

Investigating the Expected Relationship between Online Teaching Effectiveness and Students' Academic Achievements at the University Level

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Abstract



The aim of the study is to investigate the expected correlation (relationship) of online teaching effectiveness with students' academic achievements at the university level. The study's main objective was to find out the relationship between online teaching effectiveness and student learning achievement in an online-based learning environment at the university level. The research design was quantitative and the methodology was a survey study in nature. The population was all students from Public and Private Universities in Punjab. The sample was chosen through simple random sampling techniques from four universities. The sample size was [n=200]. The research instrument was utilized to gather statistical information from the participants (100 Male and 100 Females). Data were analyzed statistically, and inferentially. Data were interpreted accordingly. The findings of the study showed that medium correlation of online teaching effectiveness with students' academic achievement in online-based learning environments at a higher level.

Keywords: Online Teaching, Effectiveness of online teaching, Students' Academic Achievement.

Introduction

Education is a fundamental, basic need and the reason for human existence on the earth (Aggarwal, 1997). Inspiring competency of the teachers might be characterized as how a teacher can best instant, encourage, and uphold understudies toward certain scholastic closures, for example, accomplishment and fulfillment. Training capability has been examined widely in customary homerooms for over seventy years.

Education is a vital and imperative portion of human existence (Khan et al., 2012). It is accordingly, an established matter of personal responsibility and having a good standard for the students to receive quality Education. Teaching has a positive effect on human existence and the degree of instructive fulfillment causes people to acquire regard and acknowledgment. Throughout the long term, schooling has been helping researchers to develop gear and gadgets which has brought about high mechanical progression (Opdenakker, & Damme, 2006).

Training engages the populace to address experts for their carelessness or inconsistencies and benefit their privileges as residents and look for development in the underlying working of administration and economy. It is just when the residents know about the strategies of their administrations that they can support or fight change.

The principal target of this examination is to discover the normal connection between web-based encouraging viability and understudies' scholastic accomplishments at the college level. In such a manner to guarantee the viability of online training in Pakistan, it is normal that suppliers of online schooling should endeavor to utilize quality and dependable ICT equipment and programming upheld by a profoundly gifted workforce equipped with information and aptitudes expected to guarantee that the framework runs easily. The Government of Pakistan ought to not just permit the continuation of online schooling; it should be upheld with satisfactory financing.

Statement of the Problem

Countries can change their monetary and destiny through the spread of training as it is the solitary changing specialist on the planet. In Pakistan, with the movement of time, online instruction has become a meander of high capability preparation of learning patterns. Fortunately, or sadly, online

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instruction pattern is seen as the assessment while online training is presented in Pakistan. At this moment Pakistan's status capability rate is 84.51%. While information finished is 34.03%, a prepared staff is 17160/20526, and online courses are 44795/47004 all over then Pakistan. Right when we express that online schooling has taken up the picture of training in our country, all the while we need to examine the procedure for online instruction grasped by different educational foundations. It is imperative to guarantee the nature of instructing and realizing when numerous colleges have begun online classes through various Learning Management systems. The problem of the time to explore the expected relationship between online teaching effectiveness and students' academic achievements at the university level, investigate the effectiveness of online content delivering methodology at the university level, and also sightsee the effectiveness of online teaching at the university level in Pakistan.

Purpose of this research work

To investigate the expected correlation of online teaching effectiveness with students' academic achievements at the university level, and to ascertain challenges in online teaching effectiveness and students' academic achievement at the university level.

Research Questions

Is there any relationship between online teaching effectiveness and student learning achievement at the university level?

- Is there any relationship between online teaching effectiveness and student learning achievement in an online-based learning environment at the university level?

Delimitations

The current study was delimited to only four universities of District Lahore- Punjab due to the shortage of resources and time in the worldwide Covid -19 pandemic situation. Further, it was delimited to students of Session 2019 to 2021.

