

Subject Site Usability to Student Well-Being and Burnout–Understanding the Pathway

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Abstract

A considerable amount of research has been conducted to learn about various factors contributing to student well-being and burnout, but there have been few studies that considered both individual and external factors together in understanding these in the context of online and blended learning. A moderated mediation model is used to understand the relationship between usability of E-learning sites with burnout and wellbeing through self-control (SC), conscientiousness (C), and self-efficacy (SE) across learning modes- online and blended, among a sample of university students (N = 142). The participants completed an online survey hosted on Qualtrics and completed Conscientious subscales of the Big Five Inventory, Brief Self-Control Scale (B-SCS), General Self-Efficacy Scale (GSE), E-Learning Usability Scale for Higher Education (ELUSH), Satisfaction with life scale (SWLS) and Oldenburg Burnout Inventory (OLBI-student version), which provides scores on two scales, “exhaustion” and “disengagement”. Overall usability of E-learning sites was significantly associated with disengagement but not exhaustion. The mediation effect of self-control on association between site usability and two indicators of burnout (exhaustion and disengagement) was moderated by conscientiousness. No significant differences were observed for burnout and well-being scores across different learning modes. The study highlights the importance of usability of subject sites in preventing burnout thereby increasing learner well-being and has implications for the learning and teaching processes in schools and institutions.

Keywords: Burnout, Self-Control, Self-Efficacy, Conscientiousness, Moderated Mediation

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Introduction

The COVID-19 pandemic drastically changed the education sector as schools and universities had to adapt to the social distancing policies and other health protocols that governments implemented in order to curb the spread of the COVID-19 virus (Adedoyin & Soykan, 2020). The closure of schools as one of the necessary measures to prevent the transmission of COVID-19 compelled schools to transition to remote learning platforms and change their pedagogical approach to accommodate this transition (Sandhu & de Wolf, 2020). As such, the utilization of pedagogical approaches that implement online learning, distance and continuing education has now become a necessity for educators, given that the traditional face-to-face setup is no longer feasible in the current global health situation (Pokhrel & Chhetri, 2021). It must be noted that online learning has been used by educational institutions prior to the pandemic, but it has never been institutionalized as a formal teaching approach until the education sector saw no other alternative learning design (Khan et al., 2020). As the world adapts to the "new normal", it seems that online learning is here to stay as an increasing number of institutions have adopted a blended approach toward the dissemination of course content.

Students' academic performance, well-being, burnout, and student engagement are some of the essential outcomes that need examination as indicators of students' successful transition to these new modes of learning. Individual factors too are important aspects that must be included. Though there have been many works examining factors contributing to student well-being and burnout, limited studies have actually considered both individual and external factors together. In addition, studies in the context of online and blended learning are limited, as these learning environments gained prominence only during the COVID-19 pandemic. Thus, a research gap exists in understanding how individual factors interact with these learning environments to influence student well-being and burnout levels.

Modes of Learning

To distinguish online learning from blended learning, it is important to define the two approaches and identify the key components that comprise each respective model. The blended learning model is the integration of traditional face-to-face teaching and online learning (Senturk, 2020). Traditional face-to-face teaching occurs synchronously in a physical classroom with an instructor directing and taking charge of the class, whereas online lessons are typically asynchronous, with students going through lesson materials at their own pace and schedule (Bonk et al., 2006). In this respect, online learning refers to a learning environment that utilizes technological tools, the Internet and other electronic devices to facilitate both synchronous and asynchronous instructional delivery (Huang, 2019).

Usability of E-learning site

Usability is defined as the degree to which specific users in a specified context can use a system or a product to achieve defined goals in an efficient, effective and satisfactory manner (Jokela et al., 2003). For our study usability refers to the ease-of-use of online courses. Online and blended learning both require student engagement with online content. When clear guidance and instructions were given on websites to support their online learning, students put in more effort to tasks (Mamun et al., 2016). A well-designed site with navigation support thus is critical for interaction with the content and acquisition of knowledge through it. Evaluation of usability in E-learning environments should consider both technical and

