Chapter XIX

E–Social Constructivism and Collaborative E–Learning

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ABSTRACT

Social constructivism is an established educational theory based on the principle that learners and teachers co-construct knowledge through social processes. This chapter proposes an updated theory, e-social constructivism, that takes into account the milieu of electronic communications in which e-learning occurs. Thinkers such as Dewey, Piaget, Vygotsky, and Bruner, who laid the theoretical foundations of social constructivism, wrote in a time when face-to-face interactions were the basis for instruction. The works of these writers are reviewed in this chapter. Together with the results of the author’s phenomenological study of collaborative e-learning, they form the basis of e-social constructivist theory. The author uses grounded theory and situational analysis to derive and support e-social constructivist theory. This chapter discusses the implication of that theory for research, teaching and instructional design.

INTRODUCTION

In online classes, interaction between learners and instructors occurs electronically. Online classes may expect learners to interact through discussions involving the whole class, in small groups, or in pairs. When assignments are designed for completion by collaborative teams, the objective is for peers to learn from and with each other. This instructional approach, called collaborative e-learning, is defined as: “Constructing knowledge, negotiating meanings and/or solving problems through mutual engagement of two or more learners in a coordinated effort using Internet and electronic communications” (Salmons, 2008, p. 131).
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The rationale for including highly interactive collaborative assignments is usually supported by references to the theory of social constructivism. A core notion of constructivism is that knowledge has a subjective dimension because people construct meaning based on their relationships with the world. Each individual learner imposes meaning on his or her experience. A teacher cannot impose meaning on learners. Social constructivism focuses on the social phenomena that occur when conceptual schemes are transmitted by means of language. From a social constructivist's view, knowledge is not simply constructed; it is co-constructed. Constructivism is considered antithetical to positivism or objectivism, the theoretical position that explanations must be empirically verifiable and knowledge exists independently of our own perceptions of it (Schutt, 2006). Positivist world views translate into instructional theory based on the assumption that the instructor transmits knowledge through direct instruction (Arbaugh & Benbunan-Fich, 2006).

Theories of social constructivism have their roots in the thinking of Dewey, Piaget, and Vygotsky and Bruner. These theorists described social learning that took place face-to-face in classrooms with children. To what extent do their theories support and explain social learning in online classrooms at the college level and with adult learners? What new principles are needed? The author proposes e-social constructivism as a framework for answering these questions.

METHODOLOGY

Employing phenomenological, grounded theory and situational analysis methods, this chapter meshes analysis of two sets of data. One set of data is derived from a theoretical sample of literature. A second set of data is drawn from in-depth interviews the author conducted with a purposeful sample of experienced online educators.

Phenomenological research methods provide a way to investigate human experience through the perceptions of research participants. Theorist Husserl distinguished between “noema,” the phenomenon which is experienced and “noesis,” the act of experiencing the phenomenon (Husserl, 1931). In the author’s study, phenomenological research methodology provided a structured approach for inquiry into the perceptions of success factors for instruction using collaborative e-learning. The four basic steps of phenomenological research described by Moustakas (1994) provided a methodological framework for the study. The author used in-depth dialogue with research participants at each of the four stages of the process: preparing to collect data, collecting data through in-depth interviews, analyzing data, and reporting outcomes. The study investigated noesis, the experiences of teaching with collaborative methods online, and noema, the organization and design of the learning activities participants used to promote collaboration.

Grounded theory complements phenomenological research. To apply this theory, researchers build on the understanding of individuals’ experiences derived through phenomenological methods to generate theoretical principles (Greswell, 2007; Strauss, 1987). They look at categories discovered in the data and construct explanatory theoretical frameworks, which provide abstract, conceptual understandings of the studied phenomena. Situational analysis is a style of grounded theory. Situational analysis looks at the social situation while grounded theory looks at social process. Situational analysts diagram elements in the research situation to capture the complexities and show relationships in the data. Theory is thus “grounded” in the data from participants who have experienced the phenomenon. Grounded theory can help explain practice or provide a framework for further research and more formal theory development.

