Intercreating in the context of learner-generated DV production

Abstract

In this article we define and conceptualize the notion of 'intercreating' and how the notion relates to interthinking. This new characterization of the processes of collective creativity emerges from an empirical study, reported here, examining how intercreating was constituted in interaction between primary-aged learners who were working in groups to create digital video (DV) stories. The study focuses on one group, comprising three girls and two boys.

Whilst the context of DV production was motivating for the members, their differing ideas regarding 'violent' versus 'soft' themes (representing their different lifeworlds) appeared to provoke conflicts. Despite initially disputational and superficial interactions, the group was subsequently able to negotiate joint strategies, constraints and norms and to establish and sustain intersubjectivity – which in turn appeared to be a prerequisite for intercreating. In this open-ended fictive DV task, there was relatively little common ground that could provide an initial basis for discussion and the suggestions made were accepted or rejected according to implicit, tacitly shared criteria. There was little evidence of explicit reasoning in talk; the norms and constraints in play related to the school-based nature of the task and it was these that were used as justifications for ideas or possible solutions. As pedagogical solutions, sub-tasks with tangible goals and the requirement to establish consensus on ideas seemed to facilitate and enhance group discussion. We suggest that intercreating, in the context of divergent fictive content creation, can be defined as a process involving shared meaning-making and group flow.

Keywords: intercreating; intermental; creative collaboration; video production; storyline

1   Introduction

Since creativity is considered to be amongst the most important 21st century skills (Binkley et al., 2012; Moran, 2010; Partnership for 21st Century Learning [P21], 2015), education for creativity is increasingly one of schools' key undertakings (Sawyer, 2006; see also Baer, 2013). From a sociocultural perspective, creativity is considered to be deeply social, emerging in collaborative

practices rather than in solitary work (Sawyer, 2006). Reciprocally, creative tasks, given their complex nature, typically require collaboration (Middup, Coughlan, & Johnson, 2010; Sawyer, 2003). Mediated by language, creative collaboration and its intermental, interactive processes thus necessitate productive interaction (Vass, Littleton, Jones, & Miell, 2014). Contemporary work, examining non-presentational modes of meaning-creation (such as music, dance, and drama), has increasingly emphasized embodied approaches to creativity and creative collaboration. Such work typically draws attention to the ways in which the sharing and building of ideas and knowledge, meanings and understandings are mediated multimodally. Whilst recognizing the value of this focus, the work reported here takes as its point of departure a specific concern with the mediating tool of language (Vygotsky, 1978) and the distinctive role of spoken language in learning and development. This is a concern shared by other researchers (see, for example, Mercer, 2000; Rojas-Drummond, Littleton, Hernández, & Zúñiga, 2010) whose work has evidenced the ways in which knowledge and meanings are 'co-constructed' as joint interactional accomplishments, shared among participants.

In recognition of the significance of creative collaboration, in recent years, researchers have claimed that children's ability to use talk collectively and creatively is as important as their skills in literacy and numeracy (Littleton & Mercer, 2013; Mercer & Littleton, 2007). They have also sought to understand the nature of collaborative creativity settings (Hämäläinen & Vähäsantanen, 2011) and the relationship between language and creative interthinking (Littleton & Mercer, 2013; Mercer, 2000). The notion of 'interthinking' refers to people using talk to link individual minds to create a powerful problem-solving tool, thereby achieving more through working together (Littleton & Mercer, 2013). For creative collaboration, where curriculum learning and problem solving are not the main target, Littleton and Mercer (2013) introduced the concept of the 'intermental creativity zone' (ICZ) to "represent the way that partners engaged in co-constructing new knowledge generate a continuing, dynamic referential framework for their talk about their joint endeavour" (Littleton & Mercer, 2013; p. 114). The concept of the ICZ draws attention to the notion that creativity can be a collective accomplishment, as well as the ways in which creativity is not inborn but can be resourced, learned (e.g., Sawyer, 2013), taught (Sternberg, 2003) and fostered in meaningful ways through everyday activities such as play, arts, self-expression (Moran, 2010) and gaming (Craft, 2011). As an alternative to traditional transmissive practices in schools, likely not supporting creative thinking (Sternberg, 2003), Cennamo et al. (2014) suggested employing technology-enhanced pedagogy. Among such alternatives, learner-generated digital video (DV) production has been successfully utilized in classroom curricula (e.g., Butler, Leahy, & McCormack, 2010; Palmgren-Neuvonen, 2016; Schuck & Kearney, 2006). Video tasks are divergent (open-ended, implying multiple solutions) and creative. Well-suited for implementation in small groups, DV production allows collaborative creative processing.

This article develops our understanding of creative collaboration by introducing, defining and conceptualizing the notion of 'intercreating' and describing how it relates to the concepts of interthinking and the ICZ (Littleton & Mercer, 2013). To situate this discussion and examine intercreating in practice, the article reports an empirical study with primary-aged students who were working in groups to create video stories. The study was implemented in Finland where research has evidenced students' impaired learning motivation (Kupari, Sulkunen, Vettenranta, & Nissinen, 2012; Salmela-Aro, 2017). It is possible that this lack of motivation can be attributed to the gap that has emerged between informal and formal knowledge and media practices (Palmgren-Neuvonen, 2016). In non-school contexts, adolescents' lifeworlds are creative, interactive and highly multimodal, making learners active content creators (McVerry, Belshaw, & Ian O'Byrne, 2015). Terms such as 'prosumer' (Toffler, 1980) and 'produser' (Bruns, 2009) would appropriately describe their agency. Meanwhile in schools, teacher-directed instruction and individually performed exercises often prevail (Luukka et al., 2008). This disenfranchising phenomena applies internationally (Kalantzis & Cope, 2015).

