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Enhancing Student Learning Outcomes through the Integration of Team Projects into Instruction

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Abstract

This paper reviews how team projects are integrated into learning with enhanced outcomes. CAPSIM is a business simulation software used by many universities to "develop and assess business acumen in an interactive, real-world environment" (www.capsim.com). Two universities came together into one CAPSIM shell, which offered a unique opportunity to study team project-based learning; the e-learning environment; and the assessment methodology of Tuckman and Jensen's (1977) stages of team development and Myers-Briggs Type Indicator (MBTI). Strategic

management simulations online is a learning-by-doing tool where university students can learn how to work on team projects. Employing the online technology of CAPSIM, using team building skills, and offering self-assessment of management styles while working on a team project-based learning program creates a dynamic learning environment for the students that prepares them for the realities of the workplace. This project enhanced student leadership styles, developed teamwork skills, and provided an environment rich for building successful project-based learning teams.

Enhancing Student Learning Outcomes

In 2014, a capstone class from City University of Seattle was scheduled for a CAPSIM session when a partner school, University of Southern Queensland (USQ) in Australia, had a CAPSIM course scheduled for nearly the same time frame. It was proposed that both classes could compete within the same CAPSIM session. The competition became a truly global event with American, Venezuelan, Turkish, Bulgarian, Vietnamese, and Australian participants. One team was made up of on-campus students, while the second team was made up of online students.

This chapter describes the benefits of a team project-based, e-learning environment and assessment methodology. CAPSIM is an interactive online program that offers students a team and company environment by which a company operates for five years (five competition rounds). The students are given the opportunity to test assumptions, run a pro forma, and learn from mistakes, whereby "students get the chance to apply what they've learned across all disciplines of business in one strategic, competitive, and engaging learning experience" (CAPSIM, n.d.). Lee and Lim (2012) reported, "Team project-based learning is reputed to be an appropriate way to activate interactions among students and to encourage knowledge building through collaborative learning" (p. 214).

In addition to the simulation program of CAPSIM, instruction is augmented on teambuilding using Tuckman and Jensen's (1977) stages of team development with the students having the knowledge of the five stages in conjunction with learning their MBTI from Jung's Typology test online at HumanMetrics.com before the students compile their team charter. The remainder of the paper demonstrates how enhancing student learning outcomes through the integration of team projects into instruction could become an exemplary practice.

Teaming

Fruchter (2001) found that global teamwork opportunities respond to an industry need to improve and broaden the experience of undergraduate students to understand the acquired theoretical knowledge in multidisciplinary, collaborative, practical, project-centered environments. Magzan, Aleksic-Maslac, and Juric (2010) suggested that the inclusion of teamwork as a learning strategy in business education has multiple benefits. Involving students in collaborative projects helps them to recognize, value, and capitalize on the strengths of other people in interactive business situations. It also helps their understanding and experience with co-operative group processes by thus providing them with essential team skills suitable for different types of employment.

Lee and Lim (2012) studied team project-based learning and learned two key lessons: the importance of social competencies for a communal society, and that "students find social contributions, such as organizing or coordinating managerial abilities, more important than cognitive contributions when they evaluate peers" (p. 214). Team project-based learning promotes knowledge building through social interaction and is increasingly used as a teaching and learning method in higher education (Von Kotze & Cooper, 2000). Project-based learning has attracted educators' attention as an alternative teaching method for enhancing learning effectiveness in higher education through social learning (Jung, 2001). Another benefit of team project-based learning is the promotion of higher learning skills which include cooperative ability, critical reasoning, creative thinking, responsibility, and communication (Moursund, 2003).

McCabe (2006) made a case for the importance of learning how to be a team:

> Traditionally when we think of teams we consider work groups, or departmental teams who all report to the same leader. However, as today's flexible workforce evolves, organizations are increasingly dependent upon 'virtual teams' brought together with a specific, sometimes short-term outcome to achieve. These may be

cross-functional, inter-disciplinary teams, project teams, or cross-organizational and cross-cultural teams. The nature of these teams is quite fluid and altered by many factors, such as the outcomes they set out to achieve, the timescales and frequency of their need to co-operate, and the conflicting priorities of team members. (p. 117)

The CAPSIM program suits the modern day classroom, as learning and teaming no longer take place solely in the classroom. Virtual team project-based learning serves as a model for real-world application.

