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Stand and Deliver: An Epistemologically-Driven Perspective of College Lecture

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Abstract

Current pedagogical trends reveal lecture is steadily losing favor as contemporary techniques (e.g., constructivist, experiential, and flipped) gain popularity in higher education. While these techniques have merit and evidence for their use is compelling, we contend that lecture need not be abandoned entirely. With support from personal epistemological theories, as well as research on student preference, we purport that there is still a place for lecture in the modern academy. We consider students' personal epistemological maturation during the college years; namely, the ways in which students view and construct their knowledge and beliefs. We posit that active lecture may be beneficial, given the ways in which it appears to complement students' epistemological maturity, as well as personal preference. Finally, we conclude that efforts should be made to investigate how active lecture facilitates knowledge acquisition in particular for first and second-year students in comparison to contemporary techniques.

Lecture is out; constructivist, flipped, and experiential learning is in. Any brief survey of current pedagogical trends in higher education reveals the academy has slowly been leaning away from traditional didactic lecture and embracing constructive, experiential, or "flipped" methods of instruction. Undeniably, it is a sad state of affairs for lecture in postsecondary education. What was once a cornerstone of higher education now languishes near the bottom of the academic barrel and is thought by many as "last century." Evidence for this shift is compelling. Research suggests some college students are more engaged and motivated in their educational pursuits when such nouveau pedagogies are utilized (Crouch & Mazur, 2001; DeRuisseau, 2016; Freeman et al., 2014). At first glance, the move from lecture makes good methodological sense; today's students are multitasking digital natives accustomed to information at the touch of their fingertips. As such, one could easily assume experiential or technologically-driven instruction to be a pedagogical match for the modern student. Indeed, the notion of using traditional lecture, perceived by many as antediluvian and a blasé method of passively disseminating information, inherently feels at odds with this student population. However, we in the academy should take care to not, as the proverbial metaphor suggests, throw the baby out with the bathwater. In this paper, we assert lecture has empirical merits and should be incorporated as a foundational component of postsecondary education. We will consider the empirical benefits of didactic lecture in higher education, particularly for novel learners, and discuss how modernized lecture techniques may be a better match with students' epistemological maturity than some

contemporary pedagogies. Research suggests lecture may not only complement students' epistemological progression, but it is also what students want, albeit with an inclusive, student-centered angle (Tsang & Harris, 2016; Brawer, Lener, & Chalk, 2015). Why would students desire what many perceive as an antiquated pedagogy? Although the reasons are undoubtedly multi-faceted, clues may lie in their personal epistemology, including how students view knowledge: the certainty of it, how it is structured, and how it is obtained.

Students gather knowledge in a variety of ways and encounter a diversity of pedagogical techniques during their undergraduate experience. While conventional lecture was traditionally the epitome of the academic establishment, educational scholars have increasingly sought to identify the ideal pedagogies to best assist student learning. Additionally, as the academy has grown more diverse, so too has the range of the pedagogical techniques. Researchers have and will continue to identify which techniques not only elicit knowledge acquisition, but also its synthesis and creation. Numerous novel techniques have been explored in the past few decades, including constructivist techniques, problem-based learning, experiential learning, and the flipped classroom format, to note a few. For the purposes of this paper, these current techniques may collectively be referred to as "contemporary." Many of these contemporary techniques have produced promising results (e.g., Crouch & Mazur, 2001; DeRuisseau, 2016). However, recent results may not necessarily negate previous findings when it comes to student learning. Meaning, we should be mindful to not abandon previous techniques that have been used to great success (e.g., lecture), but rather modernize them to today's student. As such, a call has been set forth to bring lecture back to the college classroom (Khanova, McLaughlin, Rhoney, Roth, & Harris, 2015; King, 1993; Small, 2014). While no one is suggesting stoic, non-interactive lecture as the ideal pedagogy of choice, many are imploring the academy to consider the merits of the inclusion of a modernized lecture format. In this paper, we will use a personal epistemologically-driven perspective to make the case that there remains a place for the modernized lecture in the undergraduate classroom, perhaps even convincingly enough that we consider it the norm for some introductory courses.