Our present work, which we describe here, concerns the nature of children's collaborative creative processes in the context of planning and storyboarding a joint video story. We regard such a task, likewise children's collaborative writing examined by Rojas-Drummond et al. (2010), as a socio-cultural process that makes participants more competent in the use of sophisticated communicative strategies. In our empirical study in the context of learner-generated DV production, implementing a pedagogy that was designed to support learning motivation and collaborative creativity, we examined in-depth how participants co-constitute intercreating that was identified in our earlier study (Palmgren-Neuvonen & Korkeamäki, 2014). We also explored what fosters and hinders intercreating amongst students.

2   Creative collaboration to foster interaction

Creativity involves moving beyond what exists now to what might be ('possibility thinking', Craft, 2011). Creative ideas are not only original and unexpected, but also socially appropriate and situationally reasonable to meet the task constraints (Eteläpelto & Lahti, 2008; Sternberg, 2003, Vass et al., 2014). Creativity can also refer to putting together seemingly unrelated ideas, perceptions, domains and contexts, which have no previously established meaningful connection (Koestler, 1964; Vass et al., 2014). It is not only the abilities or skills but also the opportunities: creative learners are likely to notice how things and ideas are combined or combined differently (Moran, 2010). Creative production and artistic collaborations such as making new music, narratives or other media content constitute open-ended divergent tasks. In contrast to convergent tasks that relate to subject-based knowledge construction (e.g., science education) entailing more exact answers, divergent tasks are

abstract and ill-structured and involve limitless solutions (Littleton & Mercer, 2013). The products to be created are more informal, imaginary and non-domain-specific; a high degree of freedom over kinds of final outcomes can be accepted (Middup et al., 2010).

2.1   Collaborative creative processing

In collaborative creative processing, the participants have relatively little prior shared understanding of the task, process or outcome and no single, clear and linear path exists to achieve the ill-defined goal (Middup et al., 2010). To develop an elaborated shared understanding of the topic, collaborators may need to create a novel way of approaching a problem or a strategy for joint working (Eteläpelto & Lahti, 2008). They proceed by exploring and evaluating in turns the artefacts, e.g., tools and scripts, and novel concepts such as mental constructs, goals and shared understanding. This necessitates both divergent creative and convergent reflective thinking from the participants. (Middup et al., 2010.) Whereas novices mainly use a linear 'knowledge telling' strategy, without much reflection, more advanced co-creators employ sophisticated strategies following the creative design cycle of generating and reviewing of content (Rojas-Drummond et al., 2010), moving backwards and forwards continuously between a content and a rhetorical space (Scardamalia & Bereiter, 1986). That is, they talk to create, and talk to reflect the emergent material i.e. what has been jointly generated. They regulate the creative process itself supported by logic and reason. (Vass, 2004).

The group members share differing, alternative and opposing views to reveal different kinds of meanings and contradictions and constructively negotiate each other's ideas, proposing justifiable arguments and counter-arguments (Eteläpelto & Lahti, 2008). In more divergent tasks, reasoning is not necessarily made visible in the form of explicit argument, but rather, such tasks support 'co-constructive talk' typically referring to chaining, integrating, elaborating and/or reformulating each other's contributions to negotiate meaning (Rojas-Drummond et al., 2010). However, because conscious analytic talk tends to break the collective flow experience, rationally-constituted explicit reasoning is typically evidenced in evaluative episodes (Vass et al., 2014).

The group members need to be committed to shared goals, but also develop trust in each other at emotional, social and cognitive levels (Craft, 2008). The togetherness of the collaborative creative process can be considered as important as that of the outcome because in artistic collaborations specifically, intersubjectivity can be created and maintained by asking questions reflecting other-orientation (Vass et al., 2014). Rather than logic and explicit reasoning, Wegerif (2005) regarded an intersubjective orientation and resonance between participants' ideas as a more important feature for successful group work. Playful talk (Wegerif, 2005) and humorous nonsensical thinking, typical of children's creativity (Vass et al., 2014), foster cohesion and collective creativity in groups but they can also serve per se to advance the content in joint meaning making. Shared embodied experiences, occurring among friends specifically, are likely to promote the development of trust, emotional

creative attunement (Vass et al., 2014), and further, group flow (Sawyer, 2007), referring to a collective mental state enabling high group performance (Sawyer, 2003).

The goal of creative collaboration is not simply to reach an uncritical agreement, complying with strongly expressed majority views, but all participants' suggestions are invited to explore potential alternatives. The members, trusting each other, are encouraged to share ideas to be openly negotiated, even when a risk of disagreement and conflict is present (Moran & John-Steiner, 2004). As they participate from their personal backgrounds, bringing to pedagogical situations their complex, multiple and blended prior knowledge, identities and discourses (Luke, 2005, as cited in Kupiainen, Kulju, & Mäkinen, 2015), creative collaboration is rarely free of any conflict (Eteläpelto & Lahti, 2008). Although opposing views and criticism may lead to tensions, a successful outcome involves critical discussion and evaluation of alternative views: challenge, frustration, confusion and perseverance are essential for creative collaboration (Eteläpelto & Lahti, 2008). Minor conflicts, however, can significantly stimulate efficient creative collaboration and learning (Eteläpelto & Lahti, 2008; Littleton & Mercer, 2013) and alternative ideas and difference in perspectives enhance creativity (Sawyer, 2011). A negatively charged atmosphere and power relations may hinder creative collaboration (Eteläpelto & Lahti, 2008) and a major conflict or tension is likely to disrupt group cohesion (Littleton & Mercer, 2013). Thus, tensions need to be cultivated in a fruitful manner by giving active consideration to multiple perspectives not to suppress creativity (Moran & John-Steiner, 2004). Productive social interaction plays a crucial role in collaborative learning (Vuopala & Järvelä, 2012), but even more in creative intermental processing.

