Introduction: Collaboration Defined

What is collaboration and collaborative learning, after all? Both in everyday discussions among practitioners in the schools and among researchers in the field of learning and instruction, the term collaboration is sometimes used very loosely and the definition of collaboration is blurred. In many notions, it has been regarded similar to cooperation, which is a typical activity in school projects, where the students work toward a shared goal, usually a shared product, but the actual work is divided. Students may divide the task into subtasks, which individuals complete alone. This kind of division of labor is called vertical (Dillenbourg, 1999), and in the literature, it is typically referred to as cooperation instead of collaboration (Cohen, 1994). In addition, collaboration is sometimes referred to very generally as a shared activity of the students, interaction between students, or participating in learning communities. However, in those notions, the nature of activity, interaction, or participation is not specified.

The most widely used definition of collaboration describes it as a construction of shared understanding through interaction with others (Dillenbourg, 1999; Roschelle and Teasley, 1995). It is assumed that in collaborative activity, the participants are committed to or engaged in shared goals and problem solving. Furthermore, collaboration is often defined in a way that necessitates participants to be engaged in a coordinated effort to solve a problem or perform a task together. Collaboration is also commonly referred to as coconstruction of knowledge (Baker, 2002), building
collaborative knowing (Stahl, 2004), coargumentation (Baker, 2002), negotiating of shared meaning (Pea, 1993), construction of common knowledge (Crook, 2002), exploratory talk (Mercer, 1996), or coordination (Barron, 2000). Furthermore, the definitions of successful collaborative activity demonstrate the nature of collaboration, where cognitive, social, and emotional aspects are tightly intertwined.

Baker (2002) defines collaboration as “a symmetrical and aligned form of cooperation in problem-solving, independently of whether the participants agree or not” (p. 602). According to Baker, interaction is symmetrical if the participants adopt certain roles equally throughout the interaction, i.e., participate equally in problem solving. Even though Baker (2002) does not refer to symmetry of knowledge, a certain degree of knowledge symmetry is essential to enable equal roles (Dillenbourg, 1999). According to Van Boxtel (2000), all participants have to contribute equally to the elaboration and solution of the problem at hand.

In Baker’s (2002) definition, the degree of alignment refers to the extent to which participants are in phase with respect to different aspects of the problem-solving activity, that is, to what extent they are genuinely working together. For example, interaction is nonaligned in a situation where students have no mutual (conceptual) understanding of the problem or the concepts at hand, and thus, are not genuinely able to work together (until they negotiate a shared understanding). Maintaining and constructing shared understanding requires continuous attention and reflection on one’s own and other’s understanding (Baker, 2002).

Mercer (1996) sees collaboration as shared knowledge construction. According to him, shared knowledge construction is manifested in talk. He distinguishes three forms of talk, namely exploratory, cumulative, and disputational talk. Exploratory talk occurs when participants engage critically but constructively in each other’s ideas. In exploratory talk, statements and suggestions are offered for joint consideration. These are challenged and counter-challenged with justifications and alternative hypotheses. In exploratory talk, knowledge is made publicly accountable and reasoning is visible. Cumulative and disputational talks do not promote joint critical problem solving. In cumulative talk, the participants build positively, but uncritically on what the other has said. The participants use this type of talk to construct common knowledge by accumulation. Typical elements of cumulative talk are repetitions, confirmations, and elaborations. Disputational talk is characterized by disagreement, competitiveness, and individual decision making. There are only few attempts to solve problems together or to offer constructive criticism or suggestions. Only exploratory talk contributes to shared knowledge construction.

According to Barron (2003), collaborative activities have a dual nature, which means that the participants have to develop and monitor both the content space and the relational space. The content space refers to the cognitive aspect of collaboration: how the subject at hand is reasoned, how the ideas are developed in discussion, and how the shared understanding is constructed. Relational space refers more to the way in which participants orientate toward each other in dialogue (or monologue) and how willing they are to engage in interaction (Barron, 2003). The content and relational spaces are negotiated simultaneously, and thus compete for attention.