game mechanics, game narratives and audiovisual game design features). In this way, different games may provide a broad variety of affordances in terms of supporting (or constraining) learning in a given classroom setting.

Following Bakhtin's (1981, pp. 272-3) dialogic philosophy, any utterance, and thus any game element, may both involve centripetal (or unifying) and centrifugal (or disunifying) forces. This means that some game elements may be more likely to enable dialogue, where new meanings may arise, whereas other game elements may more likely narrow the dialogue to a monologue. As an example, a specific game rule that requires participants to assume different positions and challenge their opponents' points of view may create rich possibilities for debate in the classroom. This was the case in Hanghøj's (2008) study of a parliamentary debate game, where students assumed different roles as politicians, journalists and spin doctors as well as different ideological positions before engaging in multivoiced dialogue that involved presentations, questioning and debates on political topics. On the other hand, game design elements, which are based on closed questions with closed (or predefined) answers will more likely narrow possibilities for dialogic interaction. An example of this can be found in a study of a single-player educational computer game, where the individual students were required to read fairly large amounts of texts in order to make progress within the gameworld that followed a somewhat linear narrative structure (Hanghøj, 2011). In this way, specific games and game affordances may influence how the participants are positioned and position themselves as learners in the classroom.

At the same time, it is problematic to claim that specific game affordances are inherently more valuable than others in terms of fostering dialogue in the classroom. Rather, the main point here is a relational understanding of how different game affordances may be more or less suited for enabling different forms of dialogue within a specific educational context. Sometimes, open-ended game designs may enable less meaningful dialogue, e.g. if the students are not sufficiently familiar with key topics or concepts in order to benefit from discussions around their self-directed game experiences. Similarly, more linear game designs may be helpful, e.g. when students are required to learn the meaning of specific facts or concepts by engaging in a dialogic relationship with the content of the game. In this way, the quality of the dialogue in and around a specific game depends not only on the game design, but also on how the game is orchestrated as a part of a larger educational design.

A dialogic perspective on game affordances and learning needs to take into account that games are always enacted in specific educational contexts. The educational use of games requires that teachers dialogically frame specific game designs (or aspects of the game) in relation to locally defined curricular and pedagogical aims (Hanghøj, forthcoming). Obviously, there may be large differences between how different game elements and students' game experiences are "talked into being" across school subjects such as mathematics, social studies or first language education (L1). As an example, students dialogic understanding of *Minecraft* in mathematics education may focus on creating a shared understanding of how the coordinate system functions as a navigational tool in the game and how this game mechanic corresponds with a specific form of mathematical

knowledge when the player is positioned according to the x-, y-, and z-axes (Jensen & Hanghøj, 2020). Here, the dialogic focus is on linking the game mechanics involved in navigating the 3D game space with the aims of the mathematics curriculum. When teaching the same game in Danish as a subject (L1), the focus may be on how the students can contribute to creating constructions on a deserted island that contribute to a narrative that is framed within the storyline of a Robinsonade (Hanghøj, forthcoming). This involves a more loose or open-ended relationship between the students' narrative co-constructions in *Minecraft* and the curricular aims of L1. In this way, the dialogic links between a specific game and curricular aims may be radically different within the context of different school subjects - both in terms of linking the game (and students' game experience) with different forms of curricular content and in terms of focusing on specific game elements that are relevant to the subject.

However, the dialogic perspectives on games do not only depend on the game design and the curricular knowledge embedded in different school subjects, but also on different *pedagogical approaches* to teaching with games. According to Nousiainen et al. (2018), there exist four common pedagogical approaches to teaching with games: using educational games, using entertainment games, learning by making games, and using game elements in non-gaming contexts (i.e. gamification). Hence, different pedagogical approaches to games, which are often tied up with specific game types or game design features, are likely to open up for quite different forms of dialogue. To provide some examples, there may be significant differences in the dialogue that emerge when students collaborate on designing their own game concept in the visual programming tool Scratch, cooperate on fighting monsters in the complex commercial action-roleplaying game *Torchlight II*, solve algebraic problems in the educational game *DragonBox*, or making progress by gaining points and achievements in the gamification system Khan Academy.

Furthermore, a dialogic perspective implies that games should not be seen as neutral learning resources in the classroom, as game designs are always embedded with specific ideological beliefs, cultural values, and more or less explicit pedagogical models (e.g. for learning the player how to play the game and/or for learning the student curricular content through the game). Thus, a dialogic perspective on games, learning and teaching should avoid reducing games to isolated texts or instrumental designs. Instead, the focus is on conceptualising the educational use of games as the creation of game-oriented learning spaces, where games can be seen as *resources* for initiating dialogue – e.g. by offering students possibilities for asking authentic questions in relation to ethical dilemmas that they encounter in a game (Staaby, 2020).

4. Dialogic teaching with games

Over decades, educational researchers have shown the importance of how teachers frame students' talk about subject matter (Bakker, Smit, & Wegerif, 2015; Berland, Russ, & West, 2020; Mercer, 2004). By carefully orchestrating dialogues, teachers can enable students to enhance their reasoning and collaboratively co-construct knowledge and shared understanding. For instance, in dialogue-oriented whole-class conversations, teachers can orchestrate learning environments where multiple students can contribute with a variety of perspectives on a topic for the classroom community to use as resources for exploring and reasoning (Clarà, 2019; Kovalainen & Kumpulainen, 2007). By eliciting, elaborating, and posing follow-up questions the teacher can provide students with the opportunity to refine their claims and ideas, and provide students with agency and accountability, that might contribute to establishing productive learning environments (Howe, Hennessy, Mercer, Vrikki & Wheatley, 2019; Wells & Arauz, 2006).