pedagogical criteria of usability (Sandoval, 2016). While technological criteria ensure a good user-experience while navigating through the course site, the pedagogical aspects support students' learning journey through the course (Dringus & Cohen, 2005; Granić& Ćukušić, 2011; Khan et al., 2010; Zaharias, 2009). A well-designed E-learning Site should support active participation by users, encourage self-critical thinking, and offer avenues for formation of community of learners where students express and share with their peers what they are learning, as well as gather feedback, reflect, and develop confidence by practicing (Boud & Prosser, 2002; Sandoval, 2016). Site content utilizing elements such as font, size, italics, highlight, etc., site interactivity that allows interactions with course, peers, and the instructor, learner-centric instructional design, a course design that is easy to navigate through and instructor presence that plays a critical role in facilitation and guiding students' learning, all contribute to high usability of E-learning sites (Ballard , 2010; Fisher & Wright, 2010; Jones, 2011; Zaharias & Koutsabasis, 2012). The online learning experience of students is enhanced by factors like stimulation, attractiveness, innovation and dependability, which prevent learner frustration, hence increasing student satisfaction (Agyeeiwaah et. al, 2022; Heidig et al., 2015; Malamed, 2015; Meiselwitz & Sadera, 2008; Nyang'or et al., 2013; Plass et al., 2013). E-learning sites with high usability can give students support to manage their academic burden. It is assumed that students will then be less exhausted and more engaged with the learning process. Better usability of online learning environment improves their online learning experience and leads to better learning outcomes for them (Meiselwitz & Sadera, 2008). Regularly disciplined interactions with the subject site can contribute to their self-efficacy for that system (Al-Azawei & Lundqvist , 2015). With a positive learning experience, they could be energetic, happy and more successful in their learning path (Schaufeli et al., 2002). The impact of usability on learning outcomes and better learning experience is presented in Figure 1.

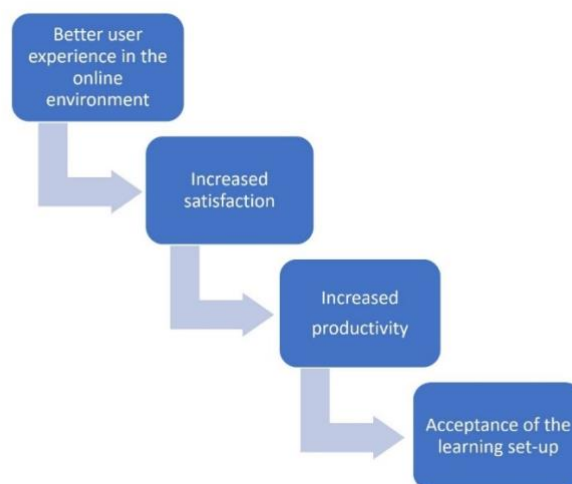


Figure 1: Impact of enhanced site usability on Learning

Student Well-being

The importance of well-being in higher education has been emphasized by many (Elwick & Cannizzaro, 2017; Kern et al., 2014). Two of the most common conceptualizations of well-being include subjective well-being and psychological well-being (Diener,1984 ; Ryff and Singer , 2008). While subjective well-being is a measure of an individual's personal experience and perception of events in their lives (Diener & Suh, 1997), psychological well-being, goes beyond life satisfaction (Ryff and Singer, 2008). Seligman (2011) argues that

well-being is an essential prerequisite for an overall positive learning experience from which students may reap maximal benefits and acquire new knowledge. Delivering curriculum in a way such that it allows students to flourish can help them maximize their potential to perform in school.

Academic Burnout

Burnout is a mental health state which is caused by work-related distress that involves incessant bodily reactions to repeatedly occurring interpersonal stressors (Mheidly et al., 2020). It is operationalized using three dimensions - emotional exhaustion, feelings of cynicism and inefficacy (Schaufeli et al., 1996). Academic burnout has become increasingly prevalent among university students as a result of competitiveness and increasing demands in higher education and has been associated with lower learning motivation and are major predictors of students' attrition from school (Aguayo et al., 2019; Cazan, 2015). From a student's perspective, burnout refers to "feeling exhausted because of study demands, having a cynical and detached attitude toward one's study and feeling incompetent as a student"(Schaufeli et al., 2002, p. 465). Burnout is significantly correlated with lower self-esteem and higher presence of depressive symptoms among students, which are general indicators of poor well-being (Tuominen-Soini & Salmela-Aro, 2014).

Academic Burnout, Well-being and Learning mode

When it comes to online learning, students might experience higher levels of study demands since they are expected to study independently. Absence or reduced direct interactions with teachers and peers, that facilitate their learning, could decrease their study resources. Thus, high demand of their personal resources and reduction in social interactions, could potentially lead to feelings of exhaustion and disengagement from school among students, resulting in academic burnout (Alam et al., 2021). Keramidas' (2012) findings also showed that online students find it more challenging to manage their time and meet school deadlines compared to their counterparts who have traditional face-to-face classes. Prolonged use of technological devices and consistent checking of e-mails for updates while studying in online mode can also contribute to burnout (Estevez-Mujica & Quintane, 2016). However, the convenience and ease offered by online learning can reduce the experience of burnout among students (Bolotov et al., 2020). Students could learn from the comfort of home and more time could be used for productive learning and achieving a better school-life balance instead of travelling to and from campus. This also has implications for student well-being.

