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Praxis: The Application of Teaching and Deep Learning Strategies for the DBI Education Practitioner/Researcher

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ABSTRACT

This literature review analyzes concepts about education, how we teach, and the nature of how students learn, full of applied learning theory as well as applied teaching theory. Discussions about transferring knowledge to novel situations (National Research Council, U.S., 2012) and applying those theories to instructional design (Khalil & Elkhider, 2016) create a welcomed perspective on the praxis of teaching, especially for the Drama-Based Instruction (DBI) education practitioner interested in iterative praxis improvement research. This article focuses on deep versus surface learning, applying instructional design for effective teaching, and the pursuit of depth of knowledge for competency beyond the classroom.

The study of teaching and learning is a complex undertaking. Philosophy, theory, and practical application combine to inform the teaching praxis of educators. Concepts such as surface versus deep learning, psychological influences on pedagogy, and awareness of others' needs are important for insight into instructional practices and designs. From Socrates, Aristotle, and Plato to Piaget, Vygotsky, and the modern practitioner, much thought and research has gone in to improving education over time. Learning theories and teaching strategies have been analyzed to create understanding and epistemological paradigms have influenced how instructors hope to inspire and motivate their students. Learning about learning, as well as teaching, within an improvement paradigm is beneficial to the Drama-Based Instruction (DBI) education practitioner/researcher and provides a pathway to helping students reach successful outcomes. Praxis, or the combination of theory and practice, along with an understanding of teaching and learning, allows the DBI practitioner to connect with students for improved learning.

DRAMA-BASED INSTRUCTION

Drama-Based Instruction (DBI) techniques, which include improvisation, interactive games, and role-playing techniques (such as Dorothy Heathcote's Mantle of the Expert), allow teachers to motivate their students and engage in authentic instruction (Cawthon et al., 2011). Cawthon et al. (*ibid*.) define student engagement as active participation in classroom activities and authentic instruction as that which utilizes such activities so that students may build on previous knowledge, think critically, and experience the application of collaboratively constructed knowledge. Additionally, DBI integrates into the curriculum so that a safe, scaffolded environment is democratically created by both teachers and students to actively create knowledge (*ibid*.) When students are thus engaged, self-efficacy and successful outcomes are likely to increase. DBI is a powerful tool in efforts to motivate and help students to achieve (Kyrimi & Tsiaras, 2021). The use of drama in education makes a compelling case for helping

students to learn more deeply and apply the knowledge they create to identify real-world problems, evaluate potential solutions, and evaluate possible outcomes if applied (Aitken, 2013). Now more than ever, educators must find ways to help students that need it the most.

THE NATURE OF STUDENT LEARNING

Biggs (1987) establishes a well-researched classification of how students learn. Having developed, employed, evaluated, and revised an instrument (e.g., questionnaire) to gather data in several domains regarding student learning, Biggs (*ibid*.) remained adaptable and improved his instrument in subsequent iterations. His resulting findings reveal internal and external orientations as predictors for how students approach learning. This orientation forecasts a tendency toward surface or deep learning. Biggs' three classifications or approaches to learning are: surface, deep, and achieving, each of which comprises motive and strategy (*ibid*.). In thinking about how students approach their understanding of what the education practitioner is trying to teach them, instructors will call to mind individual students in particular and will develop a new understanding of how those students, in the context of these classifications, relate to motive and strategy (*ibid*.).

When employing DBI, the teacher provides an experience whereby students learn to cooperate, develop self-confidence, and hone problem-solving skills (Kyrimi & Tsiaras, 2021). As Biggs (1987) noted, the three approaches may be combined (surface-achieving, deep-achieving, and though less likely, surface then deep successively, such as when an actor memorizes lines but then evaluates them for meaning) (*ibid*.). author also points out that intention is a critical piece of the puzzle. What a student intends for his or her own learning will determine the approach they adopt, even if it is not a conscious choice. This is often correlated to whether the student interacts in an external or internal manner with their learning environment (*ibid*.), especially in DBI. This recalls the Behaviorist vs. Cognitive theorist divide (think Pavlos vs. knowledge building) and how the learner's approach will impact teaching (Schunk, 2020). When applied as an instructional strategy (in DBI for example) the teacher may lead the student to construct their own meaning (Kauchak & Eggen, 2012). Biggs' descriptions of surface, deep, and achieving approaches to learning should be a valuable foundation for helping

students learn more deeply and for competence.