Significance

The study is noteworthy for students and teachers in the period of the Covid-19 epidemic. It is also noteworthy for curriculum designers and policymakers to include online teaching in the future to prepare teachers and students for any kind of circumstances. It is also important for future researchers to get factual data from this document regarding the ground realities of online formal education.

Literature Review

Education is a vital and imperative portion of human existence Aggarwal, (1997). It is accordingly, an established matter of personal responsibility and having a good standard for the students to receive quality Education. Teaching has a positive effect on human existence and the degree of instructive fulfillment causes people to acquire regard and acknowledgment. Throughout the long term, schooling has been helping researchers to develop gear and gadgets which has brought about high mechanical progression (Opdenakker, & Damme, 2006).

Training engages the populace to address experts for their carelessness or inconsistencies and benefit their privileges as residents and look for development in the underlying working of administration and economy. It is just when the residents know about the strategies of their administrations that they can support or fight change.

According to Adekunmisi, (2013) in his exploration, the blast of information are having a significant explanation for the changes of conventional libraries into computerized libraries. For this, online data have been proven to become essential for management. Weinstein, et.al, (2004). Because of a portion of points of interest libraries are compelled in electrical assets to address the new difficulties of the new computerized period.

Categories of Online Information Sources

According to Dhanavandan, (2012) data can be characterized in electrical assets that "E-mode and face-to-face learning in online data is put away by electrical means and it tends to be available through electrical framework and organization climate". It is also stated by Deng's (2010) characterization of online data assets that "Online data is generally mentioned as the information which is based on documents in an electrical mode".

It is not easy to say at what time the initial computerized asset was utilized by the library. Nonetheless, with the appearance of PCs and computer chip innovation, data resources arise as significant hotspots of information. With the innovation of change in online data resources, libraries used to create the interest of learners and satisfy the data of all sorts of learner demands, and libraries

have the access to new acknowledgment as mixed learning approaches. The mostly libraries have two sorts of resources to access (print and computerized) and are nominated "mixture library or half and flexible learning and web-improved directions" (Codone et al., 2004). The idea of knowledge got importance among library clients specific inside most recent five years. Cross-breed libraries imply a library that has more than two resources on paper and computerized design and advanced resources can be acceptable to enhance conventional library clients. Online diaries are the main sort of online data asset being utilized by specialists. Same, their search and institutional vaults are likewise turning into the hob of information and data which is uncovered that the sort of online data can be "info files, records, memoirs, documents, periodicals, chronicles, postulations, meeting papers, assessment, government accounts, and articles in an electrical arrangement". In late years, a move from customary to advanced assets can be noticed and clients for the most part want to pick computerized assets to satisfy their data needs (Lilienfield & Broering, 1994). These computerized assets get fame because of expansion in PC and web innovation.

All the customary assets like books, articles, and proposals are efficiently available. Subject passages are likewise significant sort of online data assets utilized by learners. A few years ago, just electrical journals and articles are accessible as the mode of data source and got significance among the academic networks. A few researchers discover their examinations that academic.

The invention of web 2.0 additionally arose and prove a significant mode of data and information in online education. Web 2.0 innovations signify "programming that supports bunch connection" (Selwyn, 2007). It is proven by the fact that web 2.0 has several parts of issues which are related to the related dependability, accuracy, bias, unique academic exploration Horvitz et al. (2105) appended with data sources although at the same time of the utilization of long range interpersonal communication step by step. Some informal communication modes are got enormous attraction of web users like web journals, Facebook, and Twitter, rather than other modes of communications. Web 2.0 contraptions like online journals, wikis, channels, and email are the most frequent formal communication modes which are users use frequently to access information. The last year graduate students of Ghana University generally (33 percent) utilized email device to satisfy their scholarly requirements.