Analysis of both sets of data was organized in three broad steps: data management, descriptive accounts, and explanatory accounts. At the descriptive accounts stage the researcher worked with the ordered data to identify key dimensions, to map the range of diversity of each phenomenon and to develop categories. The researcher used
inductive reasoning to look for and compare patterns and associations in the data, and to locate linkages between sets of phenomena. Situational analysis maps were used to compare online and face-to-face learning situations. The explanatory account is the researcher's interpretations of the significance, implications, and theoretical conceptions of the findings.

DESCRIPTIVE ACCOUNT SUMMARY: FROM THE LITERATURE

Contemporary literature in education and instructional design draws on constructivist theory to support active, rather than receptive, models of teaching and learning. When learning activities expect individuals to investigate, discover, and construct new meanings they actualize cognitive constructivist principles. When learning activities expect groups of students to exchange and explore ideas together, they embody social constructivist principles. The following sections briefly review the theoretical contributions of foundational thinkers in the field of constructivism. Principles that apply to the theory of e-social constructivism are highlighted.


John Dewey's work sets the stage for inquiry into social constructivism. John Dewey wrote at the advent of the industrial age, and observed the potential of the railroad and telegraph to "eliminate distance between peoples and classes previously hemmed off from one another" (Dewey, 1916, p. 85). He predicted that new forms of educative community would emerge because new connections would be made between people who previously had limited access to one another. "Persons do not become a society by living in physical proximity [...] A book or a letter may institute a more intimate association between human beings separated thousands of miles from each other than exists between dwellers under the same roof" (Dewey, 1916, p. 4). Dewey foresaw the potential, as well as the challenges new communications would bring to established ways of thinking and learning.

Dewey created a theory that links education with experience because he believed that learning occurs by "constant reorganizing or reconstructing of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience" (Dewey, 1916, p. 76). Dewey's theory is based on the premise that learning is a social function, with a central principle of interaction. He described interaction between the student and teacher, between the student and the situation, and among students (Dewey, 1916, 1938). Dewey recommended that learners actively participate in learning situations outside of the classroom, equating the community to the laboratory—a place to experiment (Dewey, 1938).

Dewey was a philosopher who was concerned with education within the larger contexts of participatory democracy. He believed that to be fulfilled and successful contributors to a complex world, students need an education that supports development of creativity, critical thinking, and problem-solving skills.


Jean Piaget was a pioneer in child development. He was especially concerned with children's development of logical thinking capabilities (Piaget, 1952). Piaget's work is cited as a foundation for a thread of constructivism called sociocognitive or cognitive constructivism.

When students learn, according to sociocognitive constructivism, they create, adapt and refine knowledge (Piaget, 1971). They create knowledge structures and mental models through experience and observation (Tuominen & Savolainen,
2004). This perspective drew on Piaget’s theory of cognitive development. Piaget’s theory proposed that teaching knowledge learners can understand and use goes beyond just transmitting information. Instead, humans must construct their own knowledge. Individuals build their knowledge through experiences that they can abstract into conceptual frameworks or schema of the world (Maranen, Benarroch, & Gaomez, 2000; Tuominen & Savolainen, 2004).

The teacher’s task is to help students move from their inaccurate ideas and schemas toward conceptions more in consonance with what has been validated by disciplinary communities (Windschitl, 2002). While Sociocognitive Constructivism is primarily concerned with the individual’s learning, Piaget saw peer interactions as crucial to a child’s affective development and construction of social and moral feelings, values, and social and intellectual competence (DeVries, 1997). Piaget and subsequent sociocognitive researchers typically based their research on comparisons between pairs of child subjects of the same age or developmental level.

Lev Vygotsky (1896–1934): Sociocultural Constructivism

Sociocultural Constructivism views knowledge as primarily a cultural product and learning as a causal relationship between social interaction and individual cognitive change (Dillenbourg, Baker, Blaye, & O’Malley, 1996; Vygotsky, 1978). Vygotsky is frequently cited as the foundational thinker for sociocultural constructivism. He argued that development and learning involve the interplay of interpsychological and intrapsychological dimensions. He characterized these dimensions as functions of language with social speech used to communicate with others and inner speech used to reflect and think.

