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Editors

Facebook Enhanced College Courses and the Impact of Personality on Sense of Classroom Community

Casimir C. Barczyk
barczyk@pnw.edu
Department of Managerial Studies
Purdue University Northwest
Hammond, Indiana 46323 USA

Doris G. Duncan
doris.duncan@csueastbay.edu
Computer Information Systems and Accounting
California State University, East Bay
Hayward, California 94542 USA

Abstract

The impact of personality type on students' sense of classroom connectedness was examined in a study of university-level business courses that used Facebook to enhance classroom learning. The study was conducted using an independent measures static group comparison research design. Nearly 600 students registered in six different business courses at the regional campuses of two major universities participated in a study lasting one term. The study focused on the extent to which the Big Five personality variables – extroversion, agreeableness, openness, neuroticism, and conscientiousness – impacted students' sense of connectedness in Facebook-enhanced and non-enhanced courses. Correlation and regression analyses demonstrated that extroversion and agreeableness were related to sense of connectedness, a significant pattern for students in the Facebook-enhanced group. Future research opportunities and provisos are discussed.

Keywords: Facebook, Big Five personality traits, sense of connectedness, instructional innovation, social networks, sense of learning, technology in college classrooms.

1. INTRODUCTION

The purpose of this paper is to analyze the role of personality on students' sense of classroom community in Facebook-enhanced university level business courses. A number of studies have assessed the Facebook effect on classroom community, perceptions of quality, motivation, and community of practice (Duncan & Barczyk, 2016). This study focuses on whether students' personality type impacts on their sense of classroom connectedness (SCC). This is important because SCC is thought to affect students' engagement and ultimately their learning processes and performance. We should care about the relationship between personality and SCC because when students are more engaged and perform better academically, their time and resources are utilized more effectively and efficiently.

Facebook is a form of social networking media that is gradually and steadily transforming education and the way most subjects are taught. It enables users to edit and share information. Unlike traditional one-way media such as

television, social media are two-way conversations in which control is decentralized and open to masses of users (Barczyk & Duncan, 2012).

Facebook has the potential to become an exciting instructional tool given its popularity and students' familiarity with its site. Research suggests that Facebook's focus on peer-to-peer interactions enhances informal learning experiences (Goodwin, Kennedy, & Vetere, 2010; Madge et al., 2009; Selwyn, 2009). Other studies have shown that students have effectively used Facebook for learning and activism (Bosch, 2009; Grosseck, Bran, & Tiru, 2011).

Junco (2012) reports that faculty are using social media sites for course-related purposes and that usage is rapidly increasing. However, some college educators are hesitant to embrace Facebook as an instructional tool (Moran, Seaman, & Tinti-Kane, 2011; Roblyer, McDaniel, Webb, Herman, & Witty, 2010). A study by Kirschner and Karpinski (2010) reported that Facebook users had significantly lower grade point averages than non-users; and they spent fewer hours per week engaged in study compared to non-users. In sum, the current research suggests that Facebook is a promising, but not a perfect, educational tool that warrants further application and study.

This paper will discuss the results of a study designed to determine whether the Big Five personality traits affect students' SCC when Facebook is introduced into the instructional design of business courses. Specifically, the extent to which personality types can explain a portion of the variance in students' SCC will be measured. Students' scores on the dependent variable, SCC, will be assessed for subjects in the Facebook-enhanced (experimental) and non-enhanced (control) groups.

Organizationally, this paper is divided into four parts. The first reviews the literature on classroom community, the Big Five personality measures, and relative autonomy. This section of the paper summarizes the two research questions. The second describes the method used to address the research questions and begins with a description of how the Facebook-enhanced courses were designed. The third summarizes the results associated with the research questions. The fourth part discusses the findings of this study and opportunities for further research.

2. LITERATURE REVIEW AND STATEMENT OF RESEARCH QUESTIONS

Sense of Classroom Community

Classroom community has been described as the sense of trust and interaction between groups of learners (Graff, 2003). It has been suggested that sense of community is imperative to successful learning. It is a type of mutual interdependence among members of a learning community which has shared goals and values. While classroom community is a shared phenomenon, it is conceivable that individuals differ on the extent to which they sense this trust and interaction. As such, sense of community may be more crucial to some learners than to others. Rovai (2001), for example, noted that females report a greater sense of classroom community than their male counterparts (Graff, 2003). In the context of this paper, SCC refers to student-learners in a course and does not include instructors.