PERSPECTIVE ON DEEPER LEARNING

The fourth chapter of the National Research Council text (edited by Pellegrino and Hilton) on the nature of deeper learning emphasizes the need to develop 21st century competencies, and looks at how to use deep learning to "transfer" learned knowledge to be able to adapt and solve novel problems that arise. Because technology is increasingly replacing routine skills, we must also teach skills in innovation and how to creatively solve problems in order to advance. While specific transfer of learning generally requires common elements and general transfer of learning usually fails across disciplines, deep learning may be effective in using transfer to solve problems whereas rote learning is not (National Research Council, U.S., 2012). DBI techniques reinforce this notion as authentic instruction is emphasized even in poorer schools where resources are typically limited and where practices often rely on simple rote memorization, and allow the students to engage in actual participatory inquiry instead (Cawthon et al., 2011).

The National Research Council editors also reinforce the importance of internal learning/rationalism versus experiential learning in an environment/empiricism (Schunk, 2020). Cognitive (internal) perspectives on deeper learning focus on the mental structure of knowledge and the processes of perception, memory, and so on. Sociocultural (external) learning centers around learners participating in their community and using experience in varied settings to learn (National Research Council, U.S., 2012), which is a vivid example of DBI. The chapter states that science, for example, is a sociocultural discipline: it consists of an established community with shared practices where members of the community come together to create and discover or understand, and then revise, through social processes (Polanyi, 1958, as cited by National Research Council, U.S., 2012). This description is quite similar to disciplines typically associated with the Arts and Humanities (e.g., people collaborating to create a movie) and is reminiscent of the work of applied theatre.

Inversely, educational theatre could be said to use science-based teaching methods to instruct. History or English Literature students, for example, may be asked to get up on their feet and participate in group

"experiments" such as process dramas so that the classroom more resembles a chemistry lab than a direct lecture course. In fact, the editors note that deeper learning is defined "not as a product but processing" (National Research Council, U.S., 2012) which is what process drama focuses on: the process rather than the end product. When engaged in a sociocultural (e.g., educational theatre) method of teaching, students may, for example, take on the "Mantle of the Expert" (Heathcote & Herbert, 1985) or rather, be surrounded by the conditions in which knowledge and understanding may grow from within and around the student (Aitken, 2013).

Further, the editors (National Research Council, U.S., 2012) discuss cognitive architecture and reinforce the neuroscience explanation of learning: stimuli, working memory, and long-term memory. Their description of problem-solving procedures, the relationship to weak vs. strong methods, and the recall of relevant knowledge is helpful especially in the context of how learning occurs along with understanding the influence of schematic knowledge. The editors go on to note that the thinking of experts versus that of novices can help guide instruction (*ibid*.). Again, this recalls the DBI method described in Heathcote's seminal work regarding the Mantle of the Expert. She posits that the teacher empowers students with the expertise required and then enables them, from within the group, to construct knowledge (Heathcote & Herbert, 1985). This may conflict with the National Research Council, U.S.'s (2012) stance that experts' long-term memory is an important factor in being able to recall and use knowledge, organized in schemas, that can be applied to solving new problems. As a teaching strategy, though, Heathcote uses the Mantle of the Expert to allow students a shift in attitude so that they may work together via a loosely scripted process drama to discover knowledge, reminiscent of the rationalism illustrated by Schunk (2020).

Facilitating a process drama requires skillful leadership by the teacher (who presumably is an expert in the subject and essentially serves as the organized long-term memory bank for the learners to access), and does put the students in an environment specifically crafted to affect their behavior (Heathcote & Herbert, 1985). This is similar to the empiricist approach described by Schunk (2020). The National Academy of Sciences, though, points out that true expertise comes from guided, sustained practice, focus, the incorporation of productive feedback, and the acquisition of cognitive skill over time

(National Research Council, U.S., 2012). Aitken (2013) argues, though, that the Mantle of the Expert technique positions students as competent in the creation of knowledge by placing them in the center of the inquiry. This student-led inquiry creates the framework in which the participants do become "experts" *within the enterprise the teacher has constructed with them*. In this sense, the Mantle of the Expert does not conflict with the National Research Council's point of view, and allows for reflection and even metacognitive learning about the topic at hand (Aitken, 2013).

