Forming knowledge: Constructivist learning and experiential education

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The teens talked about why they did not make the top of the peak. It looked like it was going to storm, said one. That’s the reason, others agreed. No way, said Ryan. “We knew weather might blow in and still we got up late.” After further discussion the rest of the group agreed and suggested other contributing factors. The discussion then turned to taking responsibility and not blaming outside things. Janene said that was like when she blames her mother for when she gets grounded.

The participants in this example are engaging in reflection upon their experience. In the process, they are making new connections between their present and prior experiences, generalizing and applying principles from one context to other contexts. The participants are constructing knowledge.

Simmons (1995) equates experiential education and constructivist learning theories yet gives only a cursory explanation. Like me, many experiential educators, especially in the environmental and adventure education fields, may have little or no background in the study of pedagogy. I was trained as a wildlife biologist and recreation leader. It was an easy slide into outdoor education—that fascinating field astride multiple worlds. I have now spent a decade teaching/leading adventure and environmental programs; it is from this context that I will share examples. Although I believe that many experiential educators do not have formal training in education, I also feel our field is particularly adept at accessing practitioners’ commonsense knowledge.

In this paper, after a brief critique of behaviorist pedagogical assumptions, I want to present constructivist learning theory as a framework for understanding experiential education. I hope to walk a line between being a practitioner and trying to explain academic theories that I am finding useful in developing my pedagogical practice. Constructivist learning theories present an epistemological foundation for what practitioners understand is occurring in experiential education.

A brief critique of the predominant approach

The ‘program’ of a wilderness trip and most types of experiential education is a form of curriculum. According to Goodson (1990) the prevailing ideology among many curriculum thinkers, planners, and researchers is “curriculum as prescription.” It develops from a belief that every ingredient of a course of study can be defined and the appropriate parts taught in a uniform, systematic sequence. This rather deterministic view tends to assume the teacher (program leader) as the giver of knowledge and the students (participants) as the passive recipients of a common knowledge set.

While all schools of learning theory would suggest that behavior changes through learning, the issue is who is the agent in the learning? A common assumption is the behaviorist notion that students learn because teachers teach, or that the program did something to the person—as one trip participant once told me, “it’s like you’re trying to open my head and pour in your stuff.” Most experiential educators would roundly deny a behaviorist orientation. Yet elements of this stance may be evident in the way many programs are organized or how program leaders describe the expected program outcomes.

Behaviorism has dominated curriculum development and research (Goodson, 1990; Robottom and Hart, 1995). Simmons (1995, p. 124) writes that behaviorism “views education as a matter of applying appropriate external methods and techniques (as stimuli) to evoke the appropriate response: e.g., socially acceptable behavior, recall of information, skill acquisition, etc.” Robertson (1994), focusing on environmental education, criticizes the emphasis of research in that field as deterministic, assuming that a “treatment” will effect change and ignoring the learner’s prior knowledge,
Experiences, and cognitive processing of the content. The same criticisms could apply to research in experiential education.

As a practitioner I find much of the published research in environmental and adventure education of limited usefulness for many of the same reasons cited above. The problem boils down to basic assumptions about the nature of human beings and the way we know and learn: most of the research is founded on a different epistemology than that from which I instruct. As Robottom and Hart (1995) criticize, the effort to set rigorous and statistically significant research designs bounds a holistic experience into concrete, but isolated, dimensions, despite the fact that they are not fragmented in everyday life. The research loses much of its practicality for a practitioner and helps little in understanding how the individual is experiencing the program and forming the base of knowledge with which to make present and later decisions. Studies that view experiential programs like a medical ‘treatment’ ignore the learner’s role and make her or him a passive recipient of program delivery. Constructivist learning theory may provide a more grounded epistemological framework for studying the processes of experiential learning.

Constructivist learning theory

In contrast to behaviorist models of learning and teaching, constructivist learning theories squarely place the action of learning with the learner. In the example at the beginning of this article, the experience was used by the participants to learn something. Many a lesson could have been drawn from that experience, and undoubtedly different members of the group drew different meaning from the experience. Constructivists contend that participants work to make meaning out of their experience, adapting and altering the educative event to fit past versions of their worldview and that this process should be important in educational research (Von Glaserfeld, 1995). “Consider that although any view of education will point to something that changes as a consequence of an educative event, behaviorist and classical views take the product as evidence of the process” (Robertson, 1994 p. 22).

Knapp (1992, p. 49) points out two foundational beliefs of experiential education: “1) that learning is not limited to the classroom and, 2) that helping students make meaning is what learning is all about.” Experiential education is based on the assumption that people learn from experience. While this may seem self-evident, not all experience is educative. As most practitioners will attest, the how of actively teaching so that learning comes from learner experience is a difficult maneuver.

