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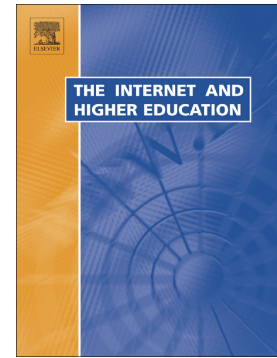
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Dialogicality in making sense of online collaborative interaction: A conceptual perspective

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Abstract

In higher education, learning activities increasingly take place in online collaborative groups. In this conceptual paper, we explore online collaborative interaction from the perspective of dialogicality. We aim to reconceptualize the notion of “productive interaction” and the typical focus of its research by turning attention to the dialogic features of collaborative interaction, especially the notions of alterity, dialogic attitude, and dialogic orientation. In relation to this, we offer a contextual perspective on collaborative interaction. Relying on data from an online university course, we conceptually analyze specified components of dialogicality. This article illustrates and explores the conceptual framework that connects different contexts in dialogic meaning-making. We also discuss our conceptual and empirical exploration from the pedagogical perspective.

Keywords: collaborative interaction, collaborative learning, dialogicality, higher education, online learning

1 Introduction

In this conceptual paper, we explore online collaborative interaction and learning from the dialogic and contextual perspectives, which we see as parts of a dialogical approach and dialogicality (Grossen & Muller Mirza, 2020; Linell, 2009; Matusov, 2011; Wegerif, 2008). In dialogicality, the theoretical interest lies in capturing the heterogeneity and multiple layers of communicative situations to show how meaning-making processes are inherently interactional and contextual in their nature (Grossen, 2009; Grossen & Muller Mirza, 2020).

By taking a *dialogic perspective*, we reconsider the notion of “productive interaction” that is often regarded as a prerequisite for successful collaborative learning (e.g., Barron, 2003; Felton, Crowell, Garcia-Mila, & Villarroel, 2019; Scheuer, McLaren, Weinberger, & Niebuhr, 2014; Vuopala, Näykki, Isohätälä, & Järvelä, 2019). In the context of Computer Supported Collaborative Learning (CSCL), the studies focusing on productive interaction have approached collaboration predominantly from the perspective of supporting and exploring cognitively high-level discussion or knowledge co-construction that occurs between participants (e.g., Felton et al., 2019; Mayordomo & Onrubia, 2015; Vuopala et al., 2019). These productive interactional processes prompt better learning outcomes or new knowledge extending the knowledge and understanding of each individual student (e.g., Hull & Saxon, 2009; Janssen, Erkens, Kirschner, & Kanselaar, 2009; Weinberger, Stegman, & Fischer, 2007).

In most of the studies focusing on the cognitive quality of the online discussion, the unit of analysis has been an individual message or a speech act (e.g., Author a,

2007; De Wever, Schellens, Valcke, & Van Keer, 2006; Pena-Shaff & Nicholls, 2004) and the analysis is based on a code and count approach allowing comparisons between individuals and groups (Grossen & Muller Mirza, 2020). Even though the categories considered productive are often “interactional” by nature (e.g., asking thought-provoking questions, giving clarification, challenging and counterchallenging) subdividing and categorizing interaction into individual actions does not fully account for participants’ interdependence and what the participants do together (Grossen & Muller Mirza, 2020; Linell, 2009).

In another part of productive interaction studies, knowledge co-construction studies, the underlying idea often pertains to how the participants collectively progress to stages of higher knowledge equivalence and shared (new) knowledge (Beers, Boshuizen, Kirschner, & Gijssels, 2005; Talamo & Chi, 2011; Oliveira, Tinoca, & Pereira, 2011; Weinberger et al., 2007; Vriopala et al. 2019). The focus of this research is often the gradual construction of states of intersubjectivity (Baker, Hansen, Joiner, & Traum, 1999; Hull & Saxon, 2009; Rommentveit, 1976) leading the participants to reach a mutual understanding from which they negotiate a shared endpoint (Beers et al., 2005; Gunawardena, Lowe, & Anderson, 1997; Rommentveit, 1976; Scheuer et al., 2014). The co-construction process involves sharing one's knowledge, negotiating or co-constructing knowledge, and, finally, integrating and synthesizing the contents of joint discussions (e.g., Beers et al., 2005; Hull & Saxon, 2009) into a new (shared) knowledge (Gunawardena et al., 1997). These studies are focused on identifying the dynamics through which shared meaning and new knowledge is developed and improved (Mayordomo & Onrubia, 2015). In these studies, however, the emphasis has often been on the dialectical, rather than dialogic, orientation (Talamo & Pozzi, 2011; Wegerif, 2008) with predefined knowledge to be adopted (e.g. Weinberger et al., 2007)

or a consensus (e.g., shared knowledge) to be reached (Beers et al. 2005; Jeong & Chi, 2007; Mayordomo & Onrubia, 2015). Moreover, a common feature of most of the productive interaction studies is that the categorizations of the (individual) messages or speech acts are often predefined (see De Wever et al., 2006) and, hence, looked at from the researcher's perspective (Stahl, 2012). Therefore, these studies neglect the diverse meanings that can be given to an action and do not tackle the participants' own interpretations of the collaborative activity (and learning) as it occurs (Grossen & Muller Mirza, 2020; Säljö, 2009).