The editors also mention the Anderson update of Bloom's taxonomy; the update added facts and concepts, procedures and strategies, and beliefs. For knowledge to be deep, or transferable, these updates must be integrated, structural, automated, strategic, and productive on the part of the learner. After practice and the incorporation of useful feedback, the knowledge should become embedded in the learner (National Research Council, U.S., 2012). This is where Heathcote's approach may be said to diverge, but the tactic does create an environment and new expectation for *how* students learn, reason, and develop cognitive skills (Heathcote & Herbert, 1985), thus laying the groundwork even if they are not yet experts. The editors (2012) provide an example of how deeper learning can lead to 21st century competencies and describe the techniques used in implementing a new culture where they assign roles to students as well as empower them with responsibilities including working together to reason and solve problems as well as apply what they are learning (*ibid*.), features commonly seen in process drama (Heathcote & Herbert, 1985). The findings of the example provided show how deeper learning helps the students acquire and transfer knowledge (National Research Council, U.S., 2012).

Deep learning also allows for the *intrapersonal* domain to build 21st century competencies such as work ethic, belief in self, initiative, adaptability, and self-motivation. When students are aware of their learning abilities and understand learning strategies they can employ, they can persist in the face of doubt or unfamiliarity. By self-regulating and being an active learner, students can take part in setting goals with purpose. Self-regulation is, however, difficult to assess. The *interpersonal* domain is also important for building competencies. Teamwork, leadership, collaboration, and the ability to influence are all abilities that students must learn along with course content. Indeed,

self-regulation should allow for students to seek social relationships that can help them learn. Understanding deep learning and the concept of knowledge transfer and recognizing the intrapersonal and interpersonal aspects of learning should allow teachers to better construct strategies for instruction (National Research Council, U.S., 2012). The editors (*ibid*.) note that the main challenge is to "create learning experiences for learners that will prime appropriate cognitive processing during learning without overloading the learner's information processing system" (p. 98). When properly facilitated, a strategy such as Mantle of the Expert (Heathcote & Herbert, 1985) is an effective choice and the goal of deep learning may better be achieved (Aitken, 2013; Selderslaghs, 2019). Regardless of teaching strategy, the goal of deep learning and transfer in order to achieve 21st century competencies is essential (National Research Council, U.S., 2012).

APPLYING LEARNING THEORIES AND INSTRUCTIONAL DESIGN MODELS FOR EFFECTIVE INSTRUCTION

Khalil and Elkhider focus on application of theory and begin with an explanation of the science of how people learn. They cover the same three types of memory as Schunk (sensory, working, and long-term memory) that work together to facilitate learning. Khalil ad Elkhider describe two types of rehearsal: maintenance and elaborative which are alternate terms for surface and deep learning. Whereas maintenance rehearsal is rote memorization, elaborative rehearsal happens when the learner organizes information to create meaning (Khalil & Elkhider, 2016; Schunk, 2020).

When learning theories are correctly applied by teachers via instructional strategies, the goal is deep understanding rather than surface learning. The authors note that learners also employ strategies for organizing, remembering, thinking, self-regulating attitude, and self-motivation which all contribute to learning deeply (Khalil & Elkhider, 2016). One specific example of the difference between verbal information and intellectual skills of particular interest reflects on students' ability to learn and perform process(es). This example was that, "to recall the definition of creatinine clearance is verbal information; however, using the Cockcroft-Gault equation to estimate creatinine clearance to assess the function of the kidneys is an

intellectual skill" (Khalil & Elkhider, 2016, p. 148). This is not unlike an actor learning lines by rote versus analyzing the words they are saying for their meaning. Additionally, this relates to participants in an applied theatre lesson being led through a process to construct meaning rather than simply memorizing facts. Because this article is centered in higher education, the authors also cover andragogy and note that adult learners are more likely to be independent and possess more life experience, motivation, and goal-setting ability, and so can better understand how to apply knowledge to a problem (*ibid*.). Younger students in the DBI context, though, will actively and collaboratively participate in knowledge creation with the leader positioning them as stakeholders with a sense of ownership and internal motivation (Selderslaghs, 2019).

