

THE THREE C'S OF TEAM-BUILDING – COMMUNICATION, COOPERATION, COORDINATION

Jennifer D.E. Thomas, Ph.D., Pace University, New York, NY, USA
Danielle Morin, Ph.D., Concordia University, Montreal, Quebec, Canada
Danielle.Morin@concordia.ca
Dennis Kira, Ph.D., Concordia University, Montreal, Quebec, Canada
jthomas@pace.edu

Abstract: As part of a larger research project investigating different skills acquisition in entirely online courses, students' perceptions of their acquisition of various team-building skills, as developed through the use of various activities and resources in an undergraduate Business Statistics course, were examined. The results indicate that attention needs to be given to the development of these skills from these activities and resources. This has implications for the design of course content delivered in a virtual or distance environment where team-building skills are not easily fostered.

Keywords: Online Learning, Distance Learning, Virtual Learning, Team-Building Skills

INTRODUCTION

In an online context, the delivery of the necessary skills to function effectively in the real-world, whether professionally or personally, can be quite challenging. Imparting the skills that foster effective team functioning is particularly challenging. Businesses continually point to deficiencies in these areas of new hires, asking academic institutions to put more emphasis on developing communication skills, team cooperation and work coordination/collaboration. In order to shed some light on the development of these skills in an online context and to provide a more prescriptive analysis for the benefit of online course design, the research presented here is focused on students' perceptions of the contribution various activities and resources in an entirely online Business Statistics course have on the acquisition of these team-building skills. This study follows on a larger research project that also examines higher-order thinking skills acquisition, as well as on previous work (Morin, et al., 2014a,b; Saade, et al., 2012), which indicate that different activities and resources can have varying impact on students' perceptions of the development of these skills.

BACKGROUND

While the business world generally acknowledges the importance of effective team skills in the workplace (Fapohunda, 2013; Su, 2007; Bobbitt et al., 2000), the field of Statistics has also recognized that the application of statistical methods to problem solutions requires a team approach, the development of which needs to start in the classroom. (Roseth et al., 2008; Songkram, 2008; Ben-Zvi, 2007; Franklin & Garfield, 2006; McKendall, 2000; Bobbitt et al., 2000; Ross, 1995;). Trying to develop these skills in an online context, however, poses additional challenges for instructors, especially given that students are sometimes resistant to working in teams (Su, 2007; Hernandez, 2002).

Notwithstanding potential resistance from some students, Franklin & Garfield's, 2006, Guidelines for Assessment and Instruction in Statistics Education (GAISE), identifies team learning, even in large classes, as an important element to include in statistics instruction. More pragmatically, Fapohunda, 2013, p. 10 states, "People working for each other in teams are a more powerful force than skills, processes, and policies, annual appraisals, management-by-objectives etc."... "Without adequate team training and preparation, it is unlikely that teams will work effectively to develop and realize a shared vision." There can be no doubt as to the need for, and importance of, the development of these skills but, obviously, students' perceptions matter.

Su, 2007 found that lower ability students had the highest preference for learning in teams, while higher ability students had the least preference. The studies by Coers et al., 2009 and Rassuli and Manzer, 2005 also found that students' preferences matter. Rassuli and Manzer, 2005 suggest that longer and greater involvement with team activities eventually leads to more positive learning outcomes. Evidently, more needs to be understood about how perceptions impact the learning experience in teams. Su, 2007 recommends that both quantitative and qualitative methods be applied to its study for better understanding of the impacting factors.

To advance the understanding of team-building skills development, the research here examines the impact of the activities and resources in the course on students' perceptions of the acquisition of these skills. While the objective of a Statistics course is to teach statistics material, there are parallel objectives which are to develop important skills, such as team-building skills. Activities and resources in the course are mainly to meet the first objective, but will also contribute at different levels to the parallel objectives.

