Health Profession Student's Readiness Towards Online Learning as a Component of Blended Learning

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Abstract

Objectives: The objectives of this study were to identify the entry-level health profession students' perception and readiness to adopt online learning as a component of blended learning (BL). **Methods:** A cross sectional survey using a structured questionnaire was administered using Google forms. Entry level Health professionals' education (HPE) graduate students of a higher education institute in India completed the survey (N= 628). The questionnaire was developed from the literature and content validated by experts. Ethics clearance was obtained from the Institutional ethics committee. **Results:** Out of 628 responses, 603 fully completed questionnaires were included for analysis. Of the participants, 98 % owned a smartphone, whereas 67% possessed either a laptop or a stationary computer. 60 % of the respondents reported at least one hour of internet access per day for learning purposes. Most of the participants were comfortable in accessing online learning materials and interacting with peers. The majority of the participants (77.4%) were willing to spend 10 to 20 hours per week on online learning. **Conclusion:** Entry Level HPE graduate students were ready to adopt online learning as a component of BL. Providing necessary infrastructure and creating online learning materials needs to be considered.

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ABSTRACT

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Keywords: readiness, online learning, blended learning, health professionals' education

INTRODUCTION

Information and communication technologies (ICT) influence the higher education sector to a great extent. The effective use of ICTs enhances the learning experience and improves outcome attainment.[1] The primary aim of adopting technologies is to promote active and collaborative learning. Online teaching as an extension of effective ICT utilization in higher education, has gained momentum in developing countries. It is documented that online learning provides equal opportunities to the learners by providing flexibility in accessing content and participating in learning activities.[2,3]

Health professionals' education (HPE) programmes across the globe use online mode to improve the learning experience.[4] HPE programmes prepare health care providers with the necessary knowledge skills and attitude, with the acquisition of the necessary clinical skills through the curriculum essential for successful practice.[5]

Online learning can be effective in teaching clinical skills and can be used along with traditional training. McCutcheon et al, in their systematic review, identified that online training can be as effective as traditional training in imparting clinical skills.[6] Studies identified that HPE learners are more comfortable when online learning is combined with face to training.[7,8]

Combining online and face to face learning provides learners with great flexibility. Garrison and Kanuka defined BL as "... the thoughtful integration of classroom face-to-face learning experiences with online learning experiences" [9]. BL as a method to impart clinical skills has been established.[3,8,10,11]

The success of BL heavily depends on how the online teaching component is effectively integrated with face-to-face teaching. Learning online may be challenging in developing countries as it requires access to gadgets and the internet. It is important to identify the learner's readiness and ability to adopt the online component.

As described by Bandura in societal cognitive theory, individuals' perception, previous experience, and accessibility will influence their readiness to adopt online learning as a component of BL.[12] Readiness can be defined as "being mentally and physically ready for certain online learning experiences and actions."[1] Linjawi and Alfadda reported on dental students' perception and readiness to adopt online learning and identified important individual characteristics in adopting online learning.[14.]

This study assessed learners' perception and readiness towards online line as a component of BL among entry level HPE students of an Indian University prior to the COVID pandemic. This study presumed that a learner's school education system, previous experience, and accessibility to the internet will influence their readiness towards online learning. Identifying learners' perception and readiness will be useful in designing BL courses in developing countries.

METHOD

A cross sectional survey was used to identify learners' readiness and perception towards the online component BL. This study was approved by the institutional ethics committee (IEC-NI/19/APR/69/37). Participants were recruited for the survey through an open invitation from the concerned faculty in-charge. All the students who accepted to participate in the study completed an online survey.

Sample

Health professions education students enrolled in an entry level graduate programme participated in this study. An open invitation was sent to all the first-year students (2019-2020) cohort of a higher education institute in India. A total number of 628 students completed the online survey. The purpose of the study and the concept of BL was explained in the initial part of the questionnaire and consent was obtained online. The study was conducted from 13th December 2019 to 10th February 2020.

