RESEARCH ARTICLE

Rise of webinars: An impact assessment of online seminar learning from the students' perspective

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ABSTRACT

The COVID-19 pandemic forced a major shift from traditional face-to-face classrooms to online learning seminars, popularly known as webinars. This paper gauges the impact of this abrupt transition to online-based learning platforms, the learning experiences of students. Using the inclusion criteria, 50 students from different State Universities and Colleges (SUCs) were chosen to be the respondents of this study. The researchers used Google forms as an online survey questionnaire to gather qualitative and quantitative data. Thereafter, the data were analyzed using the Generic Logic Model of Digital Technology Use, taking into consideration the following aspects: (1) digital technology used, (2) factors for learning, and (3) barriers. As far as digital technologies are concerned, Zoom was the predominantly used platform for conducting webinars with 45.2%. Most of the respondents were engaged participants since 96% of the webinars attended had an open forum portion. Meanwhile, for learning purposes there is a statistically significant difference of a 0.56 increase the respondents' knowledge-level, which was measured in pre-webinar and post-webinar evaluations. The respondents demonstrated learning, based on the positive results of their post-webinar experience which showed a high significant development particularly in the use of video conferences. The results showed that webinar platforms contributed to the respondents' development, both academic-related and personal. In addition, the researchers found out that the engagement of speakers to the participants through the use of visual presentation and audio-visual presentation is an essential contributing learning factors on webinars. But the negative side of online learning is the unstable internet connection which hinders the learning from the students.

Keywords: *Webinar, Students' Perspective, Impact on Learning*

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Introduction

Digital technologies have become a most common and convenient choice for training and learning (Cook et al., 2010; Gegenfurtner et al., 2013; Johnson et al., 2011; Liu et al., 2016; Nicklen et al., 2016; Siewiorek & Gegenfurtner, 2010; Wang & Hsu, 2008). In these pandemic times, technological training tools like the webinar—a portmanteau of the words web and seminar—have become part of the new normal. Over the years, people's attraction to webinars for training purposes has increased (Cornelius, 2014; Cornelius & Gordon, 2013; Ebner & Gegenfurtner, 2019; Gegenfurtner & Ebner, 2019; Gegenfurtner, Schwab, & Ebner, 2018; McKinney, 2017; Means et al., 2013; Wang & Hsu, 2008). Most of the users have resources that afford them access to real-time communication (Amhag, 2015; Gegenfurtner et al., 2017; Johnson & Schumacher, 2016; Stout et al., 2012; Zomenou et al., 2015).

A webinar is a web-based seminar where participants and educators or speakers in various geographical locations are connected via an online platform where they can interact synchronously using voice over Internet Protocol (VoIP) and a web camera (Gegenfurtner & Ebner, 2019). The webinar serves as a tool for learning and teaching for students and educators.

Because of the COVID-19 pandemic, most activities have become web-based such as online workshops, e-classes, and virtual training. This makes for a safe way to develop educational and professional skills by maintaining social distancing (Sonali, 2020). Digital-first events are the new normal in coping with the pandemic phenomenon (Mayday, 2020). In March 2020 (roughly the start of the global pandemic) the number of webinars hosted increased by more than 330% and the number of attendees doubled (Mayday, 2020).

When conducting a webinar the speaker must recognize and consider the delivery medium, and its concomitant difficulties and challenges that the learners may encounter. The learning process is not just a linear discussion but rather an interaction with the audience. In fact, Rich (2011) and Knowles (1996) stressed the value of having speaker and learners interact or engage with each other in the discussion. Also, the framework of Northrup (2001) stated that an online interaction should addresses the needs of an online audience.

The purpose of this study then is to assess the impact of online seminars on the learning of students. To do this, the researchers used the Generic Logic Model of Digital Technology Use as the study's framework.

Statement of the Problem

In light of the foregoing learning situation, the study was conducted to assess the effectiveness of the webinar as an online mode of teaching and learning instruction. In addition, it clarifies the status of the students as they made the adjustment from traditional face-to-face learning to online-based learning as a response to the health emergency brought about by the COVID-19 pandemic.

Specifically, this study answers the following questions:

1. What is the knowledge-level of students before and after the webinar?
2. What are the learning platforms used for webinars?
3. What are the factors that contribute to the learning of students after the webinar?
4. Are there difficulties and problems encountered by the students in attending webinars in terms of: technical, environment, and resources?

