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Redefining the Concept of Learning in Cooperative Extension

Abstract

For Extension educational programs to meet the educational needs of today's youths, families, and communities, Extension needs to expand "what counts" as learning. The purpose of this article is to define learning in the context of Extension. We summarize key aspects of the educational research literature by comparing two prevailing metaphors for learning: acquisition and participation. On the basis of the two metaphors, we developed a definition of learning, and we discuss the related implications for program and curriculum development, pedagogy, professional development, and assessment of learning.

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Introduction

Learning, as a term and concept, has become nearly ubiquitous in our everyday language. The concept of learning describes processes, practices, and outcomes in relation to individuals, organizations, and communities. The term is employed in Extension educational philosophies, such as experiential learning (Torock, 2009) and service learning (Morris, Pomery, & Murray, 2002), and in relation to the organization, such as in discussions about transforming Extension into a learning organization (Rowe, 2010).

Because human learning is complex, and the term *learning* is used broadly, it is easy to overlook its theoretical foundations and practical application. The purpose of this article is to define learning in the context of Extension and expand "what counts" as learning. We summarize key aspects of the educational research literature by comparing two prevailing metaphors for learning—acquisition and participation, and we share a definition of learning we developed on the basis of those metaphors. We also discuss the related implications for program and curriculum development, pedagogy, professional development, and assessment of learning.

Theoretical Background

Scientific research on education—the discrete yet intertwined concepts of teaching and learning—began in the latter part of the 19th century and grew in part from the work of prominent researchers including Edward Thorndike (1913), Lev Vygotsky (1978, trans., original works from 1930–1934), Kurt Koffka (1935), Jean

Piaget (1936), John Dewey (1938), and Jerome Bruner (1960). The literatures on education, cognition, learning, and the mind are extensive and encompass multiple lineages and specific learning theories (National Research Council, 2000). A comprehensive summary of learning theories is beyond the scope of this article; instead, we recommend that readers consult National Research Council (2000), Merriam and Bierema (2013), or Iby, Brown, Lara-Alecio, and Jackson (2013).

Theories of learning advance implicit assumptions of "what counts" as learning (also referred to as learning outcomes) and link recommended approaches for achieving these valued learning outcomes (referred to as teaching methods or pedagogy). Many theories of learning exist, and educational researchers have distinguished between two prevailing metaphors to describe learning: acquisition and participation (see Barab & Duffy, 2012; Greeno, Collins, & Resnick, 1996; Sfard, 1998). These two metaphors are not binaries; rather they may be used together as a heuristic for understanding various learning theories. Theories of learning are often *more like* acquisition or *more like* participation relative to associated world view, assumptions, goals, pedagogies, and motivations of learners. Table 1 contrasts aspects of the prevailing metaphors. Overall, the metaphors help us understand "what counts" as learning, "for whom," and "under what conditions."

Table 1.

Comparing the Two Prevailing Metaphors for Learning

	Prevailing metaphors for learning	
Category	**Acquisition metaphor**	**Participation metaphor**
Values and world view[a]	Objective	Normative
Goals of learning[b]	Acquisition and transfer for individual enrichment	Participation for community building
Views of knowing[c]	Individual conceptual understanding, problem solving, reasoning, metacognition, epistemological beliefs	Distributed cognition among individuals, tools, artifacts, and communities; interaction with the environment (perception of affordances and constraints)
Curricular content[d]	Academic decontextualized knowledge	Practical and relevant contextualized knowledge-in-action
Practice and pedagogy[c]	Inquiry approach, mirror of the way scientists work; sequence of conceptual development	Participation in the community's discourse and practices
Learner motivation[c]	External reinforcement and/or intrinsic motivation from individual and	Interest and identities invested in the community

	environmental fit	
Assessment[c, e]	Quantitative measurement of external and a priori learning outcomes	Measurement to understand students' views and experiences