Personal Epistemological Journeys

When exploring the impact of instruction, it is pertinent to consider not only how students learn, but also how they develop, cognitively speaking. A personal epistemological framework is helpful towards this end, as it considers how students' views of knowledge and truth change and mature as they transition through their college years. The study of knowledge, commonly known in educational psychology and philosophy as epistemology, may be defined as the study of knowledge and justified beliefs (Buehl & Alexander, 2001). With respect to knowledge, epistemology is concerned with examining its conditions, source, structure, and limits. With respect to justified belief, epistemology aims to uncover whether justification is internal or external, and what makes those beliefs justified. In close relation to epistemology, a personal epistemology may be characterized as the beliefs an individual holds about knowledge: what it is, where it comes from, how it is attained, and how it is justified (Schommer, 1994). Hofer (2004) adds to this definition of personal epistemology, and includes how individuals believe knowing occurs, where it resides, and how their knowledge is constructed and evaluated.

Rather than examining the structure of knowledge itself, personal epistemology speaks to how individuals themselves think about knowledge and the ways in which they acquire it.

William Perry's extensive study of undergraduate students at Harvard in the late 1960s is generally regarded as the catalyst that sparked scholarly interest in the topic of students' personal epistemology. He had intended to qualitatively study undergraduate students to determine their overall developmental and cognitive transitions from freshman to senior years (Perry, 1970; Schommer, 1990; Schommer, 1994; Schraw, 2001). However, throughout Perry's research, a recurrent theme emerged. Rather than exhibiting an evolution of personality as Perry expected, students demonstrated a progression of intellectual and cognitive transitions, in a fairly uniform way. As students sequenced from their first to senior years, their sophistication of beliefs of knowledge increased accordingly.

First-year students began their college careers with what Perry termed a "dualistic" or dichotomous view of knowledge. In this view, knowledge is either right or wrong, with little regard to context. Students also tended to believe the goal of college is to learn the "right" answers to universally solvable problems from those in authority (e.g., professors). However, as students gained academic and life experience successively, their views of knowledge evolved to a more sophisticated, or "multiplistic" stage. In this stage, students still believed determinable and accurate knowledge exists, but acknowledged it may not be immediately known or yet discovered. Hence, the goal of college is to not only obtain the right answers, but to also learn about problems under construction. By their senior year, the majority of students held a "relativistic" evaluative stance on knowledge, considering each perceived piece of knowledge as contextual in nature. Students in this stage of thinking acknowledged the possibility of multiple or paradoxical truths, often depending upon context or viewpoint, and were better able to explore ill-structured problems (i.e., problems with no immediate conclusion or solution). Perry concluded that college students transcend through four positions and five sub-positions of epistemological beliefs throughout their academic tenure, which subconsciously pose internal conflict. Specifically, as students cognitively adopt new beliefs, they encounter dissension with currently held beliefs. Only through this cognitive struggle can students break through to the next epistemological level. A summary of Perry's nine beliefs are included in Table 1.

Several scholars expanded upon Perry's work, supporting the notion that students transcend various epistemological stages or dimensions sequentially as age and education levels increase (Baxter Magolda, 1992; Buehl & Alexander, 2001; Hammer & Elby, 2002, Hofer & Pintrich, 1997; King & Kitchener, 1994; Kuhn, 1991). Studies have also examined students' personal epistemological beliefs and their links to motivation, use of strategy, persistence and academic performance (Braten & Strømso, 2005; Dahl, Bals & Turi, 2005; Dweck & Leggett, 1988; Kardash & Howell, 2000). Although there is some debate as to whether personal epistemological transitions are truly fixed and linear, through the empirical research amassed over the last several decades, it is clear students generally begin their college experience with a more rudimentary cognitive scheme of knowledge. While this scheme may be a function of chronological age, it intuitively makes sense