A leading proponent of the stance known as “radical constructivism,” Von Glaserfeld (1991, 1995) suggests knowledge is not a precise representation of the world. Instead, knowledge is a construction erected by the individual to “fit” with his or her experience of the world. Two people will understand their experience of an event, and the event itself, in different ways. As a simple example, one person may understand dusk as the absence of light, another as an increase in darkness. The one may conceive dusk as something he or she cannot see in and insist a flashlight is necessary, while another may suggest dusk is not so bad and respond by adjusting their expectations to see objects in sharp detail. Darkness is interpreted differently by those who grow up with electric lights or in the night-as-dangerous cities.

Constructs are ways in which individuals and groups organize experience into categories (Robertson, 1994). The shaping of knowledge is a process of construction. Learning, in the constructivist view, is like a builder remodeling a house. New experience is the raw material and is added to the old experience; the learner is the carpenter. Behaviorist teaching, to utilize a similar metaphor, would be like trying to plop a fully formed building into the individual. Even if that were possible, how could the person ever meaningfully connect that edifice with any other discombobulated pieces of knowledge they possess? Like "Jeopardy," the game show, the pieces of knowledge would be disassociated and meaningless.

Von Glaserfeld (1995) attributes the philosophical roots of constructivism to Skepticism: There is no certain knowledge of the real world because, as part of this world, we can never get outside it to see if what we think we know is actually empirical reality. Kant resolved this impasse by supposing that order is imposed in the mind. In the process of perceiving the world the mind categorizes and organizes. Radical constructivists reject the idea that knowledge is an exact representation of a world as it exists prior to being experienced by the person. There may be an independent reality out there, but we only know the way we see and feel and understand and perceive. Von Glaserfeld (1991, p. 17) explains this perspective, "I have never said there

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is no [ontological] world, only that I can’t know it.” To oversimplify, ontology is the branch of philosophy that deals with being or the nature of reality. Epistemology is the study of the origin, methods, nature, and limits of knowledge and learning. Constructivism, as a way of knowing the world, blurs the epistemology-ontology distinction.

In my mind, Von Glaserfeld’s comment makes the radical constructivist view palatable. For an individual (or a society), the construction proves its worth by how well it “fits” experience. For Von Glaserfeld (1991, p. 20), constructivism must go beyond the “mere proclamation that the world we experience is a world we construct” and show how it is useful or works in managing our lives. It should be understood that interpretation of experience is influenced by social constructions and personal interpretation. Therefore, the knowledge developed from their experience by individuals will always be directed in certain ways and should not be taken as “the way things always are.” The risk is real, for example, for a nervous participant top-roped on an indoor climbing wall.

The constructivist position, summarized (Millar, 1989, p. 589), holds “that the process of eliciting, clarification and construction of new ideas takes place internally, within the learner’s own head.” Pedagogically speaking, then, students learn not because teachers teach (the “open head, insert knowledge” assumption), but because they have taken prior knowledge and reworked it in light of new information and experience. These are the twin processes of assimilation and accommodation as described by Piaget. The first process is new experience incorporated into prior knowledge; the latter term refers to new experience that fundamentally alters prior knowledge (Robertson, 1994). Piagetian theory asserts that direct experience gives meaning and form to the process of learning (Ausubel, 1978). Construction of knowledge is not a process abstracted from prior experience of the individual. To talk about “nature,” for example, individuals need an experience of nature. Their knowledge will differ if that experience is through the television, the grass springing through the sidewalk cracks, or a pristine wilderness.

Von Glaserfeld terms his approach “radical constructivism” to differentiate it from “naive,” or “trivial” constructivism. This latter approach is perhaps best represented in the science education field and focuses on “misconceptions” (i.e., Lisowski and Disinger, 1991). It is founded on the assumption that the learner may be mistaken in their formation of new knowledge (say, the law of gravity) and needs to learn the “right” concept. Thus, trivial constructivism posits a singular construction that fits reality. Trivial constructivism, while recognizing the agency of the learner in forming knowledge, still postulates an external reality knowable by all individuals in the same way. For example, an experiential educator may assume every participant faced and dealt with challenge on a peak ascent or in the conflicts of group living. Yet participants may deny that it was a challenge. Radical constructivism recognizes the genuinely different experiences the participants have even in the same event, and the different knowledge they form from the experience.

It is for such reasons that I asserted above that many experiential programs have a latent behavioralism embedded in the program or teaching styles. Consider the following example from the literature. Miles (1991) asserts that adventure-based wilderness programming begins in an “encounter” of place or activity and should help people understand the meaning or significance of nature to the individual and broader society. But to do this most effectively, adventure leaders must plan accordingly:

The outdoor educator must place the wilderness experience in context for students, prepare them for their encounter with nature and then transfer the lessons learned in that encounter back to the students’ home environment... Such effort [is required] if the outdoor experience is to be more than a pleasant interlude from the rigors of the classroom or everyday life (Miles, 1991, p. 7).

