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Impact of online learning readiness on online learning effectiveness

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Abstract

Online education started to gain immense popularity worldwide along with the pandemic and continues to grow even in the next normal conditions. Scholars have developed several scales on different aspects of online learning. Present study considers the online learning readiness scale and its impact on online learning effectiveness of undergraduates. Responses were gathered using convenience sampling technique and the final sample size consisted of 134 respondents. Data collected were analyzed using Multiple Regression analysis. Results revealed that learner control and online learning self-efficacy have significant positive impact on online learning effectiveness of undergraduates. Three other factors of the online learning readiness scale in terms of computer/internet self-efficacy, self-directed learning and motivation for learning have insignificant impact on online learning effectiveness. The findings of the study have implications for the education sector in further enhancing online teaching and learnin.

Keywords: Online learning readiness; Online learning effectiveness; Learner control; Undergraduates

1. Introduction

The advancements in modern technology and various worldwide socioeconomic problems have led to new ways of distributing and accessing information. Internet technologies have impacted education systems and teaching-learning activities, which have become one of the most popular ways to acquire information [1] . Online learning is an educational innovation that uses technology to build a virtual classroom to transform conventional teaching and learning methods [2]. This learning resource is readily available to anyone worldwide, removing geographic and temporal limitations [3] . Therefore, concerning the effectiveness of online learning over traditional learning has become a timely concern.

Learning effectiveness must be used as the benchmark for evaluating online education [4]. Researchers and educators must consider how well online learning is compared to traditional face-to-face instruction and the elements that impact the effectiveness of online courses [5]. According to [6] in order to determine learners' effectiveness with online learning, Self-Directed Learning Readiness was the most crucial factor. Better online systems for learners' development can be designed by measuring learners' readiness. It has been and will continue to be necessary for academic staff and students to reevaluate student readiness and to re-create a more thorough evaluation of the student's readiness [7].

According to the literature, Researchers have concentrated on creating a readiness scale for online learning in recent years [7]. Many scholars [8][9] have investigated this notion, and numerous aspects of this readiness for online learning have been found and proven. Moreover, measuring effectiveness helps to work with online learning. Accordingly, the present study tries to identify the impact of learners' readiness on online learning effectiveness.

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2. Literature Review

2.1. Online learning Effectiveness

Learning effectiveness refers to the extent to which learners of an online course obtain educations that reflect the unique characteristics of the organization. The objective is for online learning to be on par with other school delivery methods, mainly traditional face-to-face, classroom-based training[10]. In fact, the majority of educators at the time that online learning was originally developed and put into practice thought that it could never be compared with face to face learning and, many still do [4]. As a result of that there are several scales which were developed to measure various variables connected with online learning. Online Learning Self-efficacy Scale (OLSS) is one such scale which is developed and validated by [11]. Further, this scale was tested in Sri Lankan context by [12].

2.2. Online Learning Readiness Scale

In recent years, technology has enabled online learning in higher education enabling the transition from an instructor-led paradigm to one that is learner-centered [13]. However, online learning requires students to be ready in order for them to completely benefit from it [14]. Studies on readiness in online learning show that a variety of factors are impacted by readiness [15,16,17].

[18] Introduced the idea of readiness for online learning in the Australian vocational education and training sector. Three factors were used to define readiness for online learning in that study. They are students' preferences for the mode of delivery relative to face-to-face classroom instruction, students' comfort levels with using electronic communication for learning, particularly their comfort levels with using the Internet and computer-mediated communication and students' capacity for independent learning. Further, a study in Taiwan found that Students' readiness level were low in learner control and self-directed learning and high in computer/Internet self-efficacy, motivation for learning, and online communication self-efficacy [7].

According to the literature, OLRS should be further tested in different contexts. Therefore, the current study applies OLRS to determine its impact on Online Learning Effectiveness.

2.3. Computer/Internet Self-efficacy

The technological element of self-efficacy in online learning was the main emphasis of the previous studies, such as computer self-efficacy [19, 22] and internet self-efficacy [23, 22, 24, 25]. In the Sri Lankan context, [12] found that technology use self-efficacy has an insignificant relationship with self-efficacy to complete an online module. According to [20], there is a significant effect from students' computer self-efficacy on their satisfaction and on their opinions regarding participation in future online courses

A 10-item computer self-efficacy scale (CSE) was developed, validated, and identified that computer self-efficacy significantly influenced computer-use outcomes, emotional reactions to computers, and actual computer use [26]. Furthermore, in a Web-based learning task, [27] discovered that learners with high Internet self-efficacy learned more than students with low Internet self-efficacy.

2.4. Self-directed Learning

Through the diagnosis of their learning requirements, goals, and tactics as well as evaluating their performance and results, learners can take charge of their learning processes through self-directed learning [28]. Self-directed learning is essential in the online learning environment to ensure students are prepared for this teaching style. Self-directed learners are typically more engaged in learning activities, such as reading online learning materials, finishing assignments in class, and organizing and assessing learning milestones [14]. Self-regulated learners are active participants who effectively manage their learning experiences in various ways. They create a productive workspace that makes the best use of resources, organizing and practicing the material to be learned, controlling their emotions while working on academic tasks, and having optimistic, motivating beliefs about their abilities, the importance of learning, and the factors that influence learning [29]. Further, [7] revealed that students' readiness levels were low in self-directed learning.