Methodology

Conceptual Paradigm

The study analyzes students' learning process on an online platform. The students' initial level of knowledge was measured before their exposure, the webinar being the intervening variable that supplemented their learning. The study employed Starkey's Generic Logic Model of Digital Technology Use as the dependent variable that measured the learning acquired from the webinar. It focused on three components: 1) digital technologies used, 2) factors for learning, and 3) the barriers.

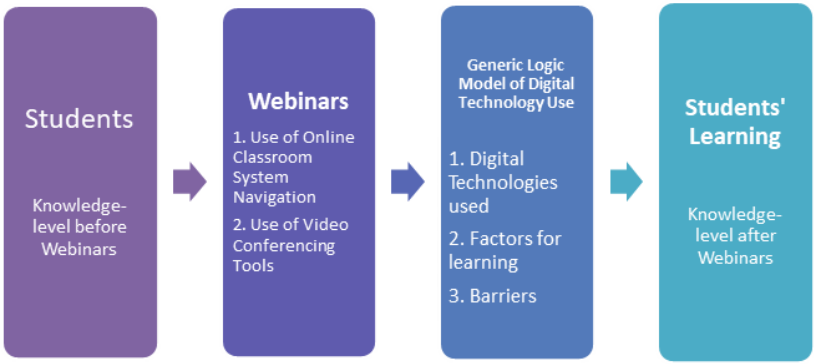
Digital technologies used were the tools that enabled the exchange of information on the digital platform. The factors for learning were the intangible aspect that contributed to the delivery of learning. The barriers were the hindrances encountered in the learning process in digital space.

Research and Sampling Design

The study used the descriptive research design which involved the gathering of quantitative data tabulated in numerical form. The instrument used was survey questionnaires answered by 50 respondents using Google Forms. Purposive sampling design was utilized to select the participants from the general population of the students (Research Methodology, 2012). Black (2010) mentioned that this sampling design helps to represent the general population using 'sound judgement' which can yield cost effective results. The students who participated in the study fulfilled two inclusion

Figure 1.

Conceptual Paradigm for Students Learning on Webinars



criteria. First, they had experienced attending any online seminar and as a college student. Next, they fulfilled the sociodemographic criteria needed for this research. The researchers identified socio demographic characteristics as the key to further enrich the extant data concerning the students' learning in webinars.

Among the prospective participants from different state universities and colleges in Luzon, only 50 students responded to the study. The process considered the willingness and voluntary participation of the respondents aside from the criterion mentioned above.

Data Collection

The researchers used Google Forms as a survey questionnaire to gather the needed information for the study. The link to the online form was forwarded to the selected participants. Since this study was done during a pandemic, it was the most convenient way for the researchers to gather the information required to achieve the study's objectives.

The data submitted by the respondents were confidentially secured by the researchers. Following RA 10173 or the Data Protection Law, they sought the respondents' permission and consent to use the obtained data for the confidential collection, processing, and disclosure of their responses only to the researchers to achieve the purpose of the study.

Data Analysis

This study used the Generic Logic Model of Digital Technology Use developed by Louise Starkey to analyze the impact and effectiveness of webinars on the students' learning. This model is a precise measure of the effectiveness of webinars. It looks at barriers and enablers the contributing

factors to the learning of students (Starkey, 2010). All these are observed to measure the learning of the students in webinars.

A combination of the Likert scale, closed-ended questions, and essays was utilized to acquire the other information needed in the study. The results were tallied and arranged into tables and presented in statistical measures such as percentage, frequency, and mean.

Scope and Limitations of the Study

The study worked within the idea of webinars as an online engagement for discussion, learning and knowledge--sharing activities. Webinars can take various forms such as seminars, forums, workshops, training, and the likes using online platforms. They can reach and share information to a large number of individuals as they occur in realtime. It promoted the enrichment of knowledge through the web or any online platforms.

Results and Discussion

This section presents the discussion, analysis, and interpretation of the data obtained from the tertiary students from Luzon.

Table 1 shows the respondents' socio-demographic characteristics. The majority of the respondents were female (54%) and the rest were male (46%). The highest number of respondents were 19 years of age (36%), followed by 20 years old (24%), and 18 years old (16%). The rest of the distribution is 21 years old (14%), 22 years old (10%), and lastly 24 years old (2%).

In terms of higher education institutions that participated, most of the participants were from Central Luzon State University (18%), followed by Phinma Araullo University (16%), and the University of the Philippines -- Los Baños and University of the Philippines -- Baguio (8% each).