In moving towards praxis and applying theory to instructional design and, of course, teaching, Khalil and Elkhider posit five principles of instruction:

- Learners are engaged in solving real-world problems.
- Existing knowledge is activated as a foundation for new knowledge.
- New knowledge is demonstrated to the learner.
- New knowledge is applied by the learner, and
- New knowledge is integrated into the learner's world. (Khalil & Elkhider, 2016)

This reinforces what the National Research Council chapter covered regarding transfer of learned knowledge to solving novel problems (National Research Council, U.S., 2012). As DBI educators attempt to design and deliver teaching strategies, Khalil and Elkhider note they must situate instruction in real-world, relevant tasks (2016) which is something that Mantle of the Expert is clearly well-suited to do (Aitken, 2013; Selderslaghs, 2019). Furthermore, teachers should be careful not to overwhelm students with little foundation coming into a lesson and should also provide actionable feedback (notably both points were also stressed in the National Research Council chapter) which, again, Mantle of the Expert is appropriate for (Aitken, 2013; Selderslaghs, 2019).

Khalil & Elkhider (2016) go on to discuss the importance of analysis, design, development, implementation, and evaluation in

instructional models which recall the iterative plan -> do -> study -> act cycles of continuous improvement (Bryk et al., 2015). In order to combine theory and design and actively apply practical strategies in the DBI classroom, the authors propose a framework for implementation. In the analysis phase, teachers must assess their students' current knowledge, skills, and behaviors so that they know from where they are starting. In the design phase, teachers should craft concrete learning objectives, outline expectations, and determine how they will assess whether students met the objectives in measurable ways. The development phase requires creating the actual content to be delivered to students (e.g., creating the script for a process drama) and preparing the learning environment whether it be a physical space or completely online. The implementation phase is the active teaching and learning during the course. Finally, the evaluation phase is not only the last or summative assessment at the end of the course, but includes formative assessment during each of the other phases. For both kinds of assessment, providing constructive, actionable feedback during DBI is critical for deep learning for both students and educators/instructional designers. Indeed, competency in instructional design by DBI teachers is key for the practical application of learning theory for improved student outcomes (Khalil & Elkhider, 2016).

TEACHING FOR DEEP LEARNING

Smith and Colby's 2007 study highlighting the correlation between surface teaching and surface learning discusses implications of how to teach for deep learning. Shifting towards looking at teaching theories and strategies rather than learning theories, the authors (*ibid*.) point out that teaching for standardized tests can limit students to surface learning, and that when teachers purposefully teach for deep learning, it is more apt to happen. The study they conducted showed that 64% of teachers were instructing in a way that led to surface learning. Smith and Colby (*ibid*.) note that when teaching strategies call for deeper reflection from students rather than rote memorization, learners will construct more meaning. If students do not naturally possess this ability, teaching strategies such as modeling can help prompt students to process concepts and form beliefs about what they are learning (*ibid*.). Taken even further by the teacher employing DBI strategies,

deep, reflective inquiry rather than rote memorization on the part of the student, along with the tensions provided by the facilitator in the process drama setup, allows the student to safely explore real-world situations and solutions (Aitken, 2013).

