Learning and recognition of students' potential towards online learning in Pune

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Abstract:

In the 21st century, learning online learning has evolved into a worldwide platform for users to engage, collaborate and engage in the learning process. Learning online learning today is integrated with social network connectivity, creating an ecosystem for interaction between students, teachers and professors from every corner of the globe, providing them with free and idle accessible resources online.
However, in order to promote active engagement of learners and delivery of meaningful learning in learning online learning settings, it is also necessary to determine the opinion of students towards learning online learning. The purpose of this study was to develop a standard for determining students' understanding of learning online learning (LRSPTOL). This standard includes four parameters: Instructor characteristics, social presence, instructional design and confidence. Research data were collected from BVDU university students. To determine the validity of the scale, research factor analysis and confirmation factor analysis and item differentiation were used. The results show that the postal is a valid and reliable tool.

The effects of the current study are important for indicator designers, educators, and institutions that are preparing to offer, or are currently offering, online offer courses.

Keywords:

Learning online learning, instructor characteristics, social presence, instructional design, trust

Introduction:

In the 21st century, with recent advances in information and communication technology (ICT), the Internet plays an important role in accessing information from anywhere. Internet use in higher education has grown at an alarming rate There is a high level of use of the Internet, especially in university education (BVDU 2020).
Crook (2008) noted that the Internet not only provides access to a wide range of educational topics, but also provides opportunities to communicate with others by sharing their ideas and participating in discussion forums around the world. The integration of the Internet into a learning environment has had a positive effect on academic achievement According to, https://indiapopulation2020.in/population-of-pune-2020.html **Pune Population 2020 – 7.41168 Million (estimated). As per the Internet and mobile association of india (IAMAL)** Profile users in by Gender is MALE 60% and Female 40% and Profile users in age group in pune20to 29 age group in pune is the highest user group i.e 36% over all in the India. and pune point of Internet access (place of Internet Access in %) Home – 98% highest in inda ,Work – 47%, Travelling- 39%, Studying 10 % , Internet café 3% , Others 32% . Also, there were 2 million 4G subscribers, which is 75% of the total mobile subscribers. In addition, smart phone penetration in India has increased to 51% of the total population. In fact, 69% of the population accesses their smart phones every day this suggests that most

students in India can use the Internet on their smart phones, use social networking sites, and connect themselves wirelessly

Theoretical framework
Online learning and its effectiveness

There are many definitions of "learning online learning" given by researchers. For example, according to Benson (2002), learning online learning is an improved version of distance learning. Khan (2005, p. 3) defines learning online learning as "an innovative approach to deliver a facilitated, learning-focused, interactive, and convenient learning environment, using the virtues and resources of various digital technologies, anywhere." With other types of education tailored to an open, flexible and distributed learning environment

Another definition in 330, Zhou, McKein Edit, and Edwards (200), described instline instruction as a formal formal educational process in which instruction occurs when the learner and instructor are not in the same place, and Internet technology is used to provide a link to the communication. Is. Instructor and students. Learning through computer networks, such as the Internet and the World Wide Web, local area network (LAN) or intranet is considered to be learning online (Harsim, 2012).

Many studies have found positive results in the learning online learning environment. Garsul and Kaiser (2009) compare the learning environment in mathematics and online and face-to-face. They found that the students in the online problem-based learning group performed better than the students in the face-to-face learning group. In another study, Hoffman (2002) argued that online is not online Courses help students to understand the content of the course more easily and effectively. Vrsidas and Massiasek (2000) added that both synchronous and asynchronous types of learning motivate students to learn self-speed. Courses Learners became more independent and responsible after taking online courses (Scotch, 2000).

Other findings show that students were satisfied with the introduction of Information and Communication Technology (ICT) in face-to-face classrooms and that courses have a positive attitude towards accepting online courses (Sagin Simsek, 2008). According to Michau, Gentle and Barrault (2001), courses online courses provide flexibility in terms of time and location and are also cost-effective.