Most of the respondents were pursuing a Bachelor in Education or a BS in Accountancy (16% each), followed by BA in Applied Psychology, BS Psychology, and BS Civil Engineering (6% each).

In terms of year level, less than half of the respondents (40%) were second-year students, followed by third-year students (28%) and then first-year students (22%).

Table 1. Socio-Demographic Profile of the respondents.

Socio-Demographic		Frequency (n=50)	Percentage (%)
Sex	Male	23	46
	Female	27	54
Age	18 years old	8	16
	19 years old	17	36
	20 years old	12	24
	21 years old	7	14
	22 years old	5	10
	24 years old	1	2
School	Aurora State College of Technology	2	4
	Bataan Peninsula State University	2	4
	Benguet State University	1	2
	Bulacan Agricultural State College	1	2
	Bulacan State University	2	4
	Central Luzon State University	9	18
	Don Honorio Ventura State University	1	2
	Lyceum of the Philippines University - Laguna	1	2
	Nueva Ecija University Science and Technology	2	4
	Pampanga State Agricultural University	2	4
	Phinma Araullo University	8	16
	Saint Louis University	2	4
	Tarlac Christian College	1	2
	Tarlac State University	3	6
	University of the Philippines- Baguio	4	8
	University of the Philippines Diliman Extension	1	2
	University of the Philippines- Diliman	3	6
	University of the Philippines- Los Baños	4	8
	Wesleyan University- Philippines	1	2
Course	BA in Applied Psychology/ BS Psychology	3	6
	BA Communication	1	2
	BA Communication Arts	2	4
	BA Mass Communication	1	2
	BA Philosophy	1	2
	BA Sociology	1	2
	BA Speech Communication	2	4
	BASS Economics	1	2
	BS Accountancy	8	16
	BS Agricultural and Biosystem Engineering	1	2
	BS Agriculture	2	4
	BS Biology	1	2
	BS Chemistry	1	2
	BS Civil Engineering	3	6
	BS Development Communication	2	4

Socio-Demographic		Frequency (n=50)	Percentage (%)
Course	BS Food Science and Technology	1	2
	BS Hotel Management/ BS Hotel and Restaurant Management	2	4
	BS Industrial Engineering	1	2
	BS Mathematics	1	2
	BS Medical Laboratory Science	1	2
	BS Nursing	1	2
	BS Social Work	1	2
	BS Tourism Management	2	4
	Doctor of Veterinary Medicine	2	4
	Bachelors in Education	8	16
Year	First students	11	22
	Second students	20	40
	Third students	14	28
	Forth students	3	6
	Fifth students	2	4

Based on the data obtained, Zoom was the predominantly used platform in a webinar (45.2%) while Facebook/Youtube Live came second (25.8%), and Google Meet third (17.2%) (Table 2).

Table 2. Common webinar platforms.

Platforms	Frequency	Percentage (%)
Facebook/Youtube Live	24	25.8
Zoom	42	45.2
Google Meet	16	17.2
Discord	4	4.3
Microsoft Team	4	4.3
Webex	2	2.2
Messenger	1	1.1
Total	**93***	**100**

**Multiple response*

According to the extracted data, Zoom got the highest percentage because it had more video conferencing features than other platforms. However, a study by Abbot (2020) found out that Zoom consumed the most data and required even more depending on the number of participants, duration, video quality and even the device used.

Table 3 shows the six factors identified by the respondents that contributed to their webinar learning experiences.

Table 3. Factors contributing to the learning of the students.

Factors	Frequency (n=50)	Percentage (%)
Academic and technical skills of speaker	20	20.8
Well-organized webinar	20	20.8
Social interaction with the speaker	35	36.5
Sharing experiences	5	5.2
Learner motivation	4	4.2
Access to internet	12	12.5
Total	**96***	**100**

**Multiple response*

"Social Interaction with the speaker" got the most mentions with 35 (36.5%), followed by "academic and technical skills of speaker", and "well-organized webinar" with 20 (20.8%). These factors also appeared in the study of Muilenburg and Berge (2205), "Studying the Barriers Encountered by Students in an Online Learning Set-up.