Questionnaire

The initial questionnaire was prepared based on the literature.[14-17] Faculty members of various health professionals (N= 8) content-validated the questionnaire, and the final questionnaire was developed based on this feedback. The questionnaire included the following sections
- Introductory section with an explanation to BL concept
- Demographic details: Age, gender, geographical and school education board were captured in this session. This session was included to find an association between online learning readiness and geographical location. India has different high school education system like state board, Central Board of School Education (CBSE), and ICSE
- Access to gadgets for online learning (smartphone, computers, and internet). This section of the questionnaire identified learner's access to gadgets and internet for learning.
- Online learning experience and familiarity with common online learning platforms. This part of the questionnaire was designed to document learner's previous online learning experience and familiarity with online learning tools.
- Confidence and comfort level in learning online, assessed through Likert scales

- Learners: Learners perceived confidence level in using online learning tools was assessed in this section. Participants comfort level in using some of the common online learning tools.
- Perception and readiness to adopt blending online and face to face learning, assessed through Likert scale
- Two open ended questions to identify the facilitating and hindering factors for using online learning

A pilot study was conducted to check the test-retest reliability of the questionnaire. Sixteen (16) students completed the questionnaire twice in the interval of 3 weeks. The test - retest reliability was established with Pearson's coefficient of 0.86. The internal consistency of the questionnaire was good (Cronbach alpha 0.83).

The finalized questionnaire was converted as Google © form and the survey link was created and shared through the faculty in charge. Necessary approvals from the heads of faculties were obtained prior to the study. Participants were contacted through the concerned faculty in charge. Students received the survey link either via email or through WhatsApp©. Three remainders were provided through the faculty in charges through WhatsApp© whenever it was required.

Data Analysis
Descriptive analysis was undertaken using SPSS© 20 software. The total number of responses was categorized by the criterion in the questionnaire. Frequency and percentages were calculated. Association between the parameters were assessed using Chi-square test. Content analysis was performed to analyse the responses of open-ended questions. Words which provided similar meaning from the transcripts were grouped as sub themes.

RESULTS
A total number of 603 out of 628 responses were considered for analysis. Twenty-five (25) responses were not included in the final analysis as they were incomplete. Tables 1 and 2 provide the details of the participants. Out of all the respondents 99 % possessed a smartphone, and 67.2 % had gadgets, such as personal computers or tablets (Table 3). The majority of the respondents used mobile data (78.6%) for online activities. Half of the respondents (50.09 %) reported that they used the internet for a minimum of one hour daily for learning activities (Table 4). Google was the major source of information for the learning (84.1%; Table 5).

Table 1: Participants details as per the programme enrolled

Programme of the Study	Frequency	Percentage
Allied Health Sciences	172	28.5
Nursing	158	26.2
Pharmacy	105	17.4
Clinical Nutrition	45	7.5
Physiotherapy	45	7.5
Optometry	39	6.5
Dental	29	4.8
Speech Language Pathology	7	1.2
Medicine	2	.3
Bio Medical Sciences	1	.2
Total	603	100.0

A majority of the participants (74%) felt that online learning will provide more opportunities for learning. However, the majority identified face to face learning as their preferred method for in-depth learning. There was no statistically significant association between the board at which respondents completed their high school and their perception to adopt online components for learning. Table 7 summarizes respondent's use of online platforms for learning

Table 2. Demographic details of the study participants.

		Number	**Percentage**
Gender	Male	231	38.3
	Female	372	61.7
Place Completed Schooling			
	Urban	343	56.9
	Semi-Urban	245	40.6
	Village	3	.5
	NRI	12	2.0
Board of School			
	State Board	376	62.4
	Matriculation	125	20.7
	CBSC	95	15.8
	ICSC	4	.7
	IGCSE	1	.2
	Cambridge A Level	2	.3

Table 3: Gadgets available with the students

	Total number	**Percentage**
Mobile phone		
Yes	597	99
Not a smart phone	3	0.5
Smart phone - Android	559	92.7
Smart phone- iOS	35	5.8
No	6	1.0
Laptop / Stationary PC/ Tablet		
Lap top	282	46.76
Stationary PC (Desktop)	85	14.09
Tablet	38	6.30
No	198	32.83

Table 4. Access to internet

Mode of internet access		
Mobile data	474	78.6
Mobile data; Wi-Fi	83	13.7
Wi-Fi	36	6.0
LAN	2	0.3
Mobile data; Wi-Fi; LAN	7	1.2
Wi-Fi; LAN	1	0.2
Access of internet for learning purpose		
1 hour/day	307	50.9
2hours/day	166	27.5
3 hours/day	67	11.1
More than 3 hours/day	63	10.5

