5-2019

Students' perceptions of the positive impact of learning with bogs: an investigation of influencing, moderating, and mediating factors

Princely Ifinedo
Brock University, pifinedo@brocku.ca

Follow this and additional works at: https://aisel.aisnet.org/confirm2019

Students' perceptions of the positive impact of learning with bogs: an investigation of influencing, moderating, and mediating factors

Princely Ifinedo
Brock University
pifinedo@brocku.ca; pifinedo@gmail.com

Abstract

This paper discusses students' perceptions of the positive impact of learning with blogs in higher educational settings. The research model uses constructs from the social-cognitive theory and motivational model. Relevant hypotheses focusing on direct, moderating, and mediating influences were formulated. A survey was administered to 108 university students taking an undergraduate-level course in management information systems in a Canadian university. Data analysis was done with the partial least squares structural equation modeling technique. The result shows that students' perceived usefulness of blogs was not positively associated with their perceptions of the positive impact of using the tool to learn; however, perceived self-efficacy and enjoyment were found to be positively associated with positive impact of learning with blogs. With regard to mediation, the results show that perceived enjoyment was a significant mediator in the relationship between students' perceived usefulness and their perceptions of positive impact of learning with blogs; the link between perceived self-efficacy was not mediated by perceived enjoyment. The result also indicates that perceived enjoyment moderated the relationship between perceived self-efficacy and usefulness. The implications of the findings for research and practice are noted.

Keywords

Blogs, Students, Social Cognitive Theory, Intrinsic Motivation, PLS, and Survey.

1. Introduction

The Internet continue to play a major role in enhancing learning and teaching in higher education (HE) (Martindale & Wiley, 2005; Ng'ambi, 2013; Ifinedo et al., 2017). Among emerging Internet technologies are Web 2.0 tools including blogs and wikis, which have found useful applications in HE (Oravec, 2003; Sim & Hew, 2010; Ng'ambi, 2013, Ifinedo, 2018a, b). The focus of this study will be on blogs, which are websites maintained by a user (blogger) who provides commentaries on events that are arranged in reserve chronological order. Blogs enhance teaching and learning in HE (Chen et al., 2015; Liu, 2016). While prior studies have investigated students' use or acceptance of blog tools for learning in HE (Sim & Hew, 2010; Liu et al., 2012), only a few have investigated factors likely to influence students' perceived impact of learning with blogs (Mansouri & Piki, 2016; Ifinedo, 2017b). It is argued that useful insights could emerge for HE administrators if an understanding of factors likely to influence students' perceptions of the positive impact of using such technologies are explored.

To guide this research study, relevant constructs from theoretical frameworks such as the social cognitive theory (Bandura, 1986) and intrinsic theory of motivation (Deci, 1971) will be used. A fusion of these theoretical frameworks enhance insights and also overcome the narrow view that are sometimes used to investigate student acceptance of technologies (Shiau & Chau, 2016, Ifinedo, 2018a). The specific questions to be answered by this study are: a) what factors influence students' perceptions of the positive impact of learning with blogs; b) what roles do intrinsic motivation (i.e., perceived enjoyment) play in enhancing students' perceptions of the positive impact of learning with blogs?

2. Background information

Past studies have investigated factors contributing to students' participation in blogging (Goldman et al., 2008; Leslie & Murphy, 2008). Some researchers investigated students' attitudes toward blog use in HE (Ellison & Wu, 2008; Lin & Shen, 2013). Others have focused on the benefits of blog use in HE (Sim & Hew, 2010; Cakir, 2013). Prior studies have considered continuance intention to use blogs in HE contexts (Chen et al., 2015, Ifinedo, 2017a). The literature also shows that factors influencing students' satisfaction with blog usage in HE contexts have been examined (Wang et al., 2014; Ifinedo, 2017b). Some researchers have drawn attention to the sparse literature dealing with students' assessment of the perceived impact of using blogs for learning purposes in HE and actual performance outcomes associated with using such tools to learn (Goldman et al., 2008; Sim & Hew, 2010).

This study is motivated by the paucity of literature related to student's perceptions of the positive impact of learning with blogs in HE settings. It is important to consider positive impact of learning with blogs because if students do not perceive any value from the use of these tools, it is possible that blog use for learning purposes will be ineffective and serve no purpose (Lin, 2012). Moreover, perceptions of the positive impact of blog use is not the same as *usage* or *acceptance*, which has received much attention in the extant literature. Thus, it is beneficial for knowledge acquisition and accumulation for researchers to pay more attention to potential factors likely to influence the positive impact of learning with blogs in HE settings.