Subject Related Knowledge in Online Teaching

Data proficiency programs are a lot of imperative to give mindfulness about online data assets. Mindfulness associates the web clients with their necessary material. It's additionally significant that the clients should realize the proper however accessible rescuers to satisfy their data needs. Not many examinations have been directed and identified with attention to online data sources by (Badu, & Markwei, 2005), which explores and establish their opinion through their exploration results about staff and students of the University of Ghana are many advances in the usage of online data sources however the utilization of these sources are restricted and limited. Creators trying to lead the investigation to know the interest about online data resources specific "chat meetings, bulletin assemblies, documentation to exchange settlement, electronic mail, collections, web indexes, information, and also found that incorporates staff and replacements are greatly familiar with email and internet resources. Any remaining sources are very little well known among the respondents. In contrast with understudies, employees have great mindfulness about online data sources.

Applebee and Langer (2009) describe that generally scholarly staffs know to utilize the online library access index for education. They likewise use mostly (WWW) to get information about employment declarations comprehensively state that generally educational experts for web sources and convey overviews for assembling information from substitutes to homeroom for research purposes.

Since of it started, they have had massive advantages, including online data clients in assistant consumers. Yet, a few explorers such as (Jain and Babbar, 2006) revealed that computerized educational resources are utilized due to the absence of mindfulness, skill, and preparation, and academicians and specialists are not utilizing such assets successfully and effectively.

Ability to Practise of OIS

Tremendous scope of writing is accessible on "utilization of online data assets" and specialists analyzed the expression "utilization of operational data assets" from different viewpoints like errand, item, reason, and even sort of clients. Scientist has seen that term "use" has been utilized generally and has significance by various specialists. The examination investigated the different studies to know

the compelling usage of online data sources from an alternate point of view for example (Brinkley-Etzkorn, 2018) directed to an investigation knowing about the determination, obtaining the board of online data sources. With the assistance of new data innovations, utilization can get data with no obstacle in the required time. The supplier of data is essential to know the pattern, demeanor, and looking for the conduct of clients for legitimate utilization of electrical assets. Researchers' people groups and understudies are presently begun utilizing on the web data assets to get their necessary information.

Writing shows that the utilization of online data assets is generally utilized in more severe level classes and the explanation is that in more significant level classes understudy led examination to fulfill prerequisites of online data assets. Deng, (2010) conducted online research in a college to know the "discernment, desire, insight the clients in their sample were the use of online sources" and also discovers that respondents were happy with the appearance and utilization of online resources and their perception about that online data sources having a valuable source for the compellation in scholastic tasks. The utilization of online data sources can shift from the level of studies and also control. A few investigations uncovered that there is critical contrast among graduate and college understudies in getting to online data assets. Graduate understudies are usually contacted by e-diaries and information bases during the investigation. On the opposite side, former student understudies practice digital records and incline toward getting to record on the web, to satisfy their data needs. Understudies initially learn the utilization of the web then they get mindful of online data assets. The understudies for the most part like to use distinctive web indexes to get their necessary data sources. They typically disregarded the Social systems administration destinations for the unadulterated scholastic errands.

Sahin and Yilmaz, (2010) led an examination to know "the utilization of web assets by college understudies during their course extends elicitation: a contextual analysis" and clarified the situation. The model, portrayed in the investigation finds that the web is a significant device for understudy's specific for their scholarly necessities understudy need more insight or ability to separate between solid and non-dependable material.

Kumar, (2008) directed exploration to see the "in what way clients use the electrical databases as entire and to identify the E-Resources are a lot of significant segment of the scholastic network. The employment of e-data is expanding quickly among M.Phil. What's more, Ph.D. understudies of India. The examination researchers are numerous mindful of the significance and use of e-resources. Electrical assets are a significant hotspot for the exploration tasks of examination understudies and computerized assets have changed the best approach to looking for and dispersing data (Madhusudhan, 2007).

The web is the fundamental part of getting to the advanced or electrical assets. Numerous investigations (Agarwal et al., 2019), and (Panda et al., 2011) have been directed to know the utilization of the web by personnel and understudies to satisfy their data and information needs. In scholarly community and examination, the web is turning out to be more significant and its utilization in instructing and exploration are likewise expanding step by step. Because of its effectiveness, performing multiple tasks, every minute of everyday access, and different points of interest its ubiquity is getting to a high proportion among other data assets. A few locales give full content however free admittance to their clients yet a few web destinations have limitations to getting to their full content information.