Vygotsky’s conception of a zone of proximal development (ZPD) describes the distance between what one can do alone and what can be accomplished in collaboration with others who are more capable (Vygotsky, 1978). This is also called “appropriation” because a learner “appropriates” strategies used by a teacher, parent or more experienced learner. When one learner is more knowledgeable than the other, it is expected that the latter learns from the former. However, researchers have discovered that when students work together, learning extends to the more able peer, who also benefits from the interaction.

The teacher’s task is to offer meaningful, “whole” activities, constructive tasks or problem-solving situations, where more knowledgeable learners can assist others. Constructive tasks, such as conducting scientific inquiries, solving mathematical problems, and creating and interpreting literary texts, are contrasted with decontextualized skill-building (Windschitl, 2002).

Jerome Bruner: Discovery and Spiral Learning

Bruner outlined three steps of the learning process: acquisition of new information, transformation of the new information to fit new tasks, and evaluation, which takes place when learners check whether the new information is adequate to the task. He did not see these as discrete steps, but as part of a spiral, where learning continues to build and evolve through interactions with new ideas and people (Bruner, 1966, 1977). The concept of spiral curriculum inspired the practice called scaffolding. Scaffolding is described by Wood, Bruner, and Rossa’s “...controlling those elements of the task that are initially beyond the learners capability thus permitting him to concentrate upon and complete only those elements that are within his range of competence” (Wood, Bruner, & Ross, 1976, p. 90).

Scaffolding is most effective when learners and educators iteratively communicate their growing understandings. With respect to collaborative learning, at least two classes of scaffolds can be distinguished: (a) scaffolds that provide support on a content-related or conceptual level, and (b) scaffolds that provide support related to the interactive processes between the collaborators.
Social Constructivism: Contemporary Interpretations

The concept of social models of teaching and learning has generated many interpretations. A few are summarized below:

- **Social learning theory** explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental influences. Albert Bandura termed this interaction “reciprocal determinism.” He formulated a four-stage process: (1) Attention: the individual notices something in the environment; (2) Retention: the individual remembers what was noticed; (3) Reproduction: the individual produces an action that is a copy of what was noticed; and (4) Motivation: the environment delivers a consequence that changes the probability the behavior will be repeated through reinforcement or punishment (Bandura, 1977, 1986).

  The basic principles proposed by Bandura are that people learn by observing others, and that learning can occur without an observable change in behavior. Cognition plays a role in learning, with attention as the critical factor. Modeling teaches new behaviors, may influence the frequency of previously learned behaviors and may also encourage previously forbidden behaviors. The model may be a “live model,” the actual person, or a “symbolic model” portrayed in print or media.

- **Exogenous, Dialectical, and Endogenous Constructivism** exist on a continuum, according to a model offered by Moshman (Moshman & Geil, 1998). *Exogenous Constructivism* emphasizes “external” knowledge as best taught through direct instruction, in conjunction with exercises requiring learners to be cognitively active. *Dialectical Constructivism* proposes that learning occurs through realistic experience, but that learners require scaffolding provided by teachers or experts as well as collaboration with peers. *Endogenous Constructivism* emphasizes the individual nature of each learner’s knowledge construction process, and suggests that the role of the teacher should be to act as a facilitator in providing experiences that are likely to result in challenges to learners’ existing models.

- **Ideas-Based Social Constructivism** changes the focus from learning through practical problem-solving to direct encounters with ideas. Prawat suggests that curriculum be thought of as a matrix of “big ideas.” Teachers serve as “managers or orchestrators” who work alongside students as they explore ideas together (Prawat, 1993).

- **Sociotransformative Constructivism** merges multicultural education with social constructivism, providing an “orientation to teaching and learning that pays close attention to how issues of power, gender, and equity influence not only what subject matter (curriculum) is covered but also how it is taught and to whom” (Rodriguez & Berrymen, 2002, p. 1019). These theorists point to the concept of agency that bridges knowledge and transformative action. They believe that agency can lead to a deeper understanding of the subject matter and to the application of newly gained knowledge in socially relevant ways (Rodriguez & Berrymen, 2002; Zozakiewicz & Rodriguez, 2007).