In this conceptual paper, we turn our attention to dialogic aspects of collaborative interaction, particularly dialogic orientation and intersubjectivity from the points of view of alterity and dialogic attitude (Linell, 2009; Matusov, 2011; Wegerif, 2019). Dialogic perspective pays attention to diversity of thought, multiplicity of meanings, and open-endedness and inclusiveness. It acknowledges the importance of really hearing one another without the need to reach a shared understanding/consensus or negotiate an endpoint. It also pays attention to students' own evaluations and interpretations of the activities and learning in situ (Grossen & Muller Mirza, 2020; Säljö, 2009).

However, focusing plainly on the *here and now* of an interaction tends to neglect the broader contexts in which it takes place (i.e., the participants' personal, social, and institutional history; Grossen & Muller Mirza, 2020). Our conceptualization of the notion of dialogic perspective on collaborative interaction thus needs to be combined with *contextual perspective*. Accordingly, Linell (2009) sees interaction as existing not only between people, but also "with the world." From the contextual perspective of dialogicality, the participants in a communicative situation are engaged in both situated interaction and sociocultural praxis. In collaborative interaction, there is a kind of dual

dialogicality at play (Nystrand, 1992); the communication between participants essentially involves a dialogue within and through their respective contextual settings and traditions. Therefore, we are always dialoguing with cultural voices (Wegerif & Major, 2019) and speaking through “others” (Bakhtin, 1981). These others embedded in our discourse mediate, for example, the voice(s) of traditions, institutions, communities, colleagues, and friends (Grossen & Salazar Orvig, 2011; Markova, 2003). It is not possible to study collaborative interaction independently from the social, cultural, and historical settings in which it occurs and from the conceptual and material tools that mediate that interaction (Bliss & Säljö, 1999; Jeong & Emilio-Silver, 2010; Linell, 2009). Collaborative situation can be seen as a “heterogeneous dialogical space, where a present situation echoes other situations and where present dialogues echo distant dialogues” (Grossen & Muller Mirza, 2020, p. 601).

Using data from an online university course, we illustrate and explore the conceptual framework – dialogicality in online collaborative interaction. In order to reconceptualize the notion of productive interaction, we turn our attention to the dialogic aspects of the students’ collaborative interaction, especially the notion of intersubjectivity vis-à-vis alterity, dialogic attitude, and orientation (e.g., Linell, 2009; Matusov, 2011; Wegerif, 2008; 2017). In relation to this, we also explore different aspects of contexts in the students’ meaning-making (Gee & Green, 1998; Linell, 1998). Next, we introduce our conceptual framework: the dialogic and contextual perspective on collaborative interaction

2 Dialogic perspective of collaborative interaction

In this section, we discuss the dialogic perspective of collaborative interaction from the point of view of intersubjectivity and its distinctive features: alterity, dialogic attitude, and dialogic orientation.

2.1 Alterity and commonality in intersubjectivity

The notion of intersubjectivity is a defining characteristic of collaborative interaction (Linell, 2009; Matusov, 2011). Different nuances of intersubjectivity have different consequences with regard to educational dialogue and its promotion. For one, otherness has at least two different sides: commonalities with and differences from others (Linell, 2009; Wegerif, 2019).

Collaborative interaction is often characterized by conceptions like reciprocity, mutuality, alignment, and building shared understanding (e.g., Baker et al., 1999; Hull & Saxon, 2009), which all presuppose an “attunement to the attunement of the other” (Rommetveit, 1990, p. 21) – a common ground (Clark & Brennan, 1991) that enables collaborative interaction. According to Linell (2009), this perspective on intersubjectivity stresses the notions of sharedness and commonality with unity, closure, and consensus as an end goal.

The other side of intersubjectivity goes beyond mutuality and sharedness to build on a Bakhtian view (Markova, 2003; Matusov, 2011) that presupposes alterity (Linell, 2009). Alterity acknowledges difference, multiplicity of meanings and opinions, open-endedness and inconclusiveness. It is a prerequisite for collaborative interaction, as it involves acknowledging that another person’s perspective of the issues discussed is often different from one’s own.

Studies on productive interactional processes often see cognitively high-level interaction as a tool for shared exploration prompting better individual learning

outcomes (Enyede & Stewens, 2014; Weinberger et al., 2007). For example, there is a wide research field around the potential of argumentative interaction for productive interaction and learning (e.g., Scheuer et al., 2014; Noroozi, Kirschner, Biemans, & Mulder, 2018). In these approaches, alterity is based on opposing perspectives and the best argument wins, convincing each other, or reaching consensus kinds of resolutions (e.g., Felton et al., 2019). In general, the indicator of a productive interaction is the use of explicit reasoning manifested by clarifications, justifications, challenging and counterchallenging. The terms *exploratory talk* (Mercer, 2000), *inquiry dialogue* (Reznitskaya & Wilkinson, 2017), and *collaborative reasoning* (Chinn, Anderson, & Waggoner, 2001) may also describe such productive dialogues.

However, in this paper, we argue that alterity aspect of intersubjectivity does not necessarily presuppose productive interaction in the way of engaging in cognitively high-level interaction (such as explicit reasoning or argumentation). We argue that the prerequisite for intersubjectivity in collaborative interaction begins from seeing the value of others as a resource, with their own (not necessarily opposing but complementary) knowledge, perspectives, views, and experiences that are new, different or even strange from one's own point of view (Markova, 2003; Matusov, 2011; Wegerif, 2019). Accepting this does not require "the best argument wins" kind of talk, challenging other people's ideas or synthesizing opposing viewpoints.

