Situated Learning: A Theoretical Frame to Guide Transformational Change Using Electronic Portfolio Technology

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Efforts to help faculty adopt electronic portfolios are weakened by the lack of a consensus in the electronic portfolio field about its guiding learning theory: What theoretical framework are we moving *from* and what theoretical framework are we moving *toward* when we adopt electronic portfolios in transformative ways? There is promising research into how adults learn that is worth exploring. This research, especially over the past 30 years, has broadened in scope, including and synthesizing vital findings from a wide array of scientific fields beyond the traditional research in education or psychology, including anthropology, social science, cognitive science, linguistics, and others. Findings and analyses that synthesize this broader perspective on the social and experiential aspects of learning can help the electronic portfolio field develop its own theoretical grounding. One prominent idea, in particular, is germane to the developmental work in our field: This is the idea that experience is necessary for all learning. From this gathering consensus among learning researchers about the importance of *experience*, a concept developed about how adults learn best, called *situated learning*, a humanistic view of learning that envisions learning in real life occurring constantly, outside of the classroom as well as in the classroom. This holistic consensus fits our time, our new distributed knowledge-building structures and learning technologies, and the work our graduates will be doing. At the same time, this situated learning consensus calls into question the teacher-centric practices that dominate education. Using the frame of situated learning to inspire and organize electronic portfolio research provides educational institutions a rational path toward transformation appropriate to our time.

Anachronistic Behaviorism Receding as Active Learning Spreads

Situated learning and its core principle, that adult learning starts with individual experience, runs counter to the dominant behaviorist (stimulus-response) theory on which higher education is, perhaps unwittingly, built today. Behaviorism, in any of its varying types, values the external behavior of students and not their internal psychological state (Graham, 2010). According to Graham, "Behaviorism, the doctrine, is committed in its fullest and most complete sense to the truth of the following three sets of claims:

1. Psychology is the science of behavior. Psychology is not the science of mind.
2. Behavior can be described and explained without making ultimate reference to mental events or to internal psychological processes. The sources of behavior are external (in the environment), not internal (in the mind, in the head).
3. In the course of theory development in psychology, if, somehow, mental terms or concepts are deployed in describing or explaining behavior, then either (a) these terms or concepts should be eliminated and replaced by behavioral terms or (b) they can and should be translated or paraphrased into behavioral concepts." (Graham, 2010)

In other words, ignore the student as a person and just design conditioning. It does not matter if students are actually quite different because education designed using the doctrine of behaviorism treats them the same.

Behaviorists sought to "understand how environmental events control behavior, discover and elucidate causal regularities or laws or functional relations which govern the formation of associations, and predict how behavior will change as the environment changes" (Graham). We can see how the behaviorist perspective could then conceive of teaching as "conditioning." Behaviorism was popular from the 1920 to the 1950s. Perhaps educational leaders of the time saw behaviorism as a strong affirmation in theoretical terms of the teacher-centered, seat-time, and credit system that had solidified in higher education around the turn of the 20th century.

The understanding of learning, then, was based on inferences from behavior. It is fairly easy to see how higher education continued to build out an enterprise that conceived of students as objects to be "conditioned." In this framework, all learners are alike, the teacher is the sole active agent, and the results of the teacher's "intervention" are predictable. In other words, according to behaviorism, students are passive learners, the teacher's lecture or teacher-led discussion is the active intervention, and the evaluative test is the proof of the success of the intervention. According to behaviorists, all that counts is behavior and all that can be understood is behavior.

This framework led to the belief (now tacit and therefore unchallenged) that receiving doses of the intervention – lectures from teachers accompanied by assigned reading and teacher led discussions – in a prescribed series (the curriculum) would produce uniform, mechanistic "changes in behavior" that could be tested with standardized testing. It is a theory centered on the undifferentiated *individual* learner, without acknowledging that learning is in any way social. This tacit theoretical framework has persisted in practice for decades but the descriptor – "behaviorism" – has slipped from common parlance. The mechanistic system we work within is therefore now just assumed to be what we do; it is what we *start* with and all other approaches are "alternative approaches." Those who advocate change by using a new approach are challenged to "prove that it works." No one is asked to prove that the current behaviorist framework works. If faculty members and others on campus understood the implications of our current *de facto* learning theory, they might understand more clearly why teaching can seem so hard and might be more willing to change. And if faculty members understand more clearly how to implement an alternative learning theory more appropriate to the times, they might be more open to adopting a learning theory – situated learning – that is closer to what some of them believe personally.