2.2   Social interaction–intermental processes

The sociocultural approach asserts that learners' thinking is shaped by social interaction among peers and adults (Rogoff, 1990; see also Rojas-Drummond, Torreblanca, Pedraza, Vélez, & Guzmán, 2013). Development and learning proceed from the social, *intermental* level to the individual's *intramental* level of understanding mediated by language, a cultural and psychological tool linking these levels (Lefstein & Snell, 2011; Staarman & Mercer, 2010; Vygotsky, 1978). Thus, spoken language is pivotal for shared meaning making (Stahl, 2006) in the interactive process of 'teaching-and-learning' (Staarman & Mercer, 2010) and increasingly, in peer groups (Arvaja, 2005). However, despite the sociocultural paradigm introduced in curricula, teacher-centered recitation still dominates in many classrooms (e.g., Lefstein & Snell, 2011). Consistently in group work, inactive participation occurs and interaction tends to be superficial and/or disputational (e.g., Littleton & Mercer, 2013), while argumentation or reasoning is rare (Kumpulainen & Wray, 2002).

Traditionally, collaborative learning has been studied with a predominant focus on cognitive outcomes, in other words, how participants collaborate to learn. However, the growing interest is in exploring how children learn to collaborate, that is, how they generate outcomes (Vass et al., 2014).

Supporting powerful collaborative processes may indeed be what is educationally impactful over time. To develop tools to research and enhance the pedagogical discursive processes, Mercer (2000) created the notion of an 'intermental development zone' (IDZ), refining and developing the ideas of the zone of proximal development (ZPD) (Vygotsky, 1978). Whereas the ZPD refers to a more expert participant scaffolding the development of an individual learner's thinking, the IDZ characterizes collaborative dialogue among people of more equal status. Such 'dialogic space' involving interthinking can be created using exploratory talk[1] (Fernandez, Wegerif, Mercer, & Rojas-Drummond, 2001). This type of talk emphasizes reasoning, explanations, and justifications and perspective-taking negotiations in groups, and engaging with and questioning each other's ideas (Mercer, 1995). Adapting the IDZ to creative collaboration, the notion of the ICZ highlights the creative nature of the context and specifically dynamic, contextual and collective creativity among peers of equal status in non-educational settings such as workplaces. The group members, sharing common goals, rules and ways of working, constantly construct the dialogic space of the ICZ from resources of their common knowledge through a linguistic process with specialized discourses (Littleton & Mercer, 2013). Dialogic space can be fragile, being continually constituted and reconstituted through the negotiations by the participants (Mercer & Littleton, 2007).

2.3   Examining intercreating

In this article, we introduce the term intercreating[2] to highlight artistic creative production, such as collaborative writing processes, storytelling and storylining , stressing the possibilities of being creative together and creating together (Mostmans, Vleugels, & Bannier, 2012). We understand interthinking, necessitating dialogicality and collaborative reasoning (Littleton & Mercer, 2013), to particularly apply in subject-specific convergent tasks and logical 'closed' problem solving in science education which require—and enable—arguments and explicit reasoning. While implementing creative divergent tasks does not support explicit reasoning, dialogic styles of other kinds are needed (Rojas-Drummond et al., 2010), namely co-constructive talk that would entail cumulative form of talk (Mercer, Wegerif, R., & Dawes, 1999). Furthermore, Vass (2004) claimed joint content generation being typically characterized by disputational features (see also Mercer & Littleton, 2007).

Thus, despite our context of educational settings, we conceive the ICZ to apply the dynamic, contextual and collective creativity as implied in this study. As novel concepts need to be created to promote research on artistic collaboration, we aim to develop scientific understanding of collaborative

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[1] In the triadic typology of 'Exploratory Talk', introduced by Mercer (1995) to examine the nature and quality of talk among young learners, the exploratory form is most productive, while the cumulative talk is defined positive, albeit uncritical, building upon other participants' utterances, and the disputational form dignifies disagreement and individualized decision-making (Mercer et al., 1999).

[2] Earlier, 'intercreativity' was introduced in online communication referring to building things together on the Web (Berners-Lee, 1999). Mostmans et al. (2012) defined 'intercreativity' as a close link between interactivity and creativity, emphasizing the affordances of 'around' the Internet to enable intercreating in a collaborative and communicative way.

creative processes in divergent tasks and to extend and refine the notion of interthinking by developing a characterization of the processes of intercreating as a psychological intermental phenomenon referring to not only a dialogic space implying mutual attunement (Wegerif, 2005) but also to the process around it, that is, how mutual understanding is negotiated and the dialogic space is constituted. Integrating these processes, intercreating goes beyond the notions of interthinking and the ICZ.

Based on the research discussed previously we propose that, the process of intercreating involves 'collective free association' (Vass et al., 2014), presenting novel ideas and alternative views (Eteläpelto & Lahti, 2008), processing conflicts to enhance creativity (Littleton & Mercer, 2013), an other-orientation and resonance between participants' ideas (Wegerif, 2005) and group flow (Sawyer, 2007). Next, we empirically examine intercreating in face-to-face group settings in the context of DV production focusing on symmetrical interaction, that is, among people of a similar age and status (Littleton & Mercer, 2013), asking:

1. How was intercreating co-constituted among peers?

2. What fostered and hindered intercreating amongst students?

3   Method

The empirical study was conducted in a Finnish primary school where DV production had been integrated within the classroom curriculum by a Grade 4 teacher who implemented a DV production project with 10–11-year-old students (N=30) and a classroom assistant. The teacher had assigned the students to work in groups of five students that were heterogeneous in terms of gender and ability despite research results indicating the promising performance of homogeneous-ability single-gender friend pairs (e.g., Vass & Littleton, 2009; Vass et al., 2014). He justified the pedagogy in terms of providing the students with opportunities to learn how to collaborate with different kinds of peers.