Table 1

Perry's Nine Positions of Intellectual Development

Position	Summary
1. Basic Duality	The student sees the world in absolute black and white truths.
2. Full Dualism	Student acknowledges there are different perspectives, but asserts some are simply wrong.
3. Early Multiplicity	Student accepts uncertainty and so exist categories of right, wrong, and not yet known.
4. Late Multiplicity	Recognition of legitimate uncertainty which leads to prioritizing one's own thinking.
5. Contextual Relativism	Recognition that knowledge and values are supported by reasons and context.
6. Pre-Commitment	Agrees there is a necessity to committing to possible solutions.
7. Commitment	Student commits to solution or answer.
8. Challenges to Commitment	Student experiences implications of commitment and explores responsibility.
9. Post-Commitment	Student realizes commitment and responsibility is ongoing and evolving.

When one considers the structure of secondary education in the United States, wherein teachers are typically viewed as authority figures, disseminating knowledge to students that appears absolute in certainty. Students then integrate this knowledge into their own cognitive structures. One can think of this knowledge as correlating with Perry's first stage of basic duality.

Perry and others have asserted that students tend to begin their college years with the belief that knowledge is concrete, absolute, and handed down by those in authority. If this is true, let's consider whether contemporary pedagogical techniques are compatible with this mindset. With many of these strategies, there is an inherent expectation that students are to construct their own knowledge. This expectation elicits a pivotal question, which is at the heart of our perspective herein; how can we in the academy ask students to construct their own knowledge when they may be cognitively under-equipped to do so? Further, if personal epistemological theory is accurate and yet we ask students to construct their own knowledge, what are the implications for the student concerning their long-term knowledge acquisition and the use of said knowledge? In short, are these contemporary techniques compatible with students' personal epistemological maturity?

The Case for Lecture

Though one might assume today's students would lean toward contemporary techniques, several studies suggest they have a preference toward lecture in their courses. Brawer, Lener, and Chalk (2015) found students prefer lecture because it provides focused emphasis on pertinent ideas. Students in this study also cited time-efficiency and structure as benefits over other modes of learning. In their 2017 analysis, Nordmann, Calder, Bishop, Irwin, and Comber examined the relationship between lecture attendance and recordings. Though

some instructors fear allowing students to record lecture will produce a drop of attendance, Nordmann et al. (2017) found use of lecture recordings did not affect lecture attendance, as students attended lecture regardless of whether lecture recordings were provided. The authors further determined that for first-year students, unsurprisingly, lecture attendance was a positive predictor of performance. Along a similar vein, Varao-Sousa and Kingstone (2015) found that students performed better after attending a live lecture rather than listening via recording. The authors concluded that professor presence impacted memory performance, as well as students' motivation and interest. Khong, Lim, Yap, and Dunn found similar results in their 2016 study of undergraduate business students, finding that although online lecture and study materials were readily available, students still chose to attend live lecture. Taken together, these studies suggest that although modern technologically-savvy students have access to course content via said technology, they still feel value in personally attending lecture. Students themselves assert the values of lecture. In his article published in the University of Texas at Austin's student newspaper The Daily Texan, an undergraduate student writes,

> It's easier to take notes on a lecture than a discussion, which makes studying easier. Lectures don't meander like class discussions do; they can't be derailed by a single egomaniac who insists on blurting out every thought that pops into his or her head. And bigger classes typically demand the use of helpful visual aids, which smaller classes often neglect...class discussions, in turn, tend to favor a certain kind of student: one who is more extroverted, more sure of the value of their own thoughts and opinions, more eager to contribute and perhaps less eager to listen (Groves, 2017).

Such findings and perspectives are intriguing, as they lend support to the notion that students themselves find lecture to be a pertinent part of their academic success.