In face-to-face learning mode too, research shows contradictory findings regarding experience of academic burnout. If on one hand, traditional teaching has shown positive impact due to the strong social relations between teachers and students fostered in physical classroom environment (Tomás-Miquel et al., 2016), studies also draw attention to its negative impact due to its rigidity (for both time and location) that makes it difficult for students to learn at their own pace or repeat learning activities (McCutcheon et al, 2015). Considering these conflicting findings for both online learning and traditional learning, it is difficult to decide which approach is can protect students from possible exhaustion and disengagement and improve their well-being (Lyndon et al., 2017).

One can then turn to blended learning which offers best of both approaches by optimizing the instructional strategies of the two above discussed approaches. According to Worley (2011), instructors can make learning more engaging by linking lesson materials to real-world

scenarios, making use of new technologies and multimedia to keep students stimulated, and encouraging inquiry-based learning. In blended learning, students have higher levels of engagement as exhibited through their school performance and interaction within the classes (Adams et al., 2020).

Individual differences

Factors contributing to academic burnout and student well-being also include individual factors such as self-esteem, self-efficacy, optimism, conscientiousness etc. (Alarcon et al., 2009). Self-efficacy is defined by Albert Bandura as one's beliefs in their capabilities to exert control over events and accomplish tasks (Bandura, 1977). Self-efficacy has been linked to higher learner engagement and predicted less burnout in students (Bulfone et al., 2016). Enhancement of self-efficacy has also been shown to improve learner engagement (Bresó et al., 2011). Ouweneel et al. (2011) posit that self-efficacy leads to higher study engagement due to a willingness to exert additional effort in accomplishing requirements. Maricuțoiu and Sulea (2019) found that self-efficacy beliefs can increase learner engagement, with results suggesting that increased self-efficacy can reduce the risk of student burnout. Higher self-efficacy is also associated with positive or better well-being (Armaou & Antoniou, 2018; Othman et al., 2019; Siddiqui, 2015). In contrast, lower self-efficacy may lead to lower levels of subjective well-being (Barlow et al., 2002; Bandura et al., 2003; Caprara, 2002) and increased symptoms of anxiety and depression (Faure & Loxton, 2003; Kashdan & Roberts, 2004; Shnek et al., 2001). Research shows that students with higher self-efficacy adapt well to new learning environments and have better academic success (Hodges, 2008; Zimmerman & Kulikowich, 2016). Self-efficacy also helps with managing stress (Villada et al., 2017), which could potentially be useful for when managing the stressors due to the changed learning environments.

Self-control is defined as the ability to delay the instantaneous satisfaction of a smaller reward with the expectation of receiving a larger reward at a later point in time (Ainslie, 1975; Mischel et al., 1989; Kirby & Herrnstein, 1995). In the academic context, self-control becomes necessary due to the long-term value of academic work over the short-term gratification of distractions (Duckworth et al., 2019). Research has revealed that self-control is positively related to whether students do well in online and blended learning environments, resulting in positive learning outcomes such as better grades and achievement of goals (Gorbunovs et al., 2016; Zhu et al., 2016). Seibert et al. (2016) found that, generally, there was a negative correlation between self-control and burnout, suggesting that low self-control could result in high levels of burnout. Those with higher self-control also seem to be happier and experience higher life satisfaction (Hofmann et al., 2014; Hussain et al., 2020).

Conscientiousness, which is defined as “individual differences in the propensity to be self-controlled, responsible to others, hardworking, orderly, and rule abiding”, (Roberts et al., 2014, p. 1315), can be an important factor influencing student learning experience across the different modes. Conscientiousness includes areas of self-control, industriousness, and order, which manifests in one's thoughts, feelings, and behaviours (Roberts, 2009). Individuals with higher levels of conscientiousness show discipline by persisting in their goals, an inherent motivation for accomplishment, make use of adaptive learning strategies and are more likely to succeed on tasks (Bidjerano & Dai, 2007; Chen et al., 2001; Costa et al., 1991; Poropat, 2009). Research has established that conscientiousness does positively influence self-control (Mao et al., 2018; Zhang et al., 2019). Hence, with regards to learning, students who score higher on conscientiousness could work hard and persevere in different subjects and courses

and potentially would do better in their studies. Furthermore, individuals with higher conscientiousness tended to have higher life satisfaction (Heller et al., 2004) and higher psychological well-being (Carter et al., 2016). Conscientiousness was reported as being negatively associated with burnout (Azeem, 2013). Studies show that conscientiousness is positively related with online engagement and online learning outcomes (Quigley et al., 2022; Yu, 2021). Thus, students with higher conscientiousness would be more likely to have a positive learning experience in the changed learning environments like online or blended modes.