Prior to the study the students, and their parents, formally gave their consent to participate in the study. The participants agreed to their regular DV classroom work being recorded for research purposes. The students were appropriately briefed and debriefed as to the nature and purpose of the study and were given assurances with respect to confidentiality, data protection and their right to withdraw from the study at any time.

The data were collected by video-recorded observations of naturalistic settings: the DV activities observed were as planned and enacted by the teacher. Recognizing the situated and contextual nature of the study (Craft, 2008), we employed a qualitative methodology to document real-life communicative activity in classrooms. The planning sessions were video recorded using three

cameras both in whole-class situations and group phase. Of the six groups assigned by the teacher, the groups to record were chosen randomly in the first session.

3.1 Analysis process

The data were processed and coded by the first author using QSR NVivo. The data analysis consisted of the following phases:

1. Brief written descriptions of the video-recorded DV production were made.

2. The video recordings were transcribed verbatim per individual speaker to allow examination of each individual's contribution.

3. The three consecutive planning sessions, ranging from 22 to 33 minutes long, prior to the filming and editing sessions, were considered as a relevant sample. These group sessions returned approximately 250 minutes of video material (84 per camera).

4. While reviewing the video recordings, we became especially interested in one group due to its vibrant and enthusiastic interaction among determined and inventive group members and selected their group discussions for in-depth analysis.

5. In the first research phase, the collaborative process was analyzed and reported in terms of group interaction and its development (Palmgren-Neuvonen & Korkeamäki, 2014).

6. Informed by a thorough investigation of the data and a newly focused literature review, an analytic framework was developed (see Chapter 3.2 below).

7. The data were re-analyzed to identify strings of episodes indicating particular phases of emergent intercreating within the shared process.

8. Typical key episodes were chosen to present and exemplify each phase.

3.2 Analytic framework to identify intercreating

To address our research question and interests, the analytic framework developed was informed by features of creativity, creative collaboration (Eteläpelto & Lahti, 2008; Vass et al., 2014) and interthinking (Littleton & Mercer, 2013). Additionally, in the analysis, the presence or absence of features of Mercer's (1995) typology was taken into account (Mercer & Littleton, 2007). The following facets, although not declaring their temporal linearity, were operationalized in our analytic exploration of the notion of intercreating:

Table 1

Facets characterizing intercreating.

Facet	Feature	Reference

Facet	Feature	Reference
Initial conception	Collective free association of diverse novel ideas and opinions	Eteläpelto & Lahti, 2008; Littleton & Mercer, 2013; Middup et al., 2010; Vass et al., 2014
	Disputational talk	Mercer, 1995
Developing strategies	Novel strategy for joint working	Eteläpelto & Lahti, 2008
Constraints and norms	External and internal constraints	Vass et al., 2014
	Analytic rational talk (argumentation, justification), reflection to meet norms and constraints	
Developing intersubjectivity	Other-orientation, mutual/shared emotional resonance, mutual trust	Vass et al., 2014; Wegerif, 2005
	Affective talk, humour, improvising and acting out	Vass et al., 2014
Emergent intercreating	Turning point from competing to collaborative intercreating	Palmgren-Neuvonen & Korkeamäki, 2014
	Rejection, acceptance, absorption, transformation without explicit argumentation	Vass et al., 2014
	Common frame of reference, expanding on each other's ideas	
	Group flow	Sawyer, 2007
	Elaborated and multifaceted shared understanding	Eteläpelto & Lahti, 2008
	Co-constructive talk	Rojas-Drummond et al., 2010
	Cumulative features	Mercer, 1995

We employed the framework to address our research questions and interests.

4   Co-constituting dialogic space of intercreating

Next, we examine how intercreating is co-constituted in our empirical video data recorded in the three planning sessions with sub-tasks: to decide on the theme and topics of the DV story (Session 1); to create a storyline and storyboard (Session 2); and to finish the storyboard and create the casting (Session 3). The mediational means employed were a laptop per each group (Session 1) and drawing pens and paper (Sessions 2 and 3). DV technology served only as a context: cameras and software were used in the following sessions (4–6).

4.1 Initial conception

In the first group phase (Session 1), the groups were asked to select three pictures from the Internet to draft the theme and topics of the storyline for their joint movie. The observed mixed-gender group interacted in an enthusiastic manner, with the participants proposing diverse ideas and opinions to build an initial conception of their joint task. However, one of the girls and one of the boys dominated, suggesting ideas that represented their individual worldview and gender-stereotypic topics, while one girl just remained silent. Before long, the interaction became rather disputational as the dominant group members endeavoured to get their own ideas noticed by their peers. Frequent conflicts were provoked by their different discourses. During Session 1, five conflicts required inviting the teacher to solve disagreement.

Excerpt 1. Diverse ideas result in a conflict.

