Demystifying instructional innovation: The case of teaching with case studies

Lina D. Kantar[1]

Abstract: Issues emerging from instructional innovation are inevitable, yet basing any curriculum shift on a theoretical framework is paramount. This paper grounds the case-based pedagogy in three learning theories: behaviorism, cognitivism, and constructivism. The three theories are described and situated in relation to the case study method. An in-depth exploration of the assumptions of each theory helped to identify and analyze several issues that emerged upon the implementation of the case-based pedagogy in a nursing curriculum. In line with the three pedagogical standpoints, and after an extensive literature review, measures are proposed to improve the quality of student learning in a case-based curriculum, and principles are derived to support educators in their teaching with case studies. The application of the three learning theories may be especially useful to educators and instructional leaders when shifting paradigms. By describing the key challenges that educators may face with instructional innovation and the usefulness of the cognitivist, behaviorist, and constructivist perspectives in providing explanations and recommendations, provides a beginning research base for improving pedagogies. Failure to employ theories of learning in similar educational shifts may hinder the progress of any intended curriculum transformation.

Keywords: case studies, CBL, learning theories, nursing

I. Introduction.

How learning occurs remains a perplexing issue for educators and facilitators of learning. Much has been written about learning theories that serve to describe the intricate learning process in all its subtleties. Amid a variety of learning models, behaviorism, cognitivism, and constructivism have gained wide spread interest in higher education (Cicciarelli, 2007; Hemming, 2012; Warin, Kolski, & Sagar, 2011). These models provide the basis for understanding learning behaviors and for designing instruction (Yilmaz, 2011). The intent of this paper is to explore the challenges that educators may face when teaching with cases, to develop theoretical understandings regarding this instructional strategy, and to propose counteractive measures based in relevant theories of learning.

The Case Study Experience. The faculty at a college of nursing in the United Arab Emirates embarked on a curriculum transformation exercise; a shift from the traditional curriculum to the case-based pedagogy. The idea of changing the curriculum was not met with a great deal of enthusiasm by most of the faculty and students simultaneously. I was among the faculty members who felt insecure regarding the demands of the new curriculum and all that it entailed.

---

[1] American University of Beirut, la67@aub.edu.lb

The student population was quite diverse. One thing they had in common was that they all came from traditional secondary backgrounds with ages ranging between 18 and 28. I was assigned to teach the Adult Health Nursing course for 25 students using case studies. The course needed four hours of theoretical work on a weekly basis over a semester, and was designed to introduce students to the prevalent medical-surgical conditions in the country. The case studies were real-life situations that focused on the analytical approach to learning rather than problem-solving, and were sequenced in the course based on complexity. Students enrolled in the course were expected to complete assignments and prepare tasks prior to the session.

Although the course's educational outcomes were intended to enhance self-directed learning, problem-solving, engagement, and discussion teaching, I felt I was not achieving any. It was three weeks into the beginning of the course and every time I had to check on student preparation, few would have done the required readings. Most of the students had difficulty answering higher order thinking questions, and the majority manifested weaknesses in transferring knowledge to new situations.

Group work was not improving. Although students were divided into groups, they lacked team learning skills and synergy. That was not the worse part; discussion was a complete failure. There were a few students who kept disrupting the discussion, thus deterring the instructional plan and course progress. Given the above challenges, and since the overarching goal of teaching with cases is developing learners' professional attributes for the real world of practice, it is deemed essential to ground any change in teaching practice in appropriate theories of learning.

Teaching and Learning with Cases. Recent calls for transforming higher education aim at implementing radical shifts in curriculum, from top down to bottom up, and from traditional preparation of graduates to the development of self-directed learners (Benner, Sutphen, Leonard, & Day, 2010). Teaching with cases has gained wide spread interest in higher education, and more so in nursing, since the basic tenet of this pedagogy is contextualizing knowledge (Benner et al., 2010; Sankar, Varma, & Raju, 2008). Upon future encounter with like-situations, information can be retrieved for immediate application (Costa, Rensburg, & Rushton, 2007).

The case study educational format emulates the nursing practice environment, thus enables students to think like nurses (Tanner, 2009). Thinking like a nurse may be developed in the classroom by construing real-life situations (Tanner, 2009), or in the clinical laboratory by using simulation (Lasater, 2007). The case method strategy provides the appropriate medium for discussion and for solving problems that students may encounter in practice (Delpier, 2006; Walker, 2009).

Discussion teaching promotes deep learning (Ramaekers, Keulen, Kremer, Pilot, & Beukelen, 2011; Walker, 2009); that is, by analysis and reasoning, learners can be directed to the core of the learning process. From the cognitivist perspective, teaching with cases enhances internalization and processing of knowledge (Henry, 2006), whereas the constructivists believe that engagement of learners in constructing their own meanings helps to promote higher order thinking (Sankar et al., 2008). Accordingly, the quality and nature of discussion influence learning (Barnes, Christensen, & Hansen, 1994).