The Present Study

In summary, the present study aimed to find if students studying across the three modes of learning had different burnout and well-being scores. Firstly, we wanted to see if students studying across the three modes of learning had different burnout and well-being scores by testing the below hypothesis.

H1- *students across the three modes of learning (e.g., 1. Fully asynchronous online 2. asynchronous online + synchronous online class 3. asynchronous online + synchronous F2F class) would differ in their scores for exhaustion, disengagement and well-being.*

Secondly, it was of interest to understand the relationship between site usability and academic burnout and student well-being. Past research has shown the explanatory power of self-efficacy (e.g., Hejazi et al., 2009; Llorca et al., 2017), and self-control (Duckworth et al., 2019), thus authors aimed to examine the mediating effects of academic self-efficacy and self-control on the relationship between site usability and academic burnout and student well-being. Thirdly, we wanted to examine the moderating role of personality trait conscientiousness on relationship among variables. Prior studies indicate that since persons with higher levels of conscientiousness show discipline by persisting in their goals and have an inherent motivation for accomplishment, they would be more likely to have a positive learning experience across all study modes (e.g., Poropat, 2009; Quigley et al., 2022). Following hypotheses were tested:

H2a- *Indirect effect of site usability on disengagement through self-control will be moderated by conscientiousness*

H2b- *Indirect effect of site usability on disengagement through self-efficacy will be moderated by conscientiousness*

H3a – *Indirect effect of site usability on exhaustion through self-control will be moderated by conscientiousness.*

H3b– *Indirect effect of site usability on exhaustion through self -efficacy will be moderated by conscientiousness.*

H4a- *Indirect effect of site on well-being through self-control will be moderated by conscientiousness*

H4b- *Indirect effect of site usability on well-being through self-efficacy will be moderated by conscientiousness*

H5a- *Conscientiousness will moderate the relationship between site usability and exhaustion,*

H5b- *Conscientiousness will moderate the relationship between site and disengagement*

H5c - *Conscientiousness will moderate the relationship between site usability and well-being*

The conceptual diagram is presented in Figure 2.

Method

The present study utilised a correlational design. A mediation analysis was employed to examine the mediating effect of academic self-efficacy and self-control (i.e., mediating variables) on the relationship between site usability (independent variable) and academic burnout (i.e., exhaustion and disengagement) and well-being (dependent variables). Conscientiousness was examined as a potential moderator influencing these relationships.

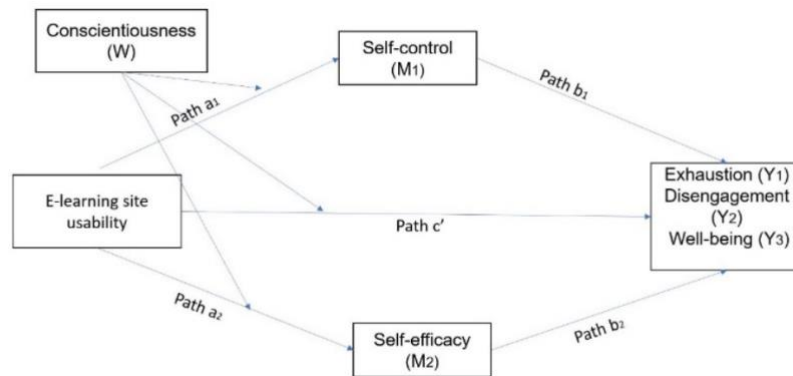


Figure 2: Proposed model for the study

Measures used in the study

Demographic Form – The demographic form requested for participants’ gender, age, academic discipline, course, year of study, and learning mode.

E-Learning Usability Scale for Higher Education (Sandoval, 2016) – This scale has 27 items in total measuring 4 dimensions- content, interactivity, instructor role and course design. Examples of these items include “*The course uses interactive tools and strategies to gain my attention and maintain my interest*” and “*Graphics used in the course are of high quality (not blurry)*”. Each item is scored using a 7-point Likert scale (from 1 = strongly disagree to 7 = strongly agree). A “not applicable” option was included for those items that did not apply to a participant. Higher scores indicate higher site usability. Hasibuan et al. (2019) reported a Cronbach alpha of .92 for the Indonesian version of the scale. The Cronbach’s alpha for the scale was 0.97 in the present study.