Girl1: The baby sits at the beach and the shark swallows her. I got it, in a shark's stomach!
Girl2: Yuck, I won't search any photos of shark's stomach.
Girl1: Yes, you will!
Boy2: (to Girl2) Find a boat!
Girl1: No boats!
Boy2: Oh yes!
Girl1: I'll quit! (goes to invite the teacher to solve the situation)

The participants, each having an individual initial conception of the video to be produced, found it difficult to establish a mutual understanding of the task and topics of the joint story. The girls did not approve of themes related to violence (e.g., explosions, shooting, and killing) and opposed such suggestions, whereas the boys underrated some of the more female-gendered ideas such as babies and grandmas, claiming "Ho-hum! Nothing's more boring!" The members shouted their assertions and counter-assertions simultaneously to invalidate the previous suggestions, each one talking over and also above the other, merely listening to other members' proposals. The group talk cannot by any means be described as collective free association in this phase. Rather, most of the session entailed disagreement and efforts of individual decision making. Intersubjectivity was absent: none of the participants asked or discussed the other members' ideas or opinions. Although the frequent conflicts were task-related and caused no prolonged alienation among participants, they disrupted the group workflow and hindered intercreating. Yet, the group managed, albeit in rush forced by the looming deadline, for the first group session of 22 minutes, to agree on the three pictures (baby, boat, bomb) in the last minute of Session 1. It was indicative of the group members' attempts to engage in thought-showering together.

4.2   Developing strategies

Session 1 demonstrated that without a mutual understanding of the task and jointly negotiated strategies, the group could not progress but fell into conflicts. The teacher who was invited to solve the conflicts demanded consensual agreement in group decision-making instead of voting: "Ok ... then all of you can decide. If you are not satisfied with the voting decision, you have to create one joint storyline." As the classroom assistant in Session 2 gave a contradictory piece of advice, namely to vote for the best storyline, the group members found the method did not help them to progress and doubted its meaningfulness; a better solution was needed.

They began to develop strategies of decision-making related to disagreements and conflicting ideas, obviously desiring to comply with the teacher's instructions to work towards and for consensus. The group decided to use one member's story as the basis for the storyboard but soon found this strategy needed elaboration. As a solution, Girl2 suggested "Let's take one story for the basis and take all the poor things out." Presenting their own suggestions for a synopsis, combining the suggestions and abandoning inappropriate ideas, appeared to be a fruitful strategy to proceed. Furthermore, developing strategies for joint working proved crucial in achieving the dialogic space of intercreating.

4.3   Constraints and norms

Despite the open-ended nature of the task, a number of constraints impacted the group discussions. As external constraints, the teacher set a certain time frame and a sub-task with a clear, tangible goal for each session (Session 1: three pictures, Session 2: a synopsis, and Session 3: a storyboard). Finding that voting had resulted in conflict within the group, the teacher demanded consensual agreement in decision making.

Regarding the internal constraints, the initial conflicts resulted in the group negotiating the appropriateness of the suggestions and agreeing upon some norms related to moviemaking in the school context. With the exception of Boy2, the group members considered themes of death and violence far beyond the norm to be inappropriate in such a context.

Excerpt 2. Negotiating school-based task norms.

Boy2: ... who then dies!
Girl2: No, he doesn't die.
Girl1: He must not die.
Boy2: Ok, he'll be run over by car.
Girl2: He mustn't die, can't you understand.
Girl1: This is a school task, so we won't accept dying!

As a response to Boy2's ideas representing the most violent content, the girls made the case for particular norms engendered by the school-based task. The norms served as prompts for group talk

and reflection on the content to comply with the school-based norms that were implicitly negotiated. Although competition between individual voices was still evident, and the arguments were 'decisive' or 'declarative' rather than inviting, the excerpt exemplifies an opening of dialogic space to create content.

Excerpt 3. Norm used to reject suggestion.

Boy2: (to Boy1) ... then I'll blow your head off!

Girl2: No, the [granny has…

Girl1: [And moreover, she has the baby with her.

The excerpt demonstrates that internal norms were used as justifications to reject such suggestions. The girls reminded Boy2 of the norms associated with classroom-based creative work by pointing out the presence of grannies and babies. However, reality-based critical evaluations resulted in strife regarding the genre of the jointly planned DV story.

Excerpt 4. Conceptual learning.

Girl1: Well this is a story, you fool!

Boy2: No, we make a document.

Boy1: Yeah, fact!

Boy2: It's a document, fact, not fiction!

Boy1: This is fact!

Girl1: This is fiction, not fact!

Boy2: Ok, fiction, ok! Really, the shark cannot bite a hole in a ship… Yes it´s fiction!

Joint conversations, although of imaginative content, functioned as a conceptual learning environment for the participants. Although the excerpt reveals unproductive challenges without an argument, the compliance of Boy2, finally agreeing with Girl1 on the fictive genre, can be interpreted as an opening of dialogic space. Generally, the discussions did not include explicit reasoning but increasingly inter-resonating ideas were generated.

4.4   Developing intersubjectivity

As the group learned to manage conflicts, establish common strategies and negotiate norms and constraints, an other-orientation emerged and the collaboration became more productive along Session 2. The phases the group went through undoubtedly developed group cohesion and mutual trust on their ability to accomplish the task together, which enabled more reciprocal interaction. Through the developing tentative intersubjectivity, the interaction became other-oriented implying collective and shared emotional resonance (Vass et al., 2014). The members came to rely on the others' open mindset regarding possibilities and suggestions. They felt free not only to share ideas and reflect on the others' points of view, but also to show their emotions, be these positive or negative.

Growing intersubjectivity was indicated by inviting suggestions as follows: "But what will he do after the explosion?" and by giving suggestions in a questioning manner, asking for others' approval: "Would they handcuff him?" and "Can we agree that he robs the orphanage… Is it ok for you?" The participants asked for more detailed explanations, demonstrating perspective taking and mutual attunement: "Can anyone explain to me what a mini moto is?" and "I don't understand! How did he manage to get out of there?" Indicative of emergent creative collaboration, the participants began to listen to or consider the opinions and suggestions of others as Girl2 did: "Oh yeah, he robs a bank. What a good idea!" Giving positive feedback was indicative of a growing sense of identification with others.