The overarching goal of case-based teaching is developing learners' higher order thinking dispositions such as conceptualizing the significance of the data, interpreting the information, and creating ideas. Through discussion, learners are prompted to find solutions and determine the best means of implementing the solutions. While learners voice their thinking, teachers can assess learners' thinking processes (Facione, Facione, & Giancarlo, 1997). In this regard, assessment may be geared toward capturing learner's "orderliness" in working with the problem,

"diligence" in searching for relevant data, "reasonableness" in the selection of the actions, "persistence" through encountered difficulties, and "precision" in implementing the actions (Facione et al., 1997). Therefore, it is essential that discussion be structured and skillfully led. Real-life situations provide the context for learning. The format used to structure the situations in this case study experience is known as 'ground breaking', which, according to Harling and Akridge (1998), such type of cases have an exploratory nature. The focus is analysis rather than problem-solving. Each case study introduces the content to be learned using behavioral terms. Integrated in each case are fundamental concepts such as pathophysiology, pharmacology, professional practice, and social behavior.

To promote learning with cases, students must be responsible and self-directed and must value cooperation and collaboration in learning (Barnes et al., 1994). Students develop these attributes as soon as they take part in the educational process. In their search, students either work individually or in groups.

The effectiveness of case-based teaching is highly contingent on the educator's knowledge and skills in leading discussions and fostering engagement (Barnes et al., 1994). Apart from drafting the cases, educators decide on groups, determine learning activities, monitor group interaction, guide and lead the discussion, and assess and evaluate the learning process. Without seeking insights into issues and concerns of case-based learning, application and effectiveness of the approach will remain unclear (Lauver, West, Campbell, Herrold, & Wood, 2009; Tanner, 2009), and curriculum transformation will be an ordeal.

II. Learning Theories to Guide Instructional Innovation.

Given the concerns discussed earlier in this paper, it is imperative that educators base any shift in teaching practice on a theoretical framework (Chikotas, 2008; Yilmaz, 2011). At present, unfolding cases is touted as a potential strategy to prepare nurses for practice (Benner et al., 2010; Tanner, 2009). Educators often fail to base pedagogical shifts on learning models (Warin et al., 2011), even though models could serve as a guide to conceptualize new roles and responsibilities (Yilmaz, 2011). But which learning theories best describe and support how teachers should teach and learners learn using case studies? How can the applied learning theories help teachers and learners understand the learning process?

Amid the various learning theories, behaviorism, cognitivism, and constructivism have helped to unfold the processes of case method teaching and to predict the impact on teachers and learners. Without understanding the case-based process from the behaviorist, cognitivist, and constructivist perspectives, it would be difficult to analyze the pedagogy's challenges and would be impossible to identify effective measures. To set the framework for the exploration process, deemed essential in this paper, the key features characterizing behaviorism, cognitivism, and constructivism are compared (see Table 1).

Table 1. Behaviorism, Cognitivism, and Constructivism Compared.

Concepts	Behaviorism	Cognitivism	Constructivism
Assumptions	Observable behaviors are indicators for learning	Emphasis on role of mental processes	How learning should happen
Principles	Thorndike's laws of learning behavior; Skinner's operant conditioning for acquiring new behavioral pattern	Gagne's nine instructional events; Piaget's developmental nature of reasoning; Bruner's insights and prior knowledge	Bruner's discovery learning; Piaget's assimilation and accommodation principles of constructing new knowledge
Inputs	Environmental events serve as discriminative stimuli; cueing appropriate behaviors	Processing information in a way that is purposeful to solve problems and form answers	Real-life situations; knowledge resources to influence problem solving; self-regulation
Modes of knowledge acquisition	Connection of the three components of learning: Discriminative stimulus, response, and reinforcing stimulus $S^D - R - S^{reinf.}$	Information processing; long term memory; concept linkage; schema formation	Construing situations; constructing own knowledge; portraying useful meanings
Role of learner	Active in the environment; consequences of behavior affect probability of reoccurrence	Perceiving the information; interpreting knowledge in relation to prior ones; reorganizing information into new insights or understanding	Active seeker of knowledge; center of attention; constructor of viable knowledge
Role of teacher	Knowledge expert; designer of behavioral objectives; determinant of contingencies of reinforcement	Organizer of meaningful experiences; activation of learner's mental states; guidance; feedback; assessment	Facilitator learning; an advocate of self-regulated and life-long learning; discussion leader
Learning	Absorber of transmitted knowledge; knowledge is constructed by teacher	Learning is sequential and placed in context	Making meaning of the knowledge; knowledge transfer to solve real-world problems
Nature of educational experience	Dominated by the teacher; learner is conditioned under teacher's expertise	Bridging the gap between what learners know and what they need to know	Engagement; cooperation; exchange of expertise or experiences ; self-direction

Kanter, L.D.