General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) – The General Self-Efficacy Scale (GSE) is a 10-item self-report measure of self-efficacy It is a single dimension scale, and each item is scored using a 4-point Likert scale (from 1 = not at all to 4 = exactly true) with higher score indicating higher self-efficacy. GSE has shown to have good internal consistency, with alpha scores of between .76 and .90 (Schwarzer & Jerusalem, 1995). There is also good construct reliability of .91 and good convergent validity of .51 (Freire et al., 2020). For the present study Cronbach’s alpha for the scale was 0.88.

Conscientiousness subscale of the Big Five Inventory (John et al., 1991) – This is a 9-item subscale of the Big Five Inventory and assesses one’s conscientiousness Items are rated from 1 (strongly disagree) to 5 (strongly agree). Internal consistency of this subscale was good, with alpha score of .82. For this study the Cronbach’s alpha for the scale was 0.76.

Brief Self-Control Scale (Tangney et al., 2004) – The Brief Self-Control Scale (B-SCS) is a 13-item self-report scale, and each item was rated on a 5-point Likert scale (from 1 = not at all like me to 5 = very much like me). High scores indicate higher self-control. The Cronbach’s alpha was 0.85 in the present study.

Oldenburg Burnout Inventory – Student Version (Reis et al., 2015) – The Oldenburg Burnout Inventory – Student Version (OLBI-S) is a 16-item questionnaire designed to specifically measure academic burnout in students (Reis et al., 2015). OLBI-S is adapted from the Oldenburg Burnout Inventory (OLBI; Demerouti et al, 2003) and it comprises two scales, disengagement and exhaustion. Participants responded to each statement on a 4-point Likert scale (from 1 = strongly agree to 4 = strongly disagree). Higher scores on the disengagement and exhaustion scales indicated greater disengagement and exhaustion respectively. In an English-speaking population, the OLBI-S had Cronbach’s alphas ranging from .74 to .97 (Halbesleben & Demerouti, 2005). The Cronbach’s alpha for this scale in the present study was 0.78.

The Satisfaction with Life Scale (Diener et al., 1985) – This five-item self-report measure assesses one’s satisfaction with life as a whole. Items are rated from 1 (strongly disagree) to 7 (strongly agree) on a Likert scale. Scores for each item were summed to obtain a total score of this scale, with higher scores indicating higher perceived life satisfaction. Internal consistency was high, with alpha score of .87 and good test-retest reliability of .82 (Magyar-Moe, 2009). The Cronbach’s alpha for the scale was 0.86 in the present study.

Participants

To participate in the study, participants were required to be a student taking at least one subject in an online or blended mode at the time of participation. A total of 142 participants (34 Males and 106 Females 2 Others), aged between 18 and 49 years old (Mean Age =22.7 yrs.) contributed to the data for the study. Participants were recruited using James Cook University (JCU)’s SONA recruitment system, through social media platforms as well as via convenience and snowball sampling. Participants who required course credits in partial fulfillment of module requirements were awarded 2 SONA credit points and no incentives were given to the other participants.

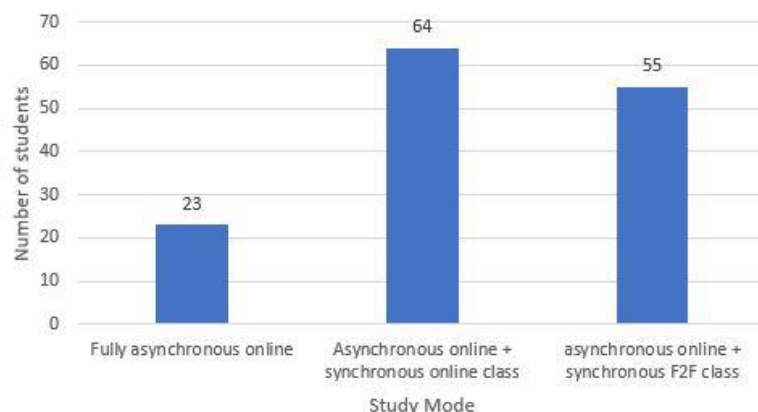


Figure 3: Breakdown of participants across different study modes

Procedure

Ethics approval was received from the university ethics committee before commencement. Data was collected online via Qualtrics. Participants accessed the URL for the study which was shared with them via poster. Once participants gave their consent after reading through the information sheet, first question checked for the participant eligibility. Only participants who acknowledged taking at least one module in online or blended mode at the time of the participation were presented with rest of the survey. They were asked indicate module name and its delivery mode. All the subsequent questions were with reference to that specific module. The questionnaires were presented in random order to manage the order effect. At the end of the survey, participants were thanked for their time spent in participating in the study.