The role of the teacher has also been described as important in the field of game-based learning (Hämäläinen & Oksanen, 2014; Kangas, Koskinen, & Krokfors, 2017; Kebritchi, 2010; Shah & Foster, 2015; Wouters & van Oostendorp, 2013). Studies have shown that the teacher both has an important role before, during and after game-play, and becomes a guiding partner in making students' experiences with the game environments meaningful for the students in relation to the topic that is being targeted during lessons. However, even though some research has been devoted to studying how technology, such as computers and interactive whiteboards, can become productive tools for supporting teachers when creating dialogic teaching (Gillen, Littleton, Twiner, Staarman, & Mercer, 2008; Major, Warwick, Rasmussen, Ludvigsen, & Cook, 2018), less studies have scrutinized the relationship between dialogic teaching and game-based learning, and the role of the teacher in facilitating dialogue in and around games.

Games might provide players with the opportunity to solve tasks and handle challenges through first-hand experiences. Players must learn what types of resources in the game that are relevant to use for solving specific

tasks, and how to use the resources when facing challenges. Teachers can use these experiences and resources as tools for facilitating dialogues about complex relationships in the game world but also the world outside the game and the school context. For instance, Silseth (2012) examined how a teacher used a computer game about the Israeli-Palestinian conflict, where students played a reporter covering different issues and challenges that people on both sides of the conflict experienced in their daily lives, as a tool for supporting students learning about this global conflict. The study showed how the teacher used students' experiences from their game play as resources for creating a dialogic space, where the students were enabled to assume different voices and perspectives on the conflict. In another recent study, de Sousa et al. (2018) examined how teachers used the computer game *The Walking Dead* as a tool for enabling students to learn about ethical and moral theories. Here, the teacher used some of the scenarios embedded in this commercial zombie-game as resources for discussing classical ethical and moral theories. An important finding in this study is that the "teacher's dialogical approach was key to mediating relations between the theoretical content and game narrative, opening dialogic spaces for multiple perspectives and collaborative meaning making" (p. 48). In addition, the teacher facilitated dialogues "linking game dilemmas to identity issues and personal learning experiences" (p. 48), something that contributed to powerful and supporting learning environments for students.

5. Discussion and conclusion

In this paper, we have outlined and conceptually framed key research topics that focus on dialogic aspects of games and learning. Informed by the discussions above, we have identified three research areas that should be pursued in future work in this research field:

5.1 What characterises dialogue in relation to games and learning?

Obviously, there is a need for clearly defining different aspects of dialogue and dialogic when reviewing studies on games and learning. This both pertains to dialogue in and around games, and how it is possible to create dialogic spaces around games that may open for exploration. This means that we need more knowledge about dialogic interaction in and around games in educational contexts, where dialogue (spoken, written or multimodal) plays a key role.

At the same time, we also need more knowledge about how dialogic interaction may both be related to knowledge construction and participation (Mercer et al., 2019). This means that we should scrutinize how dialogue around games can be used to learn specific forms of curricular knowledge, e.g. in mathematics or L1 education, and also how learner identities are constructed in game-based learning environments. We believe that the identity aspects of games and learning have been severely overlooked, especially the ways in which games may conflict with or support students' existing identities as learners in an educational context (Gaydos & Devane, 2019). Thus, considering dialogic aspects of games and learning may enable us to both identify the role of dialogue in supporting learning outcomes as well as understanding the dialogic relationships between the participants and their identities as learners.

5.2 How is dialogue in the classroom shaped by different game affordances?

Research on game-based learning (GBL) often analyses how different game elements (e.g. engagement, game mechanics, narratives and visual designs) influence learning (Jabbar & Felicia, 2015; Clark et al. 2016; Plass, Mayer & Homer, 2020). However, in spite of the recognition that the facilitation of games is equally as important to learning as the designed game affordances, existing studies of GBL are remarkably silent on the role of dialogue when teachers and students enact games in the classroom. Consequently, we need more knowledge about how different game affordances may enable (or constrain) different forms of dialogic interaction in the classroom. Hence, we need to explore how specific game design elements play an important role in what can be talked about (and what cannot be talked about) during educational gameplay.

5.3 What dialogic approaches do teachers enact when facilitating game-based learning?

In addition to exploring how dialogic interaction in games may depend on specific game design features, we need to gain insights into the key role of the teacher in facilitating dialogue in and around games. This covers different instructional strategies and pedagogical approaches to orchestrating game-oriented dialogue - e.g. by asking students different types of questions that build upon their game experiences.

Another focus could be on how teachers aim to support students' knowledge construction through dialogic interaction around games (e.g. Hämäläinen & Oksanen, 2014), but also on how they engage in dialogic interaction that aim to enable new forms of participation in the classroom (e.g. Hanghøj, 2015). Sometimes,

these two dialogic approaches to games may be overlapping. At other times, it may be a deliberate teacher strategy to use games mainly in order to focus on students' learning or mainly to use games for supporting social inclusion of students.

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