

Enhancing Learning in Business Education

Patricia S. Kelly
patricia.kelly2@quinnipiac.edu
Management Department

Amy KB Paros
amy.paros@quinnipiac.edu
Management Department

Julia Fullick-Jagiela
julia.fullick-jagiela@quinnipiac.edu
Management Department

Iddrisu Awudu
iddrisu.awudu@quinnipiac.edu
Management Department

Susan Riello
susan.riello@quinnipiac.edu
School of Communications

Quinnipiac University
Hamden, CT 06518 USA

Abstract

While industries compete to hire capable employees, it is essential that business education curriculum delivers graduates who can solve complex problems and implement multifaceted solutions. This approach to business curriculum focuses on design thinking and project management skills to deliver an integrated, student-centered methodology. Integrating design thinking with the development of undergraduate business curriculum provides a framework centered on developing career essential skills in critical thinking, decision making, and problem-solving.

Keywords: business education, design thinking, project management, curriculum development, student-centered learning, practice-based instruction

INTRODUCTION

As industry demands trained knowledge workers who can synthesize data, think critically, and develop solutions, business curriculum must evolve (Berry, 2009; Rocca, 2010). A well-designed undergraduate business curriculum within a dynamic and rapidly evolving industry supports student recruitment, program

reputation, and prepares students for careers (Thai, De Wever, & Valcke, 2017). Coupled with employer expectations, current students demand higher levels of engagement and practical classroom experiences. Business curriculum founded on active student-centered learning can meet this need and deliver increased problem solving, stronger critical thinking, and more developed organizational skills (Rocca, 2010;

Vandenhouten, Groessl & Levintova, 2017). Such innovation in program development can be approached with design thinking methods. Design thinking is effective for complex problem solving that extends across fields (Suciu & Baughn, 2014). It can be integrated to improve business curriculum to more effectively train students to develop the intellectual capacity to adapt and thrive amidst business disruption (Cycyota, Heppard, Green, Heyler, & Harting, 2019).

Design thinking is, "thinking and communicating that is both different from scientific and scholarly ways of thinking and communication, and as powerful as scientific and scholarly methods of inquiry" (Archer, 1979, p. 2). The definition of design thinking opened a floodgate for scholars across fields to come together and innovate. Design thinking is also a portrayal of a design technical-rational process (Schön, 1983; see also Brown, 2008; Krippendorff, 2006; Roth, 2018, for additional discussions. Design thinking, as a collaborative human-centered innovative method of problem solving, naturally supports today's demand for actively engaged classrooms (Gachago, Morkel, Hitge, van Zyl, & Ivala, 2017; Pham, Fucci, & Maalej, 2018).

In connection with design thinking, project management skills development can help support embedding learning outcomes into curriculum. They provide a set of principles to explain behaviors within learning and help with course design structure (Morrison, Ross, & Kemp, 2005). A simple learning theory provides a description of how students process and retain knowledge during learning (Knud, 2004). Implementing various learning theory in course design can be implemented into a project management process to help faculty develop interactive, and well-designed courses.

We strongly concur that curriculum development throughout business education has not done enough to leverage the innovation of design-thinking and project management practice. Our goal is to share an approach utilized effectively in our own curriculum redesign process.

In addition, design thinking provides a realistic and structured approach in presenting problems that are often undefined from a case study/capstone perspective. By enhancing application to the problems, design thinking extends an individual's ability to integrate academic research outcomes into practical business problems. Our approach in using the design thinking theory is based upon changes that were made to the course content and

industry/professional impact of these courses. Design thinking allows for an integrative approach to teaching once relevancy and industry impacts are used as guidelines for teaching appropriate contents in a course. Therefore, we integrate design thinking theory into action focusing on specific relevancy of topics in relation to senior capstone projects. We monitor the outcomes consistent within capstone projects in the areas of problem definition, ideas integration, and problem solving.

Experiential learning project-based assignments can be integrated consistently across the entire degree program to improve business curriculum and more effectively train students to adapt and thrive amidst common business disruptions.

We apply approaches to pedagogy and learning as indicated in Table 1 found in Appendix A.