Learning Measures student perception towards online learning

Over the past few years, many studies have developed scales about students' perceptions of learning online learning. Smith, Murphy and Mahoney (2003) conducted a study to investigate the tool developed by McWay (2000). They were cited as two important factors after factor analysis identified "break from e-learning" and "self-management of learning". Later, Smith (2005) re-tested the McVena (2000) instrument using a sample of 314 Australian Australian University students. Studies have shown that this tool can be applied for research and study in the field of student preferences towards online learning. However, Hung, Cho, Chen, and On (2010) argued that The learner's readiness to learn should include technical computer skills, Internet skills, and learner control over the sequence and selection of course materials, which were not present in the McVena (2000) tool. Hung et al. Lear developed the Online Learning Readiness Scale (OLRS).

OLRS includes some important parameters such as self-directed learning, learning motivation, computer / internet self-efficacy, learner control and communication online communication self-efficacy but other important parameters such as instructor characteristics, social presence, instructional design and confidence.

Based on the above parameters to test students' perceptions of learning online learning, the aim of the present study was to develop a scale that could be better applied to display contemporary settings of learning online learning.

Instructor Characteristics

Instructor characteristics, as defined by Lee, Yoon, and Lee (2009), are the extent to which instructors are caring, helpful, and accommodating to students. Lim, Hong and Tan (2008) stated that students were not actively involved in the e-learning system unless they were trained by instructors to use the e-learning system. Guidance and convenience are not provided. If interactions between students and instructors as well as between students are encouraged, students' motivation, emotions, cognitive processes, and learning in social presence can be improved (Kim, Park, and Kozart, 2013). Vrsidas and Massiasek (2000) suggested that the instructor responds regularly and participates in discussions.

Heuer and King (2004) regarded model Dale as a facilitator, model, organizer, coach and communicator. Lim, Morris and Yoon (2006) analyzed the quality of learning online instruction, learning motivation, and the quality of learning involvement as significant variables influencing the course results of the learning online learning program. Therefore, the instructor plays an important role in the learning online learning environment.

Instructional design

The mental effort to interact with a certain amount of information at a time is known as a cognitive load. This "emphasis" should be fully considered when designing instructional materials, especially for the learning online learning environment. Cognitive load theory focuses on the limitations of human working memory to determine the effectiveness of instruction and cognitive

Recognized as a framework for research in process and instructional design (Pass, Rankl, and Sweiler, 2003). Theory suggests that instruction should be designed in the capacity of working memory to achieve maximum learning outcomes (Kirschner, 2002). Working memory (WM) can be described as small pieces of information that the learner can temporarily keep in mind while simultaneously allowing instant access to new or additional edits of information. (Cowan, 2005). Information is retained to enable processing and manipulation for the integration of more complex tasks such as WM, understanding and reasoning (Badley, 2000).

Does not engage learners in a way that rearranges their existing memory to contain new information and store it for future use (Lohr, 2008). Internal, external and German cognitive loads are used to measure such mental endeavors. To be specific, the internal load is directly related to the nature of the material complexity

delivered to the learners and their skills (Pass et al., 2003); External (ineffective) loads may refer to designated external elements during instruction, which may impose one's extra effort on the WM, and indirectly hinder the study (Meyer, 2009); And the German (effective) emphasis refers to the additional efforts allocated by learners to facilitate learning (Pass et al., 2003). Wu (2011) pointed out that the instructional design of a course may be ineffective when learners are cognitively overloaded (i.e., external, internal, and German loads exceed the cognitive capacity of the learners). Wang and Newlin (2002) are student-centered Suggest curriculum design, which will reduce the level of anxiety related to online courses. Thus, a well-designed course online course should reflect the full design process and learning experiences of the course designer which is particularly relevant to the above cognitive load.

Methodology

Participants and data collection

Demographic Statistics

Sr no	Measure	Category	Number	Percentage
1	Gender	Female	101	31%
		Male	229	69%
		Total	330	100%
2	Age (Years)	18<20	218	66%
		21<25	112	34%
		Total	330	100%
3	Education	Undergraduate	218	66%
		Postgraduate	112	24%
		Total	300	100%
4	No of smart phone users	Yes	325	98%
		No	05	02%
		Total	330	100%
5	Frequency of daily internet users	Frequently(> 5 hours)	24	7%
		Normally(3–4 hours)	140	42%
		Occasionally(1–2 hours)	166	51%
		Total	330	100%
6	Internet users area wise	Urban area	238	72%
		Rural area	92	28%
		Total	330	100%
7	Completing the online units did not take more time and effort than it was worth	Yes	263	80%
		No	67	20%
		Total	330	100%
8	Using the online learning units	Yes	215	65%

	was fun			
		No	115	35%
		Total	330	100%
9	Internet Connection Type	WiFi	95	29%
		4G	226	68%
		3G	09	03%
		Total	330	100%
10	Place of where internet Access	Home	97	29%
		Internet Café	06	02%
		Work	56	17%
		Study	164	50%
		Travelling	07	02%
		Total	330	100%
11	Name of the University currently enrolled	BVDU	184	56%
		DPU	50	16%
		SPPU	75	23
		TMV	21	06%
		Total	330	100%