According to Rovai (2002b), a classroom community is a "feeling that members have of belonging, a feeling that members matter to one another and to the group, that they have duties and obligations to each other and to the school, and that they possess shared expectations that members' educational needs will be met through their commitment to shared learning goals" (p. 322). Rovai (2002b) contends that classroom community consists of two factors. The first is learning, which is "the feeling that knowledge and meaning are actively constructed within the community, that the community enhances the acquisition of knowledge and understanding, and that the learning needs of its members are being satisfied" (p. 322). The second is connectedness, which is "the feeling of belonging and acceptance and the creation of bonding relationships" (p. 322). A strong classroom community demonstrates characteristics such as shared common interests, active engagement in two-way communications, and trusting and helping other members (Rovai, 2002b; He, Xu, & Kruck, 2014).

Social media, especially Facebook, has the capacity to enhance student engagement and satisfaction. In a study by deVilliers (2010), Facebook groups were used to foster optional discussions in an online course. She found that the voluntary Facebook group members benefited in the course by critically thinking about required material and contributing to the online discussion.

Barbour and Plough (2009) analyzed the pedagogical use of social media in an online program at a charter high school. The high school attempted to increase students' SCC by

incorporating technologies such as Facebook, Ning, and others. Incorporating social media into the blended learning courses at the charter school enhanced students' learning experiences, and was found to be effective and well-regarded by faculty as well as students. This body of research suggests that social media enhance the learning experience and student engagement in various learning communities – professional, informal, and online.

The Big Five Personality Measures
The Big Five personality traits represent five broad domains that describe the distinctive individual psychological qualities of a person. The theoretical perspective underlying the Big Five personality traits is known as the five-factor model. The five factors are extroversion, agreeableness, openness, neuroticism, and conscientiousness.

The Big Five model is able to account for different traits in personality without overlapping. Empirical research has shown that the Big Five personality traits show consistency in interviews, self-descriptions and observations. Moreover, this five-factor structure seems to be found across a wide range of participants of different ages and of different cultures (Schacter, Gilbert, & Wegner, 2011).

Studies conducted on college students have concluded that hope, which is linked to agreeableness, has a positive effect on psychological well being (Singh, 2012). It could be that agreeableness may be linked to the well being associated with student connectedness. Recent studies have suggested that an individual's personality may affect their educational identity (Klimstra, Luyckx, Germeijs, Meeus, & Goossens, 2012).

Although the Big Five personality traits have been effective in explaining a number of variables such as employment selection and work success, they are not frequently used to explain aspects of the classroom environment. However, the Big Five traits have been shown to predict the educational identity of students. These findings have led researchers to believe that there might be a large influence of the Big Five traits on academic motivation that then leads to predicting a student's academic performance (Klimstra, Luyckx, Germeijs, Meeus, & Goossens, 2012). Eshet, Grinautski, Peled and Barczyk (2014) surveyed higher education students to assess their personality traits and their willingness to commit acts of academic misconduct. There are also a few studies linking classroom community

and personality traits (Berryhill & Bee, 2007; Lounsbury, Loveland, & Gibson, 2003; DeNeui, 2003; and Lounsbury & DeNeui, 1996). A description of the Big Five personality traits and their link to SCC are discussed below.

Conscientiousness is a trait prevalent in some students. When high on this trait, they may be described as dependable, achievement-oriented, persistent, responsible and honest (Barrick & Mount, 1991). That student operates as an effective regulator of his/her own actions, and is able to restrain and regulate behavior through "effortful control" (Day, Hudson, Dobies, and Waris, 2001). Persons high on conscientiousness may not exhibit a high SCC, but they would likely have a high degree of relative autonomy. A student who scores low on conscientiousness is expected to be irresponsible, disorganized and impulsive. As a consequence, these characteristics might lead to poorer study skills. Another personality trait – Neuroticism – reflects students' feeling of anxiety, coupled with a low sense of security (Barrick & Mount, 1991), which causes them to be tense, worried, and likely to become strained in stressful conditions. Agreeableness involves cooperating with others and maintaining harmony. Thus, individuals who are high in this trait are expected to foster harmoniousness and would likely have a high sense of connectedness. The personality trait of Extroversion is characterized as the tendency to be sociable, talkative, energetic and sensation-seeking. It is thought that this trait might also be associated with a high sense of connectedness. Finally, high Openness to Experience includes tendencies toward intellectualism, imagination, and broad-mindedness (Barrick & Mount, 1991). Research findings show that this personality trait is related to academic success and to learning orientation, reflecting a desire to understand concepts and master material (Day, Hudson, Dobies, & Waris, 2001).