Collaborative interaction can be educationally valuable by appropriating different voices, really "hearing" one another's points without rejecting one's own or other's differing voices. It can also be valuable through agreement by acknowledging various voices and using these as resources in dialogic meaning-making for the learning tasks at hand (Author a, 2015). Therefore, finding alterity in dialogue necessitates shifting the focus to the discourse universe (what is said and talked about), rather than focusing

solely on the communicative activity by evaluating the individual functions of communication as is a common feature in productive interaction studies (see more 1).

2.2 Dialogic attitude in intersubjectivity

Another aspect of intersubjectivity is related to the attitude of opening up for the other and seeking to understand the other. Wegerif (2019) relies on Habermas' concept of intersubjective orientation, and Buber's notion of dialogic attitude to open up a dialogic space where different perspectives and voices can interact to facilitate new learning (Wegerif & Major, 2019). Dialogic spaces of this kind are based on the twofold assumption of dialogic identity – the expansion of “us” in which individuals identify with their own voice as different from the others; however, they also identify with the dialogue as a whole (including their voice among the others; Wegerif & Major, 2019). As Bakhtin (1981) puts it, “one listens to them [and] learns from them [as] much as one listens to and learns from one's own voices” (p. 343, cited in Wegerif & Major, 2019). Therefore, dialogic attitude is fundamentally rooted in an orientation to the other opening up a space for shared inquiry. This means engaging with different voices and perspectives in a way that offers possibilities to understand things from more than one point of view (Wegerif, 2019; Wegerif & Major, 2019).

2.3 Dialogic versus dialectic orientation in collaborative interaction

Talamo and Pozzi (2011) differentiate between dialogic and dialectic orientation in collaborative interactions (see also Barrow, 2010; Wegerif, 2008). These are connected to the notions of intersubjectivity and interobjectivity, respectively. Dialogic interaction acknowledges the other as a separate contributor with their own perspective and sees the value of the other in potentially enriching one's own perspective. Therefore, dialogic

interaction tends towards creativity and seeing things from new and unexpected perspectives. One feature of dialogic interaction is that it does not necessitate initial agreement between the participants, but rather an orientation to define the situation together (Matusov, 2011; Talamo & Pozzi, 2011).

Dialogic interaction is best enhanced in situations where the need for understanding is crucial to opening the participants to otherness (Talamo & Pozzi, 2011). Joint participation in the activity (through the alternative voices in the dialogic process) gives structure to the object. Therefore, the dialectic situation, which is “driven by the resolution of differences (contradictions) into a more rational whole” (Talamo & Pozzi, 2011), is not in line with dialogic interaction. The key distinction between dialogic and dialectic interaction arises from the notion that in dialectic interaction equilibrium is accomplished through a fusion of conflicting positions whereas dialogic interaction refers to a continuous negotiation between different voices (Barrow, 2010; Wegerif, 2019).

Dialectics refers to a position that assumes that there is a predefined truth or an endpoint. If dialogue is used as a means to reach a specific or desired endpoint, it is actually dialectic interaction (Barrow, 2010). A typical example of dialectic interaction is a collaborative problem-solving situation to reach a predefined correct solution (e.g., Fischer, Bruhn, Gräsel & Mandl, 2002) or negotiating a shared understanding or knowledge as an end point (e.g., Beers et al., 2005; Jeong & Chi, 2007; Oliveira et al., 2011; Rovai, 2004). Therefore, pedagogically dialogic interaction is best nourished in learning tasks with no right answers (typically open-ended tasks) or need to reach an endpoint – not even from the teacher’s side. In line with Bakhtin’s (1981) idea of a dialogue as something that is ongoing, dialogic interaction requires tasks that are open

for genuine participation from different voices and positions, not for acquiring existing truths, shared knowledge co-construction or finalization.

3 Contextual perspective on collaborative interaction

In line with dialogicality in CSCL situations, the participants are connected to their sociocultural and material world (Author a, 2015; Grossen & Muller Mirza, 2020; Linell, 2009). Anchored in this environment are processes in meaning-making consisting of cognitions (such as ideas and thoughts), communicative processes, and meaningful actions (Linell, 1998; 2009).

Studies on collaborative interaction should focus on the communication and discursive processes taking place between the participants mediated by their social, material, and sociocultural contexts (Grossen & Muller Mirza, 2020; Linell, 2009; Ritella & Ligorio, 2016). To do this, in connection to the dialogic perspective, we approach collaborative interaction through the contextual perspective. Here, the notion of context refers to different learning resources relevant to the students in their meaning-making discourse (Gee & Green, 1998; Linell, 1998; 2009). Such resources consist of different contexts that are intertwined in the students' discourse to make sense of the phenomena under discussion. A context is not a predefined or objective environment but only includes dimensions that are or become relevant through the participants' discursive activity (Erickson & Schultz, 1981; Linell, 1998). In this way, the participants themselves create the context through discourse by reflecting and relying on the relevant contextual resources (Linell, 1998) or aspects of a situation (Gee & Green, 1998) in their joint activity.

The different contexts constructed through discourse can be divided into immediate and sociocultural contexts (Gee & Green, 1998; Linell, 1998). Here,

immediate context refers to situated interaction – how the students make sense of the discussion in their evolving online collaborative interaction, and how their contributions are built upon one another. Sociocultural context, in turn, refers to the pre-existing background, in the sense that people may draw on some past experience or prior knowledge as a resource for meaning-making in the present situation. In their discourse, people may reflect and lean on knowledge, experiences, values, and norms of various communities (of practice) (Wertsch, 1991). Meaning-making and understanding can be promoted by connecting the learning activities to contexts and discourses that are personally meaningful and “exist” outside the current activity, thereby using one context to make meaning in another context (Author a, 2015; Akkerman & van Eijck, 2013; Engle, 2006; Kumpulainen & Mikkola, 2014; Zittoun & Grossen, 2012). Sociocultural context also refers to different concrete materials and artefacts (Gee & Green, 1998; Linell, 1998) such as texts, articles, and lectures.