While Miles portrays the necessary steps to assure some transfer of learning, notice who is doing the work in the above quote: the teacher teaches so that the student goes away changed? A wilderness leader who assumes everyone should encounter nature the same way (never mind probably holding different constructions of “nature”) would be something other than a constructivist.

Robertson (1994, p. 25) summarizes, “To learn meaningfully, individuals [must choose to] relate new knowledge to relevant concepts and propositions that they already know.” Experiential programs need to take account of the prior history of the participant. Lack of contextualizing hinders participant growth and learning. The learner’s own knowledge and prior experience are the most important ingredient in new knowledge construction and must be respected (Ausubel, 1978). In effective education the student takes ultimate responsibility for his or her own learning; the teacher’s role is as facilitator—to assist engagement with prior experience in order to assimilate or accommodate. On the other hand, this also assumes that the learner is self-consciously aware of their knowledge already held.

The social context of knowledge

Construction of knowledge is also situated within an historical and cultural context—the social world in
which the individual participates. The process of knowledge construction is a combination of the influence of social structures and individual role. "Living in a similar culture, we come to share constructs with others of our group, although the implications of these constructs may not be identical" (Bannister and Fransella, 1980, p. 105-6). These social constructions are often unexamined by the individual, what Berger and Luckmann (1966) call "taken-for-granted knowledge." Schutz (1973, p. 45) notes that such knowledge is often "incoherent, only partially clear and not at all free from contradiction." Awareness of this condition indicates the difficulty that will occur in attempting to investigate these constructs. Still, both students and teachers should probe the understandings of a phenomenon. As Robertson (1994, p. 27) explains, "teachers so that they might better relate to each student's understandings, and students, that they might take a more active role in engaging their own understandings."

For example, in my own research, I found that months after a wilderness trip experience the teens participants were conceptualizing nature and the natural world in ways counterproductive to caring for their home environment (DeLay, 1996). Not surprisingly, they conceived of nature as a place undisturbed, unfamiliar, "out there," with few or no people, and without human-made things. Therefore, in these teens' minds there was no nature at home and therefore no real reason to care for the environment outside the wilderness. In addition, the teens with the most past wilderness tripping experience were the most emphatic in suggesting there was no "nature" to be found at home. The upshot of this research was to remind me as an instructor to investigate my student's conceptions in order to help them connect their outdoor program experience meaningfully with their home experience.

Education for social change

To function as a group in the wilderness and to decide what camping practices to use requires making choices about constructed knowledge and values. Some critics argue that constructivism is relativistic. The argument typically runs thus: constructivism, rebelling against the notion that "the way things are" is objectively observable without bias on the observer's part, has emphasized the multiplicity of realities. This becomes "accept any perspective."

Ravn (1991) notes that constructivism can be liberating in that if reality is not fixed then present circumstances can be changed. "The point that social institutions are the constructions of a community of human agents implies that those same human beings possess the power to radically change those institutions" (p. 97). But Ravn also criticizes constructivist writing as relativist—there is rarely an attempt to draw a line in the spectrum of acceptable constructions. The consequences of such relativism are frightening. Consider such disconcerting examples as female circumcision/mutilation, and the moral outrage of the Holocaust, which some now say did not occur. In a completely relativist argument, both views must be acceptable. Whose perspective is right? Everyone's? Only mine?

The important question in this discussion is how to choose among alternative constructions. Von Glaserfeld (1991) believes that individual conceptual schemes will be reinforced or eliminated through social interaction—whether the knowledge fits experiential reality, including that of the social group. This is similar to the Piagetian notion of adaptation wherein constructions evolve in their environment and the ones that persist are those naturally selected by their fitness. However, this evolution of the common social stock of knowledge seems to ignore the intentional moral agency of human beings. Von Glaserfeld does modify his position somewhat. For him, ethics are the option to change our constructions when we don't like what we have created.

Ravn's (1991) solution to the dilemma of choosing among alternative constructions is to tolerate ideas and roles in proportion to their closeness to an optimal condition. Ravn suggests the optimal condition is when "people feel part of the larger whole as well as encouraged to accept others pursuing their own paths in experiencing this larger wholeness" (p. 103). Rather than a singular construction of reality, a range of constructions in a similar direction is appropriate; "unity in diversity," Ravn concludes.