Beyond the student perspective, many instructors have experienced an undergraduate paradox of autonomy. Although autonomy is generally regarded as a positive construct, students may show distress if afforded too much of it (Eunjin, Patall, Henderson, & Steingut, 2018). Students, particularly in their first or second year, may feel overwhelmed with insufficient knowledge to engage in autonomous or constructivist pedagogies. For example, in her 2015 presentation regarding use of the flipped classroom format, Ashley Hasty reported less than favorable student course evaluations of the structure, summarizing the consensus as, "She didn't teach. We had to learn it ourselves." Hasty (2015) also found that the flipped courses in which she incorporated recorded lectures to supplement in-class synthesis and problem-solving were consistently viewed more favorably than those without. Students felt accessibility to lecture aided their understanding of course material more so than the expectation that they construct meaning via class time. Similarly, a recent study found both class attendance and participation decreased significantly after implementing a flipped and problem-based curriculum. In their case study analysis, (White et al., 2014) concluded students did not feel cognitively equipped, self-directed or motivated enough to engage in activities requiring such elevated cognitive expectations. Finally, Ravert and Evans (2007) also found that students in their earlier years of college preferred absolute knowledge and absolute instruction (the

instructor serving as the sole source of information beyond the textbook). Certainly, student discomfort with a particular pedagogy does not necessarily mean that the idea itself is flawed and student preference doesn't mean it is the ideal pedagogy of choice. However, in the human cognition, we tend to learn best when conditions are favorable; meaning, there are no perceived threats to us in our immediate environment. True, disequilibrium from excessive autonomy could theoretically serve as a catalyst to spark higher-level analysis. However, it may be equally as likely to hinder student learning as students exhaust cognitive resources trying to self-identify the "right" answers.

Echoing findings from an earlier study of undergraduate chemistry students (Hofer, 2004), Barger, Perez, Canlas and Linnenbrink-Garcia (2018) found students' initial personal epistemologies predicted their perceptions of the classroom environment. They also concluded that the match, or lack thereof, between students' personal epistemic beliefs and the epistemic context of the classroom impacted academic achievement. In other words, supporting their epistemic alignment hypothesis, Barger et al. (2018) determined students perform best when their personal epistemology matches the epistemic level of the classroom (e.g. lecture versus contemporary learning techniques). Interestingly, they found that students with a less complex personal epistemology viewed lecture as more complex and rewarding, while perceiving material presented in a constructivist fashion to be more simplistic in nature. The authors speculated that requiring active construction from students with less sophisticated epistemic beliefs necessitates simplification of the material, thereby potentially undermining the point of constructivist and contemporary pedagogies. In their study of undergraduate chemistry students, Dai and Cromley (2014) found similar results, also determining that students perform best when the epistemic climate matches personal beliefs.

Let's further consider the nature of active lecture as one in which students are asked to create or synthesize knowledge only to a limited degree, while being supported by the backdrop of a traditional lecture. Although some contemporary scholars snub their noses at such "passive learning" one cannot help but consider, does this technique match where students are in their personal epistemological cognition? It is worth noting here that prior studies have found instructors often find dialog among juniors and seniors more sophisticated and long-lasting than that of first and second-year students (Clydesdale, 2007; Erickson, Peters & Strommer, 2006). If students do tend to begin college with more of a dualistic viewpoint, is the expectation that students readily synthesize various viewpoints and contextual interpretations realistic? Active lecture may prove a better pedagogical match, as it can serve as effective scaffolding for students as they progressively mature in their beliefs of knowledge. Beyond this point, equally as compelling are the studies that support student preference for lecture. What other possible reasons could explain this seemingly contradictive partiality?