Motivation – Relative Autonomy
Ryan and Deci (2000) state that "to be motivated means to be moved to do something" (p. 54). People vary in their motivational level and orientation. They have different amounts and different kinds of motivation (Deci & Ryan, 1985, 1991; Deci et al., 1991). Human motivation can be placed along a continuum of self-determination, from which one can distinguish whether its origins are internal or external to the subject (Moreno-Murcia, González-Cutre Coll & Chillón Garzón, 2009).

According to Deci and Ryan's (1985; 2000) Self-Determination Theory (SDT), there are two types

of motivation: intrinsic and extrinsic, which are based on the different reasons or goals underlying an action. Intrinsic motivation refers to doing something because it is inherently interesting or enjoyable, while extrinsic motivation refers to doing something because it leads to an enjoyable but external and separable outcome (Ryan & Deci, 2000). In other words, an intrinsically motivated person is moved to act because of the fun or challenge it entails, while an extrinsically motivated person is moved to act because of external prods, pressures, or rewards.

Motivation plays an important role when one chooses to participate and remain connected in a technologically-enhanced or online course (Moore & Kearsley, 2005; Rovai et al., 2007) as intrinsic motivation, or one's level of relative autonomy, is considered to be a significant predictor of persistence, connectedness, and achievement in distance education (Coussement, 1995; Fjortoft, 1996). In contrast, Grolnick and Ryan (1987) found that controlling environments reduce a student's sense of autonomy, decrease intrinsic motivation, and result in poorer attitudes and performance in the classroom. A meta-analysis by Deci, Koestner, and Ryan (1999) confirms that virtually every type of expected tangible reward made contingent on task performance undermines intrinsic motivation.

Research Questions
Two research questions are posited in this paper. They are:

RQ 1: What role does personality play in fostering students' SCC in Facebook-enhanced and non-enhanced college level courses?

RQ 2: What role do demographic variables and motivational orientation play in fostering students' SCC in Facebook-enhanced and non-enhanced college level courses?

3. METHODOLOGY

Description of the Facebook-Enhanced Courses – Experimental Group
Students at two universities in California and Indiana were encouraged to voluntarily participate in the Facebook component of six different business courses. The courses were accounting, business law, human resource management, compensation, training, and organizational staffing. While the subject matter in these courses was different, the classroom style and teaching philosophy of the instructors were similar. Both used a participative, student-focused, collaborative approach to teaching.

The instructors agreed on a uniform teaching protocol so that presentation of the courses was consistent and similar. Thus, course design and instructor differences were minimized. Only students registered for the course were allowed to access the Facebook group page. This protected privacy and provided an environment conducive to postings and the general use of Facebook. What follows is a description of how Facebook was integrated into the instructional design of the business courses. All courses used Blackboard as the official course management system and Facebook was employed as an instructional supplement and the experimental intervention.

Students were assigned a term project in their respective courses and worked in teams, usually comprised of four members. The project was a required element of the course. Teams using Facebook held virtual meetings, posted YouTube links and research findings relevant to the team project and commented on one another's works. Initially some students were quite unfamiliar with social media technology, but as the course evolved, they became more comfortable with using Facebook. Some students needed reassurance that their postings were private and would only be viewed by members of the class. They also needed reassurance about the security of the information posted, because while they had no objections to sharing thoughts and opinions in a classroom, they did not want those ideas revealed to employers, outsiders, or even Facebook "friends".

It appeared that Facebook, more so than BlackBoard, facilitated student interactions and had a positive influence on their sense of connectedness. Students in some teams used Facebook for other course work and discussions, even beyond their assigned projects.

Students in the control group were enrolled in non-Facebook-enhanced courses. As such, they were not exposed to the experimental intervention. They collaborated with each other on the assigned project using face-to-face meetings as well as telephone and email communication. All other aspects of their courses mirrored those in the experimental group.

Students who participated in the Facebook and non-Facebook-enhanced courses were encouraged to complete a paper-based

questionnaire, which was designed to assess their course experiences.