- **Radical Constructivism** is “a theory of rational knowing” championed by Ernst Von Glasersfeld. Von Glasersfeld wrote:

  > Radical constructivism holds that the only instruction or information a knower can possibly receive from 'nature' or 'reality' is negative. In other words, the world beyond our experiential interface may show us what concepts, theories and actions are
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not viable, but it cannot instruct us what to think (Glaserfeld, 1996).

Radical constructivists believe teachers or facilitators should provide limited support, and learners should construct their own mental models within the environment that exemplifies the topics being studied (Dalgarno, 2001).

Summary of Social Constructivist Theories

The theorists cited above explored a wide range of pedagogic and philosophical questions. This section analyzes positions expressed by these writers with respect to their applicability to an instructional theory of e-social constructivism.

Positional maps are a tool used in situational analysis to visualize major positions taken in the data (Clarke, 2005). Figure 1 illustrates relationships among theories reviewed in this chapter, with respect to the two dimensions: learning style and instructional style. This map provides a reference for understanding e-social learning theory in relation to earlier theories.

The vertical axis represents a continuum from the individual to the group as the focus of learning.

- In the first position, the focus is on the individual's learning experience.
- In the middle position, the individual's learning is catalyzed by the social process with the group.
- In the third position, the group is the focus with learning through interactions with peers and instructors.

The horizontal axis shows a continuum of instructional styles from instructor to learner-driven.

- In the first position, an instructor organizes and sequences content to convey information through direct instruction.
- In the middle position, an instructor facilitates learning by organizing and scaffolding.
assignments. The instructor shares knowledge, clarifies expectations and parameters, and keeps learners on topic and on task. The instructor is flexible and provides guidance as needed.

- In the third position, an instructor provides minimal guidance. Learners discover, contribute or generate knowledge independently.

**DESCRIPTIVE ANALYSIS: FROM THE INTERVIEWS**

In the author’s phenomenological study of collaborative e-learning, participants were interviewed. The participants were instructors who taught various subjects using collaborative e-learning activities. Research participants self-identified as committed to constructivist epistemological views and pedagogies. While specific constructivist theories were not discussed, they generally reported a desire to teach in a “learner-centered” way. The interview questions were designed to elicit perspectives about instructional strategies the instructors used. They considered “success” in terms of sustained learner engagement throughout all stages of the activity, learners’ ability to participate and contribute to the activity, as well as achievement of curricular objectives.

Three broad categories in the data from the study relate to the current analysis: (1) knowledge and skills needed to teach online with collaborative methods; (2) instructor commitment to collaboration; and (3) instructional milieu.

**Knowledge and Skills Needed to Teach Online with Collaborative Methods**

Research participants identified kinds of knowledge and skills they felt were essential for educators who teach using online collaborative methods. Throughout this section, quoted material is from research participants’ responses unless otherwise noted. Responses were categorized into four areas:

- **Understand the new paradigm.** To be effective in designing and guiding collaborative learning, instructors need updated practical and theoretical understandings about teaching and learning. A research participant observed, “In order for faculty and students to succeed, [they] need to get the sense of working in [a] different paradigm. [There is] need for bridging theory and application.”

- **Be an advocate.** Instructors need to be able to advocate the benefits of collaborative e-learning and overcome resistance and other barriers. A research participant asserted, “[the instructor] must be the enabler to get the collaboration done, the ‘driver’ to push the things.”

- **Model collaborative behaviors.** The best way that instructors drive productive collaborative behaviors is by modeling them. A research participant said, “I make sure I am modeling openness and experimentation, being an equal learner with others in the class.”

