An Introduction to Constructivism and a Review of the Community of Practice Pedagogical Model

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Abstract

Constructivism emphasizes the learner as the creator of his/her knowledge and reality through the interpretation of his/her experiences (Jonassen, 1991). The present paper discusses constructivism through the lens of an instructional designer creating a learning environment and the characteristics that should be addressed. Also discussed are a constructivist pedagogical model, a community of practice, and the key characteristics that distinguish it from other pedagogical models.

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Learning is a complex process and has been defined and illustrated through many different models and theories (Ertmer & Newby, 1993). Learning epistemology ("the study of the nature of knowledge and thought" Jonassen, 1991, p.8) stretches a continuum, with objectivism on one end and constructivism on the other. Understanding either epistemology, objectivism or constructivism, can be clarified through the presentation of examples for each of the following criteria: learning system, role of the learner, problem and context, activities, role of others, and evaluation. The present paper focuses on constructivism and discusses these criteria in terms of building a constructivist learning environment. The author also provides an example of a constructivist pedagogical model, a community of practice, and discusses its characteristics and applications.

Constructivism

Constructivism focuses on the learner and acknowledges the learner as the constructor of knowledge and of his/her reality (Jonassen, 1991). The process of constructing knowledge and reality builds upon the learner's prior experiences, mental structures, and beliefs (Jonassen). As much of the information to be learned (formally or informally) pertains to higher levels of learning (e.g. Analysis, Synthesis, and Evaluation for Bloom's taxonomy of the cognitive domain, Schunk, 2004), constructivist methodology lends itself well to these ill-structured problems. "Ill-structured" describes a learning problem where there is not necessarily one correct answer. An example of an ill-structured problem would be how to give feedback to an employee in order to improve their performance on the job. In this example, the learner is required to analyze the situation and develop his/her own method based on prior experiences and social

learning experiences. The following paragraphs describe how constructivist concepts can be applied in the design of a learning environment.

Learning System

A constructivist learning system focuses on providing the scaffolding needed to support the learner (Duffy & Cunningham, 1996). Scaffolding refers to the use of tools designed and integrated into the learning environment to support the growth of the individual (Duffy & Cunningham). Examples of scaffolding include making resources available, providing a task (such as the opportunity for reflection), and guidance from the instructor. Scaffolding also includes the cultural context and experiences that the learners bring with them to the learning event (Duffy & Cunningham).

Role of the Learner

A constructivist learning environment is driven by the learner, as knowledge is created by the learner through their experiences and interpretations (Jonassen, 1991). Learners are given opportunities to explore the learning environment through a variety of ways, to manipulate information and content, and to review content above what is initially provided (Ertmer & Newby, 1993). Learning objectives for the learning environment are negotiated by the learner in order to allow the learner to create his/her own meaning (Ertmer & Newby).

Problem and Context

In a constructivist learning environment, the problem is presented to the learner before the knowledge to be learned (Jonassen, 1991). In other words, learners are presented with the problem that they need to solve (an ill-structured problem) and must self-direct their learning in order to develop or find a solution. The learning environment provides opportunities for the

learner to locate the needed information (Dabbagh & Brannan-Ritland, 2004) within an authentic context that reflects the problem in the real-world (situated cognition) (Jonassen, 1991).

Activities

When designing activities for the constructivist learning environment the instructional designer emphasizes context, learner control, ability to revisit information, problem solving skills, and an assessment that focuses on the learner's ability to transfer knowledge to a real-world context (Ertmer & Newby, 1993). The constructivist learning environment also incorporates tools that assist the learner in constructing knowledge (Jonassen, 1991). For example, facilitating a discussion (activity) using an online asynchronous discussion board (tool) to allow learners to contribute their opinion on the topic and reshape their current understanding of the topic.

Role of Others

In a constructivist learning environment, others play an important role in assisting the construction of knowledge by the individual. Knowledge is considered a social-dialogical process that is open to continual negotiation and involves other learners, experts, and the instructor (Duffy & Cunningham, 1996). An example of an activity that includes others in the learner's learning experiences is a discussion through synchronous or asynchronous forms of communication (Duffy & Cunningham).

Evaluation

As learners create their own knowledge based on their experiences and interpretations (Jonassen, 1991), the evaluation of constructivist learning environments can be challenging because less complex learning assessments (such as a multiple choice test) may not be applicable. Learners negotiate their own learning objectives and instructional goals (Jonassen)

and oftentimes there is no predetermined correct answer for a given problem (Ertmer & Newby, 1993). For these reasons knowledge may be instead evaluated through learner self-reflections (Jonassen, 1991), the degree to which the learner's knowledge provides a viable, workable solution to the problem (Duffy & Cunningham, 1996), or how the knowledge is demonstrated by the learner's experiences in similar contexts (Ertmer & Newby, 1993).

A Constructivist Pedagogical Model: Community of Practice

Under the constructivist epistemological umbrella exists several pedagogical models used to design constructivist learning environments. One model is a community of practice (COP), which is created and maintained by people who have a common area of interest and are engaged in a social learning experience in order to further learn about the topic (Wenger, 2006). Cambridge, Kaplan, and Suter (2005) believe communities of practice are important because they connect people, enable dialogue, stimulate learning, and generate new knowledge.

