TEAM-BUILDING SKILLS, SOCIAL MEDIA AND ONLINE COURSE DELIVERY

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ABSTRACT

With the increasing use of social media in society, as well as in the classroom, this study sought to examine the contribution that various resources and activities, as well as social media tools used by students, in an online undergraduate Business Technology Management course, may make to the development of various components of team-building skills. Online courses do not generally foster team-building, however, from our past research, there is indication that students seek to overcome this, as well as the missing human factor, by engaging social media.

The results found indicate that certain social media tools are used extensively by a large number of students, namely, email messaging, GLearningCampus, Texting, and Facebook, in addition to face-to-face communication. Interestingly, texting and face-to-face communications were almost tied, and phone calls were less used than most other media. These results suggest that even in a completely virtual environment, students seem to seek community, though seemingly not by traditional phone communication.

Keywords: team-building skills, social media, online delivery

INTRODUCTION

Mention the words social media and most everyone has an immediate conception of what that means. In academia attempts are made for more precision resulting in multiple definitions of the meaning of social media and social media tools (Tess, 2013). These attempts were distilled by Dabbagh and Kitsantas 2011, p. 1, to suggest the term is used to, "define a variety of networked tools or technologies that emphasize the social aspects of the Internet as a channel for communication, collaboration, and creative expression, and is often interchangeable with the terms Web 2.0 and social software.", with examples of tools such as, Delicious, WordPress, and Twitter, PBworks, Flick, YouTube, Facebook, Linkedin, Google Apps. To this list of tools, Kaplan & Kaenlein, 2010, p. 61, add Wikipedia, Second Life, Blogs, World of Warcraft, and define it as, "a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content". Social media use is suggested by Correa, et al., 2010, p. 247, as "the particular consumption of digital media or Internet that has little to do with traditional informational use."

Bass 2012, p.1, proposed applying "disruptive innovation" to the problem of learning in higher education. Based on the definitions in the paragraph above, it is simple to see how social media could be considered one such disruptive innovation in education, if one accepts the definition Bass provides from Clayton Christensen, "a product or service takes root initially by simple applications at the bottom of a market and then relentlessly moves 'up market', eventually displacing established competitors." It's not hard to see this playing out with the increased use of social media in the educational context. Research by Educause Center for

Applied Research (ECAR), 2012, as reported in Gikas and Grant, 2013, found 67% of students report that mobile devices (which facilitate social media use) is important for their learning and one study found social media use has increased from 2007 to 2010 and that the age gap between users is shrinking. In their own study, Gikas and Grant, 2013, p. 21, found that students described the use of social media to assist learning as, "(a) accessing information quickly, (b) communication and content collaboration, (c) variety of ways to learn, (d) situational learning".

It seems a natural progression to link social media with team-building. The term team-building itself also has many definitions or components. As used by the authors of this paper in previous research, team-building skills are defined as, "Coordinating Work – bringing together work from multiple sources and team members; Team Cooperation/Collaboration – interpersonal skills, resolution of differences; Communication skills – conveying ideas effectively, both orally and written" (Thomas, 2001, Thomas and Morin, 2007), constructs supported by McKendall, 2000, Fapohunda, 2013, Ben-Zvi, 2007 and Roseth et al., 2008. The collaborative aspect of team-building is defined by Hermsen, et al., 2010, as translated by Voorn and Koomers, 2011, as "active listening, receiving and giving feedback, honouring one's commitments, contributing to fair division of tasks, being assertive, the co-creation of a good collaborative atmosphere and taking responsibility". The acquisition of these skills would seem to be naturally supported by the use of social media. While a still new area for research, some studies already suggest that social media can have an impact on learning even on the development of team-building skills. (Tess, 2013;Voorn & Kommers, 2011; Cochran & Bateman, 2010; Liaw, Hatala & Huang, 2010).

In an online course, the impression is one of isolation in which students most likely work independently, without reference to their fellow students, apart from some possible discussion board exchanges. Developing team-building skills seems a distant possibility. (Benson & Samarawickrema, 2009; Mandernach, 2006; MacKnight, 2000). While students appreciate the convenience of online course delivery, the need for the human component is still vital and they tend to seek it out. This expectation has been observed in our own past research. (Thomas, et al., 2016; Morin, et al., 2015). The popularity of social media interaction suggests that students are likely to employ these means of communication to enhance their online learning experience, with or without instructor intervention.