- **Have skills in online communication and facilitation.** Research participants spoke at length about what they considered the most essential skills: online communication and facilitation. Given the potential for dispersed class members to feel isolated, a research participant observed that, while in a face-to-face lecture it is not necessary for instructors to know learners, in an online class, they interact one-on-one. Another research participant described the importance of using people skills online: “being sensitive, patient and able to ‘show[ing] concern and guidance as needed, with a nurturing style.’”
Instructor Commitment to Online Collaboration

Research participants believed it is critically important for online instructors to be committed to collaborative methods and prepared to take varied individual and group actions to facilitate collaborative activities in online classes. All respondents made the point that, for online collaboration to successfully occur, the instructor must be prepared to take an active role. Laying the groundwork for interaction between instructor and learners as well as among learners requires careful attention. They described three key responsibilities for instructors:

- **Designing, planning and structuring learning activities.** Study participants emphasized the value of well-planned learning activities. While in some cases the assignments are already in place as part of an online class design, instructional choices remain. Research participants emphasized that successful collaboration happens when online learners trust each other and trust the process. This generalization is widely supported in the research literature on the subject. Learners, who may lack previous experience with virtual collaboration, want to know that the expectations, allocation of tasks in the collaborative group and assessments of shared outcomes are fair. They want assurance that instructor’s assistance is readily available if the process is not working.

- **Being a learning coach.** As instructors, research participants encourage critical thinking about learning, meta-thinking or meta-learning, and reflection. A research participant pointed out that online instructors need to “be present but not present,” to allow groups to solve their own problems and intervene only when the group cannot resolve a difficulty. Another participant made a similar suggestion: “when there is discomfort, be silent, be there and listen. Listen before intervening.” In addition to group coaching, several research participants suggested that private coaching or one-to-one communication with a learner is appropriate when the collaborative process is stuck. A learner may benefit from the instructor’s individual attention if that learner falls behind or surges ahead. In either case, such learners can jeopardize the success of the team. A participant depicted the circumstance where a highly motivated, capable learner works independently to complete an entire task, thereby disempowering the collaborative group and undercutting shared agreements and timelines. On the other end of the spectrum is the passive
lurker, someone who is not pulling his or her weight. Instructors should intervene to explain relevant points about the collaborative process and motivate the learner to fulfill his or her responsibility to the team, and/or encourage the team to review work agreements for completing the project. In such situations timely involvement of the instructor can help the group avoid getting sidetracked by group process.

• Developing learners’ collaboration skills. A participant made the collaborative process part of the lesson: “it is extremely important to discuss nature and value of collaboration before embarking.” Several participants assigned regular and frequent partner work, then built up to the small group so learners get a taste of success. They provide suggestions for different roles people can take in teams and let learners choose, and allow learners to build on or suggest options so learners cocreate activities.

In summary, at each stage of the instructional process research participants took active, responsive roles to help learners structure, organize and complete the collaborative activity. In the process, they sought to build learners’ skills in online collaboration while learners worked to achieve curricular goals.

Instructional Milieu

When asked, “Why do you think collaborative e-learning was a success?” research participants discussed issues of trust and safety as the most important factors. Research participants described a safe learning environment as one where learners can take risks, “have wild ideas, be creative and innovative.” A research participant suggested that instructors need to: “reduce stakes for participation to the point that people do not perceive a high risk for failure or perceive that not succeeding to the highest degree is a learning opportunity, with no comebacks or humiliating criticism.”

One participant stressed the importance of making mistakes in the class to avoid making them in professional life later on, when they could be very costly. This participant told learners that making such mistakes was a course expectation from the outset.

EXPLANATORY ANALYSIS: COMPARING CATEGORIES FROM RESEARCH AND LITERATURE

John Dewey talked about learning as interaction involving students, teachers, content, and situation. Later Joseph Schwab used the term commonplaces to describe these four interrelated factors (Schwab, 1983). The first three commonplaces receive similar consideration in the literature and in the results of the author’s research. The fourth commonplace, situation, differentiates the literature written to describe instruction in the face-to-face classroom from the perceptions of those who teach in online milieu. The theoretical literature made only passing reference to the situation, whereas online instructors described it as critically important.

In situational analysis, researchers chart elements for comparison in an abstract situational map (Clarke, 2005). This type of map lays out the major human and nonhuman elements in the research situation. The following figure highlights elements that influence the instructor’s role in collaborative e-learning.