Behaviorism in Case-Based Learning. Behaviorism is believed to cause a change in teaching and learning behavior. Behaviorists believe that learning is contingent on what goes on in the environment and on the association between a stimulus and a response. The relation between behavioral change and the environment can be predicted if the expected behavior of learners and the situation in which learning takes place are defined (Gredler, 2005; Jackson, 1996). Because behaviorism focuses on modifying learning behaviors (Warin et al., 2011), and since this paper aims at improving teaching and learning with cases, Thorndike's laws and Skinner's principles of learning are explored and assumptions situated in relation to this pedagogy.

Transforming the Classroom through Thorndike's Laws. Thorndike proposed three laws of learning: readiness, exercise, and transfer (Schunk, 2004). The law of readiness reflects the person's ability and willingness to perform the task. In the case method approach, the readiness disposition is essential to garner the effectiveness of the shift. Therefore, better preparation of educators and learners is prerogative to commencing with this strategy. For educators, familiarity with the new pedagogy may be enhanced through professional development initiatives, during which the skills of discussion teaching are emulated, observed, and taught (Çelik, Çevik, & Haşlaman, 2012).

As for students, abandoning their traditional learning behaviors poses the chief reason for their non-compliance with the requirements of the new pedagogy. Students must be adequately prepared on the principles of case-based learning, as well as the dispositions that garner their success in the learning process. Since learning is developmental in nature, an intended change in learners' behaviors would require the joint efforts of both educators and learners. Learning happens only in terms of what is observed. Educators can assess whether learning is taking place or not by evaluating the nature of student participation in the discussion.

Thorndike's laws of exercise and transfer constitute the practice aspect of learning. According to his theory, to learn a behavior, students must repeat the task until mastery. Transferring learning to new situations is contingent on how similar the new tasks are to the previously learned ones. Although Thorndike's law of transfer is not compatible with the anchored instructional approach of case-based learning, exercise in how students must prepare, discuss, and engage in the case pedagogy would help them embrace the change.

Transforming the Classroom through Skinner's Learning Principles. The overarching principle of behaviorism is the learning behavior. Continuing on with Thorndike's laws of learning, Skinner introduced his principles of operant conditioning and programmed instruction. The principles provide a framework on which to base the change in learning behaviors (Wang, 2012).

In this case study experience, the students presented with problems regarding preparation for the session, group work, and progression of the discussion. Through Skinner's parameters of shaping, reinforcement, and contingency, learners may acquire complex behaviors. The role of educators is vital in this behaviorist approach, yet complex. For example, it is known that reinforcement strengthens desired behaviors; therefore, it is the responsibility of the educator to identify potential reinforcing agents.

Skinner's principles of extinction, generalization, discrimination, and self-regulation, could also contribute to modifying learners' behaviors. For example, the principle of extinction best applies to those students in the case study scenario who demonstrated tardiness in preparing for the session or to those who sought to disrupt classroom discussion. Whereas generalization, discrimination, and self-regulation are appropriate for students with non-specific difficulties,

such as difficulties that directly relate to the shift. An example of shift-related issues is student acquisition of new roles and responsibilities of the case-based learning pedagogy. The instructional application of Skinner's learning principles is described in the following section.

Extinction. According to Skinner, the strength of a behavior can be eliminated or reduced by reinforcement (Schunk, 2004). How would extinction help change the behavior of learners who come to class unprepared? For these learners, it is obvious that preparation for the session is perceived a low-priority activity. At first place, extinction of this behavior requires the identification of effective reinforcers, which, if identified, they can be coupled with any low-priority activity. Eventually, learners will be prompted to complete the requirements.

In the case-based scenario, extinction may be applied to learners who demonstrate tardiness in preparing the assigned tasks by giving them the choice to select between three types of learning activities: watching pertinent electronic-based instructional material, reading assigned material, or going to the simulation laboratory. The educator observes what learners will do with these choices, and orders them in priority of preference. Eventually, the learner's most valued activities will be paired with the perceived low-priority task. Although arduous, educators may employ extinction to modify learning behaviors.

Generalization. Skinner's principle of generalization has substantial benefits to the students. With this principle, replication of learned behaviors may be maintained with repeated reinforcement (Schunk, 2004). Every case study has specific content to be covered; yet learning behaviors, such as preparing the assigned tasks, participating in the discussion, and cooperating in groups, are similar. With repeated reinforcement, there is a high tendency that learners generalize the case-based learning behaviors to new cases and courses across the curriculum (Skinner & Daly, 2010).

Discrimination. The Adult Health Nursing course examined in this paper has seven case studies of varying complexity, focus, and purpose. Through this course, case-based learning skills can be generalized to other courses in the curriculum. However, the situation is different with discrimination, since the emphasis of this principle is on enabling students to cue learning behaviors in terms of appropriateness to the situation. The discriminative stimulus, inherent in each case study, develops from the case purpose, outcomes, content, and context. Eventually, the stimulus will identify behaviors that are needed for learning to take place.