Most of the respondents' stated that the they benefited from social interacting with the speaker. Freely asking the speaker questions and bringing up other concerns motivated their students' curiosity about the topic and at the same time helped to assess their understanding. Also, 20.8% of the respondents said that a well-organized webinar, which included the speakers' audio-visual presentations, contributed to their learning. This claim was supported by the study of Spruijt, A. et.al. (2012) "Students' Perceptions of Aspects Affecting Seminar Learning" where they found out that materials (e.g. PowerPoint and other audio-visual presentations) and open forums affects the seminar learning of students in Utrecht University. In connection to the latter, the table below shows the number of respondents who attended webinars with a question-and-answer portion.

Table 4. Engagements of the participants.

Questions		Frequency(n=50)	Percentage (%)
Does the webinar have a question-and-answer portion?	Yes	48	96
	No	2	4
	Total	50	100

Here are select narratives of the respondents that describe their webinar experiences and explain the vital role played by the factors in their learning in an online seminar.

1) Presenting the seminar through a shared screen/ PowerPoint presentation. Since it is online, the pace of learning for different students is not that much considered. Participation of participant and speaker as well.
2) Personally, I think the learning factor that contributed to my webinar experiences is the way the topic and its programs are made or created. The webinars seem to be more like a casual chat between the speakers and the audience, lighter and easier to grasp. Also, great or knowledgeable speakers really help.
3) I think the effective use of visuals, the expertise of the speakers, and the q and a portion.

These excerpts emphasized the significance of having audio video presentations. Real-time video and audio communication increased the social presence of all participants, approximating the interaction in a face-to-face session.

It is apparent that having a stable internet connection played a vital role in the students' learning. However, internet connection was also identified as a problem encountered by the respondents when attending webinars. Table 5 shows the problems and difficulties experienced by the respondents. In the technical factor, the most common was an "unstable internet connection" (61.7%), in the environment factor it was "unwanted noise" such as dog barks (20%), and in the resources factor it was "familiarity of the platform (5%).

Table 5. Difficulties and problems encountered in attending webinars .

Difficulties/Problems Encountered in Webinars		Frequency (n=50)	Percentage (%)
Technical	Unstable internet connection	37	61.7
	The device is not working	2	3.3
	Weak audio and low-quality video	2	3.3
Environmental	Unwanted noise (e.g. dogs barks)	12	20
	Unannounced power interruption	3	5
Resources	Data plan/load	1	1.7
	Familiarity with the platform	3	5
	Total	**60***	**100**

**Multiple Response*

As for the disadvantages of using webinar tools, participants reported that whenever the network speed was slow, they lost the connection with the instruction and had to catch up with the discussions. This claim was supported by Wang and Hsu (2008) in their study "Use of the Webinar Tool (Elluminate) to Support Training: The Effects of Webinar-Learning Implementation from Student-Trainers' Perspective". It is clear that internet service providers in the Philippines do not have the capability to consistently give excellent service to their customers. As a matter of fact, the Philippines ranked 63rd out of 100 countries in the 2020 Inclusive Internet Index conducted by the UK-based The Economist Intelligence Unit (EIU) and commissioned by Facebook. The Philippines is also among Asia's weaker countries in advancing internet inclusion, ranking 19th out of 26 nations in the region. Affordability levels of smartphones and mobile data are low in the global context, and mobile users are burdened by relatively slow download and upload speeds. Technical issues affect the presentation flow in many ways. Transmission delay and audio or video disconnection halted the classes until the problems were resolved.

The respondents were asked prior to the webinars about their knowledge on how to use an online learning platform. Table 6 shows that the students had a "fair" knowledge of online classrooms with a mean of 3.11, and similar "fair" rating for video conferences with a slightly higher mean of 3.21. Meanwhile, the total average of their webinar knowledge weighed with the mean of 3.16, also remarked as "fair".

Table 6. Pre-Webinar knowledge-level of the respondents

Pre-webinars			Mean	Remarks
Online Classroom	1.	I know how to submit my project/work	3.28	Fair
	2.	I know how access the reading materials and modules	3.20	Fair
	3.	I can add comments/ insights in the activities	3.08	Fair
	4.	I know how to participate in the discussions	3.08	Fair
	5.	I am able to know the name of my classmates	2.90	Fair
		Subtotal	**3.11**	**Fair**

Pre-webinars		Mean	Remarks
Video Conference	1. I know how to mute the audio	3.44	Good
	2. I can follow each instruction in the webinar	2.94	Fair
	3. I know how to operate the chat box	3.44	Fair
	4. I know how to do share screen	3.02	Fair
	Subtotal	**3.21**	**Fair**
	Total Average	**3.16**	**Fair**

Legend: *1.00 - 1.79 Very Poor* *3.40 - 4.19 Good*
1.80 - 2.59 Poor *4.20 - 5.00 Excellent*
2.60 - 3.39 Fair

Table 7 presents the post-webinar evaluation of the students' knowledge-level, which revealed that the knowledge level of the participants increased to "good" with a mean of 3.72, knowledge of using online classroom and video conference platforms, garnered 3.58 and 3.86 respectively.