2.1 Theoretical frameworks

This study draws from the social cognitive theory (SCT), which was proposed by Bandura (1986). The theory postulates that social and psychosocial factors influence user behavior. For the purposes of this study, the social components of SCT will not be considered as past research has already provided rich information in this aspect (e.g., Lu & Hsiao, 2007; Ifinedo, 2017b, 2018a). Among other things, SCT details the influence of self-efficacy on the production of behavior (in this instance, eliciting positive impact with blog usage). Perceived self-efficacy refers to an individual's judgment of his or her ability to perform the actions required to achieve success or intended outcomes (Bandura, 1986). Positive impacts on learning refer to increased effectiveness and value obtained through blog use (Lin, 2012). Both positive impact and perceived self-efficacy are rooted in SCT (Lu & Hsiao, 2007).

Motivation relates to the wants or needs that direct behavior toward a goal (Deci & Ryan, 2000). Thus, having motivation is an important indication that an activity or action would be performed well. Classically, motivation has two forms: intrinsic (i.e., innate) and extrinsic (i.e., external). Intrinsic refers to "doing something because it is inherently interesting and enjoyable" while extrinsic refers to "doing smoothing because it leads to a separable outcome" (Deci and Ryan, 2000, p. 55). Deci's (1971) theory of intrinsic motivation posits that intrinsically motivated behaviors are carried out because of the sense of personal

enjoyment that a person derives from performing the activity itself. In further refinement of Deci's theory, the cognitive evaluation theory (CET) was proposed to explain factors that influence intrinsic motivation. In brief, CET posits that feeling of competence (self-efficacy) in the course of performing an action influences intrinsic motivation. Perceived enjoyment has been used to represent intrinsic motivation in comparable studies (e.g., Sørebø et al., 2009). Here, perceived enjoyment refers to "the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use" (Venkatesh, 2000, p. 351). One of the constructs commonly used to denote extrinsic motivation in the literature is perceived usefulness, which refers to "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320).

3. Research model and hypotheses
The study's research model, which is informed by the foregoing discussions, is shown in Figure 1. The research hypotheses are also delineated. Dash lines with an arrow represent an interacting effect while solid lines indicate direct effects. Discussions on the hypotheses are presented next.
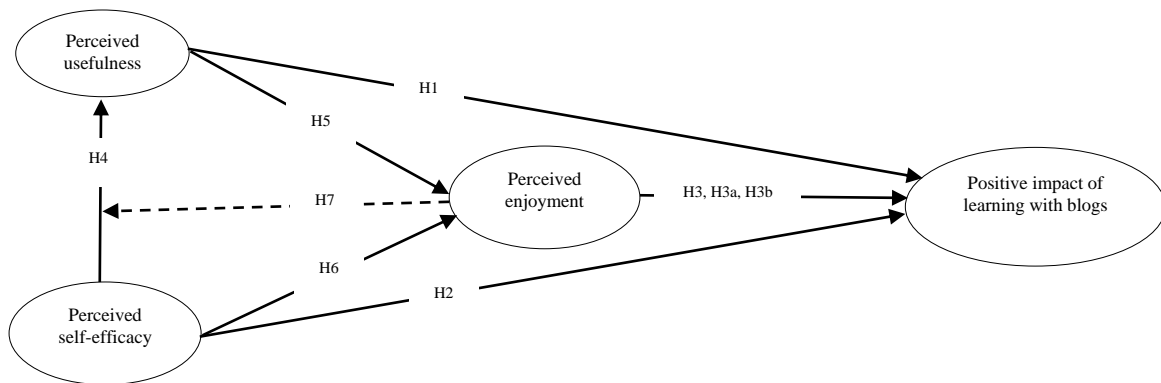

Figure 1: The Research Model

It is reasonable to suggest that students' perceived usefulness of learning technologies, including blogs will enhance their assessment of the positive impact of such tools. Past studies demonstrated that students' learning impact, achievement, and performance were higher in contexts where the usefulness of such systems were known or appreciated (e.g., Bae, 2011; Lin, 2012; Mansouri & Piki, 2016, Ifinedo 2017b). For example, Bae (2011) found that an appropriately designed class blog had positive influence on undergraduate students' learning achievement. Therefore, it is hypothesized that:
H1: Perceived usefulness is positively associated with perceptions of the positive impact of learning with blogs.

Bandura (1986) maintained that if people possess a high level of self-efficacy for a given activity, they will engage in that activity. Perceived self-efficacy has been accepted as a critical driver of users' behavior in terms of technology use (Cheng et al., 2011). Previous studies also indicated that an individual assessment of his or her ability to perform tasks on blogging platforms have a direct relationship with learning outcomes (Wang et al, 2008). Lee and Ryu (2013) found that learners' perceived self-efficacy for multimedia use positively influenced their perceptions of the value of such applications. Therefore, it is hypothesized that:
H2: Perceived self-efficacy is positively associated with perceptions of the positive impact of learning with blogs.