Self-regulation. From a reinforcement perspective, students regulate their behavior by carefully assessing their learning needs, determining the discriminative stimulus, evaluating the outcomes, and reinforcing self. In the case study experience, students experienced a sudden shift in their learning; from traditional receivers of knowledge to regular observers of their own learning. The tradeoff for using this approach is one of reducing rote learning for self-regulation. Self-regulation is a major principle of case-based learning; its skills include: self-assessment, self-instruction, and self-reinforcement (Loyens, Rikers, & Schmidt, 2007). The acquisition of these skills is the responsibility of educators who must exercise every effort to render the shift in learners' roles and responsibilities a gradual one, not abrupt.

Self-regulation inherently links to Weiner's attribution theory. Attribution focuses on how individuals interpret events (Demetriou, 2011). Events may have the power to motivate prospective learning. In this respect, Weiner proposed four factors, "ability, effort, task difficulty, and luck" (Demetriou, 2011, p. 16), which, if integrated in case-based teaching, will promote self-regulation in learners.

A general note that applies to Weiner's assumptions is that the integration of case studies in the nursing curriculum has underscored many key features essential to move learners toward a

case-based learning paradigm. Initially, educators must design the tasks by taking into account the ability of learners. Failure to do so may lead to an undesired state of complexity resulting in frustration of educators and learners, and a state of incompatibility between learners and the nature of the tasks. Securing a match will allow the enhancement of self-concept and the disclosure of fear related to the approach.

Another factor that deserves consideration on part of the educator is assessing the magnitude of effort that learners need to prepare the tasks. Instead of frustrating learners with difficult tasks, educators may need to revisit the structure of each case and the purpose of each task. A good case study is constructed to provide learners with some helpful pedagogical goals such as knowing how to set their goals, develop action plans, monitor achievement, and derive meaningful attribution (Poulton, 2009). As for Weiner's difficulty factor, learners may be provided with various approaches that facilitate the accomplishment of the assigned tasks.

Observing learning behaviors remains the chief focus of behaviorism. Although most behaviorists incorporate mental processes in learning, they do not elaborate much on these processes. Cognitive learning theory helps to explain what behaviorism has failed to achieve so far. However, both theories converge on behavioral changes which are observable in behaviorism, yet implicit in cognitivism (Huitt, 2006).

Cognitivism in Case-Based Learning. The focus of teaching with case studies is developing the cognitive abilities of learners (Yilmaz, 2011). Case-based learning helps to prepare nurses to be adept at making sound clinical judgment (Tanner, 2009). Cognitive learning capitalizes on learner's abilities to attain highest level of thinking, with less emphasis on factors within the environment to influence behavior (Huitt, 2006). Learning activates internal mental processes, which include: perception, rehearsal, problem-solving, memory, imaging, and processing and structuring of knowledge (Schunk, 2004; Warin et al., 2011).

Case method teaching has advantages over traditional teaching; it promotes theoretical understanding and develops insights (Loghmani, Bayliss, Strunk, & Altenburger, 2011). Building of new knowledge is contingent on classroom discussion and contextual relevance of learning. Case studies provide special teaching environments in which content can be linked to cognitive processes of perception, interpretation, and information processing. How learning situations are presented to learners will in due course affect learners' attempts to perceive, interpret, and store the information. Therefore, the case studies must be truly engaging and have all factual data adequate for analysis and reasoning (Poulton, 2009; Walker, 2009).

According to Bruner, cognitive development takes place in three stages: "enactive, iconic, and symbolic representation" (Gredler, 2005, p. 76). These stages represent the mechanisms by which information is processed using one's mental capabilities and intellectual and psychomotor efforts (Jackson, 1996). Along with the information processing theory, the construct of cognitive learning in case-based teaching is explained through Gagne's perspective of learning and Piaget's developmental epistemology.

Information Processing Theory Applied. There are a plethora of cognitive paradigms used to describe how learning takes place, yet information processing is recognized as the backbone of cognitive science that explains mental processes (Huitt, 2006; Warin et al., 2011). Case studies provide an appropriate pedagogy to activate these processes. With this approach, learners are encouraged to retrieve prior knowledge and focus attention on meaningful ones. When all aspects of a real situation are integrated in the case study, learners will, ultimately, make sense of the information. Contextual learning ensures retention and transfer since such

executive functions recommend more indulgence of the learner than when doing a routine learning chore (Huitt, 2003).

The case study approach can serve as the means for integrative teaching (Tanner, 2009). Integration provokes learners to call to mind existing information. To optimize the number of concepts that can be processed by each case study, educators may opt to incorporate learning resources and instructional material that are deemed essential to create the robust for cognitive learning.