Strategies for Combining Learning Principles in Online Teaching

Knowing and working on learning standards is a certain something, yet checking and assuring them another source of access, which are the rules for the job to deliberate or directed. A definite set of rules for online guidance are based on standards and incorporate the Quality of the Community of Inquiry in online teaching.

Availability of same material for future work

This standard is underlined in preparing conditions and instructive projects zeroed in on expert and ability advancement. Three reformist gadgets for joining closeness into instructive course work are models, models, and recreations. Models assist understudies with understanding select parts of what is instructed and can incorporate everything from visual antiquities to spoken stories (Young, 2006). Contextual investigations are a sort of modern model permitting understudies to get associated with sorting out arrangements. A realistic procedure that shows the student a cycle. In displaying,

understudies will see a cycle in real life or setting through an exhibit, video, and so on (Mansbach, & Austin. 2018). In reproductions, understudies accomplish more than notice right conduct; they perform it through pretends or machine-guided encounters.

Linking of Learning Material for Online Learning

Expanding the association of the material appears to be a straightforward idea, yet is shockingly hard to apply, particularly in online settings where expound should be pre-arranged (McGowan, et al., 2016). What is obvious to the educator the under study. Since a clear hierarchical structure improves comprehension and review, it is critical to ensure that material is laid out for students at times referred to during the learning, and is practiced consistently by substitutes (Lin, & Ha, 2009). There are countless approaches to building the association of the material being instructed.

Learner Actively Involvement in Learning Process

A guideline basic to most excellent learning is effective including the student through an assortment of strategies. Freeman et al. note that "understudies learn better on the off chance that they are dynamic, however, most favor being (Meyer, 2008). At the most straightforward level, in any event, instructing procedures that energize note-taking fundamentally increment learning. For figuring out how to be ideally successful, it should be moored to old encounters, or new encounters should be made on which it very well may be secured. Posing inquiries and drawing in understudies in discourse, doing activities and practice activities, and leading pretends and recreations, where it covers improving the closeness of the material, are instances of dynamic student contribution. (McGowan, & Graham, 2009) discovered this standard to be appraised by personnel as the absolute generally significant in improving web-based education.

Role of both side feedback in Online Learning

This guideline supplies students with information about the consequences of training (Jaggars, & Xu, 2016). Practice for this situation incorporates works out, tests, conversations, papers, recreations, and apprenticeships. Criticism of training can take numerous structures. It very well may be verbal applause or recommendations for development. It can incorporate grades, composed remarks, or spoken accounts. It very well may be unobtrusive and incidental, and gruff. Criticism is significant in light of the fact that it empowers students to smother mistakes while upgrading handling speed.

Student's Skills / Assistances by using of Online Sources

The availability of the online data resources does not imply that an individual/client can utilize data assets yet its requirements some fundamental specialized mastery and ability about PC and utilization of the web. Numerous examinations have been led to know the capacity and aptitudes to utilize electrical assets which plainly demonstrated that appropriate abilities are a lot of important to utilize the electrical assets in a well-suited manner.

According to the research of (Butt, & Ur Rehman, 2010) found through their exploration that electrical assets are being utilized in acceptable recurrence, and employments of electrical assets are expanding step by step. Be that as it may, some significant information bases (other than Medline) are under-used because of ignorance, helpless aptitudes, and capacity of the Health Science Center of Kuwait University.

In the substitutes of fining (Baro et al., 2011) stated that "absence of essential information on ICT is considered as the second significant limited source when the matter of whimsical force stock of ICT use in the college in Nigeria. This was authenticated by (Bassi, & Camble, 2011) by online sources. Despite the fact that the rate that speaks to the speculation is low when contrasted with different imperatives, for example, sporadic force supply, systems administration, and accessibility of hardware, among others.