The above assertions are the focus of this current research, expanding on previous work which examined solely communication skills (Thomas, et al. 2016a). In this paper work coordination and team cooperation were additionally examined. These three components were investigated in a previous study and were found to be the main three legs of team-building skills (Thomas, et al. 2016b). In particular, the current study examined students' perceptions of the development of the three identified components of team-building skills from the resources and activities used in an online, undergraduate Business Technology Management course. Secondly, it also examined whether, for the purposes of the course, students seek alternate means of communication amongst themselves, to compensate for the lack of the face-to-face component of the course.

THE STUDY

In this paper, students' perceptions of their acquisition of the three components of Team-Building from the various activities and resources used in a virtual Business Technology Management course, and the social media tools they employ for the purposes of the course, were explored. The research questions were:

1. What is the relative contribution of the activities and resources of the course to the perceived acquisition of the three components of Team-Building skills?
2. Did students enlist social media tools to assist in the course? What were they?
3. Did the choice of social media have an impact on the perceived contribution of activities and resources to the development of the three components of Team-Building skills?

Based on Thomas, 2001, and building on prior research (Thomas, et al., 2016b); Thomas and Morin, 2012, 2010, 2006), the three components of Team-Building skills are identified as Communication, Work Coordination and Team Cooperation and are defined as follows:

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

Several activities and resources were offered in the course to assist in the development of these skills. Students were also given a list of social media tools and asked about their use. These are:

Table 1
ACTIVITIES, RESOURCES AND REPORTED SOCIAL MEDIA USED IN THE COURSE

Activities	Resources	Social Media Tools
Assignments Discussion Board Discussion Cases Practice Quizzes Website Project	Textbook PowerPoint Notes Overall Platform	Email, Facebook, Phone Calls, Text Messaging, Blogging, Face-to-Face, GLearning Campus, Other.

The Discussion Cases refer to the activity where students discuss a case online and the Website Project consists in the activity where students design a website. The Website Project was an activity in which students could do the work as a team or individually. Most students choose to form a team to complete the project. If done as a group, students were asked to evaluate and comment on each other's performance. Comments were generally positive. The Overall Platform used for the course is the eConcordia Course Management System and the GLearning Campus is the communication system part of the online platform.

An online survey was sent to all students registered in the course. The instrument was made up of three parts:
a) students' demographics and their level of understanding of the definitions provided of the three components of team-building skills,
b) students' perceptions of the contribution of various activities and resources towards the three components of team-building skills,
c) students' choice of social media tools to communicate amongst themselves.

RESULTS

Demographics

There were 376 students who participated in the survey, of which 54% were male and 46% were female. Most had moderate to extensive computer experience with 53.5% having moderate and 42.6% having extensive experience. Most students (60%) were between 20 and 22 years of age, and most students had taken at least one online course, the average being 2.3.

Understanding of Definition

Students were asked to rate their understanding of the definition of the three components of Team-Building on a scale from 0 (No understanding at all) to 10 (Very High understanding). As seen in Table 2, the average understanding score for each skill was Communication: 8.31, Coordination: 8.36 and Cooperation: 8.53 out of 10. Of these, 84.8% indicated they had an extensive understanding of the definition of Communication, 85.9% of Coordination, and 87.5% of Cooperation. The definition of Cooperation is the most understood. Therefore we are confident that the respondents clearly understand the definitions used in this research.

Table 2 LEVEL OF UNDERSTANDING OF DEFINITIONS Students were asked to rate their level of understanding of the definitions from 0 (No understanding at all) to 5 (Average) to 10 (Very High understanding)		
	Communication (n=376)	Coordination (n=375)	Cooperation (n=375)
Extensive (7 to 10)	84.8%	85.9%	87.5%
Moderate (4 to 6)	13.9%	12.0%	10.6%
Minimum (0 to 3)	1.3%	2.1%	1.9%
Average (Standard Deviation)	8.31 (1.71)	8.36 (1.78)	8.53 (1.76)

Students' Perceptions of Team-Building Skills Acquisition

Research Question 1:

What is the relative contribution of the activities and resources of the course to the perceived acquisition of the three components of Team-Building skills?