Consistent with the theory of intrinsic motivation, a feeling of enjoyment with an activity leads to favorable outcomes. With respect to students' perceptions, prior research has linked enjoyment to perceived impact of learning with computing technologies, including blogs (e.g., Heafner, 2004; Mansouri & Piki, 2016). For instance, Heafner's (2004) demonstrated that students experienced more positive impacts on their learning outcomes because the computing technologies they used made their more enjoyable. Others showed that students who found blogging to be fun and interesting usually reported increased impacts of such tools on their learning (Goldman et al., 2008; Mansouri & Piki, 2016; Ifinedo, 2017b). Therefore, it is hypothesized that:

H3: Perceived enjoyment is positively associated with perceptions of the positive impact of learning with blogs.

A student who appreciates the benefits of blog use in HE would find such pleasurable and ultimately realize positive impacts from performing tasks with such tools. In other words, if a student sees the gains of using blogging tools to learn and he or she innately enjoys the experience, it is to be expected that favorable or positive impacts would ensue. Further to this, HE stakeholders (i.e., instructors, administrators) may proclaim the benefits of a technology, and if users (i.e., students) see the benefits, but fail to enjoy using the tool for learning purposes, it is not likely that their perceptions of the positive impact of learning with such a tool would be high. Likewise, if students believe they possess necessary skills to use blog to learn, and they enjoy using such tools, it is more likely that their perceptions of the positive impact of using the tool will be high.

H3a: Perceived enjoyment mediates the relationship between perceived usefulness and perceptions of the positive impact of learning with blogs.

H3b: Perceived enjoyment mediates the relationship between perceived self-efficacy and perceptions of the positive impact of learning with blogs.

The more competent a student is with blog use, the more likely he or she is able to appreciate the benefits of such a tool (Lee & Ryu, 2013). This because students with lower levels of perceived self-efficacy beliefs would be easily frustrated with such tools compared to peers with higher competence levels. Sørebø et al. (2009) found perceived self-efficacy to be an important antecedent to students learning in online environments. Bates and Khasawneh (2007) also reported that students' self-efficacy with online learning systems was a significant predictor of their assessment of the usefulness of such tools. Therefore, it is hypothesized that:

H4: Perceived self-efficacy is positively associated with perceived usefulness.

It can be argued that if students know the usefulness or benefits of learning with blogs, their enjoyment with such tools in their learning environment will increase. Sun and Zhang (2006) and Fagan et al. (2008) found that relationship between perceived usefulness and perceived enjoyment have positive associations in the context of students' assessment of their university websites and IS usage. Studies found that students with higher levels of competence or skills had higher enjoyment levels with e-learning tool usage (e.g., Sørebø et al., 2009). Students' enjoyment with blogs will be higher in contexts where they possess relevant competence or skills required to use such tools. Therefore, the following set of hypotheses are proposed:

H5: Perceived usefulness is positively associated with perceived enjoyment.

H6: Perceived self-efficacy is positively associated with perceived enjoyment.

Given that perceived self-efficacy and enjoyment are considered important antecedents to students' acceptance of learning tools and other usage outcomes (e.g., Cheng et al., 2011; Lee & Ryu, 2013), it is predicted that the interacting effect of perceived enjoyment on the relationship between self-efficacy and usefulness of blog use will higher where students enjoy the use of such tools. Therefore, it is hypothesized that:
H7: The combined effect of perceived self-efficacy and perceived enjoyment leads to higher levels of perceived usefulness.

4. Research methodology
4.1 Study design, procedure, and participants
To test the proposed hypotheses, data was collected from undergraduate students at a small Canadian university where the average class size was 25 students. Participants in the survey took management information systems (MIS) course with the researchers. During the course, students were asked to create blogs on any of the topic or concept contained in the course textbook. Examples of blog topics that students chose include "intelligent agents" "virtual reality", "e-commerce", "social media" among others. Students were instructed to review the blogs of peers and provide appropriate feedback or comments. The instructor read all the posts and provided feedback as well. The essence of the blogging tasks was to teach students to create posts containing useful knowledge. To motivate active blogging, students were informed that the multiple-choice section of class tests would include items taken from students' blogs.

The questionnaire was self-administered at the end of the course after clearance was obtained from the instructor's university research ethics board. Participation in the survey was voluntary. The average response rate for the MIS classes used for the study is 94%. Data was collected from four classes taught by the researchers (instructors). The results of a Chi square test (significant at $p < 0.5$) on several of the study's variables did not indicate differences in students' opinions on the issues under investigation across the four classes. The participants were mainly third and fourth year students studying for Bachelor of Business Administration (BBA) degrees. Usable data was collected from 108 undergraduate students. Of the participants surveyed, 81.5% (88) have 8 years' experience or more using the Internet. 51 and 57 of them are males and females, respectively. 91% of them are aged between 19 and 24 years. The blog platforms used by the majority (92%) of the participants are Blog.com and WordPress.com.