Numerous analysts have been directed to know the data education projects and library guidelines which uncovered distinctive parts of data proficiency while utilizing the web data assets. Carlson et al., (2004) uncovered through the aftereffect of their examination that understudies generally counsel the web to satisfy their data for exploration ventures. Scholarly custodians can show understudies the legitimate-looking procedures. Those kinds of education agendas encourage the clients online as well as improved the ability to get the necessary data within a brief timeframe (Donaldson, & Townsend, 2007).

Impact of Online Information Sources on Learner Achievements

The move from print to advanced, it's made an extraordinary effect on distributing, getting to, putting together, and spreading the data assets. Students utilized the web to satisfy their data and information

needs yet a few understudies utilize the equivalent for amusement purposes. A few investigations talk about the understudy's supporters to utilize inspected through exploration that if understudies utilize web with optimistic personalities, attain encouraging outcomes through their examination, establishes that there is an extremely close connection between web use and the "scholarly execution, relational relationship, psychosocial change, and self-assessment." In their outcomes, they found that non-strong web clients have great relations with scholastic outcomes and scholarly development. These investigations additionally reasoned that there is a negative relationship between scholastic executions with substantial web use. A few locales didn't grow the great scholastic evaluations and fell in scholarly execution

The regular purpose of the examinations is that web users can positively affect understudies' presentation on the off chance that it is appropriately utilized. Paechter et al., (2010) directed the exploratory investigation and survey the specialists to investigate that computerized assets are getting more significant in the scholastic existence of each understudy- designing. It is critical to know the effects of online data and computerized assets on educators and scientists also. Van Wart et al. (2019) directed an investigation to know the impacts of data assets on academicians and found that the web and its partnered related assets are a lot of viable for instructors and their study hall exercises. Educators, for the most part, want to distribute their exploration in online diaries. Online data assets additionally welcome an effect on educators, instructing, and study hall's current circumstances. The degree of utilization of computerized assets is shifting from control to train and level of study also.

Methodology

The current research study was purely quantitative in nature. A questionnaire was used as an instrument to obtain valid information. The population of the study was all university students from Punjab. A random sampling technique was utilized for this purpose. The sample was selected from Universities in the province of Punjab. The sample size was 200 students (100 Male and 100 Female). The tool was employed to gather data from participants. Experts validated the instrument. Tool's reliability was tabulated through the Cronbach alpha technique and was awarded the reliability coefficient was .858.

Data analysis

Table 1 Online teaching methodology provides an opportunity for collaborative learning.

Scale (S)	Frequency (F)	Percentage (P)
Strongly agree- SA	37	19.17
Agree- A	137	70.98
Undecided-UD	09	04.66
Disagree-DA	10	05.18
Strongly Disagree-SDA	00	00.00
Total Students	193	100

The values of table 1 exhibited that 193 learners partook in a research survey. View (70.98 %) of students agreed that online teaching methodology provides an opportunity for collaborative learning at the university level. The results, furthermore, show that (19.17 %) of students strongly agreed with this statement.

Table 2 Online lectures are mostly related to your academic course of study

S	F	P
SA	30	15.54
A	147	76.66
UD	13	06.73
DA	03	01.55
SDA	04	02.07
Total Students	193	100

The values of table 2 indicated that the total number of 193 students partook in a research survey. View (76.66 %), students agreed that online lectures are mostly related to your academic course of study at the university level. The results, furthermore, show that (15.54 %) of students strongly agreed with this statement.

Table 3 Online teaching is effective as face-to-face instruction.

S	F	P
SA	163	84.45
A	23	11.91

UD	03	01.55
DA	04	02.07
SDA	00	00.00
Total Students	193	100

The values of table 3 indicated that the total number of 193 students partook in a research survey. View (84.45%) students strongly agreed that online teaching is effective as face-to-face instruction at the university level. The results, furthermore, show that (11.91 %) students agreed with this statement.

Table 4 Online teaching keeps pace with advancement in the educational field for better results.