Given the importance attributed to team-building skills, both in the workplace and in life, this paper focuses on the aspects of communication skills, work coordination/collaboration, and team cooperation, elements endorsed by other authors. McKendall, 2000, p. 279, identifies collaboration, team conflict and cohesiveness and team communication, and Fapohunda, 2013, p.10, points out that teambuilding aims at, "improving communication, reducing conflict, and generating greater cohesion and commitment among work group members". In Ben-Zvi, 2007, p.6 and Roseth et al., 2008, p. 1, they point out that most graduate and undergraduate statistics programs, "prepare their students in communication skills, realizing statistical practice requires high level skills in teamwork, collaboration, and communication". The purpose of this research is to identify which components of an online Business Statistics course are perceived to contribute more to the development of the identified team-building skills than others.

THE STUDY

This study investigates what observations could be made about students' perceptions of their acquisition of team-building skills, namely communication skills, team cooperation skills and work coordination/collaboration skills, from the various activities and resources used in the course.

The definitions of the components of team-building skills, based on Thomas, 2001, and supported by Fapohunda, 2013, McKendall, 2000 and Roseth et al., 2008, are:

- ✓ Communication: conveying ideas effectively, both orally and written
- ✓ Team Cooperation: interpersonal skills, resolution of differences
- ✓ Work Coordination: bringing together work from multiple sources and team members

There were several activities and resources utilized in the course that contributed to the students' learning experience and development of these skills. They are:

Activities:

- ✓ Case Analyses
- ✓ Quizzes
- ✓ Practice Problems
- ✓ iSTAT (environment where statistical concepts are learned through animation and simulation with java applets)
- ✓ EISEL (self-help facility - interactive, random generator of numerous multiple choice and/or true or false questions as practice tools designed to help students learn the course materials and to prepare them for the quizzes and examinations)

Resources:

- ✓ Online Textbook
- ✓ Question Center (Posting and answering of questions (private and public) by students)
- ✓ Website Course Material
- ✓ Tutorial (given by tutors during the semester in a face-to-face format)
- ✓ Platform (an eConcordia proprietary content management product)

Flowing from this, the following research question is investigated:

What is the relative contribution of the learning components (activities and resources) of the course to the perceived acquisition of Team-Building skills, namely, Communication, Team Cooperation and Work Coordination/Collaboration skills?

The research instrument utilized is a questionnaire containing two parts. The first part is about students’ demographics (6 questions) and the second part is about students’ perceptions (10 questions for each of the three skills). Students were asked to provide a subjective assessment of the extent to which they felt various activities and resources supported their acquisition of the team-building skills.

RESULTS

As seen in Table 1, there were 139 respondents with 51.8% males and 48.2% females. The average age of those who responded was 22.71 and the majority had moderate computer experience (71.2%). Only 7.9% answered that they had minimum experience.

Table 1: Demographics

<i>Gender</i>			
72 Males (51.8%)		67 Females (48.2%)	
<i>Age</i>		<i>Computer experience</i>	
N	139	Extensive	29 (20.9%)
Mean	22.71	Moderate	99 (71.2%)
Standar	4.12	Minimum	11 (7.9%)

Results in Table 2 indicate that certain activities and resources can help to foster the perceived development of certain team-building skills in students.