Research participants discussed several ways that online milieu influence collaborative e-learning. They highlighted three points with important implications for online settings: trust and safety, transactional distance, and skills and equipment.

Issues of trust and safety were at the top of every research participant’s list. Research participants described a safe learning environment as one where learners can build relationships and gain the trust needed to share ideas and learn
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<th>Table 1. Educational milieu as “situation”</th>
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<th><strong>Online</strong></th>
<th><strong>Face-to-Face</strong></th>
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<td><strong>Individual Human Elements</strong></td>
<td><strong>Individual Human Elements</strong></td>
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<td>• Instructors</td>
<td>• Instructors</td>
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<td>• Learners</td>
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<td>• Instructional designers</td>
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<td>• Instructional technologists</td>
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<td>• Technical support staff</td>
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<td><strong>Nonhuman Elements</strong></td>
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<td>• Learning management system</td>
<td>• Classroom</td>
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<td>• Other technologies</td>
<td>• Field or community service settings</td>
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<td>• Online meeting space, virtual worlds</td>
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<td>• World Wide Web</td>
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<td><strong>Collective Human Elements</strong></td>
<td><strong>Collective Human Elements</strong></td>
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<td>• Class</td>
<td>• Class</td>
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<td>• Small groups or teams</td>
<td>• Small groups or teams</td>
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<td><strong>Implicated/Silent Actors</strong></td>
<td><strong>Implicated/Silent Actors</strong></td>
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<td>• Availability of computer hardware and software</td>
<td>• Instructor’s background and pedagogical views</td>
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<td>• ICT skills to use tools</td>
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<td>• Instructor’s background and pedagogical views</td>
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<td>• E-mail</td>
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<td>• Archives of discussions and shared documents</td>
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<td><strong>Discursive Constructions of Individual and/or Collective Human Actors</strong></td>
<td><strong>Discursive Constructions of Individual and/or Collective Human Actors</strong></td>
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<td>• Course content posted in online classroom</td>
<td>• Content provided by direct instruction</td>
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<td>• Instructor presence</td>
<td>• One-to-many communications from instructor to learner</td>
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<td>• One-to-many communications from instructor to learner</td>
<td>• One-to-one communications between instructors and learners</td>
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<td>• One-to-one communications between instructors and learners</td>
<td>• Verbal, nonverbal and written communications</td>
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<td>• Written communications</td>
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<td><strong>Discursive Constructions of Nonhuman Actors</strong></td>
<td><strong>Discursive Constructions of Nonhuman Actors</strong></td>
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<td>• Linear discussion format of asynchronous online classrooms</td>
<td>• Team meetings in classroom or informal campus spaces</td>
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<td>• Team threads or folders</td>
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<td>• E-mail</td>
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<td>• Archives of discussions and shared documents</td>
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<th><strong>Online</strong></th>
<th><strong>Face-to-Face</strong></th>
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<td><strong>Political Elements</strong></td>
<td><strong>Political Elements</strong></td>
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<td>• Others select learning platform, team features</td>
<td>• Level of institutional/curricular support for collaborative or individual work</td>
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<td>• Level of institutional curricular support for collaborative or individual work</td>
<td>• Accountability accreditation, institutional standards</td>
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<td>• Course may be developed by individual(s) other than instructor</td>
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<td><strong>Sociocultural Elements</strong></td>
<td><strong>Sociocultural Elements</strong></td>
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<td>• Cultural attitudes towards individual achievement versus collective achievement</td>
<td>• Cultural attitudes towards individual achievement versus collective achievement</td>
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<td>• Accountability accreditation, institutional standards</td>
<td>• Accountability accreditation, institutional standards</td>
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<td><strong>Temporal Elements</strong></td>
<td><strong>Temporal Elements</strong></td>
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<tr>
<td>• Transactional distance between initial message and response</td>
<td>• Classrooms at same time each day/week</td>
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<td>• Learners and instructors log in at any time</td>
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<td><strong>Spatial Elements</strong></td>
<td><strong>Spatial Elements</strong></td>
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<tr>
<td>• Geographic dispersion of human elements</td>
<td>• Physical presence of human elements</td>
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together. Research participants believe that the instructor has an important role in creating this kind of atmosphere. They described the use of the constructivist principle of scaffolding, where learning activities build progressively to “gently walk learners” into the collaborative activities. They discussed starting with “low risk activities that encourage a sense of group” by inviting everyone to participate. No grades are given for these foundational activities. In contrast, trust and safety issues were not referenced in previous theoretical literature.