Table 7. Post-Webinar knowledge-level of the respondents

Post-webiners		Mean	Remarks
Online Classroom	1. I know how to submit my project/work	3.72	Good
	2. I know how access the reading materials and modules	3.64	Good
	3. I can add comments/ insights in the activities	3.64	Good
	4. I know how to participate in the discussions	3.48	Good
	5. I am able to know the name of my classmates	3.40	Good
	Subtotal	**3.58**	**Good**

Post-webiners			Mean	Remarks
Video Conference	1.	I know how to mute the audio	4.00	Good
	2.	I can follow each instruction in the webinar	3.74	Good
	3.	I know how to operate in the chat box	3.98	Good
	4.	I know how to do share screen	3.70	Good
		Subtotal	**3.86**	**Good**
		Total Average	**3.72**	**Good**

Legend: *1.00 - 1.79 Very Poor* *3.40 - 4.19 Good*
1.80 - 2.59 Poor *4.20 - 5.00 Excellent*
2.60 - 3.39 Fair

Table 8 shows the knowledge level of the student before and after attending a webinar.

Table 8. Summary of pre-webinar and post-webinar assessment

			Pre-Mean	Post-Mean	Difference	Remarks
Online Classroom	1.	I know how to submit my project/work	3.28	3.72	0.44	Increased
	2.	I know how access the reading materials and modules	3.20	3.64	0.44	Increased
	3.	I can add comments/ insights in the activities	3.08	3.64	0.56	Increased
	4.	I know how to participate in the discussions	3.08	3.48	0.40	Increased
	5.	I am able to know the name of my classmates	2.90	3.40	0.50	Increased
		Subtotal	**3.11**	**3.58**	**0.47**	**Increased**

			Pre-Mean	Post-Mean	Difference	Remarks
Video Conference	1.	I know how to mute the audio	3.44	4.00	0.56	Increased
	2.	I can follow each instruction in the webinar	2.94	3.74	0.80	Increased
	3.	I know how to operate the chat box	3.44	3.98	0.54	Increased
	4.	I know how to do share screen	3.02	3.70	0.68	Increased
		Subtotal	**3.21**	**3.86**	**0.65**	**Increased**
		Total Average	**3.16**	**3.72**	**0.56**	**Increased**

Legend: *1.00 - 1.79 Very Poor* *3.40 - 4.19 Good*
1.80 - 2.59 Poor *4.20 - 5.00 Excellent*
2.60 - 3.39 Fair

This table shows the statistically significant differences between the respondents' pre-webinar and post webinar knowledge. There was a 0.56 increase from 3.16 to 3.72 (rated as "good") in the knowledge level of the students after attending a webinar. Participants also preferred to learn procedural knowledge --- not conceptual knowledge --- in a webinar, specifically on the learning platform used. They claimed that this was because the use of PowerPoint presentations or visual aid helped them learn hands-on skills.

However, the participants were also exposed to conceptual knowledge. Basically, most of the students attended a seminar for the course-related matters where they can develop their professional skills. Table 9 presents the common topics in a webinar that the respondents attended. These topics were divided into four, namely: course-related topics, personal development, current events, and orientation. Course--related topics had 28 occurrences (44.4%), and most of these were for the participants' professional development in their field. This was followed by the orientation with 21 occurrences (33.3%); it was a clear manifestation of the students needed to familiarize with remote and distance learning as they transitioned to it during the pandemic.

Table 9. Common topics on webinars attended by the students

Common Topics on the Attended Webinars		Frequency (n=63)	Percentage (%)
Course-Related Topics	(e.g. broadcasting, basic accounting, differential equations)	28	44.4
Personal Development	(e.g. fact-checking, creative writing, baybayin, leadership, graphic design)	9	14.3
Current Events	(e.g. COVID-19 situationers, current political situation of the Philippines)	5	8.0
Orientation	(e.g. Flexible, remote and distance learning, scholarship orientation)	21	33.3
	Total	**63***	**100**

**Multiple Response*

The impact of online seminars on the learning of the students was assessed using the Generic Logic Model of Digital Technology Use. In accordance with the factors affecting the learning of the participants, most of the students were engaged and actively participated in the discussion with the speakers. In fact, 96% of the respondents said that when they attended an online seminar there was a question-and-answer portion (Table 4). Respondents said that questions that enhance learning were those that stimulated discussions and were case-based. They also said that attending webinars in general contributed significantly to the learning. There is a significantly significant difference between the respondents' measured pre- and post-webinar knowledge level (Table 8).