Table 2: Student Perception Distributions Of Team-Building Skills

		*Mean	SD	N	A lot¹	Somewhat²	Not at	**Positive
Communication								
Activities	Case Analyses	1.86	0.75	138	35.5	42.8	21.7	78.3
	Quizzes	2.45	0.73	139	13.7	27.3	59.0	41.0
	Practice	2.27	0.78	139	20.1	33.1	46.8	53.2
	iSTAT	2.57	0.62	138	6.5	29.7	63.8	36.2
	EISEL	2.30	0.74	138	16.7	37.0	46.4	53.7
Resource	Textbook	2.50	0.69	139	10.8	28.8	60.4	39.6
	Question Center	2.15	0.74	139	20.9	43.2	36.0	64.1
	Website Material	2.20	0.71	139	17.3	45.3	37.4	62.6
	Tutorial	2.09	0.80	138	27.5	36.2	36.2	63.7
	Platform	2.08	0.75	139	24.5	43.2	32.4	67.7
Coordination								
Activities	Case Analyses	1.71	0.78	137	48.9	31.4	19.7	80.3
	Quizzes	2.31	0.74	138	16.7	35.5	47.8	52.2
	Practice Problems	2.09	0.79	139	27.3	36.7	36.0	64.0
	iSTAT	2.64	0.59	137	5.8	24.1	71.1	29.9
	EISEL	2.24	0.75	138	18.8	38.4	42.8	57.2
Resources	Textbook	2.43	0.65	137	8.8	39.4	51.8	48.2
	Question Center	2.14	0.72	139	20.1	46.0	33.8	66.1
	Website Material	2.09	0.73	139	22.3	46.0	31.7	68.3
	Tutorial	2.12	0.78	138	24.3	38.4	37.0	62.7
	Platform	1.94	0.75	139	30.9	43.9	25.2	74.8
Cooperation								
Activities	Case Analyses	1.83	0.84	138	44.9	27.5	27.5	72.4
	Quizzes	2.51	0.73	138	13.8	21.7	64.5	35.5
	Practice Problems	2.38	0.75	139	15.8	30.2	54.0	46.0
	iSTAT	2.66	0.56	137	4.4	24.8	70.8	29.2
	EISEL	2.46	0.71	138	12.3	29.0	58.7	41.3
Resources	Textbook	2.54	0.63	137	7.3	31.4	61.3	38.7
	Question Center	2.17	0.76	138	21.7	39.9	38.4	61.6
	Website Material	2.25	0.70	138	15.2	44.9	39.9	60.1
	Tutorial	2.30	0.77	138	18.8	32.6	48.6	51.4
	Platform	2.16	0.72	139	18.7	46.8	34.5	65.5
Legend:								
*The mean is calculated by assigning 1 to “a lot”, 2 to “Somewhat” and 3 to “Not at All”.								
** The Positive Impact corresponds to the combined percentage of “a lot” and “somewhat”								

Case Analyses were perceived to assist in the students’ development of communication skills, work coordination skills and team cooperation skills. Only 21.7%, 19.7% and 27.5%, respectively, felt there was no contribution.

On the other hand, iSTAT and the Textbook were perceived as fostering neither of these team-building skills. iSTAT was perceived as providing no support at all to communication skills by 63.8%, work coordination skills by 70.1% and team cooperation by 70.8%. The Textbook is also perceived by 60.4% as not contributing to communication skills, by 51.8% to work coordination, and by 61.3% to team cooperation. Not surprisingly, the Quizzes, which are designed to be done individually, likewise were not perceived to contribute to communication skills by 59.0% nor to team cooperation by 64.5%. Team cooperation was

also not perceived to be supported by EISEL by 58.7% and by Practice problems by 54%. Other activities and resources were perceived to contribute moderately to the skills.

CONCLUSION

From the results, it seems that attention needs to be given to the types of activities and resources included in an online course. For instance, in designing the content for an online or virtual course in Statistics, it would seem that incorporating more opportunities for case analyses is essential for fostering the development of the team-building skills being called for by the business community. Case analyses were also perceived by students to be important in the development of other higher-order thinking skills (Morin, et al. 2015).

It is additionally clear that iSTAT and the Textbook are not being perceived as useful in developing the team-building skills of communication, team cooperation and work coordination/collaboration. The low perception of the contribution of the textbook to team-building is not surprising as this generally involves a solitary activity, at least initially. For iSTAT, the poor results may be due to the fact that although iSTAT is a very good learning tool, its use by students contributed to only 1% of the total grade in the course. In an online course, more weight should be awarded to the student's effort and better guidance given on how student should use applets. This requires some effort on the instructor's part in order to facilitate more effective use of applets. In order to use applets for the team-building purpose, instructors need to develop a case/task that requires considerable effort for the students to solve and address a number of statistical issues collectively – again this requires much more development time and effort by the instructor to ensure that the parallel objectives of content mastery and team-building skills are achieved.