Table 3 presents the contribution of course components (activities and resources) to the development of each of the components of Team-Building skills. It can be seen that on average, students perceived that the Assignments and the Website Project contributed the most to each of the components of Team-Building. In particular, the Website Project gave the highest perceived contribution with 93.07% for Communication, 94.13% for Coordination and 92.78% for Cooperation combining ``Moderately`` and ``A lot``, responses. In second place, the Assignments also have strong perceived positive contributions, with 87.67% for Communication, 89.81% for Coordination and 87.10% for Cooperation. The activity that is perceived to

contribute the least to all the components of the Team-Building is the Practice Quizzes, with positive contribution perceived contribution between 39 and 43%. It is encouraging that most students tackled the practice quizzes individually rather than seeking to make it a team activity.

Among the resources offered in the course, the PowerPoint Notes contributed the most to Communication and Coordination skills while the overall Platform contributed the most to Cooperation. The textbook contributed the least to all the components of Team-Building which makes sense as reading the textbook is essentially an individual endeavour. The surprise is that it was almost 50-50. It would be interesting to know from those who did perceive the contribution how the textbook helped to achieve these skills.

In order to assess whether the different activities and resources offered in the course have a significant different level of impact on each component of Team-Building skill, an analysis of variance was conducted. It was found that the mean perceived contribution of activities and resources were significantly different with p-values under 10^{-140} for each of the three components. Also several additional analyses of variance were performed to assess if each activity and each resource contributes to the three components significantly differently. The sign S^+ means that the corresponding p-value < 0.01, S means 0.01< p-value < 0.05 and N means no significant difference at 5%. The average perceived contributions of the Website Project to the three components of Team-Building skills are not significantly different. The same is true for the Overall Platform. All other activities and resources contribute differently to each skill.

Table 3 STUDENTS' PERCEIVED CONTRIBUTION OF ACTIVITIES AND RESOURCES TO THE THREE COMPONENTS OF TEAM-BUILDING SKILLS					
		Communication	Coordination	Cooperation	Anova Per Act&R
	n	Mean (St. dev) + impact %	Mean (St. dev) + impact %	Mean (St. dev) + impact %	Significance p-value
Activities					
Assignments	373	2.32(0.68) 87.67%	2.49(0.67) 89.81%	**2.50**(0.71) 87.10%	S^+
Discussion Board	375	**1.88**(0.73) 66.40%	1.75(0.76) 55.88%	1.69(0.76) 50.93%	S^+
Discussion Cases	375	**2.05**(0.74) 75.34%	1.84(0.72) 64.80%	1.58(0.70) 46.13%	S^+
Practice Quizzes	373	1.50(0.63) 42.25%	**1.54**(0.66) 44.65%	1.42(0.61) 39.29%	S
Website Project	375	2.57(0.62) 93.07%	2.63(0.59) 94.13%	**2.64**(0.61) 92.78%	N
Resources					
Textbook	375	1.54(0.61) 48.13%	**1.74**(0.73) 56.53%	1.61(0.69) 48.53%	S^+
PowerPoint Notes	374	1.81(0.73) 62.03%	**1.86**(0.74) 64.71%	1.70(0.69) 56.53%	S^+
Overall Platform	375	1.77(0.72 60.48%	**1.80**(0.72) 61.87%	1.74(0.72) 58.24%	N
Anova per skill (p-value)		S^+	S^+	S^+	
Legend: *The mean and standard deviation are calculated by assigning 3 to "A lot", 2 to "Moderate" and 1 to "Not at all". **The Positive Impact corresponds to the combined percentage of "A lot" and "Moderate" S^+: Significance < 0.01; S: 0.01< Significance < 0.05, N: Not significant					

We can also observe, highlighted in bold, towards what component, each activity and resource contributes the most. We can see that the Assignments and the Website Project are perceived to contribute the most to the development of Cooperation skill, while the Discussion Board and Discussion Cases contribute the most to Communication skill. The perceived contributions of the Practice Quizzes to each of the components of Team-Building skills are the lowest of all activities and resources. It is even significantly lower for Team Cooperation. It is comprehensible since this activity is meant as a tool for students to deepen their understanding of concepts and practice their applications. As for the resources, they all contribute the most to the development of Coordination skill.