Another aspect of online communications relevant to the collaborative process is transactional distance. The term transactional distance describes the gap in time between comment and response in discussions that occur asynchronously, not simultaneously. Online interaction differs from face-to-face conversation because nonverbal cues are absent. Researchers discuss the importance of creating presence (Rourke, Garrison, Anderson, & Archer, 2000) and immediacy (Conaway, Easton, & Schmidt, 2005) to overcome the isolation learners may feel. Instructors demonstrate social presence to make sure learners are engaged in the interactive process. They demonstrate cognitive presence by providing explanations, guidance, and resources to ensure learners are finding, comprehending, and analyzing class content.

When multimedia synchronous meeting tools and immersive environments are used to bring online classes and instructors together, learners may report fewer problems with isolation and transactional distance may decrease.

A third difference in the online environment is that special skills, hardware and software are needed to enter the virtual classroom and participate. This fundamental question of access was discussed by research participants, but not in the literature. (The literature reviewed was written before “access” for children with disabilities had become a consideration—or a mandate.)

Findings from this study suggest that online instructors need to support development of trusting relationships, demonstrate presence to prevent isolation that would keep learners from engaging in social learning exchanges, help learners either develop skills or find technical support services necessary for online participation, and guide them toward intellectual exchange and growth. An important conclusion based on this is that a radical hands-off interpretation of constructivism would not offer optimal instructional presence necessary to support collaborative e-learning activities.

A THEORY OF E-SOCIAL CONSTRUCTIVISM

Based on the comparison of categories in the theoretical literature and the practical experiences described in the interview data, I propose e-social constructivism as an updated educational theory. Since this theory aims to contribute toward improvement of teaching and learning, it can be described as an instructional theory.

Educational theories can be classified as either learning theories or instructional theories. According to Jerome Bruner, theories of learning are descriptive, while a theory of instruction is prescriptive (Morrison, Ross, & Kemp, 2004). Learning theories describe, after the fact, how people learn. A theory of instruction recommends the most effective way of designing and conducting instructional activities so learners acquire the knowledge or skill (Morrison et al., 2004). A theory of instruction is concerned with improving rather than describing learning.

In the following figure, the theory of e-social constructivism is placed in a central position. This position represents a balanced, guided facilitation role for instructors and a balance of individual and social learning. The theory acknowledges the interplay of individual and social constructions of knowledge, the need for internalized speech and reflection, and individual and collective contributions in the collaborative process.

This e-social constructivism theory recognizes the unique set of opportunities and limitations of the online social and learning milieu. While learn-
er-centered, this theory recommends important roles for educators who endeavor to teach online with collaborative methods. Kouzes and Posner point out that, "As paradoxical as it might seem, leadership is more essential—not less—when collaboration is required" (p. 243). The same might be said in the educational context, where more instructional presence is needed for collaborative, in contrast to individual, online assignments. Thoughtful attention to structure, purpose, and guidance can result in collaborative e-learning that truly engages learners in construction of new meanings.

PRINCIPLES OF E-SOCIAL CONSTRUCTIVISM

Learning occurs through meaningful interaction with content, content experts (who may include instructors, authorities or skilled practitioners) and peers. Learning is supported in online milieu that are conducive to social exchange and to exploration by both individuals and groups. The collaborative process and the subject matter that is the focus of collaborative activity both provide important context as learners construct meaning from their activities.

Through collaborative e-learning activities, learners acquire new knowledge together with partners, exchange and appropriate knowledge through peer exchange, and/or create new, innovative knowledge, skills and solutions. Instructors should acknowledge that learners' prior experiences and cultural, institutional, and historical contexts influence individual and team accomplishment.