Technology has altered our culture and our perception of our individual selves in radical ways, especially over the past 7 or 8 years with the advent of social media (the Web and its myriad applications that have allowed humans to create social groups as never before and perhaps to understand the social nature of humans more clearly). Our perceptions of how human beings think and learn are even more in contrast to behaviorism than before social media. Technology, therefore, has only accelerated an uneasy sense that we are stuck in an increasingly archaic teaching model. The current system is a powerful deterrent to any fundamental change, possibly because no one knows any longer what that system is based upon. In the 1950s or earlier, somehow higher education practice adopted aspects of behaviorism and then forgot, as an enterprise, that we did so. We are on auto-pilot, it would seem, though instances of "alternate learning" practices on most campuses suggest that many educators feel a desire to change that has not yet evolved into a new epistemology of learning, leaving faculty, administrators and faculty development staff uncomfortable with current practice but uncertain how to change.

Where is behaviorism today? Of his recent book, *Contemporary Theories of Learning: Learning Theorists ... In Their Own Words*, author Knud Illeris prefaces, "readers will look in vain for chapters referring mainly to the classic behaviorist conception of learning – partly because not many new contributions to this school

appear, and partly because, in my understanding, this school deals with such a small corner of the vast field of learning that, in relation to human learning, it is only of interest concerning some very special fields of early learning, re-training and certain groups of mentally handicapped learners" (2009, xii-xiii).

In a time of stability, *teaching* makes sense. In a time of rapid change, the emphasis must be on *learning* (Rogers, C., 2002). Until recently, education enjoyed relative stability over a long period of time. Therefore, quite reasonably, teaching was emphasized. We had the Great Books movement a century ago, conveying the sense that academic knowledge was fully formed. In that atmosphere, teaching, as opposed to a focus on learning, made sense. But, now, it is harder to be content and secure in the stability of disciplinary knowledge.   With the total amount of human information doubling every few months, stability is impossible. It is now more appropriate for teachers and students to work as co-researchers so both can keep up with change. All aspects of society are affected; most importantly, the nature of work throughout our society has altered – an emphasis on innovation instead of repetition -- and different qualities are expected in college graduates.

Those academic leaders who see the need for enterprise levels of change are faced with a web of entrenched processes and human structures and expectations so complex and immoveable, they are left stymied or hopeless. Not only don't they know *how* to change the enterprise to deal with constant change but they also don't know what shape the new enterprise should take.   Behaviorism, or whatever hybrid of behaviorism we now abide by, has been entrenched for so long, and the enterprise is so wed to its implications, they are faced with untangling a vast web in order to begin the process of transformation.

Recently, George Kuh described a set of "high impact practices," suggesting ways in which the tangled web may already be unraveling:

- First-Year Seminars and Experiences (connecting new students to the academic community);
- Common Intellectual Experiences (general education with a strong integrative mechanism);
- Learning Communities (learning is social);
- Writing-Intensive Courses (writing used in courses in all parts of the curriculum);
- Collaborative Assignments and Projects (beyond behaviorism);
- Undergraduate Research ("involve students with actively contested questions");
- Diversity/Global Learning (broadening the canon; challenging assumptions);
- Service Learning, Community-Based Learning (learning starts with experience);

- Internships (active learning); and
- Capstone Courses and Projects (reflecting, connecting and synthesizing). (Kuh, 2008)

These practices recognize the social nature of learning (communities of practice), the necessity for an authentic (discipline specific) context for writing, active and experiential learning, and engaging students in real-life controversy – "actively contested questions."

Underlying these practices is an emphasis on active student learning both inside and outside the classroom. Missing from this list are other parts of student life, such as sports that can literally be "high impact," student organizations, or student social life. Learning – valuable and integrative learning -- does not stop and start; nor, of course, does it stop at graduation.