The participants' motivation for the online seminar depending on aspects like subject under discussion was also mentioned as a factor affecting seminar learning. Respondent's behavior during the online seminar was likewise cited as an influence on the learning process. A number of respondents also emphasized the significance of good speakers, sharing experiences, well-organized webinars, and visual presentation (Table 3).

Based on the post-webinar result, it is understood that the respondents learned from both online classroom and video conference webinars platforms. The online classroom (0.47 mean increase) and the video conference (0.65 mean increase) platforms. The respondents benefited from webinar interactions especially in video conferences (Table 8). The increase in their performance after the webinars indicates an experience-based learning that

involved behavioral change. The webinars also familiarize the students with the webinars' navigation and flow.

However, these performances can be affected by the difficulties encountered in terms of technicalities, environment, and resources. These factors restricted learning and served as barriers to the learning progress of the participants (Table 5).

The last part of the study, identified the benefits and outcomes of the respondents' learning. Webinars provided them with course-related topics that help with their academics, personal development for self and individual growth, and other benefits (Table 9). Meanwhile, webinars provided concept- and experience-based learning. The pre- and post-webinar evaluations, showed a numerical escalation in the impact of learning through the webinar platform, confirmed students' increased learning.

Summary, Conclusions, and Recommendations

Summary

A total of 50 students served as the study's participants. A descriptive quantitative analysis using Google Forms as an online survey questionnaire was conducted. Data were analyzed by tabulating the frequency distribution, percentage, and weighted mean.

The socio-demographic characteristics of the respondents revealed that the majority of the respondents were 19 years old, while 27 were female and 23 were male. In addition, the majority of the students were second-year college students, and all of them were from the state universities and colleges in Luzon taking different courses.

Prior to assessing the students' knowledge level before and after the webinar, numerous problems and challenges in attending webinars were identified and categorized into three types -- technical, environment and resources. Under technical concerns, unstable internet connection was the most frequently encountered problem. Moreover, in terms of video conference platforms that were used in the webinars, Zoom was most predominant.

Employing Starkey's (2010) Generic Logic Model of Digital Technology Use to measure the impact of webinar revealed that there was significant differences between the respondents' pre- and post-webinar knowledge. There was a 0.56 increase (from 3.16 to 3.72) in the students' knowledge level after attending webinars. It was also found out that the participants' engagement with the speakers was the greatest factor that contributed to the students' learning during webinars.

Conclusions

Webinars have been found essential to the learning of students during the pandemic where all transactions shifted to online platforms. It is an easy way to reach out to a greater number of participants who are geographically dispersed and in different time zones. Moreover, webinars are effective in increasing the knowledge level of students, and convenient in broadening students' skills in their chosen field as well as their understanding, in terms of both conceptual and procedural knowledge.

The researchers reached the following conclusions: First, the engagement of the speaker with the participants affects the latter's learning. In this regard, the use of visual presentations reinforces the students' learning process. In terms of technical problems, the country's internet connection is not yet ready for online learning. This problem was experienced by the majority of the respondents whereas environment and resources were minor problems.

Recommendations

In the midst of the pandemic, the study of webinars and other online platforms as a scholarly subject matter has gained significance. Based on the findings, these would be the recommended topics and ideas of the researchers.

1. Create a new strategy for learning that is a more effective method for webinars. Develop and conceptualize other alternatives for interactive learning, ones that are not limited to the traditional or one-way classroom and video conference discussions.
2. Further studies can focus on visuals, resource speakers, and other webinar content platform materials. They should consider the effectiveness of the materials or the resource speakers used in webinars to strengthen the attendees' foundation of learning.
3. Since unstable internet connectivity hinders the process of learning, it would be best if the webinar organizer will consider a participant-friendly platform that uses less data consumption.
4. Future researchers could conduct an in-depth study of webinars in a post-pandemic setting. They may tackle the question of whether webinars will still be in demand or start to decline.

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