Assessment as a learning and teaching tool for both students and teachers is also a tactic that DBI instructors can benefit from. Pennison (2004) states that self-assessment is essential to learning, noting that thinking, reflection, interest, processing of information, reaching conclusions, and devising solutions and the application of the same allow students to validate what they are learning for themselves (Dewey, 1916, as cited by Pennison, 2004.) Smith and Colby propose the Structure of Observed Learning Outcome, or SOLO taxonomy, as a way to assess both teaching and learning outcomes (Smith & Colby, 2007). For Pennison, the use of rubrics led to conferences with *students* to discuss ways the student could engage more in learning, and which also led Pennison to reflect on her teaching (Pennison, 2004). Smith and Colby promote collaboration with fellow *teachers* in the use of the SOLO taxonomy to discuss what deep learning looks like, and how as DBI instructors they can support students reaching the next level of the SOLO taxonomy. Because it is a continuum of learning, from missing the point, to two levels of surface learning, and then to two levels of deep learning, the teacher can employ the taxonomy developed by Biggs (1987) to move students from one level to the next rather than simply to assess where they are. Additionally, students can use it to better understand their own approach to learning. As DBI instructors reflect on their instructional design, the SOLO taxonomy and its five levels of learning is an applicable framework for creating rubrics for evaluation (such as those created by Pennison). When those with a stake in teaching and learning realize the value in evaluation for the purpose of examining *how* a student learns rather than *what* a student learns, teaching approaches can be designed to better facilitate deep learning (Smith & Colby, 2007).

PURSUING THE DEPTHS OF KNOWLEDGE

Boyles (2016) touches on the difference between recall and thinking/reasoning in deep learning. She also gives specific, real-life examples of how assessment relates to instructional planning, moving even further into application of theory in practice. Boyles also

discusses the rigor required for both the teacher and the student in her examples. She begins the article by mentioning “teaching for the test” and aligning assessment so that teachers can teach with rigor and students can take an active role in holding themselves accountable as well (Boyles, 2016). Education practitioners have been concerned about teaching to the test for decades. For example, an article from over thirty years ago advocates that teachers and other stakeholders come together to design standardized tests explicitly so that they know the contents are what *should* be assessed; then, they would *want* to teach to the test and know whether students are meeting standards to which instructors think they *ought* to be held. (Wiggins, 1991). Boyles asks what these standards or depth of knowledge should look like, much as Smith and Colby did when they called for teachers to collaborate on this very topic (Boyles, 2016; Smith & Colby, 2007). Boyles also mentions Bloom’s taxonomy (as did the Khalil and Elkhider article) but states that it does have shortcomings and goes on to propose four levels of depth of knowledge (Boyles, 2016). These four levels are somewhat analogous to the levels in the SOLO taxonomy in the Smith and Colby article, minus the lowest level of “missing the point” (Smith & Colby, 2007). Boyles contends that these levels are not mutually exclusive, however, and that not only must one build on the other, but the teacher should plan to teach rigorously for each and ensure students know high expectations exist for all levels. In this context, Mantle of the Expert is an excellent method for working with students beyond “teaching for the test.” The outcome of a process drama really has no right or wrong answer, it is the process that is important along with the meaning made by the students and teacher. Selderslaghs (2019) gives an example of a process drama about the Titanic, wherein students work out ethical issues, define what it means to be a good citizen, identify actions taken and the motivations for them, inquiring at what costs an action may be taken, and investigating social responsibility. In so doing, these students learned far more than what might be on a standardized test; they learned critical thinking skills and the power of reflective learning (*ibid*.). Students will likely reach most if not all the levels of learning for their context in this use of DBI.

For each level (recall/reproduction, skills/concepts, strategic thinking/reasoning, and extended thinking) Boyles looks at what is required from both teachers and learners to maintain rigor and

describes actual, real-life examples that can be transferred or generalized by teachers across subjects in their instructional planning and assessment of student achievement. The fourth level, extended thinking, calls for students to be able to integrate and apply knowledge and skills from more than one source (Boyles, 2016). As an example, modern use of the Socratic method can teach critical thinking rather than simply be employed to discover knowledge (Boghossian, 2006). Or the Mantle of the Expert method (Heathcote & Herbert, 1985) where the facilitator leads students through a dialogue of questions and answers and reasoning to work through an issue or problem may be employed. The end result is not the only goal; the process of arriving to it is just as important. The participants are given responsibilities and must interrogate and think as an expert to learn the topic at hand and come to conclusions through discourse (Heathcote & Herbert, 1985; Roper & Davis, 2000). This is similar to Socratic dialogue in that students will arrive at the truth/knowledge rather than merely accepting what the instructor tells them (Boghossian, 2006; Roper & Davis, 2000).

THE DEPTH OF KNOWLEDGE: SURFACE, SHALLOW, OR DEEP?