A sample of 330 students was collected from different parts of Pune. Students with different area like Rural and urban Area ,UG &PG and online learning experience responded through Microsoft forms .The Demographic information were include is age, gender ,and educational bag round shown in the table .As information were shown in the table were Male 69% and women's were 31%.Approximately Undergraduates were 66% and postgraduates were 24%.The important point to observe that Urban area internet users are more 72% and rural area internet user are 28% in this the smart phone users are 98%. If we observe daily Internet use, approximately 51% of participants use the Internet more than one to two hours daily. This reveals that participants have a moderate or higher level of Internet experience. The place internet access for study is showing 50%.The most internet connection type is being utilized is 4G connection in smartphones. And also using the online mode learning is also shows the higher percentage i.e. 65% .As well as Completing the online units did not take more time and effort than it was worth its reflecting 80%.

Data Analysis:

The data collected was analyzed using online Microsoft forms survey form to determine the factor structure, researchers used an exploratory factor analysis using principal component analysis with varimax rotation. In the next stage, confirmatory factor analysis was used to establish structural validity of the scale. The most commonly used indices to examine the model obtained were the root mean square error approximation, comparative fit index (CFI), goodness-of-fit indexes (GFI), the normed fit index (NFI), and the Tucker-Lewis coefficient. RMSEA values lower than .05 are indicative of a close fit, values ranging from .05 to .08 are indicative of a reasonable fit, and values greater than or equal to .09 are considered a poor fit (MacCallum, Browne, & Sugawara, 1996). Values of CFI, GFI, NFI, and TLI greater than 0.9 indicate a good fit of the model (Hair et al., 2006; Hu & Bentler, 1999; Kline, 2005).

There were no missing values in the data. The normality of the data was examined through inspection of skewness and kurtosis. From the findings, the skewness (instructor characteristics = 1.331; social presence =

.940; instructional design = .723; trust = –.113) and kurtosis (instructor characteristics = 2.039; social presence = 1.316; instructional design = .416; trust = .420) values are within recommended cutoffs of |3| and |10| for skewness and kurtosis, respectively (Kline, 2005). This ensures the normality of the data. In addition, results from the Kaiser–Meyer–Olkin measure of sampling adequacy (KMO) (0.896) and Bartlett's test of sphericity ($\chi 2$ (120) = 2022.469, $p < .001$) indicated that the data was appropriate for the factor analysis to proceed.

Results

Exploratory factor analysis for LRSPTOL

This research used a principal component analysis (PCA) with varimax rotation to determine the factor structure from the data collected. An initial analysis was run to obtain eigenvalues for each factor in the data. According to Hair et al. (2006), only the factors with an eigen value greater than 1 are considered representative. The four factors accounted for 61.853% of the total variance, and overall Cronbach's alpha of the scale was .906. The first factor, instructor characteristics, with an eigenvalue of 7.062, included five items (Cronbach's alpha = .920). The second factor, "social presence," with an eigenvalue of 2.232, included five items (Cronbach's alpha = .90). The third factor, "instructional design," with an eigenvalue of 1.207, included three items (Cronbach's alpha = .727). The fourth factor, "trust," with an eigenvalue of 1.003, included three items (Cronbach's alpha = .732). Following table shows the factor loadings after rotation.