In this article, we aim to show how the conceptual constructs from dialogic and contextual perspectives can be helpful in understanding online collaborative interaction and also form the basis for the pedagogical design of these environments. Next, we introduce the pedagogical design of the course, subjects, and data analysis we use in exemplifying dialogic characteristics and the notion of contextuality in higher education students’ collaborative interaction. In connection to our pedagogical design we also introduce the concept of script.

4 Methods

4.1 Context and pedagogical design of the study

This study relies on the notion that instructional support can be applied to generate collaborative interaction (Vogel, Wecker, Kollar, & Fischer, 2017; De Wever,

Hämäläinen, Voet, & Gielen, 2015). Specifically, collaborative interaction can be supported by means of socio-cognitive scaffolding that guides learners through collaborative activities that trigger learning. In CSCL research, such scaffolding for collaborative interaction is commonly provided through CSCL scripts (see Kobbe et al., 2007; Radkowsch, Vogel & Fischer, 2020). Such activities may include argumentation in a likely sequence (e.g., first reading a text, then formulating arguments based on it), and implicitly or explicitly distributing roles (e.g., pro and con positions) among learners.

In recent years, several studies have illustrated the positive effects of scripting (with a set of instructions) on collaborative interaction (e.g., Kirschner, Sweller, & Clark, 2006; Tsovaltzi, Judele, Puhl, & Weinberger, 2015; Vuopala et al., 2019). So far, the research on CSCL scripts has focused mainly on students' learning outcomes and/or shared collaborative interaction processes, as reviewed by pre- and post-testing of the students' knowledge and an analysis of its cognitive quality (i.e., the nature or function of discussion; Vogel et al., 2017).

Therefore, this study seeks a better understanding of the dialogic and contextual perspective in collaborative interaction, which has been somewhat under-investigated in scripted CSCL settings thus far. Pedagogically we rely on the idea of opening a dialogic space for shared inquiry (Moate, Hulse, Jahnke, & Owens, 2019; Pifarré, 2019; Wegerif, 2019; Wegerif & Major, 2019). This calls for more dynamic conceptualization with regard to facilitating collaborative interaction than that offered by metaphors like scaffolding, which implicitly assume learning as predetermined (e.g., by the teacher) (Moate et al., 2019) and hence dialectic in nature (Talamo & Pozzi, 2011). To expand a dialogic space, it is important to see the value of connecting multiple voices and

resources beyond the immediate context to include the sociocultural contexts (Grossen & Muller Mirza, 2020).

In this case example, we aim at dialogicality and apply “macro-scripts” that integrate several activities across multiple places and social planes (individual, collaborative, and collective; see Dillenbourg & Hong, 2008). The scripting approach was designed for an online course called “Learning and Interaction,” which was based on teachers’ conceptions of a national level curriculum for Subject Studies in Education. The course aims to enhance the students’ understanding of the diverse theoretical perspectives of collaborative interaction. The students’ group activities (open-ended tasks) are pre-structured in an asynchronous web-based learning environment. The macro-script provides support to define a problem, search for and select reliable sources of information, and trigger discussions on multiple perspectives. The design of the core instructional scenario (see Dillenbourg et al., 2011) follows the notions of assigning participants specific expertise/roles (Author b, 2018), supporting interaction with learning resources (cf. immediate and sociocultural contexts, Linell, 2009), and leaving space for the groups’ creative collaborative interaction and dialogic orientation (Sarmiento & Stahl, 2008, Trilamo & Pozzi, 2011).

In practice, the course design was inspired by the Jigsaw approach (Aronson et al., 1978) and comprised three phases (the Jigsaw approach was originally developed for helping students to better acquire certain predefined knowledge and its epistemology leans towards the dialectical orientation, whereas the epistemology of this macro-script leans towards the dialogic orientation). In the first phase, the novice learners receive different sets of theoretical background information. One group of students read an article on collaboration from a sociocultural perspective (Puntambekar, 2006) while the other group read one from a socio-cognitive perspective (Weinberger & Fischer, 2006).

The aim of this solo activity is to create interdependence among the students and base their collaborative interaction on scientific knowledge. The students are offered assistance and access to social support through the teacher and the other learners during the individual work. The first phase also includes a short video introduction to the course content.

In the second phase, each student participates in a discussion with others who had read the same background material. This phase is designed to make the students experts in their own perspective. The students are further divided into small groups in which they share their experiences, help each other understand the literature, and apply their knowledge. The goal is to enhance the students' use of sociocultural resources (Linell, 1998) combined with theoretical knowledge. These resources include, for example, the learners' previous experiences and own examples (Author a, 2011). The teacher formulates open-ended questions for the group discussions in order to facilitate the students' exploration of the material.

In the third phase, pairs of students with complementary expertise on different perspectives (Deiglmayr & Lechaik, 2015) participate both as an expert and as a novice to gain a full view of the process. They arrive at collaborative interaction with the creation of a concept map. The pairs later compare and combine their knowledge to grasp and apply the features of collaborative learning to the given situation.