4.2 Operationalization of the constructs
Items used to operationalize perceived self-efficacy were adapted from Lu and Hsiao (2007), and Lai and Chen (2011); an example includes "In general, my skill level in using blogs for accomplishing assigned task(s) in my MIS class is high." Items for positive impact on learning were adopted from Ifinedo (2017b); an example includes "The use of blogs for my MIS course has positive impacts on my learning the subject." For perceived enjoyment, measuring items were obtained from Lee (2010); an example includes "I found the use of blogs in my MIS course to be enjoyable." Items used to represent perceived usefulness were adapted from Lee (2010) and Davis (1989); an example includes "Using blogs for my MIS course increased my learning effectiveness in that subject." All questionnaire items used a seven-point Likert-type scale ranging from strongly disagree (1) to strongly agree (7).

5. Data analysis
The partial least squares structural equation model (PLS-SEM) was used for data analysis. PLS-SEM model does not require large sample sizes and data normality is not a requirement

(Hair et al., 2010; 2017). Additionally, PLS-SEM is particularly suitable for this study as the Jarque–Bera tests for data normality (Jarque & Bera, 1978) indicated that not all of the study's constructs have normal distributions. WarpPLS 5.0 software was used for this study (Kock, 2015a). PLS-SEM PLS recognizes two components of a casual model: the measurement and the structural models.

5.1 Measurement model

The psychometric properties of constructs are gauged by the following assessments: item reliability, convergent validity, and discriminant validity. Two tests used to evaluate item reliability are composite reliability and Cronbach's alpha values. Generally, values no less than 0.70 are considered adequate for assessing internal consistency of variables (Hair et al., 2017). The composite reliability and Cronbach's alpha for the study's constructs are adequate (Table 1). Convergent and discriminant validities are assessed by the following criteria: (a) the standardized item loadings should exceed 0.707; (b) the square root of the average variance extracted (AVE) should be no less than 0.707 (i.e., the AVE should be above the threshold value of 0.50); (c) the items should load more strongly on their respective constructs than on other constructs; and (d) the square root of AVE should be larger than the correlations between that construct and all other constructs (Hair et al., 2017). Cross-loadings are obtained by correlating constructs' factor scores with standardized item scores (Kock 2015a); the results, in this regard, show that items load more strongly on their respective constructs (omitted here due to space considerations). Table 1 shows that AVEs ranged from 0.63 to 0.90, and in no case was any correlation between the constructs greater than the squared root of AVE (the principal diagonal element). Overall, the psychometric properties of the measures used for the constructs were adequate.

Construct	COM	CRO	AVE	1	2	3	4
1: Perceived usefulness	0.96	0.95	0.87	**0.933**	0.325	0.523	0.762
2: Perceived self-efficacy	0.87	0.80	0.63	0.325	**0.791**	0.454	0.306
3: Perceived impact of learning	0.93	0.89	0.82	0.523	0.454	**0.903**	0.586
4: Perceived enjoyment	0.97	0.96	0.90	0.762	0.306	0.586	**0.947**

Note: COM = Composite reliability; CRO = Cronbach's alpha; AVE = Average variance extracted

Table 1. Inter-construct correlations for main constructs and squared AVEs (in the diagonal)

Given the survey data collected both independent and dependent data from the same source, common method variance (CMV) cannot be ruled out (Podsakoff et al., 2003). CMV is the misleading variance that is attributable to the measurement method rather than to the constructs the measures are assumed to represent (Podsakoff et al., 2003). Several procedures recommended to reduce CMV were followed. First, clear and simple questions were used in the questionnaire. Second, participants' anonymity was guaranteed. Third, items in the questionnaire were carefully counterbalanced or ordered. To determine if CMV was a concern for the study, two techniques were used, i.e., an assessment of correlation matrix (Pavlou et al., 2007) and the assessment of full collinearity variance inflation factors (VIFs) (Kock, 2015b). The correlation matrix (Table 1) shows that none of the study's constructs is highly correlated (i.e., close to 0.90) to indicate that CMV is not problematic for the data. The collinearity VIFs for latent variables of perceived usefulness, perceived self-efficacy, perceived enjoyment, and positive impact of learning with blogs are 2.47, 1.37, 2.70, and 1.81, respectively. These values are below the threshold of 3.3, which is used to indicate the presence of CMV in a model (Kock, 2015b). As the constructs' full collinearity VIFs are below the threshold, CMV is unlikely to be a significant issue.

5.2 Structural model

The WarpPLS 5.0 software provides information about the path significance, coefficients, i.e., beta (β), and the coefficient of determination (R^2) for the structural model (Figure 2). WarpPLS 5.0 also provides information on Goodness of Fit (GoF) and predictive relevance (Q^2). The former is a global fit measure that accounts for both measurement and structural model performance (Tenenhaus et al., 2005). The GoF obtained for this study is 0.56, which is above the cut-off value of 0.36 for large effect sizes (Wetzels et al., 2009). Predictive relevance (Q^2) represents a synthesis of function fitting and cross-validation that determines the capacity of the model to predict. Q^2 values greater than zero indicate that the observed values are appropriately reconstructed and have predictive relevance. Similarly, values below zero signify a lack of predictive relevance (Tenenhaus et al., 2005; Hair et al., 2017). The Q^2 of the independent variables on the dependent construct is 0.47.