The Questionnaire

The questionnaire consisted of 52 closed and open-ended items. To assess students' Big Five personality traits, questions from the Ten Item Personality Inventory (TIPI) were adopted (Gosling, Rentfrow, & Swann, 2003). Students responded to those questions as seven-point Likert-type items where 1 represented strong disagreement and 7 represented strong agreement. Five questions were reverse scored. The reliability of this questionnaire, measured by Cronbach's alpha, was 0.72. Alpha levels were .68, .40, .50, .73, and .45 for the Extroversion, Agreeableness, Conscientiousness, Neuroticism, and Openness scales (Gosling, Rentfrow, & Swann, 2003).

To assess SCC, a series of questions from Rovai's (2002a) Classroom Community Scale was adopted. The questions that have been validated in other studies (Hung and Yuen, 2010; Black, Dawson, & Priem, 2008; Rovai, 2002a, 2003) were used to measure students' feelings of connectedness. Students responded to these questions as five-point Likert-type items where 1 represented strong disagreement and 5 represented strong agreement. Four questions were reverse scored. Analysis of the questionnaire was carried out such that higher scores on the five SCC questions reflected a stronger sense of connectedness.

To assess students' motivational orientation, or relative autonomy, 14 items from the Learning Self-Regulation Questionnaire (SRQ-L) were used. The questionnaire examines two types of motivation: autonomous regulation, which is commonly known as intrinsic; and controlled regulation, commonly known as extrinsic. Students responded to these items using a seven-point Likert scale where 1 represented "Not at all true" and 7 represented "Very true." High scores on relative autonomy indicate that students are intrinsically motivated, while low scores indicate that students are extrinsically motivated.

Previous studies report the alpha reliabilities of the SRQ-L as ranging from 0.75 to 0.80 for the autonomous regulation subscale and 0.67 to 0.75 for controlled regulation subscale (Black & Deci, 2000; Williams & Deci, 1996). The reliability of the SQR-L in this study was verified with a reported Cronbach's alpha on the autonomous regulation subscale and the controlled regulation subscale being 0.77 and 0.73, respectively.

The questionnaire for the control group was modified to preserve the essential content of each question, but to reflect the fact that students in the courses of that group did not participate in the Facebook intervention.

The questionnaire also assessed several demographic variables, which included age, gender, online experience, student level (number of years at the university roughly corresponding to freshman, sophomore, junior, or senior) and status (full-time or part-time). It was administered in a paper-and-pencil format.

Respondents

Respondents included 586 students from 22 face-to-face business classes at two public universities located in California and Indiana, USA. There were a total of 671 registrants in the courses taught by the authors of this paper. Students in those classes voluntarily participated in the survey, which was approved by the universities' Institutional Review Board. They completed the questionnaire anonymously.

Procedure

The study was conducted using a survey methodology in an independent measures static group comparison research design (Campbell & Stanley, 1963). "This is a design in which a group which has experienced X is compared with one which has not, for the purpose of establishing the effect of X" (Campbell & Stanley, 1963, p. 12). The incorporation of Facebook into the instructional design of the respective courses served as the experimental manipulation. There were two groups of courses, with the experimental group receiving the Facebook intervention. The courses in the control group had identical content but did not have the Facebook intervention. During the last week of classes, students in the Facebook-enhanced courses (experimental group) and in the non-Facebook-enhanced courses (control group) were surveyed. Each student received a paper questionnaire and was informed that completion of the survey was voluntary and would not affect her/his course grade. Each student was also informed that all data collected would be maintained anonymously. Students completed the questionnaire in approximately 12 minutes.

4. FINDINGS

The statistical techniques used to analyze the data in this paper are based on the approach used by Berryhill and Bee (2007). Those authors examined whether race, personality, and demographic factors predicted sense of community.

The initial analyses in this paper explored whether students in the Facebook-enhanced courses differed from those in the non-enhanced courses on nominal variables. Pearson's Chi-square demonstrated that there was no significant difference between the groups on gender χ^2 (1, N=585) = .092, p > .05. There were significant differences between the groups on online experience, enrollment status (full or part-time), and age. Means for students in the Facebook-enhanced group and the non-enhanced group for other variables were compared with a one-way analysis of variance (ANOVA). These data are summarized in Table 1 (in Appendix). The data show that there was a significant difference for students in the Facebook-enhanced group compared to those in the non-enhanced group on the Big Five personality variable of conscientiousness F(1,576) = 3.97, p < .05). There were no significant differences between the Facebook-enhanced and non-enhanced groups for all the other variables tested.