Broadening the scope from a personal epistemic framework, one could also consider the overall impact of the first-year college experience. Personal, social, and cultural expectations of college students differ dramatically from high school, and research strongly suggests an academic disconnect between the two (Michael, 2007; Saunders, Severyn, & Caron, 2017). Diving headfirst into contemporary pedagogies that rely solely on deep processing and the

construction of mental models may exhaust new-to-college students, creating an overly burdened cognitive load. To be clear, we are not suggesting lower level college students do not have the capacity for sophisticated cognition, nor are we attempting to underestimate students' cognition by encouraging shallow processing techniques. Rather, the culminating influence of heightened expectations, disconnect between high school and college training, and possibly students' own cognitive beliefs, may lend further support for active lecture, at least as an introductory method to aid in students' transition.

Active lecture could potentially serve as a segue between lower and higher-level processing, as well as secondary and postsecondary pedagogy, by affording students a lower stakes starting point. In a sense, one could view active lecture as an academic scaffolding technique. Rather than jumping into contemporary techniques, which assume a certain level of cognitive maturity, active lecture can instill constructivist tendencies within the familiar confines of didactic methodology. For instance, asking students to come up with real-world examples in a think-pair-share format or having students work a real-world example in groups within the confines of an active lecture can foster deeper processing and elaboration of the given material. When those methods are offered within the context of lecture (i.e., the entire class period isn't dedicated to contemporary practices), students are able to gradually incorporate higher level techniques without relying exclusively on them (thus, lower-stakes). Active lecture can also accommodate a broader array of epistemological maturity levels. As some personal epistemological scholars have argued, personal epistemological development may not be entirely linear such as Perry's initial theory suggests (Elby & Hammer, 2010; Hofer & Pintrich, 1997; Muis, Bendixen, & Haerle, 2006). If cognitive maturity can be fluid, the active constructivist points of the lecture can reach the students currently able to probe more deeply into the topic at hand, while simultaneously allowing them to serve as models for students with more dualistic beliefs. These techniques also scaffold novice learners, as they are afforded a balance of didactic lecture and knowledge construction. Thus, active lecture may encourage deep processing within learners with a more sophisticated personal epistemological belief, while offering support for dualistic learners as they acquire their own techniques for deep processing.

If active lectures are a good personal epistemic match for novice learners, at what point in the academic progression would it be appropriate to incorporate more contemporary techniques? In their study of high school and early college students, Elby and Hammer (2010) determined that when confronted with novel information (as is often the case in introductory courses), students often activate *knowledge as propagated stuff,* a cognitive resource for understanding knowledge as passed from a source to a recipient. However, when familiar with material, students were more likely to activate *knowledge as constructed,* a resource for understanding knowledge as built from other knowledge. It is important to note that while some developmental theorists contend epistemic maturity is a function of development and experience, others subscribe to a dynamic systems point of view, wherein development is not always linear, but may be discontinuous, dynamic, and integrated across domains (Elby & Hammer, 2010; Hofer, 2000; Hofer & Pintrich, 1997; Muis, Bendixen, & Haerle,

2006). However, almost all agree epistemological maturity naturally lends itself to the influence of both chronological age and experience. If epistemological maturity is largely a function of these factors, it is not unreasonable to speculate juniors and seniors could theoretically benefit more from contemporary techniques, while first and second-year students, who are typically chronologically younger and enrolled in introductory courses, may be better suited for active lecture. Empirically, Clark, Kirschner, and Sweller (2012) found novice learners had better learning outcomes with lecture than with experiential techniques and concluded lecture is a good match with first-year undergraduate students, particularly those who have limited background knowledge in the subject at hand. At the same time, Lee and Anderson (2013) found greater benefit with contemporary techniques for upper-level learners rather than novice learners. This certainly could be a result of more background knowledge of the given subject, as students progress through their college years, but this may also come as a result of their personal epistemological maturation as well.

The Case for Engaging Lecture

A modernized perspective of college lecture can elevate the centuries-old technique beyond passive learning and rote note taking and memorization. Active lecture may include student participation, small group learning, think-pair-share, and many more active techniques, all with the comfort and familiarity of lecture. Considering an engaged and active lecture, we contend that students establish familiarity with course concepts and can incorporate new content into their existing knowledge bases, while at the same time setting the stage for more advanced epistemological perspectives and deeper processing strategies by trying these techniques selectively and when appropriate.