Results

Data Screening

Participant data (N = 158) was screened and invalid response and cases with less than two questionnaires completed were removed (n = 14). Next, outliers (n = 2) were identified and removed. Following data screening, the remaining responses (n = 142) were used for analyses.

Age as a covariate

Research shows that age can influence student's level of academic burnout, with academic exhaustion being more prevalent among students between 20 and 24 years old (de Silva et al., 2018). Correlation analysis showed that age was not significantly associated with any of the study variables and thus was not included as a covariate.

Relationship among Variables

A preliminary analysis was conducted to examine the relationship between the key Variables (Table 1). The results indicated that well-being had a moderate, negative, and significant correlation between exhaustion ($r = -.41$, $p < .001$) and a weak, negative and significant relationship with disengagement ($r = -.28$, $p < .001$). Conscientiousness had moderate, negative and significant correlation with exhaustion ($r = -.49$, $p < .001$) and disengagement ($r = -.43$, $p < .001$). It showed weak, positive but significant relationship with self-efficacy ($r = .35$, $p < .001$) and significantly strong and positive correlation with self-control ($r = .76$, $p < .001$). Self-efficacy also showed significant, moderate and negative association with both exhaustion ($r = -.35$, $p < .001$) and disengagement ($r = -.43$, $p < .001$). Similarly, self-control had moderate, negative and significant correlation with exhaustion ($r = -.52$, $p < .001$) as well as disengagement ($r = -.45$, $p < .001$). On the other hand well-being showed weak, positive and significant relationship with conscientiousness ($r = .30$, $p < .001$), self-efficacy ($r = .30$, $p < .001$) and self-control ($r = .22$, $p < .001$). Additionally, total usability of E-learning site showed a moderate, negative, and significant correlation with disengagement ($r = -.33$, $p < .001$) but not with exhaustion and well-being.

Differences across study modes

A one-way ANOVA was run to compute the differences in scores for student burnout and well-being across different study modes. The results showed no significant differences in scores across the three study modes indicating rejection of H1.

Variables	1	2	3	4	4.1	4.2	4.3	4.4	5	6
1. Exhaustion										
2. Disengagement	.510**									
3. Well-being	-.408**	-.275**								
4. Total Usability	-.132	-.327**	.116							
4.1 Content usability	-.194*	-.351**	.122	.905**						
4.2 Interaction usability	-.200*	-.361**	.141	.888**	.809**					
4.3 Design Usability	-.043	-.233*	.110	.897**	.747**	.682**				
4.4 Instructor presence usability	-.012	-.198*	.031	.846**	.635**	.608**	.775**			
5. Conscientiousness	-.486**	-.431**	.304**	.189*	.169*	.225**	.130	.133		
6. Self-efficacy	-.353**	-.427**	.297**	.386**	.289**	.335**	.374**	.370**	.350**	
7. Self-control	-.524**	-.451**	.220**	.256**	.250**	.301**	.145	.190*	.761**	.330**

Note. ** P<0.01 level, * p<0.05.

Table1: The Pearson Correlation Analysis Table

Site Usability to Burnout and Well-being

Before running the analysis, data was checked for assumption violation. All assumptions for multiple regression were satisfied. Hayes' (2018) PROCESS macro for SPSS Models 7 and 8 were used to test the hypotheses. A moderated mediation analysis was performed to test the moderating role of conscientiousness and mediating roles of self-efficacy and self-control.

H2a and H2b

Results showed that the indirect effect of site usability on disengagement through self-control was moderated by conscientiousness. Higher self-control was associated with lower disengagement. The conditional indirect effect was strongest in those high in Conscientiousness (1 SD above the mean). H2a was supported by index of moderated mediation (index= -.037, 95% CI= (-.070/-0.007) which was significant since the 95% CI did not include zero. H2b was not supported (Figure 4).