According to Fay (1986), the way out of this impasse of how to choose among constructions is to analyze the context in which the construction was formed. Education, as a preeminent social institution, is traditionally a transmitter and maintainer of culture. According to critical theorists such as Fay, society is structured in certain ways that are oppressive. An individual needs to understand how he or she is oppressed before choices can be well-made. Not all constructions are equally valuable or beneficial. Education that incorporates a critical analysis, although still accepting the notion that knowledge is constructed by the learners, could serve to liberate people from social constraints that hinder them from living full and satisfying lives (Fay, 1986; Robottom and Hart, 1995).

In the end, we need to make choices based on our understandings. Whether or not there are absolutes is irrelevant since we cannot get outside our interpreted experience. Yet if there is always a twinge of doubt in knowing that one "knows," the door remains open to listening to others, negotiating shared understandings and, presumably, forming knowledge constructions that
work better. Experiential programs do this, for example, when leaders allow the group to develop ways of interaction, then facilitate community meetings to refine or reform these group norms. Because participants have only experienced a limited spectrum of opportunities, the leader's responsibility is to help with appropriate knowledge formation and decision-making by sharing of the leader's own experience. In this context, the leader's beliefs on group living or minimum impact camping, for example, are not universal absolutes but his or her construction of the optimal life.

Constructivism in experiential practice

Some problems with the constructivist approach exist. First, the "trivialness" of some constructivist writing has been mentioned. An emphasis on the "right" conceptions would still place the experiential educator in the role of convincing people of what they should have gotten from a particular experience. Second, educational structures and political exigencies may have difficulty understanding pedagogical practices founded on radical constructivist understandings of learning. Experiential practitioners face this difficulty regularly.

Third, Von Glaserfeld's description of radical constructivism strongly emphasizes rational processes as the way of knowing and learning. The focus is on thinking and the mind is objectified instead of embodied. This is a serious weakness, and may reflect our societal emphases on rationalism and empiricism. Experiential educators understand that participants rely heavily on feelings and sensations in the learning process. Experiential education has been called "emotionally engaged learning" (Proudman, 1991). A sense of connection or closeness to something, a place of fatigue and dampness, the stress of a challenge are all part of the way in which participants may "know" nature (DeLay, 1996). Constructivist teaching should beware the trap of privileging the rational as that may lead to "head knowledge" rather than knowledge meaningful in action. For example, knowing objectively about pollution is not as impactful as seeing it; litter often makes an impact on wilderness trip participants, even though it is often ecologically inconsequential.

Finally, individuals can also learn unconsciously. If learning occurs unconsciously, it implies that the learner does not always choose how the construction of new knowledge will occur, which is a major tenet of the constructivist approach (Robertson, 1993; Von Glaserfeld, 1995). It also lays responsibility more heavily on the leader to facilitate experience so that the learner will not develop unintended messages; e.g., the mountain is to be conquered or not making the summit is a personal failure.

So how does a teacher use experience to promote educational outcomes? An immediate note of caution comes to mind. Experiential education is not a series of activities done to a learner. Nor should simulations and games supplant experience of "the real thing." Learning is a process. Teachers must recognize they do not have ultimate control over the outcome. The learner is actively engaged in his or her knowledge construction. In giving up the illusion of control, teachers are actually better able to help learners understand the best present theories in a subject (especially given the rapid propagation of knowledge), and develop the flexibility of higher order thinking and knowledge construction (Von Glaserfeld, 1995). As many experiential educators insist, education should help people learn how to learn and to think on their own.

Constructivist learning theories suggest that the learner is the active agent in their knowledge formation. This re-emphasizes the importance of reflection during and after an experience in order for participants to see relevance and form connections between this experience and their broader lifeworld. It also suggests that participants should be alerted beforehand to the possibility of learning something that applies to different contexts. Participants who expect to learn something about, say, facing fears, are more likely to get something from their ropes course experience.

In conclusion, process is not all. Content does matter. Something will be taught and learned. Individuals do not simply experience, they experience something. Therefore, experiential educators have an obligation to help participants consider the world through which they travel. Von Glaserfeld (1995) asserts that teachers have a role in guiding, and even "constraining," the possible knowledge constructions. The ethics of this guidance must, of course, be considered carefully. But constructivism should not be seen as justifying acceptance of all potential constructions with equal valuation. Leaders must also carefully probe their own knowledge and the intent of the program elements as participants experience them. But in the end, under a constructivist epistemology, it is understood that programs do not change people; participants do the changing. In the example at the beginning of this article, rather than the peak teaching the participants, the par-
Participants used the peak climb to learn something.

Constructivism, as a theory of learning or knowing, seems to have considerable practicality for experiential educators. Understanding how people develop their specific conceptualizations would logically have important ramifications to educators. It also provides a theoretical justification for experiential pedagogy. Since the processes are internal, it is at this point that teaching moves out of the purview of the technician and becomes an art form; the educator strives to deal with the uncertainty of another's mental workings and help the learner develop conceptions that fit and form their experiential reality.

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References