Social Media Used

Research Question 2:
   Did students enlist social media tools to assist in the course? What were they?

Table 4 indicates that students used on average 3.18 different social media tools to communicate with their fellow students, with 1% of them using no social media tools at all, and more than 60% using at least 3 social media tools (18%+22%+16%+5%+0.5%). Table 4 also shows that Email is the most popular media of communication, being used by 80% of students, followed by G Learning Campus at 65%, and Facebook at 57%. It can be observed also that a high percentage of students, 47%, still used Face-to-Face communication even if this course is offered online. Only 19% used phone calls, 5% used Skype, and 1% used Blogging. Only three percent indicated they used other means of communication, such as Whatsapp and Googledocs. One percent used no communication at all. Also, we observe that 99% of students reported using at least one social media (including Face-to-Face) to communicate with their fellow students.

Table 4 SOCIAL MEDIA (Usage and Types) (N=376)			
Number of Social Media Tools Used	Frequency	Type of Social media	Frequency
0	1%	Email	80%
1	13%	G Learning Campus	65%
2	25%	Facebook	57%
3	18%	Face-to-Face	47%
4	22%	Text messaging	46%
5	16%	Phone calls	19%
6	5%	Skype	5%
7	0.5%	Others	3%
Average	3.18	Blogging	1%
		No communication	1%

Impact of Social Media Tools on Students' Perceptions

Research Question 3:
Did the choice of social media have an impact on the perceived contribution of activities and resources to the development of the components of Team-Building skills?

Further analysis was performed to determine whether the usage of social media tools affects the perception of the contribution of activities and resources towards the enhancement of Team-Building components. In Table 5, it is observed that the use of social media seems to impact some of the perceptions of the contribution that activities and resources make to the development of Team-Building components. Significant differences in perceptions were observed according to use of certain social media. The following five social media tools were studied in detail: Email, Facebook, Text Messaging, Face to Face and GLearning Campus. These were selected as they were used by at least 45% of the sample. Each social media will be analysed separately.

Significant differences at 10% were recorded in Table 5. We note that the usage of the social media tools shows no significant impact on the perception of the contribution made by Discussion Board, the Textbook and the Overall Platform to any of the Team-Building components. However the following observations can be made:

- Impact of Email
  Students, actively using Email Messaging, found that the Assignments and the Power Point notes contribute significantly differently to the development of Cooperation skill; in fact students who do not use email identify more support than those who do. No other significant difference has been identified.
- Impact of Facebook
  None of the resources are impacted by the use of Facebook (FB). However significant differences of the perceived contribution of several activities to Team-Building components have been identified. We first note that the Assignments, the Discussion cases and the Website Project were all perceived to support the development of Communication skills in a significantly different level. For example, students who use Facebook, perceive that the Assignments and the Website project contribute more, while the Discussion Cases contribute less to the skill. In addition, the Assignments contribute differently to Coordination in fact, those who use Facebook, perceived a higher level of contribution than those who do not.
- Impact Text Messaging
  Students, actively using Text Messaging, found that the Assignments contribute significantly differently to the development of the Communication skill, and the Website project to the Coordination skill, in fact, those who use Text Messaging perceive a higher contribution to those skills.
- Impact of Face-to-Face
  Students, relying on Face-to-Face (FtoF), found that the Practice Quizzes contribute significantly differently to the development of the Coordination skill, and the Power Point Notes to the Cooperation skill, in fact, those who do not use Face-to-Face perceive a higher contribution to those skills.

- Impact of GLC

  Students, actively using the GLearning Center (GLC), found that the Assignments, the Discussion cases and the Power Point Notes contribute significantly differently to the development of the Communication skill, and the Discussion cases, the Website Project and the Power Point Notes to the Coordination skill, while the Website project also contributes differently to the Cooperation skill. Those who do use the GLearning Center perceive a higher contribution to those skills.