[a]"What Do Values and Norms Have to Do with Scientific Literacy?"" by L. Östman and J. Almqvist, 2011, in C. Linder, L. Östman, D. A. Roberts, P.-O. Wickman, G. Erickson, and A. Mackinnon (Eds.), *Exploring the Landscape of Scientific Literacy*, pp. 160–175, New York, NY: Routledge. [b]"On Two Metaphors for Learning and the Dangers of Choosing Just One," by A. Sfard, 1998, *Educational Researcher*, *27*(2), pp. 4–13. [c]"Cognition and Learning," by J. G. Greeno, A. M. Collins, and L. B. Resnick, 1996, in D. Berliner and R. Calfee (Eds.), *Handbook of Educational Psychology*, pp. 15–46, New York, NY: Macmillan. [d]"Scientific Literacy for a Knowledge Society," G. Aikenhead, G. Orpwood, and P. Fensham, 2011, in C. Linder, L. Östman, D. A. Roberts, P.-O. Wickman, G. Erickson, and A. Mackinnon (Eds.), *Exploring the Landscape of Scientific Literacy*, pp. 28–44, New York, NY: Routledge. [e]*Science Education for Everyday Life: Evidence-Based Practice*, by G. S. Aikenhead, 2006, New York, NY: Teachers College Press.

Acquisition Metaphor

Theories of learning more like acquisition focus on the individual mind where "concepts are to be understood as basic units of knowledge that can be accumulated, gradually refined, and combined to form ever richer cognitive structures" (Sfard, 1998, p. 5). These theories include behaviorism (Thorndike, 1913) and constructivism (Piaget, 1978) and their extensions, such as inquiry-based learning. The theories include both transmission and construction models of learning wherein concepts are basic units of knowledge that are acquired, constructed, internalized, and transmitted. Teaching is a way to help learners make a predefined concept their private property. Acquisition is coupled with the idea of decontextualized transfer, where "once acquired, the knowledge, like any other commodity, may now be applied, transferred (to a different context), and shared with others" (Sfard, 1998, pp. 5–6). These concepts are measured and assessed to determine what one has learned.

Participation Metaphor

The second metaphor is that of participation in situated activity where "ongoing learning activities are never considered separately from the context within which they take place" (Sfard, 1998, p. 6). Learning theories more like participation employ terms such as *doing*, *practice*, and *discourse* to describe a person's interest, identity, abilities, and participation, along with social and cultural factors influencing such participation in communities of practice (Lave & Wenger, 1991; Nasir & Hand, 2006). The participation metaphor is aligned with situated cognition (Brown, Collins, & Duguid, 1989), cultural-historical activity theory (Cole & Engeström, 1993), and other sociocultural perspectives of learning (Vygotsky, 1978; Wertsch, 1985). Sociocultural theory advances the idea that learning and development are mediated through culture; hence, learning is situated in

cultural communities in which one participates (Rogoff, 2003). Cultural communities are, broadly, groups of people who have specific practices, traditions, and routine ways of doing things (see Rogoff, 2003).

Learning Environments

Extending the learning metaphors to the design of learning environments, Barab and Duffy (2012) argued that to fully meet educational goals, learning opportunities must be structured in a way that allows participants to become legitimate participants in a community of practitioners. They advanced the use of the terms *practice fields* to describe acquisition-like learning environments and *communities of practice* to describe participation-like learning environments (Barab & Duffy, 2012). They argued that "practice fields are separate from the real field, but they are contexts in which learners, as opposed to legitimate participants, can practice the kinds of activities they will encounter outside" a designed learning environment (e.g., school) (Barab & Duffy, 2012, p. 30). Learning in practice fields can be stimulated through pedagogical approaches such as problem-based learning and anchored instruction and teaching practices that promote ownership of inquiry and opportunity for reflection and emphasize collaborative work. However, practice fields do not fully prepare learners to participate in an authentic community.

In contrast, a community of practitioners is a group of people "sharing mutually defined practices, beliefs, and understandings over an extended time frame in the pursuit of a shared enterprise" (Barab & Duffy, 2012, p. 36). Learning in a community of practice is evidenced by a person's changing involvement with and new ways of engaging in the community's activities (Lave & Wenger, 1991). Sfard (1998) argued that within a participation-metaphor learning environment, learning is "a process of becoming a member of a certain community" and that that process "entails, above all, the ability to communicate in the language of [the] community and act according to its particular norms" (p. 6). Learning a domain involves learning the discourse, values systems, and accepted ways of knowing and doing and seeing oneself as a member of the community (identity) (Rahm, 2010). In contrast, in a practice field, learners become members of a community of learners (not a community of practice) because educational activities are divorced from an authentic practice or community.