Playful and nonsensical talk, typical of children's creative collaboration and needed in its collective meaning making per se, was presented for example when creating the characters. This stage was seemingly exhilarating for all group members who were conceiving a prospective role to play; their interaction was coloured by giggles and grins. Girl1's free association "Yrjö Taneli (Finnish male names) … purjo kaneli (leek cinnamon in Finnish)" made the boys laugh. Playful talk promoted intersubjectivity among the group members and opened dialogic space clearly boosting collective free association. The participants eagerly improvised and acted out the suggested events to sell their ideas. Girl1 emoted the granny using an exaggerated tone: "@My darling, you must not break the mirror ... or something terrible will happen@!" Besides presuming this would secure acceptance of their suggestion, the children obviously wanted to have fun with each other.

4.5   Emergent intercreating

The jointly negotiated working ground rules evidently helped these children proceed as a group, but as soon as the participants established an early mutual understanding about the task and developed intersubjectivity, the group finally was able to create and negotiate a storyline for the DV movie. A deepened sense of identification with others helped the members receive and discuss alternative suggestions and opinions in a prominently more adaptive manner: disagreeable ideas and/or the rejection of their own ideas did not now result in conflict. They willingly accommodated opposing ideas and worked to incorporate such suggestions within their own thoughts.

Excerpt 5. Ideas begin to converge

Girl2: The shark would catch some yummies and die in food poisoning.
Girl1: Ok, we can accept food poisoning.

The ideas finally began to converge and an intermental zone of intercreating, a dialogic space, was about to be established. The members began to employ each other's prompts as a source of inspiration in their joint world of make-believe to stimulate novel thoughts.

Excerpt 6. Creative combinations of unrelated ideas.

Girl2: I'd suggest that she (baby) doesn't escape by Ferrari but by tribike.

Girl1: Yes, tribike! She can't take any Ferraris!

Boy1: By quad bike?

Girl2: Not by quad bike!

Boy2: By minimoto …

Girl1: Or ... a minimoto with support wheels?

Girl2 expresses her objection, reminding Boy1 that ideas such as quad bikes and Ferraris cannot be employed because very young children are not able to drive such vehicles. Although the excerpt entails some disagreements, it demonstrates creative thinking among the members who combined seemingly unrelated ideas with no previously established meaningful connection (Vass et al., 2014). Here, the mini-moto became equipped with support wheels.

Interestingly, it was violence and action-movie patterns that crucially seemed to open up the dialogic space and served as a common theme stimulating the members to intercreate. The girls were willing to co-create such episodes, if only an appropriate degree and quality of violence/fierceness were evident. For example, shooting was deemed to acceptable amongst the girls as long as human beings were not injured.

Excerpt 7. Action-movie patterns facilitating intercreating.

Girl2: No, he shoots the bike that graps …

Boy2: I'll shoot and he escapes.

Boy1: I'll arrest him.

Girl1: He'll escape somehow.

Boy2: I'll beat him.

The excerpt illustrates the enthusiasm among the participants who had chosen and constituted their character roles, which encouraged intercreating such as thinking of props and accessories for the prospective filming phase to colour the acting roles. Likewise, the tangible activity of drawing the jointly created scenes to illustrate their ideas for the storyboard appeared to prominently facilitate talk and negotiation, and promote mutual understanding and intercreating in the group. Group interaction changed from cooperative to collaborative (Dillenbourg, 1999): instead of developing one's own episode, the members began to build on each other's ideas appropriate to a situational common state of mind, using ideas as shared property, open to modifications and expansions by all partners.

Excerpt 8. Ideas inspire and stimulate other members.

Boy2: Then the granny attacks… Can we agree that she also robs the orphanage manager? Yeah, she robs the manager!

Girl1: I'd suggest that they rob first the orphanage and [then..

Boy2: [money ... they would put the money into…

AB: [I got it! They kidnap and lock away those guys ... when the guys are sleeping …

Boy2: (laugh, make some snoring noises) … but there could be some dolls instead in the beds?

The excerpt entailing longer exchanges evidences a high level of intersubjectivity and a commitment to negotiate their perspectives. Overlaps and interruptions occurred indicating, based on the clues from embodied expressions and the precedent and antecedent utterances in the data, group flow and engagement. Across Session 3, the group managed to strengthen the dialogic space, constructing a mutual understanding of the storyline, through specifying questions and requests for opinions and explanations. However, reasoning was not made visible in the form of explicit argument but instead, the participants employed co-constuctive talk chaining, integrating and reformulating each other's contributions. Suggestions were either accepted or rejected without the provision of any verbalized approval or reasoning. Due to the open-ended creative nature of the task, any ideas and thoughts were acceptable for their joint storyline. Rather, the approval seemed to depend on how well the proposer succeeded in integrating her or his own suggestion into the previously presented ideas.

Boy1 who specifically seemed to take an analyst role specifying the logicality of the details suggested a recap on what had been constructed so far and what each member considered approvable and cool, to make sure that all members would still agree on the ideas, characters, and events of the storyline. Finally, through shaping and fine-tuning, the converged ideas gradually composed a refined and appropriate version and the group achieved the goal. The members who had created the most disputes also expressed notable relief and satisfaction upon reaching an agreement. Obviously looking forward to acting his own role and filming their jointly created movie story, Boy1 exclaimed in relief: "This is going to be pretty good!"

5   Discussion

Our aim was to define and conceptualize intercreating and examine its emergence in the empirical study. Furthermore, our concern was to explore what fosters and hinders intercreating amongst students. The findings evidence how the observed mixed-gender group worked together over three sessions and finally achieved their common goal—to create a jointly negotiated storyboard for a video, collectively accomplishing more than each individual member could have on their own (Sternberg, 2003).