With regard to the R^2, perceived self-efficacy and usefulness explained 61% of the variance in perceived enjoyment construct. Perceived self-efficacy, usefulness, and enjoyment explained 46% of the variance in the dependent variable: positive impact of learning with blogs.

* significant at p < 0.05 level; ** significant at p < 0.01 level; ns = not significant
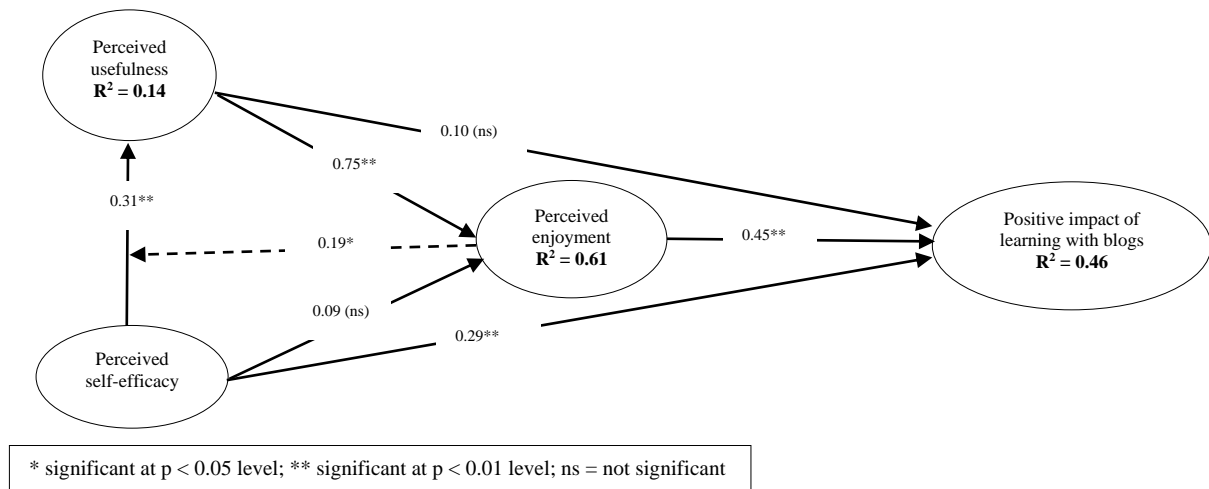
Figure 2: Results of PLS-SEM analysis for the research model

Inconsistent with H1, the data did not show that perceived usefulness was positively associated with positive impact on learning with blogs (β = 0.10, p = 0.13). H2, which predicted that perceived self-efficacy would be positively associated with positive impact on learning was supported (β = 0.29, p <0.01). Support was found for H3, which predicted that perceived enjoyment would be positively associated with positive impact on learning was supported (β = 0.45, p <0.01). Perceived self-efficacy is positively associated with perceived usefulness to significantly uphold H4 (β = 0.31, p < 0.01). The data provided very strong support for H5, which predicted that perceived usefulness would be positively associated with perceived enjoyment (β = 0.75, p < 0.01).

The data did not show that perceived self-efficacy was positively associated with perceived enjoyment (β = 0.09, p = 0.17); thus H6 was unsupported. H7 was supported to show that the combined effect of perceived self-efficacy and perceived enjoyment resulted in higher levels of perceived usefulness of blog use for students. There are several ways to assess the mediated effect of relationships in a model. This study used the Sobel test (Sobel, 1982). The test statistic indicated that perceived enjoyment mediated the relationship between perceived

usefulness and positive impact of learning with blogs (z = 4.56, standard error = 0.07, p < 0.01). The test statistic also showed that perceived enjoyment did not mediate the relationship between perceived self-efficacy and positive impact of learning with blogs (z = 0.96, standard error = 0.04, p = 0.34).

6. Discussions and conclusion

The objective of this study was to examine factors influencing students' perceptions of the positive impact of learning with blogs and the roles that intrinsic motivation (i.e., perceived enjoyment) play in enhancing the impact of such tools for students. The result did not show that perceived usefulness was positively associated with positive impact on learning with blogs. That is, students did not associate the positive impact of learning with blogs to the gains of using such a tool to learn. The result is inconsistent with viewpoints indicating that technology usage by students in HE leads to higher student learning impact and performance (e.g., Goldman et al., 2008; Mansouri and Piki, 2016; Liu, 2016; Ifinedo et al., 2017; Ifinedo, 2017b). A plausible explanation for this result might be due to the fact that blog usage for learning purposes was only recently introduced to the study participants; as such, it is possible they were unable to adequately assess the benefits of blog use in their learning activities. Studies have reported that time and experience matter for the acceptance of learning technologies (Rabak, & Cleveland-Innes, 2006).