Table 2 (in Appendix) summarizes the data from the correlation analysis for students in the Facebook-enhanced and non-enhanced groups. For both groups, the principal variable of interest was SCC. It was significantly, but inversely, related to age in the Facebook-enhanced group, r(301) = -.12, p<.05. For both groups, students' status was significantly inversely correlated with SCC at the p < .05 level. The inverse correlation indicates that full-time students experience a lower SCC than their part-time counterparts. In the Facebook-enhanced group students' academic level at the university was significantly correlated with SSC, r(301) = .15, p < .01. In both groups students' relative autonomy was significantly correlated with SCC, with r(301) = .14, p < .05 in the Facebook-enhanced and r(282) = .24, p < .01 in the non-enhanced groups.

The data in Table 2 also show that for students in the non-Facebook-enhanced group, all five personality variables were significantly correlated with SCC, with extroversion, agreeableness, and conscientiousness being significant at the p < .01 level. However, for the Facebook-enhanced group, only two personality variables – extroversion and agreeableness – were significantly correlated at the p < .01 level.

To determine whether the Big Five personality variables predicted SCC after controlling for other variables, two hierarchical multiple regression models, one for students in the Facebook-enhanced group and one for the non-enhanced group were tested. Demographic variables and

relative autonomy noted to be significant predictors of SCC were entered as step one and the five personality variables in step two. The hypothesis that personality variables would predict SCC was confirmed. The data in Table 3 (in Appendix) summarizes the equations for both groups. After controlling for other variables, two of the five personality variables (for which higher scores indicate a greater presence of that variable) in the Facebook-enhanced group were found to be significant predictors of SCC, β = .15 (p < .05) for extroversion and β = .28 (p < .001) for agreeableness. The change in R^2 was .08 (p < .001). None of the personality traits significantly explained students' SCC in the regression model for the non-Facebook-enhanced group. However, neuroticism was nearly a significant negative predictor of SCC for students in the non-enhanced group, β = -.12 (p = .06) and a change in R^2 of .07 (p < .001). Table 3 also indicates that relative autonomy was a significant predictor for SCC in the non-Facebook-enhanced group, β = .15 (p < .05) and nearly a significant predictor in the Facebook-enhanced group, β = .12 (p = .07).

The full models were significant predictors of SCC, both for the Facebook-enhanced group F (11, 263) = 3.67, p < .001, and for the non-enhanced group, F (11,260) = 4.05, p < .001. The regression models for both groups were equally predictive of SCC, with an adjusted R^2 of .10 for the Facebook-enhanced group and .11 for the non-enhanced group. These R^2 values indicate that between 10% and 11% of the variance in SCC for all students could be accounted for by the linear combination of variables.

5. DISCUSSION

Research Question 1 – The Personality Effect
This study demonstrated that personality variables significantly account for students' SSC in Facebook-enhanced courses, even after controlling for other variables previously thought to be related to sense of classroom community. It was found that extroversion and agreeableness were two of the Big Five personality traits that significantly explained part of the variance in students' SCC scores. This is an important finding for instructional staff.

While students' personality cannot be controlled, nor can faculty select learners on the basis of personality dimensions, knowing that SCC is impacted by psychological traits such as extroversion and agreeableness can affect instructional decisions on group formation and classroom activities. If a course requires group

work, instructors can foster an increased SCC by socially engineering the group membership to include individuals high on extroversion and agreeableness. These individuals, by virtue of their personality composition, would provide the attitude and support that creates a group atmosphere conducive to connectedness. The reason is that extroverts are socially outgoing and are stimulated by their association with others. They are enthusiastic, like to talk, and are open to new opportunities. The reason individuals high in agreeableness contribute to a group atmosphere of connectedness is that they generally have a concern for social harmony, are generous, helpful, and willing to compromise personal interests for the sake of their group.

It has long been suggested that many university instructors attempt to foster learning environments rich in classroom community (Chickering & Gamson, 1987). The thought is that when students have a strong sense of connectedness with their classmates, it may promote satisfaction and retention. These are crucial outcomes to institutions of higher learning. Studies have shown that Facebook and other social media enhance student satisfaction and engagement, which are strongly linked to retention and academic success (deVilliers, 2010; Barbour and Plough, 2009). Tinto (1975; 1993) supported this position when he argued that students who possess strong feelings of classroom community are more likely to persist in their academic programs than students who feel alienated and alone. He suggests that instructional strategies that strengthen SCC will result in an increase in student retention.