However, the group process did not start easily in teacher-assigned groups entailing likely differing perspectives. Although the ideal of the process of intercreating would begin with collective free association and the collation of stream of consciousness ideas (Vass et al., 2014), the girls' and boys' differing ideas resulted in frequent conflicts and challenged the group's generation of initial conception of the outcome. Besides initial conflicts, the study identified unequal participation and lack of argumentation, too often characterizing group work (e.g., Kumpulainen & Wray, 2002). To manage the conflicts disrupting the group workflow in Session 1, the group developed ways of

dealing with them by agreeing on joint strategies and norms. This was partly to meet the teacher's demand on consensus in decision making, but without specific instructions given by the teacher. The extracts provided evidence how mutual negotiations regarding strategies, norms and constraints nurtured the sense of community and helped the group to develop intersubjective attunement (Wegerif, 2005) which was a vital prerequisite for establishing the dialogic space of intercreating. These steps can be regarded as significant group achievements.

Emergent mutual trust at emotional, social and cognitive levels (Craft, 2008) encouraged the group members to share ideas and reflect on the others' points of view (Vass et al., 2014). As soon as the members built a shared understanding of the task, and initially established concepts through creation and evaluation in turns, the task became less complicated for them (Middup et al., 2010). The process involved, turn, divergent thinking to create content and convergent thinking to evaluate the process and content—taking into account internal and external constraints, either identified at the start or emerging during the process (Vass et al., 2014). Note, however, that the recurrent sequences of planning and reviewing of content unfolded tacitly. Ideas were thus rejected or modified, merged and transformed according to highly implicit shared criteria (Wegerif, 2005) that were based on the mutual negotiations of norms and constraints. Interestingly, explicit reflective discussion became redundant—due to the high degree of shared understanding regarding the mutually created ideas. As the dialogic space of intercreating had been established, the group was then readily able to perform the task. Their vivid discussion entailed overlaps and interruptions, but in this phase, we interpret these features not only as indicative of task-orientation and motivation, but also of group flow and engagement, as well as of intensive sharing and joint focus among the participants. This was in striking contrast to Session 1, where interruptions and simultaneous speech rather provided evidence of domination and lack of other-orientation (Vass, Littleton, Miell, & Jones, 2008).

The open-ended divergent task generated initially disputational talk—largely due to the group members' differing suggestions and perspectives and entailing speedy exchanges, assertions and counter-assertions (Mercer, 1995). The group developed intersubjectivity and a commitment to negotiate their perspectives—the behavior typical of exploratory talk. However, visible reasoning and explicit arguments remained sporadic. This finding concurs with several research studies in the context of divergent creative tasks (e.g. Littleton & Mercer, 2013; Rojas-Drummond et al., 2010; Rojas-Drummond, Mazón, Fernández, & Wegerif, 2006), claiming that such tasks do not support— and enable—reasoning and argumentation, the features that are associated with convergent tasks of collective problem solving (Rojas-Drummond et al., 2010). Although we did not observe fact-based justification in our in-depth analysis, we found evidence of norms and constraints and the participants' internal principles about classroom-based activities and conceptions from their lifeworlds to serve as justifications in the context of this divergent imaginative task. Our examinations identified repetitions, confirmations, and elaborations that characterize cumulative type of talk (Mercer, 1995). Although

cumulative talk is uncritical (Mercer et al., 1999), and is often implicated in establishing solidarity rather than seeking the best possible outcomes, it served nevertheless effectively in intercreating whereas exploratory talk could have hindered the processes of intercreating (Littleton & Mercer, 2013). Emphasizing the open-ended task, we consider the observed discussions to be exemplifications of dialogic meaning making requiring co-constructive talk commonly used by children and most typical of open-ended divergent tasks (Rojas-Drummond et al., 2010). More important than mere explicit reasoning in such tasks are participants with shared memories and ideas, building on each other's inter-resonating comments (Wegerif, 2005).

Besides the mutual experience of successful negotiations of shared strategies, norms and constraints, the study pinpoints elements that were likely to foster intercreating. First, although the parameters associated with a divergent creative task applied, some of the teacher's scripts appeared to support the group development. Although a clear goal is likely not to characterize creative collaboration (Sharples, 1996) but to restrict creativity, the subtasks with tangible subgoals facilitated the group to proceed. It is worth noticing that the observed group was learning to collaborate in an open-ended task that can be considered to be very challenging for 10-year-old children, but as soon as they develop their skills of creative collaboration, more freedom can be enabled. The demand for consensus to generate satisfying decision making, which naturally required more negotiation within the groups (Johnson & Johnson, 1975), appeared a prompt for group talk (Wegerif, 2010) promoting the collective decision making. The development of the group obviously was supported by the teacher who assisted the group to develop strategies for thinking collectively (for review, see Rojas-Drummond et al., 2010). Although the teacher was not involved in the content creation, appropriate scaffolding crucially influenced the development of the dialogic space of intercreating among the participants. A parallel activity, that of drawing the storyboard, also facilitated creative discussions in the group. Turning thoughts into external objects served as a way of deepening dialogues and shared reflection (Wegerif, 2010).