How is "learning" to be distinguished from human activity as such?

> Within cognitive theories it has been assumed that learning and development are distinctive processes, not to be confused with the more general category of human activity. This involves two theoretical claims that are in question here: One is that actors' relations with knowledge-in-activity are static and do not change except when subjected to special periods of 'learning' or 'development.' The other is that institutional arrangements for inculcating knowledge *are* the necessary, special circumstances for learning, separate from everyday practices (Lave, 2009, p. 203).

Lave objects to the idea that "real" learning occurs only in the classroom. From a situated learning perspective, the classroom (special periods of "learning" or "development") is an essential part of the learning process, but only a part.

How can learning that occurs outside of "special" circumstances not be considered authentic and academic? It may be that learning outside of special circumstances has been "invisible." Yet, it is as vital as learning within special circumstances:

> Humanist learning theories stress once more the active nature of the learner. Indeed, the learner's actions largely create the learning situation. They emphasize the urges and drives of the personality, movements towards (for example) increased autonomy and competence, the compulsion towards growth and development, the active search for meaning, the fulfillment of goals that individuals set for themselves. They stress the particular social settings within which learning operates. (Harrison et al., 2002, pp. 11-12)

The gradual move to these active and holistic practices in higher education (an increasing number of departments require an element of discipline-specific *practice*), many of them decades-old and embedded in communities of practice, has yet to reach a scale of involvement sufficient to affect the monolithic structure of higher education, the notion of seat time and credit, the still predominant emphasis on teaching, and the massive dedication to stimulus-response approaches (behaviorism). How is the impulse to include more active and holistic practices in the curriculum affected by the rush to "accountability" and high-stakes testing? At one end, those employing high-impact practices are pulling academia toward humanistic learning while at the other end devotees to stimulus-response (touting high stakes standardized testing and pointing to "accountability") pull academia to a stronger commitment to the status quo.

But, devotees in neither camp address the most obvious factor: digital technologies. How our culture creates knowledge has totally altered under our feet. The Web extends knowledge everywhere instantly, all the time, and in multiple forms. Researchers, writers, students, faculty and the entire educated and connected global Internet culture creates and processes information billions of times faster than 15 years ago. Still, the reality is that higher education was built to perpetuate *stable* knowledge but now exists in a time when very little knowledge is stable. "Accountability" cannot address a change of that magnitude. To argue one educational approach or another without considering the disrupted equilibrium of knowledge structures resulting from digital technologies cannot lead to a usable, or even relevant, resolution.

The very technology that we have used to rupture the equilibrium of the educational enterprise is also well suited to *manage* the transformation of institutions to be consonant with the new structures we now live within. For example, learning occurring at all times in all situations, because it is beyond the reach of the teacher, cannot be captured and assessed well by traditional testing technologies, but *can be* captured, shared, revised, assessed, presented, re-assessed, reflected upon, and integrated using electronic portfolios and the technologies that feed data to the portfolios. To keep value in higher education, ramping up behaviorism is counter-productive; instead, it is better to re-design a system based on situated learning, a theory that places student *experience* at the center of learning designs.

The theories of transformational learning (Kegan) and situated learning (Lave) together suggest a new epistemology (an educational world view) not based on unchanging and disconnected knowledge but instead on the constantly changing, socially and culturally-

embedded knowledge-building processes we live within today. The electronic portfolio field can make use of current research into learning to provide a coherent, theory-driven, all-encompassing architecture for a revitalized higher education enterprise. Using the powerful concepts of current learning theory, the electronic portfolio field can lead intelligent change in higher education.