The students in the case study scenario demonstrated difficulty in processing the information. The difficulty was diagnosed from the quality of answers to higher order thinking questions and the inability of learners to transfer knowledge to new situations. From the cognitivist perspective, cognitive states and processes may be developed and explored through instruction (Alutu, 2006). Therefore, educators may assume a vital role in helping learners perceive the importance of the information, encode it, and connect it to existing knowledge. The basic principles of information processing lie in the work of Robert Gagne' (Gredler, 2005).

In his theory, Gagne' viewed human learning as developmental, generalizable, and contingent on instructional effectiveness (Gredler, 2005). Accordingly, he proposed nine instructional principles that help students process the information: (1) learners' attention, (2) learning outcomes, (3) prior knowledge, (4) content, (5) guidance, (6) performance, (7) feedback, (8) assessment, and (9) diversity in practice. From a practical perspective, the principles guide educators in how to start the session, engage learners, link new information with prior knowledge, guide the organization of information, check on ability to demonstrate understanding, provide prompts, and create triggers to check on transference of knowledge. These principles resonate with the general aims of teaching with cases: (a) knowledge acquisition, (b) development of psychomotor and affective skills, (c) transfer of knowledge to new settings (Çelik et al., 2012), and (d) deep learning (Walker, 2009). Once again, it is the responsibility of the educator to convert case studies into meaningful learning experiences.

Piaget's Developmental Epistemology Applied. Piaget's cognitivism focuses on the developmental nature of reasoning governed by a variety of factors, with social factors having a major impact on learning. According to Piaget, interactive teaching enhances student inquiry about previously accepted assumptions and promotes the development of problem-solving and life-long learning skills (Young & Paterson, 2007). His theory sheds light on the role of interactive teaching in developing cognitive abilities. In the course of pursuing information about the educator's experience with case-based teaching in this paper, many challenges surfaced; most of these challenges reflect the effectiveness of dialogue and the teacher student interaction.

Since interaction enhances the exchange of cognitive processes, educators need to focus efforts on improving dialogue between and among various partners in the educational process, and on creating an educational milieu. However, effective dialogue, known as reciprocal teaching, can be promoted through the incorporation of four cognitive-based techniques: summarization, question generation, explication, and prediction (Yilmaz, 2011). Given the discussion difficulties endorsed earlier in the case study pedagogy, educators are prompted to consider these techniques in the discussion process.

Constructivism in Case-Based Learning. Case-based learning has its roots in constructivism (Hartfield, 2010); a learning theory that capitalizes on learner's abilities to construct viable knowledge and an education paradigm that fosters discovery learning (Hartfield, 2010). As advanced by Jerome Bruner, discovery learning is perceived "a necessary condition for learning the variety of techniques of problem-solving, of transferring information for better

use …" (1961, p. 60). Effective discussion and reflection create a state of dissonance in the learner, thus stimulating higher order thinking (Hmelo-Silver, Duncan, & Chinn, 2007). Through reflection on prior knowledge and exposure to new information, case studies provide the means for scaffolding learning and for building a repertoire of nursing knowledge prior to commencing with practice (Delpier, 2006; Walker, 2009). However, knowledge making primarily depends on efforts of learners to generate meaningful ideas (Nikitina, 2010).

Nursing students must be prepared to solve problems of the workplace (Institute of Medicine, 2010). Learning with case studies trains learners how to question assumptions, explore options, base new knowledge on context, and consider the constant transformation of knowledge. These skills represent the rationale for using real-life situations in the program.

Although constructivism is a learning theory, it is considered a mode to improve instruction (Clark, 2000). Stemming from the notion that engaging learners in the meaning-making process is crucial for constructing viable knowledge, constructivists base learning on prior knowledge, which transforms at a later stage into dynamic, concrete, and lasting knowledge (Young & Paterson, 2007).

How does constructivism relate to teaching with case-studies? It ties in numerous ways. Case studies create the tool for active learning; its parameters include: engagement, self-regulation, and motivation (Friedlander et al., 2011). The following section will describe each parameter as it relates to constructivism and the case-based pedagogy.

Engagement Applied. A fundamental curriculum strand intended to enhance student engagement is discussion teaching (Barnes et al., 1994). Although discussion empowers students to generate reality, two principles dominate: prior knowledge to guide learning and social collaboration to enhance learning. The principles are implemented with the use of cooperative learning, self-observation, and reflection. Educators must ensure that the tasks in the case study build on prior knowledge, invoke problem-solving processes, and promote schematic representations of knowledge. Eventually, knowledge acquisition will be enhanced and easily transferred.

Knowledge construction is activated with small-group interaction and discussion tied to the clinical situation (Dzerviniks & Poplavskis, 2012). Interactive discussion best takes place over propitious learning situations (Richards & Inglehart, 2006); situations that induce "discovery learning" (Bruner, 1961). It is expected that case studies invoke the learner's internal processing of information. As a result, knowledge becomes viable when learners actively engage in connecting the processed information with classroom discussion.