A variety of instruments and tools are used to structure the course design and support the use of learning resources on different social planes. The material resources include videos, research articles and two web-based learning environments: Peda.net, a web tool for discussions and Webspiration, a concept mapping tool (Jeong & Hmelo-Silver, 2010). The learning environment thus provides general guidance for collaborative interaction, but does not instruct the learners how to interact on the micro

level (cf. micro scripts; Dillenbourg & Hong, 2008). The role of the teacher is to support the web-based discussions when necessary without active participation. The teacher holds a doctoral degree and has over ten years of teaching online courses to be considered an expert in this field. The authors of this article do not teach the course.

4.2 Subjects, data collection, and data analysis

The data used to exemplify our conceptual framework was collected from Open University students who attended the aforementioned online course “Learning and Interaction” at a university in Finland. During the four-week course, the students worked on tasks according to the pre-instructional plan described above. The students’ backgrounds varied in terms of their studies and work experience. The data used to exemplify our conceptualization of dialogicality was based on the asynchronous online discussions of two student expert groups (hereinafter Groups A and B) belonging to the second phase of the course design (see 4.1). The students were informed of the aims and purpose of this study and consequent reporting. They gave us permission to use the data collected, and they had the right to withdraw from the study at any point. To ensure confidentiality and anonymity, any data enabling personal identification were not reported.

The conceptual analysis employed theory and researchers’ experiences (abductive reasoning) to identify specified components of dialogicality such as alterity, dialogic attitude, dialogic orientation, and different contexts from the data (Paavola, Hakkarainen, & Sintonen, 2006). This in-depth analysis progressed through steps of reading and re-reading the discussion postings of Groups A and B, identifying different connections therein, and observing how the data related to the conceptual framework of

the study. The analysis could be described as a cyclical process reliant on constant comparisons between the theory and data.

The next section characterizes our conceptual framework on dialogic and contextual perspectives. We use purposefully selected data excerpts (translated from Finnish) to exemplify the notion of different contexts in students' dialogic meaning-making.

5 Other students and sociocultural contexts as resources for dialogic meaning-making

Next, we provide examples of dialogic orientation in the students' online discussions and show how it is mediated by different contextual learning resources. We use the examples from Groups A and B to highlight two specific manifestations of intersubjectivity in the students' discourse rather than focusing on the conceptual meaning-making of the subject of discussion. Our exploration also focuses on the students' perspectives and reflections on learning and activity in that particular setting. In accordance with Säljö (2009), we think that a more experiential and phenomenological dimension of learning is important because "learning is lived" (206). The epistemic beliefs and evaluations that the students hold about learning (and reflect upon in the online discussion) must be considered.

5.1 Group A

In the following examples, Group A ponders the role of guidance in online learning environments:

Iida: This discussion question is a bit challenging to me. As I did not fully grasp the basis of the article as to what the guidance activities encompass. How was

this for you guys? [...] I wish a more skilled student would explain this issue a bit [...] in order to specify how these scripts are manifested in collaborative learning. Let's think about this together!

Elisa: Like Iida, I call for additional light shed on the task instruction either from Saara [the teacher of the course] or someone who has understood the task.

Julia: Like you, my fellow students, I am also a bit lost with this question. But by thinking about the guidance of collaborative learning in practice, I would go with what Anna brought up [...]

Elisa: Thanks, now the lights are switched on my end, too ...

As can be seen in the above example, the students are challenged when they discover that the article does not give a straight answer to the teacher's set question on guidance in online collaboration interaction. In fact, Iida's orientation in the situation is at first monologic (or dialectic) in the sense that she presupposes there is an answer to be found somewhere (Matusov, 2011). However, the situation is simultaneously dialogic in that it recognizes the value of others to solve the problem. In the situation the students explicitly invite the others to help (Elisa) or orientate towards the group as a source of making sense of the topic (Iida). According to Talamo and Pozzi (2011), intersubjectivity becomes necessary in moments when participants face ill-defined and problematic situations; the adoption of others' perspectives is a strategic way to reach solutions. This situation displays a genuine recognition of "otherness" in the sense that the students see the added value of others to make sense of the phenomenon at hand.

Matusov (2011) argues that one prerequisite of dialogic orientation is interproblematicity. It presupposes that the subject at hand is both interesting and problematic for all. It also involves a genuine interest – or *need*, in line with Talamo & Pozzi's (2011) interpretation of intersubjectivity – in what the other students have to say

about the problem. Iida's discourse below voices the problematic nature of the learning task at hand, and the genuine interest in and need for each other's contributions, using also the ideas and concepts in the article (e.g., sharing the cognitive load) as resources for meaning-making:

Iida: It's true – like you have already stated – that too simple a learning task would hardly motivate people to commit themselves very extensively to collaborative knowledge construction. It is important that the topic raises cognitive conflicts and people start unravelling these together. Personally, I recall from some article a statement about sharing the cognitive load; that's what we have been jointly doing here.

Iida's discourse also reflects a dialogic attitude and shared dialogic space ("jointly doing here") in the situation.

When Group A could not find the "right answers" for the role of guidance from the theoretical text, they were led to creatively use other resources at their disposal, as is demonstrated in the next example:

Iida: Anna, you found a fine example from the world of work. Somehow I am already feeling ... this guidance issue start to take shape more and more as a reasonable whole. I suspect that I couldn't have made it out very successfully by myself, so we can already now state that (at least for me) the idea of collaborative learning really works.

Anna's apt example from the world of work did help Iida make sense of the role of guidance, which she explicitly acknowledges: "I am already feeling... this guidance issue start to take shape..." This is a good example of how the external dialogue with other students' perspectives enhances understanding and shed light on students' "inner

confusion” (Tsang, 2007) that Iida (and other students) had felt towards the task at hand.