Often in the academy, instructors create a traditional lecture-dense course after falling into the trap of "textbook pedagogy", an instructional default in which we start with chapter 1 and proceed in order (Laster, 2018). In what Laster terms an inverted constructivist curriculum (IvC), both topics and execution are inverted, as students start with concepts they have intuitive "real-world" familiarity with before moving to those with less familiarity and less prior knowledge. For instance, in introductory psychology courses, personality and social psychology are explored first, rather than starting with history and systems or research methods. With respect to execution, students discuss their experiential familiarity of concepts via pairs or small groups before connecting them to didactic definitions. With their personal experience in mind, students can then assimilate empirical definitions and explanations more readily and with greater meaning by allowing students to take their existing dualistic knowledge and build upon it in a structured and intentional way. The instructor can utilize this knowledge base to lecture alternative viewpoints and help students acknowledge different perspectives, consistent with Perry's transition to multiplicity. Thus, students are presented knowledge in a manner consistent with their epistemic maturity, and in a way that sets the foundation for the forthcoming transition. As a case in point, in introductory psychology courses, the big five-factor personality theory is ideally suited to this structure, given the seemingly dualistic nature of personality from a trait theory perspective (e.g., extroversion vs. introversion). Students self-assess and ascertain whether they are innately extroverted or introverted and consider how these traits are manifested in their behaviors. However, upon closer inspection, students

generally come to realize they fall within a continuum of tendencies, spanning from one polarity to the other depending on time, place, affect, or biological state. The realization that each personality construct is a spectrum of changing and even contradictory traits and behaviors leads to a more fruitful overview and discussion of personality theory, while simultaneously encouraging the maturation of personal epistemological progression.

A common criticism among scholars is that lecture discourages student engagement. However, it is entirely feasible for students to be equally disengaged with contemporary techniques. Psychologists have long analyzed the phenomenon of social loafing and diffusion of learning with respect to group work. As such, "doing" doesn't always translate to learning and not every activity produces high return with respect to knowledge transfer. Perhaps rather than analyzing the pedagogy itself (i.e., lecture versus contemporary techniques), we should consider the effectiveness and appropriateness of the teaching strategy for the given time and place. Constructive, active, and experiential learning, though effective in some cases, cannot be utilized in a vacuum, nor should they be utilized for the sake of activity itself. We in the academy should take care to not become too fixated on collecting nouveau teaching techniques and instead be sure we are regularly evaluating the effectiveness of the techniques, taking into consideration the subject matter, our students, and their personal epistemic maturity. Personal epistemological theory contends students may feel underprepared to actively construct knowledge without a proper foundation and the cognitive and epistemological maturity to do so. At the same time, research suggests students' personal epistemological beliefs can be positively influenced by classroom activities (Muis & Duffy, 2013). To that end, we assert that an emphasis on active lecture can instill a sense of equilibrium, particularly for first and second-year students, while simultaneously encouraging exploration into more complex beliefs.

Conclusion

To summarize, we are by no means suggesting contemporary and experiential learning pedagogies be eliminated in contemporary postsecondary education. On the contrary, we believe incorporation of constructivist techniques can encourage knowledge acquisition in all learners and foster deep processing development. We are also not suggesting active lecture is appropriate for every course in every context. Rather, we are urging the academy to include active lecture as an elemental component of their pedagogical repertoire, to serve as a bridge as students learn to explore their personal complexity of beliefs. Given the literature on students' personal epistemological development, lecture may be compatible with the cognitive maturation of first and second-year students. An active lecture provides students a comfortable framework from which to scaffold their learning when novel material is presented and may also be what many students themselves prefer. When well executed, lecture still has a place in the modern academy. Modernized lecture, including informational content that students may integrate into their cognitive structures, along with engaging active learning components, has value and should be utilized, particularly in introductory and first-year courses.

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