The significance of encouraging learners to evaluate the learning process must not be ignored. With effective questioning, learners will be enabled to identify strategies that foster the educational process (Brandon & All, 2010). Therefore, educators must seek every opportunity to promote learner engagement in the case-based paradigm.

Discussion teaching is believed to foster the notion of a learning community created by learners, educators, and subject matter. Through team learning, learners are persuaded to compare their analytic modes, interact with one another, further achievement, and improve attitudes toward learning. Team learning contributes to building team ethos and synergy (Barnes et al., 1994); thus motivating learners when recognizing the value of their input.

Constructivist educators seek to embark on strategies that promote learner engagement, with emphasis on the learning environment and team learning. Since the environment capitalizes on "optimal arousal" (Kiger, 2004), educators are prompted to combine learning with context

(Brandon & All, 2010). A movement like this leans on the role of educators in capturing learners' attention on the intricate aspects of a learning situation.

Self-Regulation Applied. Self-regulated learning has gained widespread interest in higher education (Loyens et al., 2007) as well as general education (Kistner, Rakoczy, Otto, Ewijk, Büttner, & Klieme, 2010). Being a premise in the preparation of life-long learners (Kistner et al., 2010), the means to develop self-regulation skills have captured the attention of educational theorists (Zimmerman, 2008). Among the recognized self-regulation skills are setting goals, deciding on actions to achieve expected learning outcomes, selecting appropriate learning means, and monitoring and evaluating achievement (Kistner et al., 2010). Self-regulation skills can be taught and promoted using direct (implicit and explicit) and indirect instructional methods (Otto, 2010).

Direct implicit teaching of self-regulation skills prompts constructivist educators to model the skills by voicing their thought processes using 'elaboration', 'organization', and 'problem-solving' (Kistner et al., 2010, p. 163), or by engaging learners in an inquiry process. In explicit promotion, educators request from learners to demonstrate self-regulation by engaging them in activities designed for this purpose. For indirect promotion, the emphasis is generating a learning environment, guided by content, tasks, and instructional strategies (Kistner et al., 2010). Therefore, the development of self-regulation skills is contingent on how educators lead discussions and trigger curiosity and interest of learners. Good case studies can contribute to self-regulation.

Case-based learning stands as an approach to promote self-directed learning. Being an expansion of self-regulation (Candy, 1991), the key features of self-directed learning include: autonomy, responsibility, independent inquiry, and self-teaching (Loyens, Magda, & Rikers, 2008). Although all the features influence the learning process, autonomy and responsibility are core attributes. Upon the basis of this analysis, it is essential that educators specify activities or tasks that involve learners in building their knowledge (autonomy in construction) and in expanding this knowledge outside the narrow confines of the classroom (responsibility for contextual relevance).

Conscious and voluntary involvement motivates the learner to participate in the learning process, which in turn activates intrinsic interest and motivation (Sivan, 1986). Constructivism applied to case-based learning commends that discovery and self-regulated learning be introduced to educators and learners prior to commencing with this approach, thus ensuring effectiveness of the shift (Loyens et al., 2007). Along the same vein, students and educators must be aware of their new roles and responsibilities in the case-based pedagogy.

III. Conclusion.

Learning is the conscious engagement of students in situations and experiences that help in changing attitudes and behaviors, developing higher order thinking skills, improving perceptions, and constructing knowledge. Case-based learning is a promising pedagogy for developing the aforementioned attributes. Since not a single theory can represent the teaching learning process in its entirety, teaching with case studies requires a strong command of learning theories.

While case-based learning (CBL) is grounded in behaviorism, cognitivism, and constructivism, educators are expected to teach their courses in accordance with the principles of these theories. The scarcity of literature on philosophical perspectives related to the case study pedagogy necessitated the in-depth exploration of each learning theory as related to the key

challenges arising from the pedagogy. A better understanding of each theory led to the identification of corrective measures and transformative actions; all of which converged on five principles for teaching with cases (see Table 2). Educators are bound to the educational process through their continuous analysis of the process. These principles create the framework to help analyze and assess the effectiveness of the case method pedagogy.

Table 2. Theoretical Underpinnings for and Principles of Case-Based Teaching and Learning.