Research Question 2 – Demographic Variables and Relative Autonomy

This study provided clarification on the linkage between certain demographic variables and students' SCC. The correlation analyses summarized in Table 2 indicate that SCC was significantly, but inversely, correlated with age in the Facebook-enhanced group. Younger students experienced a higher SCC, as compared to their older counterparts, in their Facebook-enhanced courses. Perhaps the younger students in this study viewed the Facebook enhancement as a facilitator of needed connectedness, whereas the older students were more mature and independent individuals who did not need classroom connectedness. This finding is contrary to that reported by Smith (2008), who reported that non-traditional aged students (26 and above) displayed a higher sense of community than traditional aged students (18-25).

Students' motivational level, as measured by the relative autonomy variable, was significantly related to SCC. Intrinsically motivated students, as contrasted with those that are extrinsically motivated, perceive learning as challenging and fun. In this study they perceived their engagement in learning as a challenging and connected social experience. This is consistent with the work of Coussement, 1995 and Fjortoft, 1996. Given this finding, the task for university instructors and instructional designers is to develop course materials that are intrinsically motivating so as to enhance SCC.

In this study we found no significant relationship between SCC and gender or online experience. In other words, there is no documented gender effect or novice/experienced level effect associated with SCC. This is consistent with the work of Bernard, Brauer, Abrami, and Surkes (2004) for previous online experience and the work of Smith (2008) for gender. Our findings, however, run counter to those reported by Rovai (2002b) and Rovai and Baker (2005). The results of this study suggest that classroom instructors do not need to incorporate gender-specific or experience-level factors into the instructional design of their courses so as to increase students' SCC.

Future Research Opportunities

Among other things, future research should consider using a more precise measure of personality. Perhaps the finding that only two of the five personality variables were significantly related to SCC may have been due to methodological factors. In the interest of time and convenience, this study used a brief measure of the Big Five personality traits, making the measurement of those constructs less than optimal (Gosling, Rentfrow, and Swann, 2003). As such, it is possible that additional personality variables would have been related to SCC had they been measured more precisely.

Additional research might also be directed to explaining whether certain Big Five personality traits might have a tendency to motivate students toward the use of Facebook or other social media in their classrooms. Perhaps students' relative autonomy, as measured in this study to assess motivational orientation, could be analyzed to determine if it is impacted by any of the Big Five personality traits. This could provide an added dimension toward the development of a comprehensive model for explaining SCC.

By continuing this work, we hope to provide specific recommendations to classroom

instructors and course designers for creating learning environments that are rich in connectedness and learning so as to address the needs of students in higher education.

Provisos

This study has two potential provisos. The first relates to its dependence on self-report measures. Even though the student respondents completed the questionnaire anonymously, there is the potential for social-desirability bias. The second proviso relates to the study's use of a single survey instrument, which could result in common method bias. Future research should use additional methods for collecting data such as interviewing or focus groups. This would buttress the survey results and lessen the threat to validity occasionally observed in educational research that uses a single data collection instrument (Donaldson & Grant-Vallone, 2002).

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Editor's Note:

This paper was selected for inclusion in the journal as an EDSIGCon 2016 Distinguished Paper. The acceptance rate is typically 7% for this category of paper based on blind reviews from six or more peers including three or more former best papers authors who did not submit a paper in 2016.

APPENDIX

Variable	Facebook-Enhanced (n= 301)			Non-Enhanced (N=282)			
	M	SD		M	SD	F(1,576)	
SCC	16.46	3.26		15.94	3.89	3.14	
Extroversion	4.32	1.27		4.39	1.51	0.37	
Agreeableness	4.67	1.07		4.76	1.17	0.94	
Openness	5.32	1.09		5.36	1.08	0.17	
Neuroticism	2.98	1.19		2.97	1.35	0.00	
Conscientiousness	5.50	1.20		5.69	1.14	3.97 *	
Student level	3.54	0.90		3.48	0.97	0.52	
Relative autonomy	9.53	8.00		8.66	7.74	1.75	

Notes: * $p < .05$

Student level = 1 to 4 corresponding to number of years at the university;

Relative autonomy = Difference score between intrinsic and extrinsic motivation (R = -6 to 32)

Table 1

Means and ANOVA Results for Students in Facebook-Enhanced and Non-Enhanced Groups