A Definition of Learning in the Context of Extension

A mission of Extension is to develop, design, and evaluate educational programming that meets the needs of youths, families, and communities (U.S. Department of Agriculture, 2016). Extension needs to be intentional in how it positions educational programs within specific theories of learning because such positioning has important consequences for planning, implementation, and evaluation.

We conducted an analytical literature review to develop a definition of learning applicable to Extension and grounded in the scholarly literature (Steward, 2004). Early versions were revised on the basis of feedback from the U.S. Department of Agriculture's National 4-H Learning Working Group. After revising, we arrived at the following definition of learning within the context of Extension:

> Learning is the progressive and purposeful familiarity, use, and transformation of cultural tools and practices that influence one's changing and continuous capacity to act in and on the world. Learners construct and develop their own understandings, dispositions, identities, and motivations through sense making of experiences. Learning is mediated and oriented through culture, is situated in the cultural communities in which one participates, and emphasizes culturally determined learning outcomes

leading to culturally valued development.

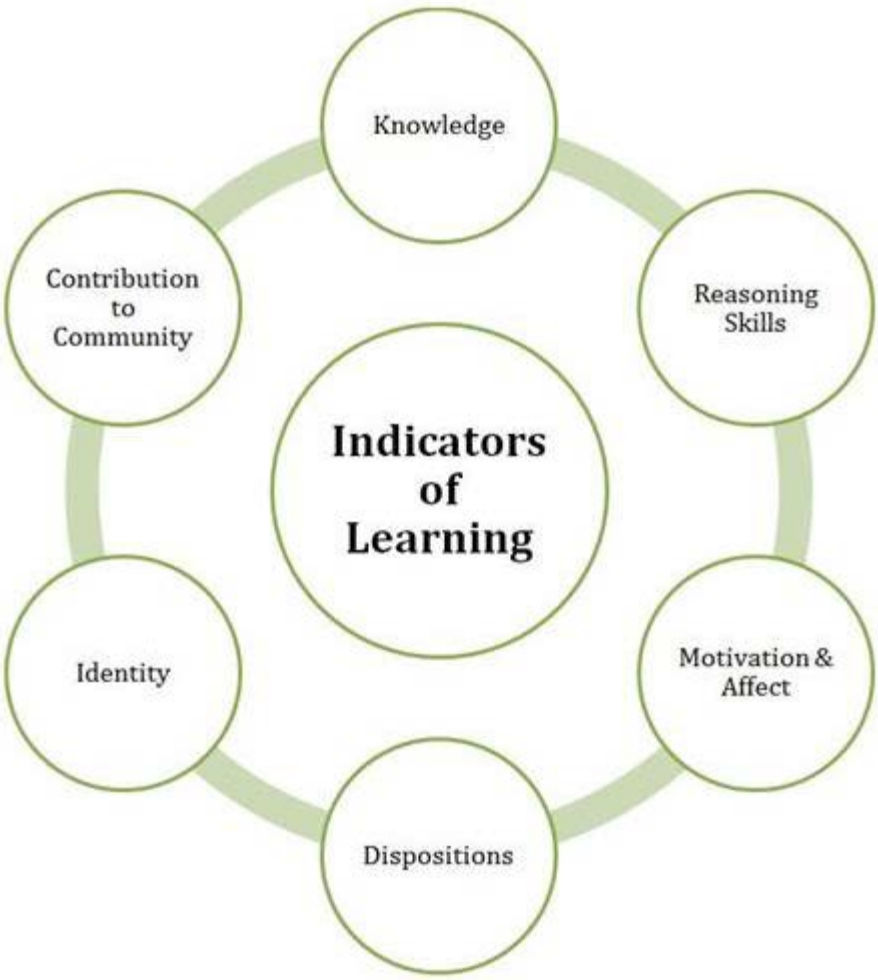
The definition strives to balance the acquisition and participation metaphors with attention to the individual's mind within a cultural context. First, learning is positioned not just as the acquisition of knowledge or skills, but also as a person's mastery of cultural tools where these tools themselves become intertwined with cognition. Cultural tools include both physical objects (e.g., tool, automobile, computer) and symbols (e.g., language, mathematics). Such mastery ultimately allows the learner to transform the tool itself. Second, learning is both deeply individualistic and interpreted socially as learners make sense of new experiences through application of prior experience and sociocultural perspectives. Third, evidence of learning is a person's changing involvement with and new ways of engaging in the activities, practices, traditions, and routines of a cultural community. Learning outcomes are not static or predetermined, but change depending on their emphases within cultural communities. This scenario, in turn, promotes specific kinds of development that vary from place to place. Cultural communities change over time, and learning goals, accordingly, change as well.