Emergent Issues	Theoretical Assumptions	Transformation in Perspective	Principles of Case Method Approach
▪ Readiness disposition for both educators and students ▪ Non-compliance with requirements of case-based learning	**Behaviorism** ▪ Thorndike's laws of readiness, exercise, and transference ▪ Skinner's extinction, generalization, and discrimination ▪ Weiner's attribution theory	▪ Educators: challenge assumptions; facilitator role ▪ Students: exploration of abilities; self-regulation role ▪ Linking low-priority activities with reinforcers ▪ Discriminative stimulus ▪ Attribution-based factors: ability, effort, task difficulty, and luck	1. Conceptualize the new roles and responsibilities of educators and students 2. Construct/review case studies for specific pedagogical goals, considering complexity of tasks, learners' capability, and potential for engagement
▪ Transfer of knowledge ▪ Higher order thinking skills ▪ Discussion ▪ Teacher student interaction	**Cognitivism** ▪ Information processing: Gagne's cognitive apprenticeship ▪ Piaget's interactive pedagogy	▪ Prior knowledge ▪ Sequential approach ▪ Group interaction ▪ Building team ethos, synergy, and cooperation	3. Alternate individual learning with team learning 4. Foster the notion of a learning community
▪ Engagement ▪ Responsibility and autonomy for learning ▪ Group dynamics	**Constructivism** ▪ Knowledge generation: prior and social collaboration ▪ Bruner's discovery learning	▪ Cooperative learning, self-observation, and reflection ▪ Small group interaction and discussion ▪ Schematic representation of knowledge	5. Analyze the educational process for effectiveness

Kanter, L.D.

References

Alutu, A. (2006). The guidance role of the instructor in the teaching and learning process. Journal of Instructional Psychology, 33(1), 44-49.

Barnes, L.B., Christensen, C.R., & Hansen, A.J. (1994). Teaching and the Case Method (3rd ed.). Boston: Harvard Business School Press.

Benner, P., Sutphen, M., Leonard, V., & Day, L. (2010). Educating Nurses: A Call for Radical Transformation. San Francisco, CA: Jossey-Bass.

Brandon, A.F., & All, A.C. (2010). Constructivism theory analysis and application curricula. Nursing Education Perspectives, 31(2), 89-92.

Bruner, J. (1961). The act of discovery. Harvard Educational Review, 31, 21-32.

Candy, P. (1991). Self-direction for Lifelong Learning. San Francisco, CA: Jossey-Bass.

Çelik, S., Çevik, Y.D., & Haşlaman, T. (2012). Reflections of prospective teachers regarding case-based learning. Turkish Journal of Qualitative Inquiry, 3(4), 68-82.

Chikotas, N.E. (2008). Theoretical links supporting the use of problem-based learning in the education of the nurse practitioner. Nursing Education Perspectives, 29(6), 359-362.

Cicciarelli, M. (2007). Behavioral, cognitive, and humanistic theories: Which theories do online instructors utilize? International Journal of Information and Communication Technology Education, 3(4), 1-12.

Clark, D. (2000). Developing instruction or instructional design. Retrieved from http://www.nwlink.com/~donclark/hrd/learning/development.html

Costa, M.L., Rensburg, L.V., & Rushton, N. (2007). Does teaching style matter? A randomized trial of group discussion versus lectures in orthopedic undergraduate teaching. Medical Education, 41, 214-217.

Delpier, T. (2006). Cases 101: Learning to teach with cases. Nursing Education Perspective, 27(4), 204-209.

Demetriou, C. (2011). The attribution theory of learning and advising students on academic probation. NACADA Journal, 31(2), 16-21.

Dzerviniks, J., & Poplavskis, J. (2012). Acquisition of physics in comprehensive school: Accents of constructivism approach. Problems of Education in the 21st Century, 41, 10-17.

Facione, P., Facione, N., & Giancarlo, C.A. (1997). The Motivation to Think in Working and Learning. Millbrae, CA: The California Academic Press, 1-12.

Kanter, L.D.

Friedlander, M.J., Andrews, L., Armstrong, E.G., Aschenbrenner, C., Kass, J.S., Ogden, P., et al. (2011). What can medical education learn from the neurobiology of learning? Academic Medicine, 86(4), 415-420. DOI: 10.1097/ACM.0b013e31820dc197.

Gredler, M.E. (2005). Learning and Instruction: Theory into Practice (5th ed.). Upper Saddle River: Pearson Merrill Prentice Hall.

Harling, K.F., & Akridge, J. (1998). Using the case method of teaching. Agribusiness, 14(1), 1-14.

Hartfield, P.J. (2010). Reinforcing constructivist teaching in advanced level biochemistry through the introduction of case-based learning activities. Journal of Learning Design, 3(3), 20-31.

Hemming, T. (2012). Simulation methodology in nursing education and adult learning theory. Adult Learning, 23(3), 129-137. DOI: 10.1177/1045159512452848.

Henry, P. (2006). Making groups work in the classroom. Nurse Educator, 31, 26-30.

Hmelo-Silver, C., Duncan, R.G., & Chinn, C.A., (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Sweller, Kirschner and Clark. Educational Psychologist, 42, 99-107.

Huitt, W. (2003). The information processing approach to cognition. Educational Psychology Interactive. Valdosta, GA: Valdosta State University. Retrieved from http://chiron.valdosta.edu/whuitt/col/cogsys/infoproc.html

Huitt, W. (2006). The cognitive system. Educational Psychology Interactive. Valdosta, GA: Valdosta State University. Retrieved from http://chiron.valdosta.edu/whuitt/col/cogsys/cogsys.html

Institute of Medicine. (2010). A summary of the February 2010 forum on the future of nursing. IOM, Washington, DC.