The result shows that perceived self-efficacy was positively associated with positive impact of learning with blogs. That is, students who felt they have required skills to interact with blogging platforms have higher evaluations of the impact of the technology on their learning outcomes. This result is consistent with views suggesting that competence and skills can improve learning outcomes in technology-based contexts (e.g., Sørebø et al., 2009; Cheng et al., 2011; Wang et al, 2008). The result indicates that perceived enjoyment was positively associated with positive impact of learning with blogs to affirm the notion stating that students who enjoy using a particular tool to learn are more poised to realize the positive impact of usage in learning environments. This result provides support to observations in similar studies (e.g., Heafner, 2004; Goldman et al., 2008; Mansouri & Piki, 2016; Ifinedo, 2017a, b).

The result points to the critical role of perceived enjoyment as a significant mediator in the relationship between perceived usefulness and positive impact of using blogs to learn. The result is indicating that students who are able to appreciate the benefits of blog use, enjoy using such technologies, and ultimately have favorable evaluation of the impact of such tools on their learning outcomes. The result failed to confirm that perceived enjoyment mediated the relationship between perceived self-efficacy and positive impact of learning with blogs to suggest that a student's perception of his or her competence levels with regard to blog usage may not be a critical factor in increasing learning impact via perceptions of perceived enjoyment. Put differently, in this instance, perceived self-efficacy by itself is capable of enhancing positive impact with usage of the tool. The construct of perceived enjoyment mattered less.

The result shows that perceived self-efficacy was positively associated with perceived usefulness. That is, students who possess adequate competence or skill levels with respect to blog usage are more likely to be able to appreciate the usefulness of such tools in learning contexts. This result lends credence to similar observations reported elsewhere (Bates & Khasawneh, 2007; Lee & Ryu, 2013). The result indicates that perceived usefulness was positively associated with perceived enjoyment. This result affirms the viewpoint suggesting

that students who are able to assess the effectiveness or usefulness of blog use for learning find such tools to be interesting and pleasurable. Thus, students' perceived usefulness of technologies, including blogs is an important antecedent to the enjoyment derived from usage of such tools.

The result did not confirm that perceived self-efficacy was positively associated with perceived enjoyment. The unsupported hypotheses might be due to extraneous factors. For example, it is possible that the participating students might not have developed adequate experience or skill sets required to enable them comfortably perform academic tasks with blogs; such limitations might have lessened their pleasurable experiences or enjoyment with the tool. Further to this, blogging platforms have a variety of tools, some may be pleasurable to use and others less so; this study did not get information in these aspects. However, the result shows that the combined effect of perceived self-efficacy and perceived enjoyment led to higher assessment of the usefulness of blog use for learning. That is, students were able to appreciate the benefits of blog use for learning more favorably if they possess adequate skills in using such tools, and at the same time, find such to be fun or pleasant to use.

6.1 Theoretical contributions
The main contribution of this study to research can be summarized as follows. First, its results contribute to the understanding of factors influencing undergraduate students' perceptions of the positive impact of learning with blogs and it also offer useful insights on the roles that intrinsic motivation (i.e., perceived enjoyment) play in enhancing students' perceptions of the positive impact of learning with blogs in HE contexts. Only a few researchers have focused attention in this area of study. Second, this study did not use the putative dependent constructs of "usage", "intention" "acceptance" and "continue intention' as is the case with several previous studies in the area; rather, positive impact on learning with blogs was utilized to deepen perspectives and insights. Third, the fusion of elements of SCT and intrinsic motivation as used in this study serves to enlighten and educate in this area of inquiry. Moreover, the proposed research model has value and significance given that its antecedent factors explained 46% of the variance in the dependent model, which is relatively higher than the 40% usually seen for studies using technology acceptance models (Legris et al., 2003). Forth, this study also indicates that the construct with the greatest influence on students' assessment of the positive impact of learning with blogs was perceived enjoyment. Other researchers could benefit from this information by incorporating this particular construct into comparable studies. Fifth, the results in the study add to the growing literature focusing on factors affecting students' perceptions of the impact of technologies on learning outcomes and performance. Sixth, the consideration of mediation analysis facilitates a better understanding of the nature of relationships between the constructs used in the study. Others with interest in the area could build on such insights in designing future studies in the area.