Table 5. Online source of information

Source of information for learning and assignment purpose		
Google	507	84.1
E library	78	12.9
PubMed	15	2.5
No	3	0.6

Table 6. Respondents' perceived confidence level

	Agree		Disagree		Not sure	
	n	%	n	%	n	%
I am confident that I can learn through online	440	73	72	11.9	91	15.1
I am comfortable in accessing the online learning materials	467	77.4	71	11.8	65	10.8
I can complete the learning task through online in time	348	57.7	124	20.6	131	21.7
I am willing to spend 10 to 20 hours a week online for learning	292	48.4	181	30	130	21.6
I am comfortable to collaborate with my peers and friends	486	80.6	71	11.8	46	7.6
I am willing to submit my assignments and tests through online	342	56.7	166	27.5	95	15.8
I am willing to receive feedback through online	444	73.6	93	15.4	66	10.9

I require more face-to-face teaching than online teaching	449	74.5	94	15.6	60	10.0
I require face to face session for in depth learning	468	77.6	77	12.8	58	9.6
Online learning will help to improve my communication and analytical thinking skills	423	70.1	90	14.9	90	14.9
I need to be familiar with e learning to cope with advancing technology	445	73.8	73	12.1	85	14.1
Online learning will provide me more opportunity to learn	446	74.0	72	11.9	85	14.1

Table 7. Use of online tools for learning purpose

	Daily		Do not Use		Once a week		Several times a week	
	n	%	n	%	n	%	n	%
Facebook	57	9.5	413	68.5	100	16.6	33	5.5
Twitter	17	2.8	541	89.7	29	4.8	16	2.7
WhatsApp	493	81.8	9	1.5	21	3.5	80	13.3
Google	400	66.3	8	1.3	36	6.0	159	26.4
YouTube	290	48.1	34	5.6	111	18.4	168	27.9
MOOCS	5	.8	569	94.4	16	2.7	13	2.2
	% of Total	0.8%	0.3%	2.0%	1.5%	4.1%	8.8%	
Total	Frequency	45	52	213	186	107	603	
	% of Total	7.5%	8.6%	35.3%	30.8%	17.7%	100.0%	

Table 8. Association between perceived impact and students' readiness towards BL (n=603)

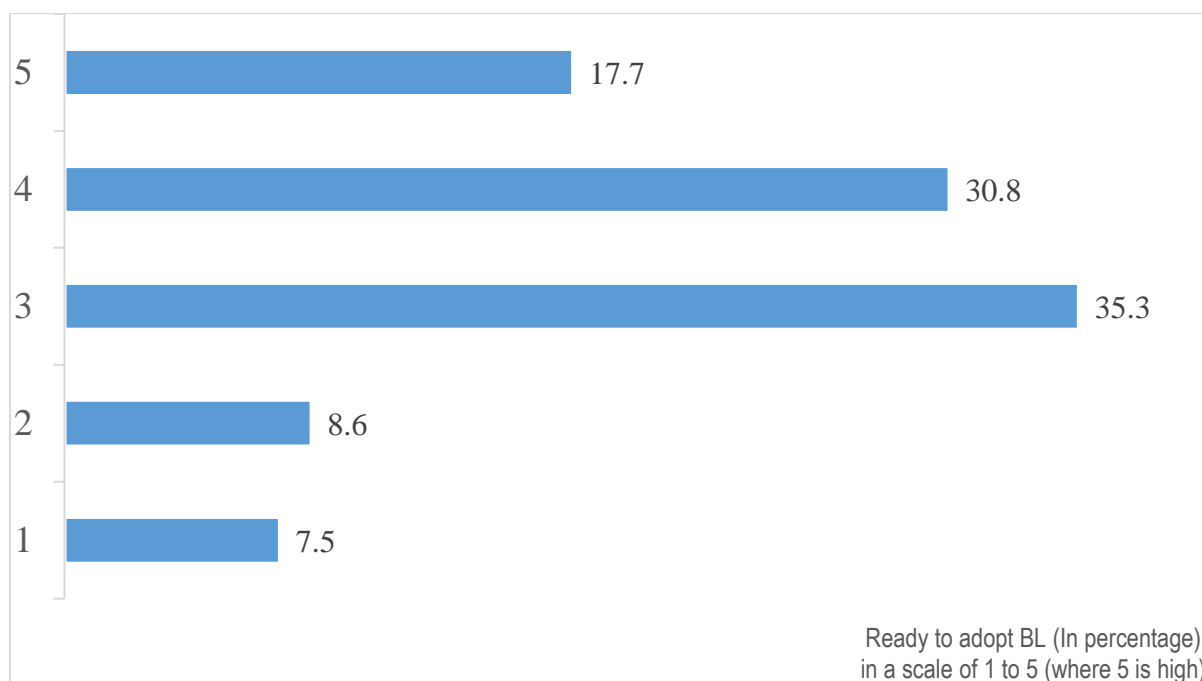| Perceived impact of BL		Readiness to adopt BL					Total	
		1	2	3	4	5		
Very negatively	Frequency	3	1	7	4	4	19	Chi-Square Value= 78.934
	% of Total	0.5%	0.2%	1.2%	0.7%	0.7%	3.2%	
Negatively	Frequency	3	7	12	4	4	30	
	% of Total	0.5%	1.2%	2.0%	0.7%	0.7%	5.0%	df = 16
No impact	Frequency	16	17	70	32	14	149	
	% of Total	2.7%	2.8%	11.6%	5.3%	2.3%	24.7%	
Positively	Frequency	18	25	112	137	60	352	p-value = 0.000
	% of Total	3.0%	4.1%	18.6%	22.7%	10.0%	58.4%	
Very positively	Frequency	5	2	12	9	25	53	