Jackson, W.H. (1996). Survey of an adult learner. Retrieved from http://internet.cybermesa.com/bjackson/Papers/Adultlearner.html

Kiger, A.M. (2004). Teaching for Health (3rd ed.). Edinburgh: Churchill Livingstone.

Kistner, S., Rakoczy, K., Otto, B., Ewijk, C., Büttner, G., & Klieme, E. (2010). Promotion of self-regulated learning in classrooms: Investigating frequency, quality, and consequences for student performance. Metacognition Learning, 5, 157-171. DOI 10.1007/s11409-010-9055-3.

Lasater, K. (2007). Clinical judgment development: Using simulation to create an assessment rubric. Journal of Nursing Education, 46(11), 496-503.

Lauver, L.S., West, M.M., Campbell, T.B., Herrold, J., & Wood, G.C. (2009). Toward evidence-based teaching: Evaluating the effectiveness of two teaching strategies in an associate degree nursing program. Teaching and Learning in Nursing, 4, 133-138.

Loghmani, M.T., Bayliss, A.J., Strunk, V., & Altenburger, P. (2011). An integrative, longitudinal case-based learning model as a curriculum strategy to enhance teaching and learning. Journal of Physical Therapy Education, 25(2), 42-50.

Loyens, S.M., Rikers, R., & Schmidt, H.G. (2007). Students' conceptions of distinct constructivist assumptions. European Journal of Psychology of Education, XXII(2), 179-199.

Loyens, S.M., Magda, J., & Rikers, R. (2008). Self-directed learning in problem-based learning and its relationships with self-regulated learning. Educational Psychology Review, 20, 411-427.

Nikitina, L. (2010). Addressing pedagogical dilemmas in a constructivist language learning experience. Journal of Scholarship of Teaching and Learning, 10(2), 90-106.

Otto, B. (2010). How can motivated self-regulated learning be improved? In A. Mourad & J. de la Fuente Arias (Eds.), International Perspectives on Applying Self-regulated Learning in Different Settings. Frankfurt am Main: Lang.

Poulton, M.S. (2009). Undergraduate business ethics pedagogy: Writing constructed narratives. Journal of Business Ethics Education, 6, 93-102.

Ramaekers, S., Keulen, H., Kremer, W., Pilot, A., & Beukelen, P. (2011). Effective teaching in case-based education: Patterns in teacher behavior and their impact on the students' clinical problem-solving and learning. International Journal of Teaching and Learning in Higher Education, 23(3), 303-313.

Richards, P.S., & Inglehart, M.R. (2006). An interdisciplinary approach to case-based teaching: Does it create patient-centered and culturally sensitive providers? Journal of Dental Education, 70(3), 284-291.

Sankar, C.S., Varma, V., & Raju, P.K. (2008). Use of case studies in engineering education: Assessment of changes of cognitive skills. Journal of Professional Issues in Engineering Education and Practice, 287-296. DOI: 10.1061/(ASCE) 1052-3928(2008) 134:3(287).

Schunk, D.H. (2004). Learning Theories: An Educational Perspective (4th ed.). Upper Saddle River: Pearson Merrill Prentice Hall.

Sivan, E. (1986). Motivation in social constructivist psychology. Educational Psychologist, 21(3), 209-233.

Skinner, C.H., & Daly III, E.J. (2010). Improving generalization of academic skills: Commentary on the special issue. Journal of Behavioral Education, 19, 106-115. DOI: 10.1007/s10864-010-9100-y

Tanner, C.A. (2009). The case for cases: A pedagogy for developing habits of thought. Journal of Nursing Education, 48(6), 299-300.

Walker, C. (2009). Teaching policy theory and its application to practice using long structured case studies: An approach that deeply engages undergraduate students. International Journal of Teaching and Learning in Higher Education, 20(2), 214-225.

Wang, V.C.X. (2012). Understanding and promoting learning theories. International Forum of Teaching and Studies, 8(2), 5-11.

Warin, B., Kolski, C., & Sagar, M. (2011). Framework for the evolution of acquiring knowledge modules to integrate the acquisition of high-level cognitive skills and professional competencies: Principles and case studies. Computers and Education, 57, 1595-1614. DOI: 10.1016/j.compedu.2011.02.013.

Yilmaz, K. (2011). The cognitive perspective on learning: Its theoretical underpinnings and implications for classroom practices. The Clearing House, 84(5), 204-212. DOI: 10.1080/00098655.2011.568989

Young, L.E., & Paterson, B.L. (2007). Teaching Nursing: Developing a Student-centered Learning Environment. Philadelphia: Lippincott Williams & Wilkin

Zimmerman, B.J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. American Educational Research Journal, 45(1), 166-183.