Even though this situation could be interpreted as cumulative talk where speakers build positively but uncritically on what the others have said (Mercer, 2000), the motive for this discussion is really to solve the problem – not to conform to the ideas of others for the sake of avoiding anything that would be “disruptive for the group solidarity” (Wegerif, 2008). In Matusov’s (2011) words, there is *dialogic interaddressivity*: a real interest in what the other students have to say about the task at hand. Iida also evokes a dialogic attitude through the use of the explicit and implicit “us”: “I couldn’t have made it out very successfully by myself” (Wegerif & Major, 2019).

Another student, Vilma, continues the meaning-making process by offering another example from the working life context:

Vilma: Hi Anna, you found a good example from the world of work. I will tell you another example, which incidentally, I came across today. I attended a presentation event of a work community game, and lo and behold, the game was precisely about this same collaborative and argumentative learning as in this course, and it worked excellently. I recognized many of the same features as in this course. The instructor’s role in this game rose to a very significant position and the most pivotal points that I noticed were that the teacher must not teach but should make interventions and facilitate when necessary [...] Problems were solved by means of case examples, and these did not have right or wrong answers, which gave rise to various perspectives and ideas, which were then argued together. The instructor’s role was to remind [players of] this feature and help [them] accept different points of view when people got hot-tempered at

times. Like Saara and Iida said, a too easy or explicit task would discourage collaborative action and the solutions would be found at once, although there is more need for presenting different viewpoints and arguments – just like in research.

Anna: Isn't it interesting to note that in some workplace settings ... we indeed have the same situation that we have talked about in our studies. Wonderful eureka moments that the points we have learnt can be utilized in quite concrete settings, for example, at the workplace.

Vilma uses her earlier experiences from an online course and work as a sociocultural resource to make sense of the role of guidance in the present university course. Her statement reflects aspects of intersubjectivity through her example and the students' dialogic orientation: "Like Saara and Iida said, a too easy or explicit task would discourage collaborative action and the solutions would be found at once, although there is more need for presenting different viewpoints and arguments."

This excerpt is a good example of boundary crossing (Akkerman & van Eijck, 2012; Kumpulainen & Mikkola, 2014). When thinking about the role of the teacher in collaborative learning, the students draw on their own experiences from other contexts to make meaning of the issue at hand. This in turn promotes transfer and deployment of knowledge across different sites because one context (work) is addressed to understand another context (study) and vice versa (Author a, 2015; Engle, 2006; Zittoun & Grossen, 2012). Anna also explicitly states this in her comment above. Later on, Iida reflects on her own role and that of the others in the discussion:

Iida: I think that our discussion group has been active and task-oriented. We have managed to produce fine argumentation, like Saara stated above. In my view, every participant of this discussion group has taken care that they have

brought their own views to the joint roundtable for consideration. In all, the group has been nicely heterogeneous and various arguments have come up laudably. The given article surely puzzled us all to some degree. Indeed, I found that our discussion clarified the issue considerably, and therefore the "commentaries" and mutual exchange of ideas led to much better understanding of the topic of discussion. In the discussions, it was perhaps discernible that some had got[ten] a bit more [further from] the theme of the article while others remained on a bit more shaky ground with it. Anyhow, we all were certainly in a learner's role here – at least I was. I found that the applications brought up from practical life and fields of work were very useful. In this respect I had the receiving role since my own experiences [in] collaborative learning at the workplace are quite minimal. So I think that my own strengths were more on the side of drawing on the article this time.

The above example highlights the meaning of intersubjectivity in the sense of acknowledging the alterity of the others: they hold some ideas, experiences, or knowledge that the person herself does not. Therefore, the others' ideas complement one's own and offer opportunities to see things from different perspectives. This alterity in Group A seemed to arise from the heterogeneous backgrounds of the students (e.g., in terms of work experience as mentioned by Iida). In addition to alterity, the example reflects a dialogic attitude through Iida's sense of "us/we," which expands to include others in a lived experience of shared dialogic space (Wegerif & Major, 2019).

5.2 Group B

The notion of alterity and the meaning of dialogic attitude can also be concretely exemplified by Group B's discussions on the concepts of collaborative learning and shared understanding:

Noora: Information is not memorized as such but it is, for example, compared, interpreted, considered, applied and evaluated in order to solve a given problem or issue [...] In addition, one's own views must be externalized for others to consider. One essential point in collaborative learning is, therefore, how social interaction (i.e., different perspectives of others) triggers the monitoring and development of one's own thoughts and clarification of thinking.

Olli: I think Noora put into words what I myself couldn't. [In] just this social interaction, we are now pursuing online raises different thoughts [and] points of view. On the one hand, thoughts sometimes get confused when one thinks about things from different angles evoked by other people's comments. On the other hand, I can be happy and thank and reward myself for having understood the issue, as you are writing about the same things that I'm thinking in my head. I think variation in the age structure adds perspective to collaborative learning; senior employees' experience plus young people's enthusiasm often yields good results.