2. LITERATURE REVIEW

As research has identified, business pedagogy must align with employer expectations of graduate skills (Daniel, 2012). Understanding the science of learning and cognition can improve these outcomes (Doyle & Zakrajsek, 2018). Arguably, as evidenced in the business classrooms, there is an applied approach to learning (Feng et al. 2010) which can further increase knowledge through the application, scaffolding practice, and problem-based learning. The goal is to understand how design thinking can be integrated to enhance learning and project outcomes (Bridgstock, 2009). An NRC (2012) study emphasized the need for curriculum to emphasize problem-solving and metacognition. We must provide numerous opportunities for our students to practice these skills while increasing knowledge. Students must have the ability to explore challenges using data, understand the research process and how to identify problems, generate ideas, allocate resources, and provide innovative solutions while understanding project management practices (Eckhardt, 2018).

Highlighting the efficacy of hands-on learning in higher education using inquiry (Eckhardt & Wetherbe, 2016) demands a different approach to course design. Design thinking has commonly been used in classrooms to help students research and identify strategies to understand, identify, and verify business problems (Dirksen, 2015). The nature of design thinking's innovation encourages applied learning through higher levels of organizational skills and

data synthesis in the classroom (Gachago et al., 2017; Pham et al., 2018). Gibbons et al. (1994) suggest that there is an academic shift from studies focused on purely one discipline to a much more inclusive content of analysis and research from multiple disciplines. Further, research explored specific application to industry (Fang & Casadavell, 2010).

Most of the research reviewed looks at design thinking from a course perspective. In our approach, we look to identify ways to enhance our courses by addressing learning theory and project management principles within course design. Second, we believe our project approach provides an opportunity to integrate design thinking into business education. Third, by recognizing the importance of skill applicability there could be an increase in the employability factors that are relevant for our graduates. Fourth, we find that design thinking and project management process provides a realistic, structured approach to in-class problem-solving that helps to make solutions real-world feasible. Fifth, understanding how students learn assists in providing the foundation for curriculum redesign.

3. PROJECT MANAGEMENT PROCESS

While hands-on (Echkaradt & Wetherbe, 2016), business focused problem solving (Dirksen, 2015), that transfers from the classroom into real world scenarios (Ewing & Ewing, 2017) is commonplace and expected in the classroom, our unique contribution is to utilize a consistent experiential approach based on projects assignments to deliver curriculum consistently across an entire program. Providing evidence to enhance the use of research to inform practical business application in the classroom enhances engagement and relevance (Mitchell, 2016). We leverage the expertise of our faculty and provide structure and support to students (Dirksen, 2015). We anticipate that the enhanced course curriculum identifies opportunities for continuous improvement that is solution-focused and combines analysis with the application. Design thinking allows for the creation of, reinvention, and innovation in the classroom. Project management tools provide an opportunity to enhance structure and application of methodologies that are proven policies and practices in the industry. Developing the skills that employers seek will enhance the marketability of our students.

To develop a curriculum that increases higher-order thinking, students must be exposed to the application of how to investigate organizations, apply knowledge to problem-solving, establish ideas, and produce creative solutions to problems identified (Pellegrino & Hilton, 2012). We utilize project-based assignments that mimic industry workloads and ask student teams to work with clients preparing deliverables with formal written and verbal communication factors. Teams learn the value of documentation of lessons learned and reflect upon the importance of understanding team dynamics and execution of work. Reflecting on action with peers affirms the skills developed during the learning process, as well as provides opportunities for critical personal reflection and enhanced self-awareness (Perusso et al., 2020). These reflective practices lay the groundwork for the self-efficacy and changemaking skills necessary for business professionals (Perusso et al., 2020).

Our aim is to enhance curriculum development across our school. For the project deliverables, students demonstrate proficiency and ability to use research to solve ongoing challenges. We propose that the integration of design thinking, fueled by innovation and critical strategic analysis, can lead to an increase in problem-solving capabilities for students. We monitor learning outcomes within projects related to problem definition, the innovation of ideas and challenges, and problem-solving in business and consulting using an applied approach.