Indicators of Learning

Through our review of the literature, and in line with our proposed definition of learning, we identified indicators of learning outcomes advanced by researchers (see Figure 1). Herein we describe examples of indicators that may be of interest to Extension and that move beyond traditional outcomes such as knowledge, skill, and affect (i.e., Bloom's taxonomy) (Anderson & Krathwohl, 2001).

Figure 1.

Example Indicators of Learning Relevant to Extension



- *Knowledge.* Knowledge is the information and content learners are exposed to through experience or education and expected to comprehend. A higher functioning aspect of knowledge is competence, which enables individuals to function more effectively and act on their environment (Pittman, Irby, Tolman, Yohalem, & Ferber, 2003).

- *Reasoning skills.* Reasoning skills are the cognitive abilities needed to understand and evaluate information (Giere, Bickle, & Mauldin, 2006). For example, reasoning skills include those necessary for engaging in asking questions, analyzing and interpreting evidence, and making inferences and constructing explanations based on data (e.g., National Research Council, 2012).

- *Motivation and affect.* Affect includes positive attitudes toward and interest in learning, growth mind-set, cognitive engagement, and future aspirations (e.g., Irvin, Meltzer, & Dukes, 2007). Extension programs present ideal conditions for development of motivation because they are voluntary and challenging and often involve working toward goals (Larson, 2000).

- *Dispositions.* Dispositions are the prevailing tendencies of one's responses within and to an environment. Being disposed to act in certain ways depends on both the competency to respond and the awareness of when it is appropriate to do so (Carr & Claxton, 2002). Dispositions change over time as experience and education influence the development of dispositions. Learning environments may cultivate certain dispositions; Carr and Claxton (2002) advocated for the development of three important lifelong learning dispositions: resilience, reciprocity, and playfulness.

- *Identity.* Identity is about how one sees and expresses oneself in a developmental pathway toward a subjective sense of self (Kroger, 2006). Educational researchers have argued that identity may serve as an analytical lens for educational research; for example, Gee (2001) discussed four perspectives on identity: nature-identity, institutional-identity (a position), discourse-identity (an individual "personality" trait), and affinity-identity. The implication for education is that affiliation and identity influence attitudes toward learning. Greeno (2006) argued that "when learning environments do not support personal identity, learners will not be deeply engaged" (p. 89).

- *Contribution to community.* As individuals participate in social activities within communities, they are learning cultural practices, routines, and tools. Learning is embedded in cultural artifacts, tools, and processes that influence cognition. Learning is a by-product of changing modes of participation in communities (Lave & Wenger, 1991). Community engagement promotes lifelong learning, allows for authentic participation at multiple levels (Lave & Wenger, 1991), favors autonomous thinking, and is a key element of experiential learning (Kolb, 1984).

Implications and Recommendations

On the basis of the two metaphors, our proposed definition of learning, and indicators of learning relevant to Extension, we offer implications and recommendations for program and curriculum development, pedagogy, professional development, and assessment of learning.

Program and Curriculum Development

Our definition of learning encourages Extension professionals to consider a broader ecosystem of learning that includes the transformational relationships among learner, educator, learning environment, community, and society. The definition challenges us to become intentional in our adoption of theories of learning. In particular, we advocate that Extension identify and think about adopting community of practice models that engage clientele in authentic and relevant educational experiences situated in authentic cultural communities.