2.5. Learner Control

Learners' level of decision-making on what, where, when, and how they learn is referred to as their level of learner control [30]. According to [31] Giving learners control over their interactions can improve online learning. Students must choose and exert control over their learning activities in terms of pace, depth, and coverage of the topic, type of

media accessed, and amount of study time because online learning environments also give students more freedom in their learning-activity arrangements [32]. Due to the nature of online learning, it is possible to provide students the freedom to decide how quickly, in what order, and what subject they learn Therefore, learner control also becomes a crucial component of students' readiness [34]. Further, learner control makes online learning unique because it allows for more significant interaction and flexible navigation across the learning environment. In order to enforce learners interaction, online courses are designed with a high degree of learner control [32].

2.6. Motivation for Learning

Motivation is defined as the procedure for launching and maintaining goal-directed activity [35]. In educational research and practice, has significantly impacted learners' attitudes and learning habits [36, 38]. Previous study has also shown that motivated learners are more likely to take a deep approach to learning, engage in demanding activities, be actively engaged, enjoy themselves, and exhibit improved performance, persistence, and inventiveness [35]. Academic motivation, which specifically refers to individual motivation for academic pursuits, is directly tied to students' self-efficacy views [39] and motivation is positively affected to students' performance [40]. Further, [12] proved that motivation significantly impacts online learning self-efficacy. Adult students leave their distance education for various reasons, including a lack of academic enthusiasm and preparation [41]. Many studies highlight the negative association between academic motivation and drop-out rates from online learning [42, 44].

2.7. Online Communication Self-efficacy

Due to the lack of face-to-face connection between lecturer and student in online learning, online communication is the only means for students to communicate with the professor and classmates [14]. Therefore, students must engage in an online conversation to reflect on and internalize what they have learned by posting questions and expressing their emotions and views [8]. Moreover, [45] found that Successful students should take advantage of online discussions, which can provide excellent dialogue and intelligent questions to engage peers and teachers. Asking questions allows the student to gain insight into the topic matter, which makes it more understandable. Furthermore, to avoid burnout or lack of interest while studying online, students should take advantage of possibilities to collaborate with other online students, using encouragement and feedback to stay motivated [7].Further, online communication Self-efficacy is regarded as being essential to incorporate as part of students' assessment for preparation for online learning [7].

3. Methodology

The study employed quantitative research technique to examine the impact of learners' readiness on online learning effectiveness. The population is considered as the undergraduates of a selected university in Sri Lanka. The sample of 200 undergraduates were selected using convenience sampling method, which is a non-probability sampling technique. Data were collected using a structured questionnaire with five-point Likert scale questions. A pilot test was carried out by distributing the questionnaire among 40 respondents to ensure the reliability and validity of the questionnaire. The conceptual framework of the study is depicted in Figure 1.
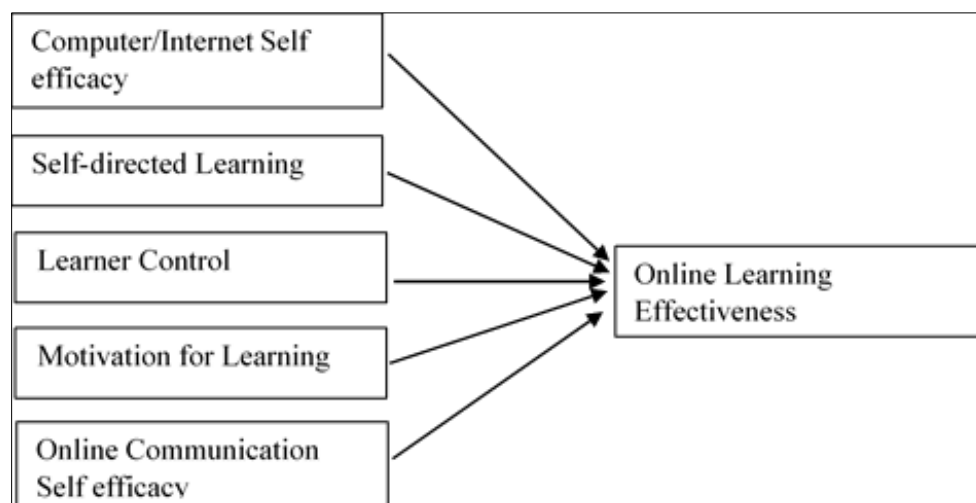
Source: Authors

Figure 1 Conceptual Framework

The study tests the following hypotheses based on the online learning readiness scale.