This paper raises awareness on how to integrate design thinking and project management processes into course design. The efforts can further increase effective collaborations and relationships with industry leaders and support cross-functional, interdisciplinary curriculum. Our approach identifies the needs of employer communities and the relevance for graduate application and future employability.

4. METHODOLOGY

Our course design methodology is based on the convincing argument that academia must look at education from a different mindset. This is particularly important in a business school where assessment and accreditation factors measure course curriculum outcomes and course design (Currie, 2017). We believe problem-solving inquiry can increase strategic and critical analysis skills.

Our courses are designed to help students understand and apply theory, principles, and problem-solving capabilities. We ensure students understand the profession of project management and integration of skills into practice by utilizing pedagogy and an approach to increase innovative solutions (Echhardt & Wetherbe, 2016). Some of the top skills employers are seeking include complex problem-solving, critical thinking, creativity, and emotional intelligence skills. The integration of industry skills and problem-based pedagogy prepares graduates to successfully transition from the rigor of the academic environment to the modern expectations of the business world (Ewing & Ewing, 2017).

Students learn and apply knowledge to gain an appreciation for the proposed gap between theory and overall application and include critical thinking and strategy into their mindset (Dirksen, 2015). Recognizing that reducing cognitive load can assist in knowledge and skill retention and application (Doyle & Zakrajsek, 2018). When building course projects, students should understand expectations, have clear goals, and be able to retain project management skills.

Using a design thinking approach to deliver course expectations and setting clear objectives and outcomes (Dirksen, 2015) will streamline course delivery. Students experience problem-solving challenges and engage in learning content through application. By implementing solutions to identified challenges, students are better prepared to execute and integrate design thinking into future career opportunities (Kuh, 2008). Our course design unitizes best practices and is presented in Table 2 found in Appendix B.

Project Assignment Details

In this section we provide a summary of the project descriptions offered in our curriculum:

Project Based Work

Students participate in management consulting teams. The teams review assigned businesses that are currently experiencing challenges. Students are evaluated on their ability to demonstrate knowledge and evaluation of management philosophies as they relate to quality indicators such as identifying a problem or challenge, research of balanced scorecard, understanding competitors including benchmarking, and financial statistics outlined in an executive summary. Framing the problem is the foundation of the course project and is part of the design thinking approach. In the introductory

management course, students review specific company research and metrics by benchmarking against industry competition. Students identify the top challenges and outline research-supported plans to overcome those challenges.

Students are encouraged to think strategically and critically. This approach to core course design and delivery integrates theory on problem-based learning (Fink, 2013). Students present their research and findings to the class including a panel assigned to be the acting Board of Directors. The research and application across business disciplines allow for valuable experiences for students. Alumni have returned to our classrooms and have shared evidence that the hands-on curriculum and project management skills development in our curriculum helped them to further their career advancement quickly. Alumni have entered the workforce prepared to identify challenges, opportunities for change, and were prepared for execution.

Consistency in project deliverables can assist students in the retention of the knowledge, skills, and motivation we are trying to develop (Dirksen, 2015). When students engage with a consistently designed learning experience, they can focus on the content rather than reorienting themselves to the project format (Dirksen, 2015). Holding team members accountable using project management planning tools and schedules helped to structure team success and improve team task and interpersonal processes. Students who engaged with a program with this practice often demonstrated these valuable skills. This consistent approach served as a model for interactions and expectations in team interactions.

The project analysis piece in coursework focuses on identifying and analyzing supply chain operations. Students then use data and research to provide managerial insights. They then apply concepts developed in class to evaluate and make recommendations. Of course, their recommendations must be backed by data collection and analysis. Students are evaluated on their ability to effectively use data, research, and analysis to identify problems and practical solutions for their organization using design thinking and ELT principles. Students are held accountable using project management planning and scheduling tools to improve team tasks, and interpersonal processes. Our prescribed approach ensures that introducing project management skill development is ongoing and valuable for any business student. The

transferrable skills that are developed provide a solid foundation for success in the future.

