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## Evidence-based decision-making: awareness, process and practice in the management classroom

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### ABSTRACT

In an increasingly information rich environment, it is important to teach students decision-making alongside information gathering and management methods. This paper examines the implementation of evidence-based decision-making in a first year introduction to management course at a large university in the Midwestern United States. Students learned decision awareness, decision-making process creation and decision practice alongside areas of management and basic business principles. Students perceived increased skill in decision-making, both individually and in groups. This venture has implications for others looking to help students not only learn experientially, but also improve critical thinking in practice.

### Introduction

We live in a time of information overload. According to a report published by the EMC Corporation, the digital universe is doubling in size every two years and will continue to do so until at least 2020. In terms of storage size, this means that data will grow to a size of 5200 gigabytes for every human on earth by the year 2020 (Gantz & Reinsel, 2012). More information, without having the context of meaning and learning, can actually create students who are overconfident in their decision-making (Jones, 2014; Meehl, 1954; Stonebraker, 2016). Teaching management is no longer just about teaching good management methods and where to find quality information for implementation of management methods; it is now also about teaching students how to weave information together with methods to make informed decisions. Teaching evidence-based decision-making is about slowing down the process of decision-making so that students can use their own logical minds to see how their brains might be missing elements of the decision on the way toward elegant answers. Teaching business students how to best use and evaluate the massive amount of information available to them is essential.

Making decisions takes up a high percentage of an executive or manager's time (Mintzberg, 1997), and part of the role of a business school is to prepare students to make informed decisions, many of which can determine if a business will flourish. In previous decades, it was the role of the business school to lead students to appropriate sources of information. While information gathering remains an integral role, it has been equaled, if not overshadowed, by the need to help students sort through the overabundance of information now

available, and to help them learn how to use that information to make the best possible decisions.

The focus of this paper is to examine the implementation of evidence-based decision-making in a first year introduction to management course and to discuss student perceptions on both group and individual decision-making. We hope to highlight innovative pedagogies that may be used by other librarians and business educators who are interested in helping students better break down problems. Students learned decision awareness, decision-making process creation, and decision practice alongside areas of management and basic business principles, including the principles of accounting, finance, strategy, and marketing. Through the use of cases and decision practice, they were able to tie the basic business principles in with evidence-based decision-making to better understand how they would be performing these functions once they graduate and are working in the business world.

### Literature review

Our aim in this study was to design an introductory course that incorporates evidence-based decision-making. In our review of the literature, we explored the literatures of evidence-based management, active and experiential learning, and how these have been historically used in the teaching of management education. As we come from information science disciplines, we also examined the information literacy literature for synergies in course design.

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### Evidence-based management

Evidence-based management (EBMgt) has its roots in the health science fields of evidence-based medicine and evidence-based practice (Tranfield, Denyer, & Smart, 2003). Historically, EBMgt developed due to a perceived gap between academic research and managerial practice (Rynes & Bartunek, 2017). The idea behind EBMgt is that “good-quality decisions should be based on a combination of critical thinking and the best available evidence” (Barends, Rousseau, & Briner, 2014). Rousseau and McCarthy propose that management education focusing on evidence will improve the decisions that managers are making and improve organizational outcomes. They suggest that if management education teaches students to evaluate evidence equality, access information, and trace a cause and effect connection to critical outcomes, decision-making will be improved (Rousseau & McCarthy, 2007). EBMgt combines these four activities:

1. Use of the best available scientific findings.
2. Gathering and attending to organizational facts, indicators and metrics in a systematic fashion to increase their reliability and usefulness.
3. On-going use of critical, reflective judgment and decision aids in order to reduce bias and improve decision quality.
4. Consideration of ethical issues including the short- and long-term impact of decisions on stakeholders. (Rousseau, 2012)

It is essential that students graduating from business programs understand how to be informed leaders and make use of these activities. EBMgt has been used in a variety of management education areas, including human resources, doctoral education, MBA programs, and undergraduate programs (Jelley et al., 2012; Salipante & Kowal Smith, 2012). To the best of our knowledge of the literature, EBMgt has yet to be implemented in an introductory management course until this publication. Citing a need for more implementation of decision-making, Stonebraker explored evidenced-based management as frameworks to reframe information literacy education (Stonebraker, 2016). The author drew upon their best practices that they had used in their own classroom, but at the time of writing had yet to redesign an entire information literacy course based upon the informed leadership framework, and had no assessment of the decision management framework from the student side.