Bennet and Bennet (2008) look at the resulting knowledge once teaching theory, learning theory, and instructional design have been distilled into practice by teachers and students have "learned" something. Bennet and Bennet ask: once someone has learned or acquired knowledge, how does the level of knowledge impact how the person then takes action? Solves problems? Makes decisions? They examine knowledge theory and how depth of knowledge translate into action and the ability of the learner to apply knowledge to other situations (*ibid*.). While this brings us full circle back to the concepts of learning as surface, deep, and achieving (Biggs, 1987) and the idea of "transfer" (National Research Council, U.S., 2012), Bennet and Bennet move beyond educational praxis and discuss implications for deep learning in an individual's life beyond the classroom. The authors discuss the idea of knowledge as patterns of information that exist in the brain that must be interpreted in order to make meaning (Bennet & Bennet, 2008; Schunk, 2020). They *functionally* define knowledge as the ability to act situationally, explicit knowledge as that which a person can recall and express to another, implicit knowledge as that which is

accessed when triggered, and tacit knowledge as that which is the understanding of what action needs to be taken but which cannot be transferred to another; tacit knowledge, moving from simply learning to reasoning out how to take action, must be created by each individual (Bennet & Bennet, 2008).

Bennet and Bennet explain surface, shallow, and deep knowledge as well. Surface knowledge answers who, what, where, and when, and is explicit knowledge requiring little or no action. They define shallow knowledge as essentially surface knowledge along with some understanding due to context. This may require or result in action to a certain extent. Deep knowledge is when an individual can take information and truly make meaning, think through it, synthesize it with other information, and know when and how to act through reasoning. Deep knowledge is akin to expertise and requires practice (Bennet & Bennet, 2008). This may be where the Mantle of the Expert, as a teaching strategy, sets the expectation for the learner that they are to *think* like an expert, and should use reason and cognitive skills as an expert would in order to grow, reach conclusions, solve problems, and determine a plan of action in the safe environment of the classroom (Heathcote & Herbert, 1985).

Bennet and Bennet (2008) also provide a taxonomy of knowledge related to taking action, wherein they discuss meta-, learning-, strategic-, research-, praxis-, action-, and description- knowledge categories. These categories can sometimes overlap but understanding the role each category plays is helpful in knowing how a person may apply learning and take action, especially outside the classroom in a real-world environment. Because this article is centered on how knowledge is applied in, for example, the business world rather than assessing whether a student has been able to apply knowledge in a classroom setting, the authors have characterized applied learning in organizational levels with a hierarchy in mind: ontological for higher (executive) authorities who make decisions with the deepest level of knowledge, strategic for management leadership level authorities who make decisions still with a need for deep knowledge, operational for supervisory level authorities who make decisions with a more shallow level of knowledge, and tactical for those with routines requiring only surface level knowledge. The complexity of an organization would also impact the level of knowledge required to understand how to apply learning for the sake of effective action (*ibid*.). Not unlike Bryk's call to

see the system that produces the outcome we are getting (Bryk et al., 2015), Bennet and Bennet propose to tackle the organization's structure for operational change through deep knowledge and the ability to transfer such knowledge into reasonable action for a new outcome. Through the analysis of knowledge and of the organization as well as identifying cause, the best actions to take can be recognized and organizational improvement can be realized (Bennet & Bennet, 2008).

CONCLUSION

The literature takes the reader on a journey from Bigg's seminal piece on the nature of how students learn, replete with learning theory and teaching theory, through discussions about transferring knowledge to novel situations, applying theories to instructional design, applying those designs in the DBI classroom, keeping in mind that how we teach greatly affects how our students learn, and how they then go on in life with the ability to learn on a spectrum from surface to deep. Boyles' discussion about expectations and the rigor required of both the student and the teacher help to synthesize the previous articles and arrive at a place of deeper learning about the topic of this paper. While the Bennet and Bennet article was somewhat esoteric in nature, it provides a view of how people apply learning/knowledge beyond the classroom in an organizational setting. Coming to a deeper understanding of surface versus keep knowledge is a vital tool in the DBI education practitioner/researcher's toolkit for evaluating problems of practice and arriving at a praxis of iterative improvement.

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