Figure 1. Participants' readiness level to adopt blended learning.

Over half the percentage of respondents perceived BL would impact their learning positively or very positively (67.2%; Figure 2).
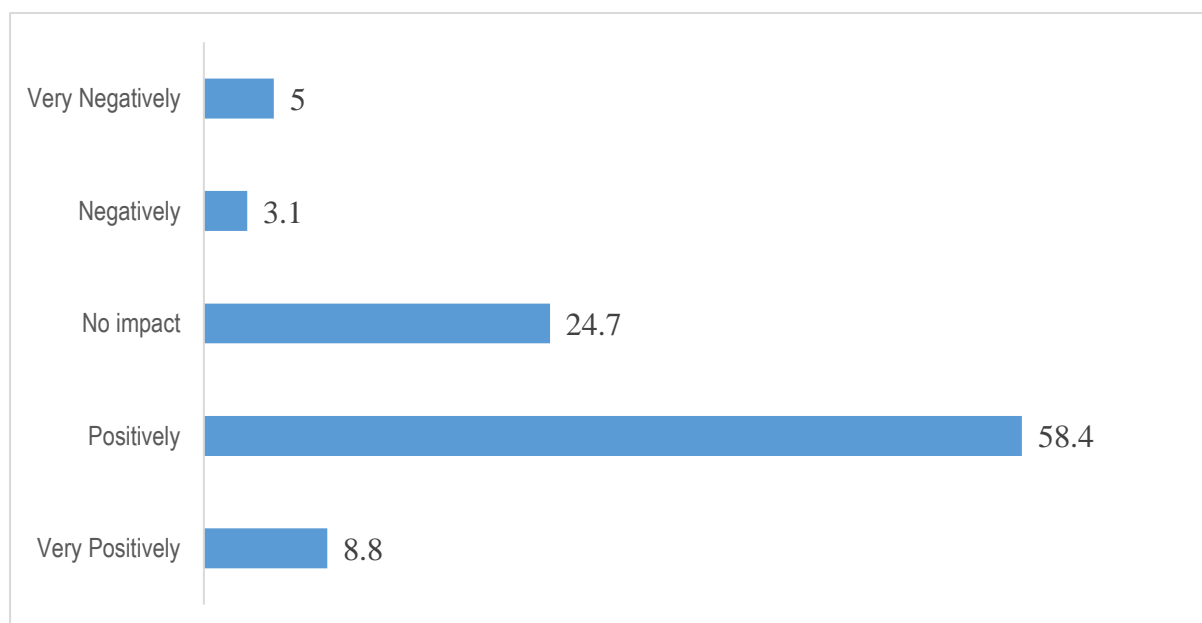

Figure 2. Learners' perceived impact of BL

Content analysis of the open-ended questions identified lack of availability of high-speed internet (72 %), availability of gadgets to access online contents (60%) and lack of accessibility to the teachers through online (48 %) were identified as major barriers by the respondents.