- H1: Computer/internet self-efficacy has an impact on online learning effectiveness
- H2: Self-directed learning has an impact on online learning effectiveness
- H3: Learner control has an impact on online learning effectiveness
- H4: Motivation for learning has an impact on online learning effectiveness
- H5: Online communication self-efficacy has an impact on online learning effectiveness

4. Data Analysis and Results

Among the questionnaires distributed, 164 filled questionnaires were received, out of which 30 questionnaires were removed as outliers. The final sample size proceeded for data analysis is 134. Cronbach's alpha test was used to carry out the reliability of the questionnaire and the values pertaining to the identified variables denoted above 0.6 thereby ensuring the reliability (Table 1). The validity test was carried out using Kaiser-Meyer-Olkin (KMO) test. Accordingly, the KMO value was 0.732 ensuring the satisfactory level of validity measures.

Table 1 Reliability Statistics

Variable	Cronbach's Alpha	No. of items
Computer/internet self-efficacy	0.786	3
Self-directed learning	0.763	5
Learner control	0.612	3
Motivation for learning	0.834	4
Online communication self-efficacy	0.772	3
Online learning effectiveness	0.889	3

Source: Authors based on survey results

After ensuring parametric assumptions, data were proceeded for multiple regression analysis to test the hypotheses of the study. The R squared and adjusted R squared were 0.537 and 0.261 respectively. Hence online learning readiness scale explained 26.1% of the variations of online learning effectiveness. The regression model was significant at 5% (0.000) significant level. The regression results pertaining to the study are depicted in Table 2.

Computer/internet self-efficacy, self-directed learning and motivation for learning show insignificant impact on online learning effectiveness, where the significant value is greater than 5%. However, learner control and online learning communication self-efficacy show significant positive impact on online learning effectiveness. The relationships pertaining to both variables are significant at 5% significance level (p<0.05). Accordingly, H1, H2 and H4 are rejected whereas H3 and H5 are accepted.

Table 2 Regression results

Model	Unstandardized coefficients		standardized coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.855	1.393		0.576	0.565
CIS	-0.24	0.160	-0.014	-0.149	0.882
SDL	0.124	0.167	0.073	0.744	0.459
MFL	0.075	0.168	0.046	0.447	0.656
LC	0.270	0.130	0.190	2.085	0.039
OCS	0.444	0.127	0.353	3.491	0.001

Source: Authors based on survey results

5. Discussion

In this study the relationship between learners' readiness and online learning effectiveness was observed using OLRS developed by [7]. Accordingly, in the Sri Lankan context validity of OLRS scale was checked based on the five independent variables namely Computer/internet self-efficacy, Self-directed learning, Learner control, Motivation for learning and Online communication self-efficacy. Online learning requires students to be ready in order for them to benefit entirely from it [14]. Studies on readiness in online learning show that a variety of factors are impacted by readiness (Gunawardena & Duphorne, 2001; Fogerson, 2005; Lau & Shalkh, 2012). Therefore, this study focusses on impact of online learning readiness towards online learning effectiveness.

In a Web-based learning task, [27] discovered that learners with high Internet self-efficacy learnt more than students with low Internet self-efficacy. A 10-item scale of computer self-efficacy (CSE) was developed, validated and identified that computer self-efficacy had a significant influence on computer-use outcomes, emotional reactions to computers, and actual computer use [26]. Further, learners manage the learning experiences in many ways. Such as creating a productive workspace, making the best use of resources, organizing and practicing the material to be learned, controlling their emotions while working on academic tasks, and having optimistic, motivating beliefs about their abilities, the importance of learning, and the factors that influence learning [29]. A previous study has also shown that motivated learners are more likely to take a deep approach to learning, engage in demanding activities, be actively engaged, enjoy themselves, and exhibit improved performance, persistence, and inventiveness [35]. The findings of this paper are inconsistent with the prior findings by failing to establish a significant relationship between online learning effectiveness and the three factors, namely Computer/Internet Self-efficacy, Self-directed learning, and Motivation for learning. It could be further verified in future research.

According to [31] Giving learners control over their interactions can improve online learning. Due to the nature of online learning, it is possible to provide students the freedom to decide how quickly they learn [33]. Learner control becomes a crucial component of students' readiness as well [34]. The current study also proved the results in literature showing that Learner control has a significant impact on online learning effectiveness.

Moreover, [45] found that Successful students should take advantage of online discussions, which can provide opportunity for greater dialogue and intelligent questions as a way to engage both peers and teachers. Further, online communication Self-efficacy is regarded as being essential to incorporate as part of students' assessment for preparation for online learning [7]. The current study showed a significant effect of online communication self-efficacy on online learning effectiveness, which is in line with the previous studies.

6. Conclusion

Online learning has gained immense popularity worldwide, and many researchers focus on several aspects related to online learning. Current research findings contribute to existing knowledge and tests and validate OLRS in the Sri Lankan context. Providing learners, freedom and control over online learning helps to make online learning a more effective one. In addition, learners with high online learning self-efficacy, add more success to their online learning experience. Additionally, the study's limitations spotlight on areas that need further research. A Sri Lankan university's undergraduates were studied, and it is possible to conduct additional study on postgraduate students. Additionally, OLRS may be tested and verified in many settings and countries.

Compliance with ethical standards

Disclosure of conflict of interest

Authors declare that there is no conflict of interest that would affect the findings of this study.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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