Second, action movie elements surprisingly served as a common theme that stimulated intercreating, but not before the group members negotiated the forms of action movie elements that were socially acceptable and the degree of violent actions deemed appropriate to all of them given that this was a school-based task. The girls "approved" such elements, by assimilating them within their own "soft" ideas; the boys likewise incorporated some of the more strongly female-gendered elements. Third, although video technology was not employed in the observed sessions, the context of video production prominently fostered intercreating: the children, envisaging their role in the prospective "shooting" phase, were highly motivated to agree on and intercreate the storyline. Due to their young age and rather limited experiences and knowledge, their intercreating did not result in remarkable creative contributions that are the characteristics of Big C creativity (Banaji, Burn, & Buckingham, 2010). Instead, their collaboration entailed little c creativity, referring to everyday

creativity that is possible for every person, child or adult. Reproducing and living through the texts, the group members mixed and merged meanings and media texts coming from their own lifeworlds, media experiences and preferences to a new one (Kupiainen et al., 2015).

Although the study identified a number of features of creativity described earlier, we can ask whether the group interaction generated creative ideas at all or simply reproduced the children's (boys' specifically) media experiences. The frequent appearance of extreme violence in Boy2's discourse provides a stark reminder of the nature of some children's media worlds. The video making of the boys tended to omit consideration of the contextualization of the task which was being undertaken within a school-based curriculum. The norms related to school-context work were however, raised as an issue by the girls, and appeared to place constraints upon their creativity (Littleton & Mercer, 2013; Moran, 2010) resulting perhaps in the pursuit of more conventional ideas (Vass et al., 2014). So there is a tension in respect of the risk of decreased learner motivation, and the importance of the school's educational mission.

The extracts presented evidence why it is helpful to differentiate between interthinking and intercreating. While earlier research suggests that interthinking is associated with knowledge building and problem solving needing exploratory talk, this study evidence how intercreating in turn characterizes the context of collaborative creative processes and open-ended fictive tasks necessitating co-constructive talk in groups, context that has been relatively neglected among researchers. Group members only, contribute, in a process of shared meaning making to develop a shared understanding of the divergent task and create an outcome that is unpredictable, abstract and imaginary, while the teacher remains in the backstage observing the groups and supporting intersubjective attunement between group members. Whereas the term interthinking foregrounds how individual minds link to create a powerful 'social brain' to solve problems and pursue collective intellectual activity (Littleton & Mercer, 2013), the term intercreating emphasizes the processes by which individual minds connect to collectively create new untraditional content such as digital content, narration and fiction in a collaborative and communicative way (Mostmans et al., 2012).

Our work defines intercreating not only as an end product or an outcome of the process, but also as an emergent process comprising phases of activity that were co-created by the students during the collaborative task resolution. Returning to our initial ideas about the concept of intercreating that were based on earlier research and outlined in Table 1, the article reports on the group members' moderate skills in collective free association but also their joint endeavor to develop other-orientation (Wegerif, 2005) to allow them to use novel ideas and alternative views (Eteläpelto & Lahti, 2008) enhancing creativity (Littleton & Mercer, 2013) and resonance between participants' ideas (Wegerif, 2005). The shared process empowered them to struggle for dialogic space that finally enabled group flow (Sawyer, 2007). The findings suggest that all the phases are prerequisites for the co-creation of dialogic space but overlapping and interactive rather than linear and distinct. Free collective

association, for example, seems to necessitate shared strategies and norms, and intersubjectivity. Intercreating is not a merely interpersonal or inter-individual behavior as suggested by Mostmans et al. (2012) but rather, a psychological intermental dialogic space among the group members engaged in creative activities, liberating their minds from formal, fact-based ways of thinking and writing, and sharing the experience of flow (Vass et al., 2014).

The nature of open-ended creative dialogue challenged us as researchers: at first, the superficial talk afforded little basis for analytical considerations and suggested modest pedagogical value of the group interaction, as compared with the dialogue characterized by the presence of explicit reasoning commonly found in science education. Open-ended tasks with imaginative topics are undoubtedly challenging for participants as well (MacDonald, Miell, & Morgan, 2000). The genesis of thought showers and the co-creation of fictional storyboards offer less common ground for discussion than, say, the interpretation of fiction (Lefstein & Snell, 2011) or creative acrostics-writing (Vass et al., 2014). The moderate interaction may partly be explained by the participants' evolving conversation habits. Although reasoned discussion with clear explanations is valued in advanced cultures, it rarely appears in children's everyday lives (Littleton & Mercer, 2013).

The moderate interaction partly resulted from the heterogeneous group composition of mixed-gender non-friends, aiming to stimulate negotiation and integrate girls' and boys' creative ideas, but resulting in conflicts caused by differing perspectives. As conflicts are indeed present in human interaction, we argue, supported by Saloviita (2006), that young students need opportunities to learn how to manage conflicts and avoid them to be able to work with differing peers. We thus question Mercer and Littleton's (2007) earlier claim that disputational talk is of little educational value. In this study, diverse ideas and perspectives that are a crucial element of creativity widened the dialogic space (Wegerif, 2010) and engendered more variegated and multifaceted outcomes than single-gender friendship groups would have (Sun & Lin, 2001).

Our work does not discount earlier sociocultural theories, but rather provides a new perspective on creative collaboration in the context of imaginative DV tasks specifically, discussing the relationship between spoken language and creative thinking: how using language shapes the participants' creative development and ways of thinking creatively together. Since creativity is largely learned and likely enhanced in social settings (Sawyer, 2013), the school needs to enrich children's creativity by regular employing collaborative content creation to reconnect learners with their creative potential. But providing opportunities to collaborate is not enough: they need to be explicitly taught about or inducted into ways of talking effectively together. We thus concur with the position taken by other researchers (e.g. Mercer & Littleton, 2007; Rojas-Drummond et al., 2010) regarding the significance of ground rules of productive group interaction. Finally, the study suggests DV production, allowing, improving and challenging participants' intercreativity, could serve as such appropriate environment to learn how to use talk collectively and creatively.

6   Acknowledgements

7   References

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