A community of practice must include three characteristics: domain, community, and practice (Wenger, 2006). Domain refers to the common area of interest among the members of community of practice. Wenger indicates that a membership in a community of practice implies commitment to the domain. The second characteristic, community, describes how members of the COP share information and build relationships with each other through activities such as discussions and projects that require collaboration. Finally, practice describes how the members of the COP apply the information. The members are practitioners who participate in the COP to develop their own knowledge and to also create their own access to resources (e.g. job aids, stories of what has worked or not worked) to be used in the future (Wenger). The following paragraphs further illustrate the instructional characteristics of communities of practice, the

implementation and evaluation of communities of practice, and their application as a constructivist learning environment in organizations and education.

Instructional Characteristics

Dabbagh and Brannan-Ritland (2004) identify eight instructional characteristics of a community of practice. The first characteristic indicates that control of learning is not a function of a single person but is instead a responsibility of all participants. Each member of the COP is a self-directed learner who initiates and responds to others through the medium in which the COP is embedded (e.g. via online technology). In other words, learning activities are presented by the members and are acted upon by the members without specific guided direction from an instructor. This distribution of control also illustrates the participants' commitment to the continuous generation and sharing of knowledge because the success of the COP must come from the participation of its members (characteristic #2). Activities introduced within the COP are flexible and support the negotiation of learning (characteristic #3) through the high number of discussions, collaborative problem solving activities, and social interactions (characteristic #4). Examples of activities that may be included in a virtual community of practice include discussion boards, webinars, problem-based activities, and sharing of resources or tools. The high level of social learning in a community of practice provides many opportunities to share opinions and diverse perspectives on a given topic and is considered beneficial to the overall knowledge base of the community (characteristic #4). Also supported by the community of practice is a high degree of creativity for identifying new ideas and solutions to problems (characteristic #5), which may supersede previous dispositions within the discipline (characteristic #6). However, the new knowledge contributes to the overall goal of the

community of practice and supports its goals through the collaboration of practitioners (characteristic #7).

Implementation

Communities of practice develop from a need for practitioners to grow and develop through social collaboration (Wenger, 2006). Unlike a project or training workshop, a community of practice is a continuous learning process – not a single event (Cambridge, Kaplan, & Suter, 2005). Driven primarily by purpose, communities of practice offer opportunities to learn through a variety of mediums including online events, face to face meetings, and a persistent web space (e.g. website) (Cambridge, Kaplan, & Suter). Cambridge, Kaplan, and Suter describe a six-phase life cycle used to create a community of practice: inquire, design, prototype, launch, grow, and sustain. In this model, each phase must address key questions and accomplish activities that support that phase. However, without a purpose the overall sustainability of the community of practice declines.

Evaluation

Evaluating the success of a community of practice is continuous, just like the overall lifecycle. Cambridge, Kaplan, and Suter (2005) provide questions to be applied during the evaluation process that fall into four categories. First is building the foundation of the COP through establishing relationships. The evaluator should investigate the frequency and depth of interactions, the apparent interest of members to take on leadership roles within the COP, reciprocity, and the degree to which information sharing is contributing to the domain. Next, consider the richness and accessibility of the COP's knowledge base and how the design of the COP supports learning (learn and develop the practice). The third category for evaluation is the degree to which the COP takes action as a community. The evaluator should review how

members are collaborating with each other, volunteering for projects, and recognizing/rewarding each other for their contributions. Finally, the COP should be evaluated on its ability to create knowledge in the domain. Key success indicators include openness to new ideas and leadership, members presenting their ideas to others, and overall an increase in influence within the domain.

Applications

A community of practice offers the opportunity for a group of people to create value within their profession or practice. As there are many reasons why a community of practice is formed, Wenger (2006) describes the most common reasons and activities: problem solving, requests for information, seeking experience, reusing assets, coordination and synergy, discussing developments, visits, mapping knowledge, and clarifying gaps. Wenger also shares that the concept of a community of practice has found numerous applications in organizations, government, education, associations, social sector, international development, and the Internet. The application of a community of practice within an organization and in education will be discussed here.

Organizations. Communities of practice have found an important niche in organizations because of the valued relationship between employee knowledge and job performance (Wenger, 2006). Wenger indicates that participating in a community of practice has a direct relationship with job performance. Also a community of practice offers a method in which an organization can manage the collective knowledge of its employees, by allowing members to share their knowledge and also build upon their knowledge through their interactions with others (Wenger). A community of practice can also be used to reinforce information delivered through a training class and ensure positive transfer to the job. Finally, a community of practice creates a medium through which employees can develop informal connections between co-workers. Garavan and

McCarthy (2008) share the viewpoint of using a community of practice as a tool for organizational learning because it supports individual learning at the cognitive level while focusing on a sense of community.

Education. As with organizations, communities of practice offer value to members of the educational community. Wenger (2006) shares that there is a growing interest to develop and train teachers using peer-to-peer activities. However, the educational community expresses concern over the possible impacts of communities of practice because outcomes could impact the overall "business" of education (Wenger). Wenger indicates the introduction of a community of practice to the education community impacts educational practices internally, externally, and over the lifetime of the students. The educational community is part of a much larger learning system that includes students, parents, friends, teachers, administrators, and anyone else involved in the students' lives, which means changes within the educational community must still be able to be integrated with the lives of the students (Wenger).

Summary and Conclusions

The constructivist epistemology provides a high level framework for developing a learning environment to support learning for ill-structured problems. A constructivist learning environment must include characteristics that support and focus on the learner's ability to construct his/her knowledge, such as reflection and social collaboration. One example of a constructivist pedagogical model is a community of practice. A community of practice provides the opportunity for learners to create their own meaning by becoming self-directed learners, all the while contributing to the overall knowledge base. As with any constructivist pedagogical model, the design of a community of practice must include the appropriate instructional

characteristics in order to ensure effective implementation and application, and to provide the most benefit to its members.

Resources

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