### Active & experiential learning

Scholars in the education sphere have been discussing and studying active learning for decades, but it has only recently been implemented in higher education. Active learning engages students in the learning process by having students read, write, discuss, and engage in active problem solving. Students use a level of critical thinking not found in a typical lecture environment, and report enjoying the experience, feeling they have learned more than in a traditional lecture (Everly, 2013). Studies have shown that active learning exercises reduce the achievement gap between disadvantaged and non-disadvantaged students. In an active learning classroom, students participate and take ownership of their own learning as they work through the lecture materials on their own time and spend time in class working with and teaching each other (Haak, HilleRisLambers, Pitre, & Freeman, 2011). Active learning has been shown to raise exam scores and course grades, increase attendance, and improve engagement (Deslauriers, Schelew, & Wieman, 2011; Everly, 2013; Lyon & Lagowski, 2008; Mazur, 2009; Missildine, Fountain, Summers, & Gosselin, 2013). Though active learning classrooms generally have fewer students per square foot, they are actually a better use of the space due to the increased occurrence of students meeting learning outcomes (Baeppler, Walker, & Driessen, 2014).

Active learning is based on the experiential learning theories common in the business school world. The Kolb experiential learning

process describes conceived learning as a process, rather than just focusing on outcomes (Kolb, 2015). Kolb's experiential learning cycle builds on the works of psychologists Jean Piaget, John Dewey, and Kurt Lewin to create a model of learning, change, and growth. The model is built on a process that includes the four points of concrete experience, reflection on the experience, analysis (learning from the experience), and active experimentation based on what has been learned (Kolb & Fry, 1975). Kolb and Fry propose that the learning cycle can start at any of these four points. The experiential learning process encourages critical thinking in tandem with decision-making. While experiential learning is used throughout business schools, much of the focus is on concrete experiences versus the change and growth aspects of the model. Our evidence-based decision-making approach put particular emphasis on the ways students make decisions, the analysis and reflection aspects of the cycle.

We drew upon library and information science literature involving active learning as well, especially as it relates to information literacy (Senecal & Fratantuno, 1994). Library and information science literature defines information literacy as the set of abilities requiring individuals to “recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (Association of College & Research Libraries, 1989). Information literacy has previously been applied in introductory management courses with an intentional focus toward sources and evaluation (Fiegen, 2011; Leigh & Gibbon, 2008). We built upon this work in our integration of information into decision-making. In order to make evidence-based decisions, students needed to be able to find the best available information, which is the heart of information literacy.

### Active learning in evidence-based management

Using active learning in business education gives students the opportunity to practice evidence-based management. It can be used to teach students how to make decisions in a world of too much information. Business school curricula have been left largely unchanged since 1959, and competencies that have been identified more recently as desirable by employers (e.g. creativity, teamwork, interpersonal skills, problem solving, and ethics/integrity) have not been addressed (Herrington & Arnold, 2013). Experiential learning can be highly effective in management education, including in the diverse fields of talent management, leadership performance, competence development, change management, community involvement, volunteering, cross-cultural training, and entrepreneurship (Bevan & Kipka, 2012). Teaching active learning in conjunction with information literacy is an excellent opportunity to cover these topics in an integrative way, as they are not generally associated with a department or area within the business curriculum and may otherwise be missed.

Though information rich environments can be overwhelming to decision makers, they do not have to be a hindrance. Research has shown that a systematic decision-making process is associated with better outcomes than unstructured human processing (Highhouse, 2008; Meehl, 1954; Rousseau, 2012; Stonebraker, 2016). Although case studies have been a traditional method of teaching business students, McCarthy and McCarthy make a case for mandatory experiential programs across the business curriculum, as case studies cannot substitute the learning that occurs through experiential learning activities (McCarthy & McCarthy, 2006). Henry Mintzberg also states that MBA students can only learn the essential skills of effective management from experience, and suggests a major change in management education to allow this to occur (as cited in McCarthy & McCarthy, 2006). The design of this course was intended to put management research into practice, something that is often seen as a gap within the academic process (Burke & Rau, 2010).

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