Implications of a New Learning Epistemology

The new epistemology of learning based solidly on an amalgam of recent learning theories can be implemented effectively – put into practice -- with the help of our new technologies. Of most use for the electronic portfolio field, I believe, is *situated learning* as refined and described by the researcher Jean Lave. Lave's definition of situated learning suggests "learning as it normally occurs is a function of the activity, context and culture in which it occurs (i.e., it is situated). This contrasts with most classroom learning activities which involve knowledge which is abstract and out of context" (Kearsley, 2011). Learning that is situated *in context* might consist of fieldwork, experiences during an internship, laboratory experiences, experiences of working with a team of peers to develop a Web site about a current scientific controversy, and other active learning experiences. Today's technologies free students to use a much greater variety of learning interactions than before we had digital technologies. With these technologies, student work is still "visible" to the teacher no matter where the student is physically. And through opening the world more fully to regular learning experiences, we are at the same time accepting that knowledge is not only told but is discovered, that knowledge is not finished as it has seemed to be, but is instead always unfinished, always in discovery, always being re-interpreted.

If knowledge is not finished, behaviorism is not a logical approach to learning. The use of the word "content" as a reference to knowledge is based in the belief that knowledge is finished and is a commodity. If it is a commodity, then it can be "delivered." And with this set of terms and behaviorist and mercantile misconceptions, learning was reduced to such a simplistic formula that it gave rise to questionable claims made by commercial initiatives. Those who talk of education as "delivering content" not only ignore the complexity of actual learning, but also trivialize education itself.

At the center of our dilemma are several foundational and important questions as we think about re-designing higher education around current learning theory:

- Does the knowledge of the course pre-exist the course?
- Does knowledge exist as a separate entity?
- Is knowledge transmitted or discovered?
- Does knowledge start at the conceptual level or at the experience level?

Many will say immediately, "of course knowledge pre-exists the course." They'll point to books and the knowledge of the professor and the discipline. But the question is not whether knowledge pre-exists, but whether the specific knowledge developed during the time of the course existed before. Obviously, the answer has to be "no" since that "new" knowledge grew from the interactions during the course. It could not have existed before the course.

Logically, then, we must ask if knowledge *ever* truly exists separate from knowers or learners. Certainly, we have multitudes of interpretations or expressions of knowledge, but that is not knowledge itself: they are steps toward or guides to knowledge, but not knowledge itself. They are external representations of the knowledge in our heads.

If knowledge does not exist as a separate entity, then it cannot be transmitted. Knowledge is in the *interaction* between people, and constantly in process and constantly changing. A learner discovers knowledge through interaction with others and with resources.

A consistent criticism of stimulus and response (behaviorism) among learning researchers is that the agent (teacher) has already arrived at the conceptual level in a particular aspect of knowledge and, instead of allowing learners to repeat the process by which the agent arrived at the concepts, the agent simply transmits the concepts. But, the consensus is that learning usually starts with experience, moves to perception, and may then move on to a conceptual level. The teacher, following current practice, may be truncating the natural learning process for the students and their learning may then be imperfect, ungrounded, and generally less memorable or meaningful than if students had instead been invited to discover the knowledge themselves.

According to Brown, Collins, and Duguid (1989), "the epistemology that has guided educational practice has concentrated primarily on conceptual representation and made its relation to objects in the world problematic by assuming that, cognitively, representation is prior to all else" (p. 41). Concepts are presented, essentially, in a vacuum, and students then may have difficulty applying the concepts in the world.

Once we have gone past the deep belief that knowledge exists separate from humans – in reality, only an *abstraction* of knowledge exists in books, for example

– but that instead it exists in social interaction, then we see knowledge as flow, as discourse, or as discovery (research). Knowledge is, then, a verb, not a noun (not "content" and not a commodity). Once we see knowledge in its social and cultural context, like language, constantly morphing, using the stimulus-response method of teaching as the primary, default approach to student learning seems incongruous. The current disproportionate emphasis on stimulus-response conforms to the business model of higher education, and to a previous version of learned human culture, but not at all to our general understanding of learning today.

In a time of rapid and disorienting change, the only recourse is to try new ways to understand what is happening. One must shift into learning mode, away from the over-emphasis on stimulus-response. The focus must be on the active learner seeking experiences to help her survive and thrive in a culture-in-motion.

Once learners are listening less and acting more, the convenience of a single treatment for all learners has gone. Learners scattering into vital experiential learning opportunities out in the world presents a serious challenge for traditional means of assessment. One way to address that challenge is for students to gather *relevant evidence* of their learning and collect that evidence on the Web, in any format. That evidence can be reviewed and used for purposes ranging from assessment of the work to integration of multiple kinds of evidence over time and on to capstone courses and for career purposes. This is situated, active learning, the kind of learning fitted to today's circumstances, a digital world that will not sit still.