Variables	1	2	3	4	5	6	7	8	9	10	11	12
					Students in Facebook-enhanced Group (n=301)							
1 SCC	-	.02	-.12*	.07	-.14*	.15**	.14*	.17**	.27**	.09	-.11	.07
2 Gender		-	-.05	-.07	-.10	.03	-.10	.01	-.21**	-.07	-.04	-.08
3 Age			-	.07	.34**	-.33**	-.18**	-.11	-.22**	-.11	.19**	-.11
4 Online				-	-.02	.17**	.01	-.02	.04	.15**	-.05	.10
5 Status					-	-.23**	-.07	-.10	-.17**	-.04	.12*	-.16**
6 Student Level						-	.08	.17**	.20**	.23**	-.11	.17**
7 Rel Auton							-	.18**	.17**	.33**	-.25**	.26**

Variables	1	2	3	4	5	6	7	8	9	10	11	12
8 Extroversion								-	.07	.34**	-.19**	.24**
9 Agreeableness									-	.17**	-.35**	.16**
10 Openness										-	-.29**	.31**
11 Neuroticism											-	.36**
12 Conscientiousness												-

Variables	1	2	3	4	5	6	7	8	9	10	11	12
					Students in Non-enhanced Group (n=282)							
1 SCC	-	.04	.09	-.05	-.12*	.10	.24**	.18**	.16**	.22*	-.24*	.21**
2 Gender		-	.02	-.02	.02	-.03	-.08	.05	-.13*	.03	.01	-.12*
3 Age			-	.06	-.17**	.30**	.12	.11	.04	.01	-.02	.07
4 Online				-	.03	.12*	.01	.05	-.04	.06	.02	-.03
5 Status					-	-.24**	-.11	-.14*	-.08	-.02	.06	-.13*
6 Student Level						-	.04	.04	-.03	.10	.01	-.02
7 Rel Auton							-	.19**	.00	.22**	-.22**	.23**
8 Extroversion								-	.03	.31**	-.11	.20**
9 Agreeableness									-	.15*	-.26**	.26**
10 Openness										-	-.27**	.29**
11 Neuroticism											-	-.38**
12 Conscientiousness												-

Notes: * p < .05; ** p < .01

Student level = 1 to 4 corresponding to number of years at the university

Relative autonomy = Difference score between intrinsic and extrinsic motivation (R = -6 to 32)

Online = 1 if students had previous online experience and 0 if students had no online experience

Table 2

Correlations between Model Variables for Students in Facebook-enhanced and Non-enhanced Groups

Variable	Facebook-enhanced group (n = 273)				Non-enhanced group (n = 271)		
	B	SE B	β		B	SE B	β
Step 1							
Gender	-.26	.40	.04		.49	.46	.06
Age	.17	.45	-.03		.39	.54	.05
Online	.36	.49	.05		-.84	.66	-.08
Status	-1.16	.69	-.11		-.75	.63	-.07
Student level	.34	.24	.09		.29	.25	.07
Relative autonomy	.05	.03	.12*		.11	.03	.22***
Step 2							
Gender	.26	.40	.04		.55	.45	.07
Age	.11	.44	.02		.27	.53	.03
Online	.58	.48	.07		-.84	.64	-.08
Status	-.71	.67	-.07		-.47	.62	-.05
Student level	.29	.24	.08		.33	.25	.08
Relative autonomy	.05	.03	.12		.08	.03	.15*
Extroversion	.40	.16	.15*		.24	.16	.10
Agreeableness	.86	.20	.28***		.33	.20	.10
Openness	-.35	.21	-.11		.28	.24	.08
Neuroticism	.06	.19	.02		-.35	.19	-.12
Conscientiousness	-.06	.18	-.02		.15	.23	.04

Notes: * $p < .05$; *** $p < .001$

Student level = 1 to 4 corresponding to number of years at the university
Relative autonomy = Difference score between intrinsic and extrinsic motivation (R = -6 to 3
Adj R^2 = .03 ($p < .05$) for Step 1 in Facebook-enhanced group; ΔR^2 = .08 for Step 2 ($p < .001$)
Adj R^2 = .06 ($p < .01$) for Step 1 in non-enhanced group; ΔR^2 = .07 for Step 2 ($p < .001$)
Coding for nominal variables: gender (male = 1, female = 0); online (1 = student had previous online course
        experience, 0 = student had no online course experience); status (1 = full time status, 0 = part-time
        status)

Table 3
Summary of Hierarchical Regression Analyses for Variables Predicting SCC