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Research notes

What is the best way to develop new managers? Problem-based learning vs. lecture-based instruction

Michael S. Carriger

Sacred Heart University, Welch College of Business, USA

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ABSTRACT

What is the best way to develop the next generation of managers and leaders? The present study takes aim at directly comparing the effectiveness of problem-based learning with the more traditional, lecture-based instruction, as well as a hybrid approach, on student learning in the management classroom. It seems clear from the literature on problem-based learning in medical schools that problem-based learning has a positive impact on the acquisition of problem-solving skills but either a negative impact or no impact on knowledge acquisition. The present study was designed to directly assess the differential impact of problem-based learning and lecture-based instruction on both the acquisition of problem-solving skills, specifically critical thinking skills, and knowledge acquisition in the management classroom. Findings parallel those found in medial school classrooms. Implication for instruction and curriculum design in the management classroom are considered.

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What is the best way to develop the next generation of managers and leaders? Typically, we put the prospective managers and leaders through a business school curriculum so that they earn their Bachelors Degree, then send them off to graduate school to get their MBA. And typically, through this process, we deliver to them all the information they will need by lecture. Maybe in the MBA program we mix in case studies and case analysis. Maybe in the undergraduate curriculum we have students work in teams on various simulated or "real-world" projects. But we mostly lecture … and assess content learning and knowledge acquisition for the material we lectured on. Fairly recently, in the last 10 years, based primarily on work conducted in medical schools, there has been a push to move management and leadership education away from the traditional lecture-based approach to something new … problem-based learning.

One issue with problem-based learning is that there have been two approaches to understanding problem-based learning. There is the theory approach focused on what scholars think about problem-based learning. And this approach generally supports problem-based learning and the idea of problem-based learning as superior to lecture-based instruction. Then there is the empirical approach focused on actual evidence for the effectiveness of problem-based learning. And this approach generally shows that the theoretical promise of problem-based learning falls short empirically. In other words, the research does not support the theoretical promise of problem-based learning. Scholars need to be more precise about where we can show empirical support for the theoretical promise of problem-based learning.

Another issue with problem-based learning is that problem-based learning sounds remarkable like case-based learning that would be familiar to anyone having received an MBA or having taught in an MBA program.

This report will show that, under the right circumstances, with the right learning outcomes, problem-based learning does lead to better problem-solving skills, however, lecture-based instruction leads to better knowledge acquisition. And a hybrid of the two produces the best learning outcome.

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1. What is problem-based learning

Problem-based learning is an approach to instruction that is learner-centric rather than instructor-centric and empowers learners to explore a topic on their own through research, integration of theory and practice, and application of knowledge in the context of a real-world problem the learner must solve (Savery, 2006). Problem-based learning is differentiated from traditional, lecture-based instruction by employing a real-world problem that engages the learner in active exploration rather than providing the learner with passive reception of lecture material (Peterson, 2004). The underlying assumption is that through the process of engaging with the real-world problem the learner learns.

Obviously, critical to this process of problem-based learning is the development and delivery of the real-world problem. And the specific type of real-world problem employed is the hallmark of problem-based learning. The real-world problem must be "ill-structured and allow for free inquiry" (Savery, 2006, p. 13). The ill-structured nature of the problem along with its real-world focus theoretically motivates learners to identify the core issues presented in the problem, identify what information and knowledge is needed to solve the problem, place parameters on the types of solutions that will be successful in solving the problems, and engage in self-directed learning in order to solve the problem (Peterson, 2004; Savery, 2006; Smith, 2005).

Problem-based learning is typically characterized by five key features (Newman, 2005). These include: 1. The instructor acts as facilitator of learning rather than deliverer of content; 2. The process of solving the ill-structured, real-world problem must follow a designed script; 3. The use of the ill-structured, real-world problem contextualizes the learning and allows for integration of the learning; 4. The nature of the ill-structured, real-world problem is such that learning must be collaborative; and 5. Learning within the context of the ill-structured, real-world problem must be assessed in relation to the goals or objectives of the learning.

As Carriger (2015) pointed out, the above may sound familiar to instructors teaching in an MBA curriculum, as many MBA programs employee a case-based instructional approach, at least partially. However the purveyors of problem-based learning go to some lengths to differentiate problem-based learning from case-based instruction. "While cases and projects are excellent learner-centric instructional strategies, they tend to diminish the learner's role in setting the goals and outcomes for the 'problem'. When the expected outcomes are clearly defined, then there is less need or incentive for the learner to set his/her own parameters" (Savery, 2006, p.16). As Savery and Duffy (1995) note, the primary difference between problem-based learning and case-based instruction is the nature of the problem or case presented and the sequence in which the problem or case and other learning materials are presented. For example, in case-based instruction the case is typically presented after the learning material and used as a mechanism to check on or assess the learning of the material. In problem-based learning the problem is presented before any other learning material and it is the task of the learner to figure out what he or she must learn in order to solve the problem.

Problem-based learning has a rather extensive history in medical schools (Hmelo-Silver, 2004; Dochy, Segers, Van den Bossche, & Gijbels, 2003), yet problem-based learning has only relatively recently been considered in the management classroom (Bigelow, 2004; Sherwood, 2004). The present study takes aim at directly comparing the effectiveness of problem-based learning with the more traditional, lecture-based instruction on student learning in the management classroom.

2. What is the evidence in support of problem-based learning?

Very little has actually been done looking at the effectiveness of problem-based learning, particularly in the management classroom. A bit more has been done looking at the effectiveness of problem-based learning in the medical school classroom. But even here there is a dearth of studies directly comparing learning outcomes of problem-based learning and traditional, lecture-based instruction.

Although the medical school classroom, with its quite different disciplinary focus and significant consequences for failure, might be considered a poor analog for pedagogy in the management classroom, Sherwood (2004, Carriger, 2015) notes a level of similarity in the processes of education that makes the analog potentially useful. Within the medical school curriculum problem-based learning emerged as a way to address apathy and boredom that can arise in medical school students historically exposed to a memorization and repetition approach to medical education (Newman, 2005). Additionally, in the medical school pedagogy problem-based learning has been conceived of as bridging the gap between medical theory and medical practice (Sherwood, 2004). Both issues may be relevant within the management classroom: need for engaging pedagogy and bridging the gap between theory and practice. But, perhaps more importantly, the medical school curriculum and the management curriculum have two important similarities (Sherwood, 2004), in both settings solving problems are at the center of the education and in both settings the ultimate learning outcome is the development of professionally useful knowledge, the development of problem solving or reasoning skills, the development of a self-directed learning attitude, and fostering a collaborative learning environment (Sherwood, 2004). However, the stakes and disciplines involved do differ. For example, educational outcomes in a medical school setting have real life and death consequences, which are not present in the management classroom, and the process of education with regards to the ready availability of real-world problems and rapid feedback differ. Which suggests that the promise of problem-based learning in the medical school classroom may not inform the use of the problem-based learning in the management classroom. This highlights the need to directly assess that promise in the management classroom.

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