Exploring the Outcomes of Using Problem-Based Learning in an Agribusiness Sales Course

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Introduction/Need for Research

An average of 26,700 annual job openings will be available between 2015 and 2020 in the food and agriculture industries, including positions as marketing specialists and sales representatives (Goecker, Smith, Marcos Fernandez, Ali, & Goetz, 2015). Employers want knowledge and transferrable competencies including skills in critical thinking, problem solving, and communication (National Research Council, 2012). Research Priority 4 of the AAAE National Research Agenda encourages agricultural education programs to engage learners to solve problems whereby learners reconcile new knowledge with existing knowledge and transfer what is learned to future experiences (Edgar, Retallick, & Jones, 2016). Problem-based learning (PBL) is one instructional approach in classrooms, yet less research exists about students' perceptions of learning outcomes from PBL (McMay, Gradel, & Scott, 2013; Sulaiman, 2010). Knowing these perceptions is important because instructors can use PBL to connect course content to transferable competencies. The study's purpose was to explore the outcomes of using PBL in an agribusiness sales course. This abstract addresses one research objective of the study: identify students' perceptions of learning outcomes as a result of the Ready, Set, Sell (RSS) project.

Theoretical Framework

PBL allows students to own their learning by solving real-life problems and engaging in course content to understand their discipline's concepts or practices (Barrows & Tamblyn, 1983; Jonassen, 1997; McMay et al., 2013). Students in upper level psychology courses agreed that a semester-long PBL project helped to connect knowledge to application and increased their ability to obtain information from a variety of sources (McMay et al., 2013). Furthermore, physics students had positive attitudes about using the PBL approach, learning to share and communicate knowledge, understand concepts, and solve problems (Sulaiman, 2010). Agrometeorology students agreed that PBL improved their knowledge and critical thinking ability (DeWet & Walker, 2013).

Methodology

An agribusiness sales course at Utah State University used PBL to engage students in solving a company's sales problem with a product (agricultural equipment, feed or feed supplements, calf feeders, water trough, etc.). Students worked in teams of four to complete RSS, a semester-long PBL project that required a sales call plan and 20-minute sales call to sell their product to a prospective customer. During the last week of class, a paper survey was administered to the 36 undergraduate students enrolled in the course during fall 2015. Based on previous literature, the researcher-developed instrument asked students' preferences for using PBL over other teaching methods in the course and learning outcomes from the RSS project (McMay et al., 2013,). Likert-scale questions asked students to indicate their perceptions of the RSS project on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*). Post-hoc Cronbach's alpha was .93 for the learning outcomes construct. SPSS statistical software was used to analyze data.

Results

Academic ranks represented senior (n = 6, 17.1%), junior (n = 16, 45.7%), sophomore (n = 11, 31.4%), and freshman (n = 2, 5.7%). Academic majors ranged from agricultural education (n = 12, 33.3%), animal science (n = 7, 19.4%), agricultural systems technology (n = 6, 16.7%), agricultural communications (n = 3, 8.3%), agribusiness (n = 3, 8.3%), and other (n = 5, 13.8%). Overall, 19 students (53%) recommended the instructor use PBL in the course again, with 16 (44%) remaining neutral and one (3%) disagreeing. Thirty-six students agreed the RSS project integrated the material in the course (M = 4.36, SD = 0.64) and made the subject matter realistic (M = 4.22, SD = 0.72). As seen in Table 1, the RSS project promoted critical thinking by letting student formulate a sales strategy for a prospect's problem (M = 4.14, SD = 0.59).

Table 1

Student Perceptions of Learning Outcomes as Result of the Ready, Set, Sell (RSS) Project (n = 36)

Perception	*M*	*SD*
Promoted critical thinking by letting me formulate a sales strategy for a prospect's problem.	4.14	0.59
Helped me understand a prospect's response to selling approaches.	4.14	0.83
Illustrated practical problems within agricultural sales.	4.08	0.84
Helped me understand the course material better.	4.06	0.58
Promoted critical thinking by letting me evaluate solutions to a prospect's problem.	3.94	0.67
Assumed greater responsibility in independently learning material used for the RSS project.	3.89	0.71
Helped me learn how to obtain information from a variety of sources.	3.67	0.79

Note. Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Disagree or Agree, 4 = Agree, 5 = Strongly Agree

Conclusions

Problem-based learning helped students better understand course material, critically think and solve a sales problem, which are desirable transferable competencies in agribusiness (Goecker et al., 2015). The findings are consistent with studies that found PBL can help promote critical thinking (De Wet & Walker, 2013). Contrary to McMay et al. (2013), agriculture students reported neutral attitudes toward assuming greater ownership and obtaining information from various sources. The RSS project's reliance on a company's product and marketing information could make it more difficult to find a variety of sources to use to write the sales call plan.

Recommendations

Future PBL research should compare students' learning style as a factor for how well they learned in the class from various instructional techniques, including PBL, lecture, discussion, and shadowing. Further research is warranted using quasi-experimental or experimental designs to determine if PBL is more effective than other teaching methods used in similar classes. The application of these competencies to agribusiness sales positions should also be assessed for the benefit of students pursuing careers in this field.

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