DISCUSSION

Understanding learner's attitudes towards online learning is important to implement BL. The designed questionnaire identified important aspects of learners' readiness. Physical factors such as internet accessibility and the availability of gadgets are important for online learning. Previous experience and motivation level of the individual will affect readiness towards learning. The constructed survey questionnaire identified learners' physical and mental readiness to adopt online learning as a component of BL.[13,18] The demographic section of the questionnaire focused to identify the association between online

learning readiness and rural/urban differences. This study did not demonstrate any association between the geographical area of school education and online readiness.

All the participants of the study owned smartphones. The use of smartphones is on the rise in India. Economics Times, one of the leading magazines in India, predicted that there will be 820 million smartphones by 2022.[19] On average, smartphone users spend 4 to 6 hours a day with their device.[20] Availability and usage of smartphones by the participants may facilitate online learning. Earlier studies identified students' acceptance of the use of smartphones for learning.[21] [22] Access to a computer is essential for online learning. More than half of the participants owned a computer, and 50 % of the participants had access to the internet at least for one hour a day for learning purposes. Internet access and availability of smartphones and computers are considered for critical success factors in implementing online learning.[23] [24]

Among the respondents, 80 % reported using WhatsApp© as a tool to communicate and share learning materials with peers. WhatsApp© is a popular application in India with previous studies reporting the effective use of WhatsApp© in online learning. Use of WhatsApp© improved collaborative learning.[25-27] Familiarity with social media, such as WhatsApp©, might be a key to successful implementation of BL. Constant communications through instant messages outside the learning environment might facilitate the formation of a community of inquiry.[28]

Along with physical factors, learners' mental preparation to adopt online learning is also of equal importance in introducing BL. About 75 % of the participants expressed their confidence in learning through online. They were also comfortable in accessing learning materials online because most of the respondents had previous experience with the online environment during their school education. Online learning provides flexibility in accessing learning materials and permits learns to consult the contents as per their requirements.[29,30] Participants (75%) perceived that the online component will provide them better learning opportunities. Respondents also presumed that familiarity with online learning will improve their analytical and communication skills. Participating in structured online discussions facilitated by a teacher is effective in improving higher order learning.[30]

Although participants reported they were ready to adopt online learning, the majority perceived that face-to-face learning would provide more in-depth learning, supporting the use of BL. Many of the participants (77.4%) were willing to spend 10 to 20 hours per week on online learning. More than half of the participants (67.2%) perceived that BL, integrating face to face, and online learning would produce a positive impact in their learning (80%), rated more than 3 in the 5-point scale to adopt BL.

As described by Bandura, learner's individual experiences, motivational level, support from fellow students and teachers' facilitation will influence the readiness.[12] Learner's self-motivation is one of the important factors for online learning. Results of this survey demonstrated the learner's readiness towards adopting online learning as a component of BL.

Participants (65%) had previous experience in accessing online contents. They also experienced peer support in online learning. Through the survey results it is evident that the participants were ready to use online contents as a component of BL. Bandura's social cognitive theory could be applied to explain the findings. It has been reported that learners with a high level of motivation learn better through on-line.[31]

Open ended questions identified alleged barriers and challenges in adopting online learning as a component of BL. Access to uninterrupted internet is identified as a challenge to access learning contents. Similar observations were documented through a focus group discussion conducted earlier.[7] Though the participants had internet access through mobile data, they might prefer to use it for personal networking rather for online learning.[14]

This was the first study of its kind conducted among the health profession education students of a developing country. The study was conducted prior to the COVID 19 pandemic; hence, the learner's readiness and expectations might be altered to a great extent since then. The majority of the participants completed their school education from the urban and semi-urban area. Learners from rural backgrounds might have different perceptions about the online component of learning.

CONCLUSION
Entry level HPE students were willing to adopt online learning as a component of BL. Majority of the participants had access to the internet and smartphones and they were ready to utilize them for learning. Providing access to the internet and computers will be a great challenge in implementing BL in developing countries.

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