In the above examples, both Noora and Olli express the meaning of alterity and dialogic attitude in their sense-making. The students' discourse reflects a shared dialogic space that triggers different perspectives. Olli's comment "on the one hand, thoughts sometimes get confused" also explicitly shows how others' ideas trigger and challenge his own thinking. In the next example, Ella acknowledges Olli's notion of the heterogeneity of the participants' experience in regard to age in reference to her

personal experiences in Group B activities. Ella's conception also supports the notion of alterity and dialogic attitude in terms of multiple and widening perspectives:

Ella: I'm perhaps representing the younger student cohort on this course. As for the article by Puntambekar, it left me pondering, as it mentioned that learning must be based on authentic and real things/solutions to problems. Collaborative learning is particularly suitable to such cases, if the group consists of several persons from several age cohorts. A young person just cannot have a wide spectrum of personal experience. When [people are added to] the group who have longer life experience, it yields more varied insights and also a broader set of topics for interaction. Collaborative learning gives better chances for more diverse solutions and for extending the range of ideas.

As can be seen from the above excerpts, a feature of Group B's discourse was that they used their own activity as a resource to create meaning in collaborative learning. Like Olli says, "this social interaction we are now pursuing online raises different thoughts." This feature was also common in Group A. According to dialogicality, situated interaction has two dimensions. Linell (2009) names these dimensions "interactive situation" and "situated discourse universe." An interactive situation refers to the communicative activity; that is, the situated interaction between participants within the particular setting/speech situation. A situated discourse universe encompasses a continuously changing topic or content of the discourse but also the aspects of the interactive situation itself. This can be seen in the discussions of both groups, as they topicalize activities and events of the concrete interactive situations themselves. This is evident in the following excerpts where Noora and Ilona use and reflect on their own activities as a resource to garner understanding:

Noora: I have also been pondering the point Essi brought up in the last chapter of her message; that is, is it a sufficient indication of shared understanding [of] an issue, if one mentions he/she agrees with another discussant, as in Puntambekar's study (p. 341)? Personally, I have thought that shared understanding is manifested in the group's jointly negotiated "communiqué" or summary as a clear common opinion (e.g., a drafted concept map would illustrate the work pair's shared understanding). In fact, [in] the previous online course, I was left wondering, as we were told to develop a shared understanding, but no clear "end result" of the group work was accomplished through discussions.

Drawing on the scientific article, Essi's thinking, the act of drafting a concept map in the present course, and past experience from another online course as a resource, Noora ponders the notion of shared understanding. She sees it in an implicitly dialectical manner – reaching a shared endpoint through consensus. Ilona continues the discussion with her reflection on the dialogic and dialectic notions of collaborative learning:

Ilona: I share your doubts! For me, the confusion is probably partly dependent on making sense of the concepts. The concept "shared understanding" used in the article makes me confused, as if we had a chance to share our cognition and assess it somehow... I think about the issue rather as shared expertise. Then it is clearly a process, so that individuals are still individuals but learning from each other. [...] I have learnt something, though owing to what you said, I headed to the source of information, read it, translated it into Finnish, processed it, looked for arguments, mirrored them against what you said, etc. [...] Finding and verifying actual mutual agreement is probably easier when it comes to an

individual problem to be solved; for example, an action when compromises also have an impact on the final outcome.

In the above example, by questioning the article's conceptualization of "shared understanding," Ilona leans towards the dialogic orientation where the participants "learn from each other." This also indicates a dialogic space created between the students in the learning context (Wegerif, 2019). On the one hand, Ilona uses her in situ experience as a resource to reflect on the dialogic nature of collaborative learning: "I have learnt something, though owing to what you said, I headed to the source of information, read it, translated it into Finnish, processed it, looked for arguments, mirrored them against what you said, etc." On the other hand, she sees that finding shared understanding is possible in another kind of situation that requires clear problem-solving and compromise. Such is the dialectic orientation where unity, closure, and consensus are the ultimate goal (Barrow, 2010; Linell, 2009; Talamo & Pozzi, 2011).

In sum, the students in Group A and B draw on and connect different resources to construct situated meanings for the topics of guidance and shared understanding. Besides using theoretical articles and each other's ideas as learning resources, the students reflect on and discuss their own/their group's/the teacher's activity in the online discussion forum, hence topicalizing the interactive situation. Their own activity is, hence, used as an important resource in making sense of collaborative learning as a practical phenomenon. Conceptual knowledge from scientific articles also serves as a resource in making sense of their shared activity. The students also use a wide variety of sociocultural resources to build situated meanings. They refer to similar experiences in work contexts or other online courses, thus using one context to understand another. Therefore, this heterogeneous dialogical space includes and mediates voices from

outside the immediate context (Grossen & Muller Mirza, 2020; Grossen & Salazar Orvig, 2011; Jeong & Hmelo-Silver, 2010; Linell, 2009; Wegerif & Major, 2019).

The above examples also demonstrate how the students discursively explicate their learning experiences within the course setting. The situation triggers them to produce epistemic evaluations and interpretations of their own collaborative activity and learning (Säljö, 2009; Grossen & Muller Mirza, 2020) and simultaneously serves as a resource in the learning task.

6 Discussion and Conclusions

The aim of this conceptual paper was to introduce and exemplify dialogicality and its dialogic and contextual perspectives on collaborative interaction in an online university course. Valuing alterity and dialogic attitude is vital to support dialogic orientation and interaction (Barrow, 2010; Talamo & Pozzi, 2011; Wegerif, 2008) and a prerequisite for building a dialogic space (Wegerif, 2019; Wegerif & Major, 2019). In terms of pedagogical arrangements, this calls for open problems that allow the use of multiple resources, both immediate and mediated (Bliss & Säljö, 1999; Jeong & Hmelo-Silver, 2010; Linell, 2009). Tasks that evoke using one context to understand another, thus crossing boundaries, and seeing the value of other students as a resource enhance dialogicality and the expression of multiple voices (Akkerman & van Eijck, 2013; Wegerif & Major, 2019). This dialogical approach was illustrated through the empirical examples provided by the study.