While students are asked to think critically about several businesses, they apply their management program learning outcomes. The project work allows students a platform to apply their program learning as they prepare for the workplace (Vieregger & Bryant, 2019). Support and direction are provided to students through the course structure and design, alignment to program learning outcomes, and a student-centered environment for problem-based learning. By using design thinking students are empowered to take leadership roles within their work while unpacking complex business problems to develop meaningful solutions (Vandenhouten, Groessl & Levintova, 2017). The project work uses several smaller assignments where students recall their learning to show subject understanding in preparation for a final real-world project. Rosenbaum, Otolara, and Ramírez (2015) suggest that addressing challenges to learning can be complex and, “although practitioners want to hire new employees with the ability to solve real-world problems, a pertinent question to address is the best method for heeding their request” (p. 183). Through thoughtfully designed real-world projects, students demonstrate critical thinking and adaptability in evaluating business problems and determining the most feasible solutions (Seow et al., 2019).

Students are given the opportunity to present understanding of their learning in a presentation which requires student teams to organize and communicate on a specific management curriculum subject area. These areas include forecasting, data analysis for production demand or inventory control, quality standard and defect analysis, bottlenecks and process improvements, product and team performance issues, ethics compliance, employee retention, staffing, sourcing, recruitment, selection, human resources documentation, and project management.

5. DISCUSSION

More active course design and delivery is needed to improve student development and meet employer expectations (Rocca, 2010). Encouraging students to research the challenges presented in a business provides them with the experience to increase critical thinking and problem-solving skills while fully investing in learning the course material beyond just

memorization (Kuh, 2008). Students should be required to apply theory to practice and solve challenging problems associated with real-world experiences (Cycyota et al., 2019). When asked to analyze challenges, students must understand the practical application of problem-solving, the consequences of leadership decisions using data analytics and metrics such as employee development, training, and retention. Within these projects, students must consistently apply critical thinking measures within an ethical framework model to understand the value of the leadership approach (Dirksen, 2015).

It is necessary to create course learning activities designed with the learner in mind (Dirksen, 2015). Providing a dynamic classroom utilizing applied course projects encourages students to develop critical strategic thinking skills that can enhance participation and increase students' ability to translate concepts (Purcell et al., 2012; Raelin, 2016).

The driver behind our effort has been ongoing feedback from stakeholders that guide the ongoing improvement of learning outcomes such as linking education to increase business knowledge, communication, business analytics, critical thinking, ethical reasoning, cultural adaptability, and professionalism. Simplifying course learning outcomes and linking them back to industry requirements is essential and should be ongoing in course design thinking (Dirksen, 2015). Curriculum must continuously evolve to address ongoing organizational changes and industry disruptions while providing an efficient, cohesive, and holistic structure (Nisula & Pekkola, 2018).

Practical Application

We have designed our course assignments and experiences to be more applicable and meaningful for our students and their future employers (Tomlinson, 2017). A strong body of design evidence proposes integrating feedback from stakeholders and research theory into each curriculum discussion. Utilizing the design thinking approach allows students to innovate and apply their learning through experiential means well beyond college (Dirksen, 2015).

Student assessment measures the course project deliverables and provides evidence that students are experienced in translating theory and research into practical applications to solve business challenges. In each class, students are held accountable using project management planning and scheduling tools to facilitate efficient

and effective team tasks and interpersonal processes. Team debriefs are also a critical component in each of our classes to reinforce lessons learned and continuously improve team processes and outcomes. Projects are experiential in nature and include the application of key metrics critical for their future success in the business environment. Consistent with recent learning theory (Mayer, 2014), there is an opportunity to influence engagement in course development. This approach strongly supports that a project-based pedagogy is an example of academic rigor, and relevance in the business management curriculum (McNamara, 2009). The metrics designed outline a multidisciplinary approach that should be integrated across business schools and be utilized as a platform to develop an interest in lifelong learning for our graduates. We can measure and emphasize the enhancement of interpersonal skills, development of decision-making capabilities, and application to business that will compel the integration of communication skills in this digital world. This will also allow students the ability to benefit from the process of how thinking works (Pellegrino & Hilton, 2012).