Table 2. Factor loadings and Cronbach's alpha values for the four factors

Item	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1 : Instructor characteristics (IC)				
IC 1	.973			
IC 2	.866			
IC 3	.830			
IC 4	.711			
IC 5	.708			
Factor 2 : Social presence (SP) SP 1				
	.833			
SP 2	.817			
SP 3	.808			
SP 4	.741			

SP 5 .600

Factor 3 : Instructional design (ID)

ID 1 .750

ID 2			.648	
ID 3			.607	
Factor 4 : Trust (TR)				
TR 1				.695
TR 2				.672
TR 3				.656
Eigen value	7.062	2.232	1.207	1.003
% of variance	41.736	11.202	5.084	3.831
Cronbach's alpha (α)	.920	.90	.727	.732

Confirmatory factor analysis

Confirmatory factor analysis was then undertaken, using AMOS 21.0.0, to establish the structural validity of the scale. As given in Table 3, CFA resulted in satisfactory indices (χ^2 (96) = 176.783, p < .001; RMSEA = .064; CFI

= .959; GFI = .914; NFI = .915; TLI = .949) indicating that the four-factor model, obtained in EFA, was best of the fit.

Table 3. Model fit measurement statistics

Fit index	LRSPTOL	Recommended value
Chi-square (χ^2)	176.783	–
Degree of freedom (DF)	96	–
χ^2/DF	1.841	≤ 5
RMSEA	.064	≤ .08
CFI	.959	≥ .90
GFI	.914	≥ .90
NFI	.915	≥ .90

TLI	.949	≥ .90

Convergent and discriminant validity

In addition to model fit indices, in order to examine the validity of the scale, it is also necessary to estimate composite reliability (CR) and average variance extracted (AVE), which can be obtained from CFA (Fornell & Larker, 1981; Hair et al., 2006). According to Hair et al. (2006), for convergent validity, the factor loadings of each item should be greater than 0.7, CR should be at least 0.7 and AVE should be greater than 0.5. The factor loadings obtained from CFA were greater than 0.7, giving evidence for convergent validity. As given in Table 4, CR values for instructor characteristics, social presence, instructional design and trust were 0.733, 0.914, 0.902, and 0.740, respectively, which satisfied the value of 0.7. The AVE for social presence and instructional design are greater than 0.5, but for the other two less than 0.5. Fornell and Larcker (1981) mentioned that for discriminant validity, the square root of the AVE of each construct should be greater than the correlation between the construct and other constructs in the model and should be at least 0.50. From Table 5, it is confirmed that square root of the AVE of all constructs are significantly greater than the inter-construct correlations. This confirms the convergent and discriminant validities of the scale.

Table 4. (CR) and (AVE) of confirmatory factor analysis

Measures	Items	Composite reliability (CR)	Average variance extracted (AVE)
Instructor characteristics	5	0.733	0.480
Social presence	5	0.914	0.682
Instructional design	3	0.902	0.650
Trust	3	0.740	0.492

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Table 5. Correlations among constructs (square root of AVE in diagonal)

	Instructor characteristics	Social presence	Instructional design	Trust
Instructor characteristics	**0.692**			
Social presence	0.126	**0.826**		
Instructional design	0.480	0.683	**0.806**	
Trust	0.285	0.636	0.692	**0.702**

Note. Diagonal elements (in bold) represent the square root of the AVE.

Discussion and conclusion

The present study Learning and recognition of students' potential towards online learning in Pune(LRSPTOL) aimed to develop a scale The survey form was administered 330 students from Pune for reliability and validity..

In comparison, with the previous scales developed by Smith et al. (2003) and Hung et al. (2010), the present scale displayed more contemporary factors, which plays an important role in the student's preference in online learning. Instructors play multiple roles starting from the delivery of meaningful learning to active engagement of the students. This finding is supported by Lim et al. (2008). Social presence can help the instructional designers to maintain the quality of online learning experience, which is consistent with Wei et al. (2012). The factor of instructional design includes individual differences and student-centered course design, which will motivate the students to participate in the online learning settings, which is consistent with the previous study conducted by Wang and Newlin (2002). Learners' trust towards the online course is the ultimate key for the successful implementation of online learning. This result is consistent with the findings that if the students are satisfied with an online course, they will enjoy the course more (Sahin & Shelley, 2008).

It is recommended that further research should be carried out to check the psychometric properties of LRSPTOL in a diverse cultural context like India and at different stages of education. In addition, further research is needed to study the relationship between demographic variables and students' perception towards online learning as well as to reconsider the course design of online learning, to the benefit of students. The present scale tried to overcome the shortcomings of the previous studies in the design of contemporary online courses, including instructor characteristics, instructional design. This study motivates instructional designers, educators, and institutions to improve the quality of future and current online courses.

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