If online courses are designed with social, collaborative activities, instructors must help learners avoid isolation and separation from the interactive process. Using the principles of scaffolding, instructors provide support and information learners need to interact successfully in online milieu. Instructors' social and cognitive presence is essential to the success of learners and learning teams.
Instructors should encourage learners to develop and use information and communications technology (ICT), competencies by integrating opportunities to develop progressively more complex online research, collaboration, and communication skills.

CONCLUSION

This chapter presented a grounded theory and situational analysis of two sources: theoretical concepts from the literature and perceptions of educators who participated in a phenomenological study of collaborative e-learning. After comparing positions of various theorists with tested, practical ideas reported by constructivist online instructors, those ideas and positions most applicable to collaborative e-learning were integrated into a theory of e-social constructivism. E-social constructivism principles integrate applicable ideas from previous theories with considerations specific to the online learning milieu. I hypothesize that designing, planning and teaching with collaborative e-learning activities based on principles of e-social constructivism will measurably improve learning outcomes as well as learner engagement and satisfaction.

The present version of this theory may serve as a framework for those who create and facilitate learners in collaborative e-learning activities. However, I hope that the e-social constructivism theory will evolve with future research, discussion and thinking by other researchers and instructors. The theory will also evolve with the integration of more multimedia, synchronous tools into online learning—which may erase some of the distinctions between online and face-to-face learning situations. Like other constructivist theories that came before, I hope it will motivate educators and researchers to create new directions and advance the field.

REFERENCES


E-Social Constructivism and Collaborative E-Learning


KEY TERMS

Appropriation: A kind of peer learning that occurs when a learner "appropriates" strategies used by a stronger or more experienced learner.

Collaborative E-Learning: Constructing knowledge, negotiating meanings, and/or solving problems through mutual engagement of two or more learners in a coordinated effort using Internet and electronic communications.

Collaboration Software: Collaboration software may operate either synchronously, allowing all users to participate simultaneously, or a synchronously, allowing users to participate at any time. Synchronous tools allow collaborative partners to meet and discuss projects, give presentations, view and edit documents in real time, or share applications. Synchronous collaboration tools include videoconferencing, online meeting platforms, shared whiteboard, Voice Over Internet, voting, chat or messaging, and immersive 3-D environments. Asynchronous tools allow collaborative partners to exchange materials, contact lists, or to access shared files or resources, libraries or archives. Asynchronous collaboration tools include e-mail, Wikis, blogs, shared calendars, polling, track changes, and document exchange.

Constructivism: Constructivism both an epistemological view and an instructional method. A core notion of constructivism is that individuals live in the world of their subjective experiences—a world where they construct their own meanings.

E-Learning: An educational activity or course conducted in an electronic learning milieu, using Internet communication technologies for delivery of instruction, curricular materials and learning activities. In this study, e-learning refers to instructor-lead academic courses which may be offered partially or entirely online.

Interaction: Reciprocal actions, effects or influences; the effect of one variable on another variable (Sonnes & Stevenson, 2004). Between individuals, interaction entails acting in such a way to have an effect on each other; or a mutually affecting experience. Whether online or face-to-face, interaction typically involves communication between individuals.

Social Constructivism: An educational theory based on the principle that learners and teachers coconstruct knowledge through social processes.

Teaching with Collaborative Methods: Organizing learning activities and creating an environment where collaborative e-learning occurs, and assessing the success of outcomes.

Threaded Discussion: Threaded discussion or discussion forum is a form of asynchronous discussion where original comments and responses are organized by topic. Threaded discussion occurs when one user posts a message that is visible to other users, who respond in their own time. A "thread" is formed when the software groups users' comments hierarchically under the original post. Threaded discussions create a linear format with continuity of comments on topic.

Transactional Distance: Transactional distance describes the gap in time between comment and response in discussions that occur asynchronously, not simultaneously.

Zone of Proximal Development (ZPD): Zone of Proximal Development (ZPD) describes the distance between what one can do alone and what can be accomplished in collaboration with others who are more capable (Vygotsky, 1978).