Teamwork in Instruction

Teamwork is the key to the CAPSIM experience. A team's cross-disciplinary knowledge and skills development evolves over the life of the competition and also pulls from previous courses in the program. Students are expected to engage with other team members in a cross-disciplinary project-based environment. A focal point is the effective use of technological online resources to support instruction and learning outcomes. Through CAPSIM, the students are able to develop a holistic understanding of basic business principles via a project-based team learning experience. All business disciplines have a broad body of knowledge and can be learned in theory, but participating in how business works in an online simulation program creates deep and ongoing learning.

The premise of CAPSIM is the assignment of $40M to each management team that takes over a struggling company. Each company must balance competing needs and demands to keep their business on a clear strategic path. The students are led to understand how the individual parts of a business impact an entire organization by being the decision-makers for a business in a competitive marketplace. Not only do the students compete against fellow teams; CAPSIM provides computer team(s) in the competition for additional benchmarking purposes. Students get the "experience without the real-world risk, along with the opportunity to build a product portfolio, manage costs, analyze the market, and develop forecasts, all with an eye on cash flow and balance sheet management (CAPSIM, n.d.).

CAPSIM is strategically used as an instructional capstone project. Online learning teams have generated attention to the social and cultural characteristics that influence these global interactions (Khalsa, 2010). CAPSIM is best used for the capstone course with students who are on the brink of joining the workforce, as the team interaction of project-based learning prepares them for the real-world dynamics of the workplace. Lee and Lim (2012) believe that "the learning goal of team project-based learning is best achieved when teams are effectively collaborating" (p. 222).

Before a team can be a successful team, the individual members must learn how to be a team and in many cases how to learn what each individual's management style is and how it interacts with other styles. Two tools used in team development are Tuckman and Jensen's (1977) stages of group development and Jung's Typology test, which gives a Myers-Briggs Type Indicator (MBTI). The first step to building a team begins with individuals taking the Jung's Typology test at HumanMetrics.com. Rodriguez, Mesa, Balsera, and Garcia (2013) assessed engineering teams with regard to project-based learning by using MBTI.

> Although MBTI strictly speaking just only identifies a personality type of an individual, it taps into key aspects of personality and behavior in areas such as communication, problem solving, decision making, and interpersonal relations. Several studies have also related MBTI profiles with leadership styles. The MBTI also helps in understanding group dynamics, analyzing shortcomings in an individual's style and how the style affects the group as a whole. (p. 1127)

Once the MBTI for each person has been established, the team can begin the four stages of group development established by Tuckman and Jensen (1977): (a) Forming, (b) storming, (c) norming, and (d) performing. The final stage of adjourning comes after the conclusion of the project. Today's teams are often cross-cultural, virtual, and global. McCabe (2006) promoted the idea of understanding the MBIT to prepare for Tuckman and Jensen's (1977) four stages because "it requires individuals to gain an understanding of their fellow team members' skills and abilities as well as an appreciation of their personal style" (p. 117).

In summary, a solid team can be built with an MBIT and briefing the students on Tuckman and Jensen's (1977) stages of group development before the team launches the project-based learning program of CAPSIM.

Conclusion

Instructors can prepare students for the realities of the workplace by using online technology, developing team building skills, and requiring a self-assessment of management styles to participate in a project-based learning program. Martin-Perez and Martin-Cruz (2012) evaluated the effectiveness of strategic management simulations as a learning-by-doing tool so that university students can learn to work in a team. Besides developing the team skills, the role of teamwork in business education prepares students for the challenges posed by innovation and communication in the global economy. Rodriguez et al. (2013) concluded that MBTI is effective in team building and prepares the students for group dynamics. Coupled with Tuckman and Jensen's (1977) development stages, it adds to the final success in a group. "Knowing more about the personality of the team members, their leadership styles and how different personalities get along or conflict with each other can be useful information for building successful PBL groups" (Rodriguez et al., 2013, p. 1127).

The international connection between teams would benefit from a televised or video face-to-face meeting. There certainly was an underlying sense of competition between universities; however, CAPSIM is a naturally competitive environment between teams. Faculty members observed a difference between the countries with regard to motivations, goals, and approaches. The contrasts must be studied further to determine if it is a cultural factor or the degree programs that stimulate the differences.

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