The World Wide Web and myriad Web-based applications support but also, because of their deep immersion in our culture, demand situated learning: these applications combined with the increased speed of data processing and the infusion of technology into all business and manufacturing processes, together, created "the knowledge economy," emphasizing innovation and change.

There are multiple applications that could and do help students engage in the situated, evidence-gathering activities that are appropriate to prepare for the knowledge economy, but our focus here is on one particular application called electronic portfolios. Electronic portfolios provide most of the capabilities to manage a course of study designed around situated learning. They have been adopted around the world and dozens of corporations provide electronic portfolio technology. They are, therefore, solidly supported and widely used. A robust global community of practice centered on electronic portfolios has emerged.

How can current learning theory provide impetus to move toward a broader array of learning experiences using the default academic technologies of today? Learning theories over the past 30 years have not coalesced around one exclusive theory. Instead, they present us with many frameworks. One general consensus is that experience related to what one is trying to learn is usually the necessary and "natural" starting point.

Though I am referring to "theories" in this paper, they arose from experimentation or studies and peer review and interdisciplinary discussion and are therefore grounded in various fields and are predictive. In addition, the success in recent years of high-impact practices provides further documentation of the predictive value of these theories, since high-impact practices embody many of these theories. High impact practices are grounded in student experience. Lacking in learning theory literature – despite it being so valuable for re-consideration of our current learning enterprise -- is consideration of the effects of *information technology*. The move from theory to practice appears in the learning theory texts, but the practices that are described are still embedded in a traditional teacher-centered model, sans technology: an odd failure of imagination.

Current theories, in most cases, envision a shift in agency from the teacher to the student. This vision is very hard to actualize if students have no tools to assume agency or to conform to institutional demands for assessment. When agency is assumed by the student but evidence of what that agency produced or acquired is absent – save a report or two – it is easy for others to question the academic rigor of the agency (such as engaging in an internship). High-impact practices they may be but if most of the impact is ineffable, the impact cannot be built upon except in the mind of the student.

To change our current predominant practices, the institution must find a way for instructors to be non-contiguously "present" during alternative practices. This may seem to be a problem for assessment. When learning activities occur in one room, instructors can perceive the impact of learning; when they occur outside of the room, that perception is lost. Only with access to valid and extensive evidence of learning for assessment can high impact practices become the norm. It is common for students these days to create Web pages to provide the necessary evidence. But, over a series of courses, those Web pages, including a growing accumulation of dozens or hundreds of links, become hard to integrate or search. Electronic portfolios can and often do address this issue.

Once course-related situated learning experiences become commonly accepted and authenticated by substantial and extensive evidence (by using electronic portfolio technologies), non-course-related learning experiences then also logically become candidates to include in the portfolio. This holistic approach fits with our new world where knowledge technology is in our pockets or purses and we can therefore always get connected and when we now know that learning occurs

constantly, not just in the classroom. Since learning goes on all the time, why limit recognition of that learning to only one category of student learning -- the learning linked directly to a class?

Going further, if students assume more of the agency for their own learning in this time of rapid change, what is the new role of the teacher? One approach is that teachers remain in their traditional role for the "informational" phase of learning in each course (students must start somewhere in each discipline), but they are then faced with re-imagining their role during the "transformational" (high-impact) phase of learning in the course. Transformational does not mean just any kind of change, but a change in the actual *form* of learning. According to Kegan,

> Transformational kinds of learning need to be more clearly distinguished from informational kinds of learning, and each needs to be recognized as valuable in any learning activity, discipline, or field. The *form* that is undergoing transformation needs to be better understood; if there is no form, there is not transformation. At the heart of a form is a way of knowing (what Mezirow calls a 'frame of reference'); thus genuinely transformational learning is always to some extent an epistemological change rather than merely a change in behavioral repertoire or an increase in the quantity or fund of knowledge. Even as the concept of transformational learning needs to be *narrowed* by focusing more explicitly on the epistemological, it needs to be *broadened* to include the whole lifespan; transformational learning is not the province of adulthood or adult education alone. Adult educators with an interest in transformational learning may need a better understanding of their students' current epistemologies so as not to create learning designs that unwittingly presuppose the very capacities in the students their designs might seek to promote (Kegan, 2009).