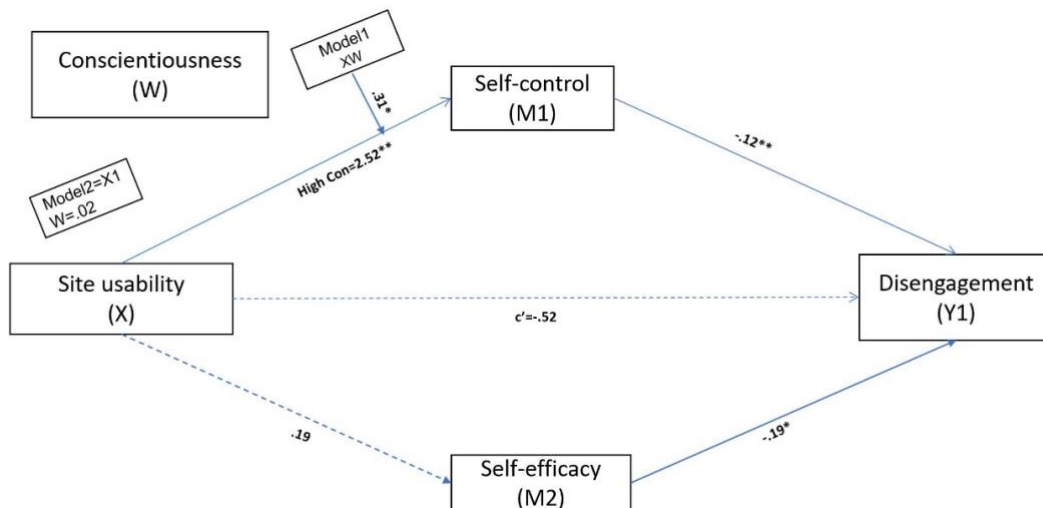


Figure 4: Outcome of moderated mediation analysis for site usability on disengagement through self-control and self-efficacy moderated by conscientiousness

H3a and H3b

H3a was supported as results showed that the indirect effect of site usability on exhaustion through self-control was moderated by conscientiousness. Higher self-control was associated with reduced exhaustion. Conditional indirect effect was strongest in those high in Conscientiousness (1 SD above the mean). H3a was supported by index of moderated mediation (index = -0.056 , 95% CI = $(-0.095/-0.011)$ which was significant since the 95% CI did not include zero. H3b was not supported (figure 5).

Analysis further revealed that H4a, H4b, H5a, H5b and H5c are not supported. Thus, site usability has implications for levels of academic burnout via self-control, but not for student well-being.

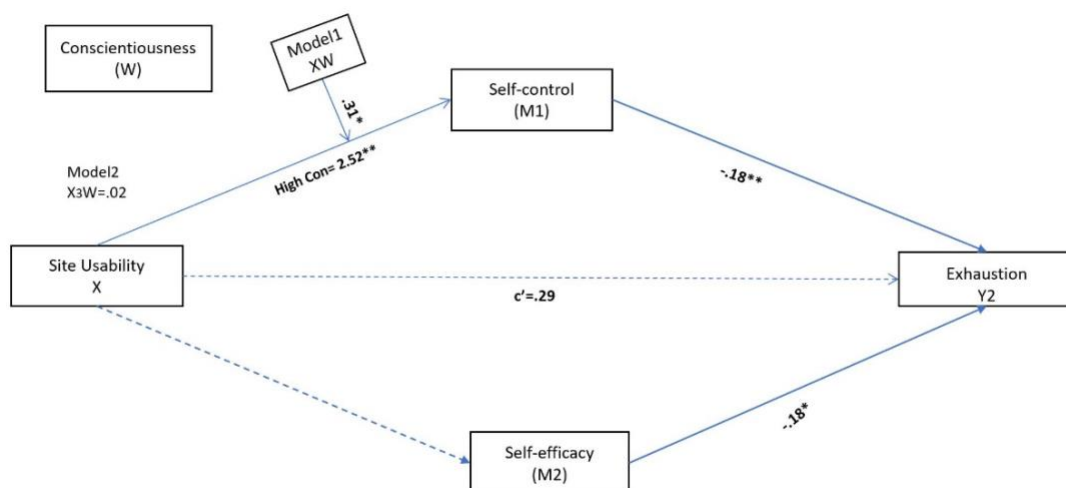


Figure 5: Outcome of moderated mediation analysis for site usability on exhaustion through self-control and self-efficacy moderated by conscientiousness

Discussion

The aim of this study was to see how usability of E-learning sites contributes to burnout and well-being in online and blended mode. Significant individual differences emerged that affected relationship between site usability and student experience.

Conscientiousness emerged as a significant moderator on relationship between site usability and self-control. Specifically, those with high level of conscientiousness showed high levels of self-control. This is aligned with earlier research outcomes where conscientiousness was shown to positively influence self-control (e.g., Mao et al., 2018; Zhang et al., 2019). However, conscientiousness was not a significant moderator for pathway from usability to self-efficacy and usability to burnout and well-being, thus hypotheses H5a, 5b and 5c are rejected.