Our study details students' epistemic evaluations (Säljö, 2009) of activities conducted by various parties during the course. This contributed to their understanding of the phenomenon of collaborative learning. Besides the perspectives of their peers, the students used a wide variety of mediated sociocultural resources to create meaning (Gee

& Green, 1998; Linell, 2009). Therefore, the collaborative online environment provided the students with a material and social context within which the multidimensionality of their social and cultural worlds came into play (Kumpulainen & Mikkola, 2014). These findings illustrated that the heterogeneous dialogical space (Grossen & Muller Mirza, 2020) created in collaborative interaction was a system of interconnected meanings of social, cognitive, and cultural processes (Kumpulainen & Mikkola, 2014). However, creating this kind of space and supporting the creative use of different resources also required adequately open-ended assignments. The students formed new personalized meanings through free exploration of other people's ideas and available resources without the need to construct any particular "shared understanding" or synthesize an endpoint (e.g., Beers et al., 2005; Scheuer et al., 2014). We suggest that teachers and course designers ought to at least partially abandon the dialectic orientation to online collaborative interaction – the idea of always necessitating the construction of a shared understanding/the consequent arrival at an agreement (Barrow, 2010; Talamo & Pozzi, 2011).

Through our conceptual and empirical exploration, we aimed to challenge the notion of productive interaction and the typical focus of its research. In investigating online collaborative interaction, particularly asynchronous learning via discussion forums, most prior studies have concentrated on analyzing how the shared construction and transmission of academic knowledge is supported (Oztok, 2013). As Stahl (2012) points out, the most common method has been to code discussions in terms of a "presumed hierarchy of knowledge-building moves – a pre-existing theoretical framework for measuring how students' interactions meet an ideal of what they 'should' be doing from the researcher's perspective" (7). Stahl notes that within such studies, posted descriptions of personal experience are often coded as off-topic or excluded from

the analysis. Our study privileges personal experiences and perspectives (as regards both the study content and the students' epistemic evaluations) as key elements to understand collaborative interaction and learning, and justify a more experiential and phenomenological approach to studying online collaborative learning (Säljö, 2009). Furthermore, the personalization of learning is a prerequisite for personally meaningful (Author a, 2015; Rajala & Sannino, 2015) and dialogic learning (Matusov, 2011).

It is also important to realize that collaborative interaction does not necessarily manifest itself in cognitively high-level communicative functions or predefined hierarchy of knowledge-building moves. As our examples evidence, reading other participants' postings enabled students to consider and learn from each other's thoughts, even though it did not necessarily lead to the co-construction of knowledge (Vuopala et al. 2019; Weinberger et al., 2007), argumentation, (Felton et al., 2019; Noroozi et al., 2018; Scheuer et al., 2014) or explicit reasoning together (Mercer, 2000). This highlights the value of online discussion and texts, which enable joint exploration of conceptual artifacts through a more or less permanent documentation of the epistemic discourse (Goodyear & Zenios, 2007). This permanency supports the reflective and dialogic processes throughout the entire learning process by offering time to observe and reflect on individual and joint ideas or communicative activity (Linell, 2009; Wegerif & De Laat, 2011).

According to Linell (2009), certain communication types favor reflective processes more than others. Reflection presupposes that one can observe the flow of discussion. This is the case in asynchronous online environments where communication with permanent representations provides opportunities for "vicarious learning" (Gudzial & Carroll, 2002). When learning vicariously, the students recognize their own views in other people's postings or learn from each other's contributions and new perspectives

offered in the shared dialogic space. However, this does not necessarily entail a need to engage in co-construction of *shared* knowledge in a dialectic fashion. Rather, in an authentic dialogic space, the dialogue is ongoing and inconclusive (Bakhtin, 1981; Wegerif, 2019).

In this conceptual paper, we have focused on some of the constituent elements of dialogicality. In line with Ligorio (2013), we:

- (a) maintain multiplicity and complexity while simultaneously enabling ongoing communication and agreements;
- (b) situate the phenomena of the larger sociocultural picture and historical voices;
- (c) maintain an interplay between different perspectives;
- (d) look at individuals' and others' roles in social interaction;
- (e) consider material and immaterial elements, and
- (f) look at time and space as essential elements of dialogic and contextual perspectives.

In conclusion, the importance of teaching for dialogue as well as teaching through dialogue is increasingly gaining ground in pedagogic discussion. It is generally acknowledged that some instructional support is usually needed to accomplish adequate dialogue in CSCL settings (Author b, 2011). This poses new challenges to teachers' professional development and instructional practices (see Hetherington & Wegerif, 2018; Cook et al., 2019). Our study illustrates that, in addition to a dialectic approach, a dialogical approach is also needed to understand and support the contextual nature of collaborative interaction, including students' perspectives and situated learning. Future investigations should focus on how CSCL scripts could better highlight the value of others as a resource, not just opponents (cf. ArgueGraf script). The complementary approach helps explore unprecedented views, experiences, and knowledge without the

need to negotiate a shared endpoint. This also incorporates technologies that facilitate the creativity to explore new perspectives (Glăveanu, Ness, Wasson, & Lubart, 2019).

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Highlights

- The study reconceptualizes "productive interaction" in online collaboration
- The study presents dialogic and contextual perspective on collaborative interaction
- A conceptual analysis was conducted to search for elements of dialogicality

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