6.2 Practical implications
Instructors could provide orientation classes and training to students on how to use blogging platforms in learning environments. Such exposure will provide initial opportunity to develop the levels of skills required to use the technology for learning purposes. Carefully planned hands-on-experience with blog use before class work can serve as a foundation for students to be able to assess the impact of using such tools on their education. Communicating the tangible benefits of blogging platforms for learning purposes could be done by instructors and administrators to enlighten students' awareness of the advantages of blog use for learning and other future endeavors. Third, the need exists for instructors and administrators in HE to strengthen beliefs related to intrinsic motivation, i.e., perceived enjoyment of using blogging

for learning purposes. For example, emphasis could be placed on providing fun and pleasurable assignments and tasks that appeal to students. Multimedia activities, e.g. video-enabled tasks and assignments could be given to optimize student learning outcomes (Lee & Ryu, 2013; Liu, 2016). These exercises are important given the central role of intrinsic motivation, i.e., perceived enjoyment in enhancing performance and other outcome beliefs. In brief, as enjoyment and self-efficacy matter for achieving higher positive impact levels with blog use for learning; to that end, instructors and administrators in HE could continue to explore incentives (e.g., rewards, training) that can further increase both factors in HE contexts.

6.3 Limitations of the study and future research avenues
This study has some limitations. First, the majority of the students in the survey were young (aged 19-24 years). It is possible that views of older students may differ from what is reported. This is because past studies indicate that age may be an important factor to consider when studying users' intention to use technology (e.g., Wang et al., 2009). Second, the participants were undergraduate students that were sourced from one location; thus, the findings reported in the study cannot be applied to all contexts, including post graduate students and working professionals. Third, the participating students' views of blogging were presented from the viewpoint of a single course: MIS. It is difficult to know if the same results discussed would be uncovered for other academic courses, e.g. History or Political Science. Future studies might consider including all SCT constructs in a research model. It would be useful if future studies explore influence of other antecedents on perceived enjoyment. More research on potential antecedents (e.g., perceived compatibility and ease of use) to positive impact of learning with blogs is needed. Future research could also investigate the influence of demographics on the study's main constructs.

References
Bae, J.H. (2011). The effectiveness of learning performance on supplementary learning tool based on blog using learner-centric UI/UX design in higher education. *Journal of the Korea Academia-Industrial Cooperation Society, 12*(2), 5531–5540.
Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive The*ory. Englewood Cliffs, NJ, Prentice-Hall.
Bates, R. & Khasawneh, S. (2007). Self-efficacy and college students' perceptions and use of online learning systems. *Computers in Human Behavior, 23*(1), 175-191.
Cakir, H. (2013). Use of blogs in pre-service teacher education to improve student engagement. *Computers & Education, 68*, 244–252.
Chen, C.-P., Lai, H.-M. & Ho, C.Y. (2015). Why do teachers continue to use teaching blogs? The roles of perceived voluntariness and habit. *Computers & Education, 82*, 236-249.
Cheng, B., Wang, M., Yang, S.J.H. et al. Acceptance of competency-based workplace e-learning systems: Effects of individual and peer learning support. *Computers & Education, 57*, 1317–1333.
Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340.
Deci, E. L. (1975). *Intrinsic Motivation*. New York, Plenum.
Ellison, N.B. & Wu, Y. (2008). Blogging in the classroom: A preliminary exploration of student attitudes and impact on comprehension. *Journal of Educational Multimedia and Hypermedia, 17*(1), 99−122.
Fagan, M.H., Wooldridge, B.R. & Neill, S. (2008). Exploring the intention to use computers: an empirical investigation of the role of intrinsic motivation, extrinsic motivation, and perceived ease of use. *Journal of Computer Information Systems, 48*(3),31-37.

Goldman, R.H., Cohen, A.P. & Sheahan, F. (2008). Using seminar blogs to enhance student participation and learning in public health school classes. *American Journal of Public Health, 98*(9), 1658−1663.

Hair, J., Black, W.C., Babin, B. J. & Anderson, R.E. (2010). *Multivariate Data Analysis*. Upper saddle River, New Jersey, Pearson Education International.

Hair, J.F., Hult, G.T.M., Ringle, C.M. et al. M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, 2 Ed., Thousand Oaks, CA, Sage.

Heafner, T. (2004). Using technology to motivate students to learn social studies. *Contemporary Issues in Technology and Teacher Education, 4*(1). Online.

Ifinedo, P. (2017a). Examining students' intention to continue using blogs for learning: perspectives from technology acceptance, motivational, and social-cognitive frameworks. *Computers in Human Behavior*, *72*, 189–199.

Ifinedo, P. (2017b). Students' perceived impact of learning and satisfaction with blogs. *The International Journal of Information and Learning Technology, 34*(4), 322-337.

Ifinedo, E., Kankaanranta, M., Neittaanmäki, P. & Hämäläinen, T. (2017). Exploring Nigerian university students' perception towards mobile learning. In J. Johnston (Ed.), *Proceedings of EdMedia 2017*, Washington, DC. pp. 833-842.

Ifinedo, P. (2018a). Determinants of students' continuance intention to use blogs to learn: an empirical investigation. *Behaviour and Information Technology*, *37*(4), 381-392.

Ifinedo, P. (2018b). Roles of perceived fit and perceived individual learning support in students' weblogs continuance usage intention. *International Journal of Educational Technology in Higher Education*, *15*(7),1-18.