To engage learners in communities of practice, program activities must be situated in cultural values and norms that provide meaning and legitimacy. This requirement includes attention to relevant vocabulary, mature behavior, and practices in accordance with norms of the larger group. Extension programs will benefit from the embedding of education in a larger community with a common purpose, common cultural heritage, interdependent systems, and a reproduction cycle (Barab & Duffy, 2012). For example, in a water quality science program, an approach may be connecting learners to scientists to help with a research project; indeed, this strategy is common in public participation in scientific research, also known as "citizen science" (Shirk et al., 2012).

The definition of learning also has implications for curriculum design. Curriculum is not a book or physical artifact, but instead becomes one of many tools educators can use with learners on learning pathways to guide their experience and active roles within the community of practice. Authentic learning pathways will spark, deepen, and sustain learners' interest and development. Curriculum materials, experiences, and relationships should be selected, adapted, or developed to provide direct connections between the learning activities and a larger purpose in the community.

Pedagogy

Our definition of learning has multiple implications for teaching. First, it reemphasizes the importance of reflective practice. Educators need to model and facilitate reflection and explicitly connect learning activities with their real-world communities. Reflection is a strategy to support the learner in making meaning from the educational experience. Rather than a formulaic approach, reflection is a fluid process of creating meaning, applying it to known and novel situations, and revising understanding. This reflection must be progressive and cyclic, connecting learning experiences to each other so that learners can both build on prior knowledge and create foundations for future learning. Educators need to guide learners through individual and group reflection where meaning can be deepened through social engagement. Reflection also supports positive human development; as people define meaning for themselves, they develop agency and capacity.

Additionally, the definition of learning shifts pedagogy from information transfer approaches (e.g., lectures, demonstrations, and other scenarios in which learners are expected to listen, observe, and respond to directed questions) to relationship-based strategies. Recommended strategies include autonomy support (educator supporting learner in completing tasks on his or her own), metacognitive support (educator prompting or questioning to help learner think and reflect), and emotional coaching (educator providing encouragement and positive coaching during moments of learner frustration, setback, or failure).

Professional Development of Educators

Professional development should be situated in *communities of educators* where participants share ideas and learn from one another. Drawing on community of practice theory (Lave & Wenger, 1991), Smith et al. (in press) have recommended a fundamental redesign of professional development in Extension that has educators "engaging in a community of practice *with* other educators" as opposed to "having experts working *on* educators" ("Discussion," para. 3). Within these communities, educators should engage in reflective practice and share work with one another and the larger world. These opportunities should explicitly address prevailing metaphors of learning, learning theories, and expanded definitions of learning outcomes. Helping educators expand their conception of "what counts" as learning has the potential to improve learning of Extension clientele, and thus, Extension's ability to demonstrate positive community impacts.

Assessment of Learning

Expanding the definition of learning outcomes challenges Extension to move beyond evaluating information acquisition and consider alternative assessment strategies. The definition calls for renewed focus on the relationship between educator and learner, with an eye on articulating the relationship between educator competencies and desired learning outcomes. Furthermore, the definition provides opportunities to use embedded and authentic evaluation strategies that move beyond surveys—such as portfolios, presentations, work products, and self-reflection tools—so that learners can articulate what they have learned. These artifacts can provide a deeper and wider view of the learner's experience and program impact beyond what is commonly assessed through traditional evaluation methods.

Extension's focus must shift to including the whole activity as the unit of analysis (McBride, 2011). This approach entails placing the sociocultural activity as the unit of analysis and incorporating broader cultural practices, assorted roles in activities, and other artifacts, all of which vary from setting to setting. Additionally,

researchers should avoid the tendency to attribute differences among participants to stable group characteristics. Instead, evaluators should treat a participant's background as a "constellation of factors" and not as control variables (Gutiérrez & Rogoff, 2003). Holding variables constant does not take into account the "dynamically changing configuration of relevant aspects of people's lives" (Gutiérrez & Rogoff, 2003, p. 23), including aspects of identity and participation.

Conclusion

For Extension educational programs to meet the educational needs of today's youths, families, and communities, Extension needs to expand "what counts" as learning. We advocate for a reorientation in how Extension positions educational programming that involves recognizing and articulating a broader range of learning indicators than typically found in a traditional logic model. We need to move beyond privileging knowledge, skills, and affect to including other indicators of learning, such as identity and contribution to valued community endeavors.

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