		Communication		Coordination		Cooperation	
Table 5 — STUDENTS' PERCEIVED CONTRIBUTION OF ACTIVITIES AND RESOURCES TO TEAM-BUILDING SKILLS AND SOCIAL MEDIA							
		No	Yes	No	Yes	No	Yes
Activities							
Assignments	Email					2.623	2.468
	FB	2.247	2.384	2.407	2.555		
	TEXT	2.267	2.392				
	FtoF						
	GLC	2.244	2.368				
Discussion Board	Email						
	FB						
	TEXT						
	FtoF						
	GLC						
Discussion Cases	Email						
	FB	2.132	1.986				
	TEXT						
	FtoF						
	GLC	1.930	2.110	1.725	1.900		
Practice Quizzes	Email						
	FB						
	TEXT						
	FtoF			1.596	1.483		
	GLC						
Website Project	Email						
	FB	2.509	2.623			2.577	2.697
	TEXT			2.585	2.694		
	FtoF						
	GLC			2.519	2.700	2.542	2.700
Resources							
Textbook	Email						
	FB						
	TEXT						
	FtoF						
	GLC						
PowerPoint Notes	Email					1.831	1.664
	FB						
	TEXT						
	FtoF					1.767	1.624
	GLC	1.710	1.860	1.733	1.922		
Overall Platform	Email						
	FB						
	TEXT						
	FtoF						
	GLC						

Legend:
*The mean and standard deviation are calculated by assigning 3 to "A lot", 2 to "Moderate" and 1 to "Not at all".
* indicates significance below 0.05
* Yes indicates the use of that specific social media tool, and No that it was not used.

CONCLUSION

The results of the study presented here indicate that, by using various activities, resources, and tools in the course, it is possible to foster the development of team-building skills in a completely online course, in particular skills related to communication, team cooperation and work coordination.

It was found that different activities and resources contribute significantly differently to the acquisition of the components of Team-Building skills examined. In particular, the Website Project and the Assignments are the best activities to develop each of the three components of Team-Building skills. Discussion Boards and Discussion Cases also contribute but at a lesser level. Practice Quizzes, although very important for deepening the students' understanding of a concept and its applications, cannot be expected to develop the skills under study. In fact, their perceived contributions to the three components are lower than those of the Textbook, the PowerPoint Notes and the Overall Platform. These results are important for online course developers seeking strategies to help students develop these skills.

Supporting the results found from the comprehensive literature review conducted in the area by Tess 2013, our results also indicate that we can no longer ignore the usage of social media in the learning process of students. This paper demonstrates that not only do students seek community even in an online course, but that when students use a certain social media tool, their perceived contribution of activities and resources to the development of the components of Team-Building skills is impacted. What seemed to work better in the past does not always work as well in the world of access to multiple media.

For example, students very active on social media may not appreciate the value of the Discussion Board as much as those who are less active. It is understandable, since their communication needs are covered outside the pedagogy of the course. In the past discussion boards were probably the only way for online students to communicate among themselves. Frequently students now create a Facebook account to post questions and answers not monitored by the professor or the teaching assistant, potentially obtaining the wrong answers, which is a concern.

The expectations of students are also getting very high; many will expect to find course support on YouTube and other social media outlets. Answers to students' email, which according to the results found in this study are their favoured means of communication, when addressed to the instructor, are expected within a very short turnaround time. Instead of searching for an answer themselves, students simply send an email to the professor or teaching assistant and expect an immediate response. This new phenomenon could eventually have a possible impact on students' problem solving skills which could be the subject of another research study.

Many professors start to feel that this new teaching environment makes their work much more difficult and demanding. In addition to the many demands, professors might have to think about posting questions via social media outside of the confines of the course management support system in order to engage students. For the instructors, it often means retooling and retraining, specifically in how to effectively integrate the various technologies to enhance the learning experience.

As was found in this research, in spite of the complete virtual environment of the course, students are developing the three components of their team-building skills, but it is not completely certain if the social media tools are complementing the activities and resources of the course or actually replacing some of them. In line with the recommendations coming out of the

literature review conducted by Tess, 2013, this would need to be studied more deeply so as to be able to make specific recommendations for enhancing pedagogy. In an online context, the human-to-human interaction might still be as relevant as the human-computer interaction experience, as evidenced by the high percentage who reported that they continue to make use of face-to-face communication though not phone calls, in spite of the preponderance of smart phone ownership among the student population.

All the above areas will be ripe for research for many years to come.

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