Jarque, C.M. & Bera, A. K. (1987). A test for normality of observations and regression residuals. *International Statistical Review, 55*(2), 163–172.

Kock, N. (2015a). *Advanced Mediating Effects Tests, Multi-Group Analyses, and Measurement Model Assessments in PLS-Based SEM*. ScriptWarp Systems, Laredo, TX.

Kock, N. (2015b). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration, 11*(4), 1-10.

Lee, D.Y. & Ryu, H. (2013). Learner acceptance of a multimedia-based learning system. *International Journal of Human-Computer Interaction, 29*(6), 419-437.

Lee, M.-C. (2010). Explaining and predicting users' continuance intention toward e-learning: An extension of the expectation–confirmation model. *Computers & Education, 54*, 506–516.

Legris, P., Ingham, J. & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*(3), 191–204.

Leslie, P. & Murphy, E. (2008). Post-secondary students' purposes for blogging. *International Review of Research in Open and Distance Learning, 9*(3), 1−17.

Lin, K.-Y. & Shen, Y.-F. (2013). The nursing students' attitude toward using blogs in a nursing clinical practicum in Taiwan: a 3-R framework. *Nurse Education Today, 33*, 1079–1082.

Lin, W.-S. (2012). Perceived fit and satisfaction on web learning performance: IS continuance intention and task-technology fit perspectives. *International Journal of Human-Computer Studies, 70*(7), 498–507.

Liu, M., Kalk, D., Kinney, L. & Orr, G. (2012). Web 2.0 and its use in higher education from 2007 - 2009: a review of literature. *International Journal of E-Learning, 11*(2), 153-179.

Liu, M.-H. (2016). Blending a class video blog to optimize student learning outcomes in higher education. *Internet and Higher Education, 30*, 44–53.

Lu, H. & Hsiao, K. (2007). Understanding intention to continuously share information on weblogs. *Internet Research, 17*(4), 345–361.

Mansouri, S.A. & Piki, A. (2016). An exploration into the impact of blogs on students' learning: case studies in postgraduate business education. *Innovations in Education and Teaching International, 53*(3) 260–273.

Martindale, T. & Wiley, D.A. (2005). Using weblogs in scholarship and teaching. *TechTrends, 49*(2), 55–61.

Ng'ambi, D. (2013). Effective and ineffective uses of emerging technologies: towards a transformative pedagogical model. British Journal of Educational Technology, 44, 652–661.

Oravec, J.A. (2003). Weblogs as an emerging genre in higher education. *Journal of Computing in Higher Education, 14*(2), 21–44.

Pavlou P.A., Liang, H. & Xue, Y. (2007). Understanding and mitigating uncertainty in online exchange relationships: a principal-agent perspective. *MIS Quarter, 31*(1), 105–136.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.Y. et al. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903.

Rabak, L. & Cleveland-Innes, M. (2006). Acceptance and resistance to corporate e-learning: A case from the retail sector. *Journal of Distance Education, 21*(2), 115-134.

Ryan, R.M. & Deci, E.L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*(1), 54-67.

Shiau, W.-L. & Chau, P.Y. (2016). Understanding behavioral intention to use a cloud computing classroom: A multiple model comparison approach. *Information & Management, 53*(3), 355–365.

Sim, J.W.S. & Hew, K.F. (2010). The use of weblogs in higher education settings: a review of empirical research. *Educational Research Review, 5*(2), 151–163.

Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhart (Ed.), *Sociological Methodology* (pp. 290-312). San Francisco, CA, Jossey-Bass.

Sørebø, Ø., Halvari, H., Gulli, V.F. et al. (2009). The role of self-determination theory in explaining teachers' motivation to continue to use e-learning technology. *Computers & Education, 53*(4), 1177–1187.

Sun, H. & Zhang, P. (2006). Causal relationships between perceived enjoyment and perceived ease of use: an alternative approach. *Journal of the Association for Information Systems, 7*(9), 618-645.

Tenenhaus, M., Vinzi V. E., Chatelin,Y.-M. et al. (2005). PLS path modeling. *Comput Stat Data An.* 48(1), 159–205.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research, 11*(4), 342–365.

Wang, K.T., Huang, Y.-M., Jeng, Y.-L. et al. (2008). A blog-based dynamic learning map. *Computers & Education, 51*(1), 262-278.

Wang, Y-S., Wu, M-C., &Wang, H-Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. *British Journal of Educational Technology, 40*(1),92-118.

Wang, Y.-S., Li, C.-R., Lin, H.-H. et al. (2014). The measurement and dimensionality of e-learning blog satisfaction. *Internet Research, 24*(5), 546-565.

Wetzels, M., Odekerken-Schroder, M.G. & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: guidelines and empirical illustration. *MIS Quarterly, 33*(1), 177-196.