Future Consideration

Indeed, exposing students to experiential project components has increased knowledge of factors that are often uncertain, complex, and unpredictable. Classroom practice of these factors has better prepared our alumni for employability metrics. We continue to monitor insight from career placement statistics and execute assignments that allow for practical application. The outcome of our work is that our students can walk into an interview with a portfolio of project deliverables that highlights not just what they know, but what they can do.

Limitations

Without measuring the outcomes across the business curriculum, we were only able to measure the course curriculum redesign within one department. While we believe our project process is unique in delivering an updated curriculum, we do not have specific data to support this claim across the business curriculum. It could be beneficial to identify best practices in course design, project management process, and skill development for future course design discussions.

6. CONCLUSION

We have considered a practitioner approach to teaching and learning. Our

methodology connects decision-making insight, problem-solving inquiry, and critical analysis skills seamlessly. Design thinking provides a realistic and structured approach to presenting ideas using methods to help to make solutions feasible. We also find that design thinking provides an effective framework to assist with decision making and problem-solving. We prescribe that by enhancing the application of these skills, design thinking provides individuals the ability to integrate learning into a practical business application. The inclusion of design thinking can increase efficiencies in course design (Eckhardt & Wetherbe, 2016). This pedagogy aligns with AACSB's Impact of Research Task Force report that argues, "By bringing together practitioners and academics on focused topics, education holds enormous potential to strengthen the linkage between research and practice" (p. 37). Positioning graduates with lifelong skills that go well beyond the traditional classroom setting (Dirksen, 2015). Finally, design thinking pedagogies provide students opportunities to enter the workforce with hands-on experience analyzing data and experiential knowledge (Eckhardt & Wetherbe, 2016), skill sets relevant to on-the-job requirements. In fact, we concur that experiential learning and project-based assignments can be implemented across business curriculum to improve student learning outcomes.

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Appendix A
Approaches to Pedagogy and Learning

Table 1. Approaches to Pedagogy & Learning (Design Thinking)

<i>Scaffolding (SC)</i>	Approaching learning will increase student knowledge and outcomes. Building upon prior knowledge to support learner growth. Providing an opportunity for students to learn by delivering content gradually to increase skillset (Shapiro, 2008).
<i>Problem-based learning (PBL)</i>	Problem-based learning provides students with an opportunity to increase skills using scaffolding and analysis of an open-ended questions to increase inquiry and learning (Merrill, 2002).
<i>Experiential learning (ELT)</i>	By increasing knowledge through actions and project execution, students can apply theory into application. By allowing students to learn course content through concrete experiences and reflective assignments (Kolb & Kolb, 2009).
<i>Cognitivism (CM)</i>	Learning occurs internally through processing that is context dependent. Exposing students to learning based upon either prior knowledge or experiences. Asking questions that increase self-awareness and open-minded inquiry in learning (Kirschner et al., 2006).
<i>Constructivism (COM)</i>	Processing of information and learning based upon personal and individual experiences to increase your own knowledge (Bruner, 1996; Piaget, 2013).
<i>Behaviorism (BM)</i>	Through a series of repetitive activities and memorization strategies, students will learn through behavior and responses to stimuli, often using rewards and punishments (Moore, 2001).

Appendix B
Course Design Referencing Best Practices

Table 2. Course Design Referencing Best Practices

Design learning outcomes and objectives (DLOO)	Structured learning outcomes and clear objectives will assist in course design (Dirksen, 2015).
Identify strategies and methods to utilize (ISMU)	Identify a blueprint of methods and strategies including needs analysis (Morrison et al., 2012).
Develop and update learning activities and assignments (DULA)	Some skills can be developed to enhance learning research, such as integration of professional experiences, understanding of processes and ways to integrate theory and practice (Currie, 2017).
Provide ongoing support and feedback (POSF)	In designing course curriculum, it is necessary to create course learning activities that are designed with the learner in mind (Dirksen, 2015).
Document execution of deliverables and assessment (DEDA)	Assisting faculty to transition from a consultative role to a facilitative role to ensure student success for project deliverables (Morrison et al., 2012).