Informational learning involves the background and methods necessary to get students started on their own work in that field – this phase will seem like traditional classroom practice. *Transformational learning* occurs when students change their form of learning to understand and work with the concepts in the field. It is of special interest to those promoting change that it is first necessary to understand the epistemology (form) the students hold before they can move to a new form. To assume that all students share the same existing epistemology is to slip into the behaviorist doctrine that what is in the head of the student doesn't matter.

If instructors, after having designed a transformational learning sequence based on situated learning, no longer teach toward a test based on what they teach, why continue tethering teaching and assessment so tightly? At some institutions, a group of 3 or more faculty members (in some cases, a student may be the third member of the team) assesses the portfolios developed in the course. Therefore, in this situated learning construct, for the assessment and evaluation phases, there is no reason the same teacher must be involved. In fact, it could be demonstrated that there is value in un-tethering informational teaching with later assessment and evaluation of transformational learning.

As students mature in the undergraduate years, and in graduate school, they may need less of the informational and more of the transformational. Moving agency to students now that students have the tools to learn *and* collect evidence of learning starts a chain of events that may (and should) add to the pressure to reconsider the entire gestalt of higher education. Reconsider, yes, but towards what end?

In his recent publication, *The Corner Office: Indispensable and Unexpected Lessons from CEOs on How to Lead and Succeed*, Adam Bryant (2011) listed success traits for leaders in today's business world, a list developed through extensive interviews with CEOs over a period of years:

- Passionate Curiosity (not just curiosity, but *needing* to learn);
- Battle-Hardened Confidence (learned and grown from adversity; not just confidence, but *battle-hardened* confidence);
- Team Smarts (finding good people; honoring their work; being reliable; "the ability to recognize the players the team needs and how to bring them together around a common goal");
- A Simple Mind-Set (focus on communicating ideas *simply*, and not on trying to impress); and
- Fearlessness (the ability to be uncomfortable; to push change constantly even when things are going well; being a risk-taker).

Four-year residential undergraduate programs in the U. S., especially those geared toward the liberal arts, have traditionally not claimed to be preparing students for a job but, instead, for life. This ideal has served America well; other countries strive to create the American liberal arts model. And it should still hold true, except that educators must become aware of how "life" has changed in its expectations of graduates. I say this, because the points made by Bryant are echoed in the results of a survey of employers conducted by The Association of American Colleges and Universities a couple of years ago (AAC&U, 2010). In that survey, a majority of employers were not happy with the college graduates they were interviewing or hiring. It's true that a liberal arts curriculum cannot be designed based

on work-place needs. At the same time, a curriculum *can be* designed to produce graduates who are used to having agency and responsibility in their endeavors in keeping with the kinds of work they will probably be doing after graduation.

In the last thirty years, during which time learning theories have expanded in scope and a variety of disciplinary data, technologists, in their parallel universe, have developed theories of how college faculty would "adopt" new technologies. On one side were the theorists and on the other were the "appliers." The question is how can the first inform the second and the second inform the first? Theorists provide the research results to create a new epistemology and technologists understand how to support the new epistemology.

Situated learning brings us back to how humans actually learn and have always learned. But, for centuries, cultural knowledge changed so slowly, we moved away from expecting all learners to repeat the process of starting with experience. Instead, we fell into the habit in higher education of just telling students the results of *others'* efforts to arrive at concepts based on *their* experiences. Those "borrowed" concepts hardened into textbooks and became confused with knowledge itself. It seemed, then, that undergraduate students didn't need to go through the labor of discovering knowledge on their own because it had already been discovered.

Now that knowledge changes infinitely faster and the nature of knowledge itself is different, and now that humanity has committed to digital technologies as the implement for knowledge-making, all has changed. Ironically, only by returning to a more natural way of learning – learning by experience – can we adapt to this new world.

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