The study results show support for H2a and H3a, since the indirect effect of site usability on both disengagement and exhaustion, through self-control was moderated by conscientiousness. This is not surprising since those with high conscientious personality are more likely use technology that will allow them to be more efficient and optimize their performance (Punnoose, 2012) which in turn will encouraging them to increase their interactions with the E-learning systems (Devaraj et al.,2008). Through consistent effort and practice learners might realize that the online learning systems are easy to navigate and supportive of their learning (Bismala et al.2022). Since E-learning requires a high level of student motivation and self-discipline (Sandybayev, 2020), it is not surprising that self-control emerged as a significant mediator between site usability and burnout. A well-designed E-learning subject site with high usability would support student engagement. To students it would appear attractive and innovative, thereby keeping them stimulated and engaged (Agyeeiwaah et. al, 2022). This in turn would protect them against cognitive fatigue and tiredness which significantly contribute to burnout.

Hypothesis H2b and H3b, are not supported in our study. Though academic self-efficacy has played in significant mediating role in academic-related behaviors (Hejazi et al., 2009), it was not a significant mediator in the present study. There could be many reasons for it. Usability of E-learning site by itself does not automatically contribute to self-efficacy (Chahal & Rani ,2022). Individual experience of the learner and the maturity of a specific technology contributes to one's beliefs in their capabilities to exert control over events. A student has to interact with the system, continuously, regularly and in a disciplined manner to get its benefits, which would then develop their self-efficacy for that system (Al-Azawei & Lundqvist ,2015). In context of higher education, E-learning subject sites are fairly new phenomenon, it might take some time for student to feel comfortable with technology. Punnoose (2012) found conscientiousness to be the only personality variable that exerted a direct effect on students' belief regarding usefulness of an eLearning system. Since in our study, conscientiousness showed weak but positive correlation with self-efficacy and was not its significant moderator, this potentially affected the relationship between E-learning site usability and self-efficacy. It could be that individual difference in this personality trait influenced formation of certain beliefs about learning technologies which in turn affected how they engaged with E-learning subject sites (Punnoose, 2012). Self-efficacy did emerge as a significant, negative predictor of disengagement which is in line with past research (e.g., Bulfone et al., 2016).

For the present study, well-being had a moderate, negative, and significant correlation

with exhaustion but a weak, negative and significant relationship with disengagement indicating that exhaustion experienced by students contributes significantly more to their life-satisfaction and well-being than disengagement. The direct effect of E-learning site usability on student well-being was non-significant as were the mediating effects of self-efficacy and self-control which resulted in rejection of H4a and H4b. Self-efficacy predicted student well-being which is similar to past findings (e.g., Armaou & Antoniou, 2018; Othman et al., 2019).

Our study did not reveal any differences in burnout and well-being scores for participants across different study modes thus H1 is rejected. The non-significant ANOVA results could be due to the unequal distribution of the 3 learning design groups as there was a much larger proportion of students doing blended learning. Nonetheless, certain trends were observed. Exhaustion appeared to be the lowest for the group doing blended learning with face-to-face sessions. This could be interpreted as the fact that this particular learning design provides students the opportunity to switch between two kinds of learning environment – online and on-campus which possibly helps to break the monotonous experience of learning only in online mediums all the time. With face-to-face sessions, students can get more “breaks” from the monotony and receive more stimulation from interactions with their instructors and peers. Surprisingly, disengagement was found to be the lowest for the group doing blended learning with online synchronous sessions, which contrasted with past studies showing how students were better engaged in face-to-face classes (Tomlinson et al., 2013). A possible explanation could be that perhaps students could focus better without distractions from classmates and the surroundings and also get attention from the teacher when they reach out.

Limitations

This study is not without limitations. Firstly, the current research is cross-sectional, and data were only gathered at a specific point in time, which makes it hard to determine cause-and-effect relationships over an extended period. Secondly, unequal distributions of participants across different study modes could have contributed to non-significant results. A larger and more evenly distributed sample size should be used in future research. Given that majority of participants in this study were Psychology undergraduate students, future research can also look to compare and examine the differences across other levels of study and disciplines.

Conclusion

The study highlights importance developing subject sites which are usable, that follow best practice instructional design principles so that students are not frustrated while trying to navigate the site. Regular and disciplined interaction with subject site is supportive of student engagement and can prevent academic burnout. Since the study mode and gender did not account for any differences in participant burnout and well-being, it focuses our attention on E-learning site features such as - site content, site interactivity, instructor role and course design - which are significant contributing factors in a student’s learning experience.

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