REFERENCES

- Ben-Zvi, D. (2007). Using Wiki to promote collaborative learning in statistics education. *Technology Innovations in Statistics Education*, 1(1), Article 4.
- Bobbitt, L. M., Inks, S. A., Kemp, K. J., & Mayo, D. T. (2000). Integrating marketing courses to enhance team-based experiential learning. *Journal of Marketing Education*, 22, 15-24.
- Coers, N., Lorensen, M. and Anderson, J.C. (2009). Case study: student perceptions of groups & teams in leadership education. *Journal of Leadership Education*, 8(1). 93-110.
- Fapohunda, T. M. (2013). Towards effective team building in the workplace. *International Journal of Education and Research*, 1(4), 1-12, April.
- Franklin, C., & Garfield, J. (2006). The GAISE Project: Developing statistics education guidelines for pre K-12 and college courses. In G. Burrill (Ed.), *Thinking and reasoning with data and chance: 2006 NCTM yearbook* (pp.435–375). Reston, VA: National Council of Teachers of Mathematics. Retrieved March 9, 2015 from: <http://www.amstat.org/education/gaise/>
- Hernandez, S. A. (2002). Team learning in a marketing principles course: Cooperative structures that facilitate active learning and higher level thinking. *Journal of Marketing Education*, 24, 73–85.
- McKendall, M. (2000). Teaching groups to become teams. *Journal of Education for Business*, 75(5), 277-282.
- Morin, D., Thomas, J.D.E., and Kira, D. (2015). Perceived impact of activities and resources on higher order learning skills in an online course. *Proceedings of The IEEE World Congress on Information Technology and Computer Applications (WCITCA)*, June 11-13, Hammamet, Tunisia.
- Morin, D., Thomas, J.D.E. and Ly, S. (2014). The effect of delivery method on persistence, performance and perceptions. *International Journal of Excellence in Education*, 6(2), 1-10, 2014. (First published in Proceedings of the 6th Conference on eLearning

- Excellence in the Middle East: Leadership, Design and Technology for 21st Century Learning, Dubai, UAE, March 3-5, 2014, Best Paper Award).
- Morin, D., Thomas, J. D. E., Saadé, R. G. (2014). Problem-solving and web-based learning. In *Proceedings of the e-Skills for Knowledge Production and Innovation Conference 2014*, Cape Town, South Africa, p. 243-253. Retrieved from <http://proceedings.e-skillsconference.org/2014/e-skills243-253Morin797.pdf>
- Rassuli, A. and Manzer, J.P. (2005). Teach us to learn: Multivariate analysis of perception of success in team learning. *Journal of Education for Business*, 81(1), 21-27.
- Roseth, C.J., Garfield, J.B. and Ben-Zvi, D. (2008). Collaboration in learning and teaching statistics. *Journal of Statistics Education*, 16(1), 1-15.
- Ross, N.P. (1995, February). What the government needs. *The American Statistician*, 49(1), 7-9.
- Saadé, R.G., Morin, D., Thomas, J.D.E. (2012). Critical thinking in e-learning environments, *Computers in Human Behavior*, 28(5), 1608 – 1617.
- Songkram, N. (2008). Effects of teaching activities using team learning with different and non-different major subject groups on innovative knowledge creation of undergraduate students. *Distance Learning and the Internet Conference*, 79-84.
- Su, A. Y. (2007). The impact of individual ability, favorable team member scores, and student perception of course importance on student preference of team-based learning and grading methods. *Adolescence*, 42(168), 805-827.
- Thomas, J.D.E. (2001). Technology integration and higher-order learning, *Proceedings of Conference in Advanced Technology in Education Conference*, Banff, Calgary, Canada, May.