S	F	P
SA	41	21.24
A	134	69.43
UD	06	03.10
DA	08	04.14
SDA	04	02.07
Total Students	193	100

The values of table 4 indicated that the total number of 193 students partook in a research survey. View (69.43 %) students agreed that online teaching keeps pace with advancement in the educational field for better results at the university level. The results, furthermore, show that (69.43 %) students agreed with this statement.

Table 5 Learning achievement in online teaching is equal as formal education.

S	F	P
SA	152	78.75
A	17	08.80
UD	19	09.84
DA	05	02.59
SDA	01	00.51
Total Students	193	100

The values of table 5 indicated that the total number of 193 students partook in a research survey. View (78.75 %) students strongly agreed that learning achievement in online teaching is equal as formal education at the university level. The results, furthermore, show that (09.84 %) students were undecided with this statement.

Table 6 Online teaching provides emergency learning for key target areas.

S	F	P
SA	07	03.62
A	177	91.70
UD	06	03.10
DA	03	01.55
SDA	00	00.00
Total Students	193	100

The values of table 6 indicated that the total number of 193 students partook in a research survey. View (91.70%) students agreed that online teaching provides emergency learning for key target areas at the university level. The results, furthermore, show that (03.62%) students strongly agreed with this statement.

Table 7 Mood of communication in online teaching is easy to understand the learning concepts.

S	F	P
SA	155	80.31
A	22	11.39
UD	07	03.62
DA	05	02.59
SDA	04	02.07
Total Students	193	100

The values of table 7 indicated that the total number of 193 students partook in a research survey. View (80.31%) students strongly agreed that mood of communication in online teaching is easy to understand the learning concepts at the university level. The results, furthermore, show that (11.39 %) students agreed with this statement.

Table 8 online teaching process is the best alternative teaching method for students.

S	F	P
SA	37	19.17
A	139	72.02
UD	02	01.03
DA	08	04.14
SDA	07	03.62
Total Students	193	100

The values of table 8 indicated that the total number of 193 students partook in a research survey. View (72.02 %) students agreed that the online teaching process is the best alternative teaching method for learners at higher stage. The findings, furthermore, display that (19.17 %) students strongly agreed with this statement.

Table 9 Students are always motivated for learning in online classes.

S	F	P
SA	169	87.56
A	17	08.80
UD	02	01.03
DA	03	01.55
SDA	02	01.03
Total Students	193	100

The values of table 9 indicated that the total number of 193 students partook in a research survey. View (87.56%) students strongly agreed that students are always motivated for learning in online classes at the university level. The results, furthermore, show that (08.80%) students agreed with this statement.

Table 10 Sound and Video quality during lecture effects on learning process.

S	F	P
SA	176	91.19
A	07	03.62
UD	02	01.03
DA	01	00.51
SDA	07	03.62
Total Students	193	100

The values of table 10 indicated that the total number of 193 students partook in a research survey. View (91.19%) students strongly agreed that sound and video quality during lecture effects on learning process at the university level. The results, furthermore, show that (03.62%) students agreed with this statement.

Table 11 Performance evaluation technique is necessary for both teachers and students in online teaching.

S	F	P
SA	35	18.13
A	133	68.91
UD	12	06.21
DA	11	05.69
SDA	02	01.03
Total Students	193	100

The values of table 11 indicated that the total number of 193 students partook in a research survey. View (68.91%) students agreed that performance evaluation technique is necessary for both teachers and students in online teaching at the university level. The results, furthermore, show that (23.31 %) students strongly agreed with this statement.

Table 12 In Online teaching facilities provided were up to your expectations.

S	F	P
SA	30	15.54
A	150	77.72
UD	03	01.55
DA	08	04.14
SDA	02	01.03
Total Students	193	100

The values of table 12 indicated that the total number of 193 students partook in a research survey. View (77.72%) students agreed that in online teaching facilities provided were up to your expectations at the university level. The results, furthermore, show that (15.54%) students strongly agreed with this statement.

Table 13 the attitude of coordinator and allied staff is cooperative for effective learning.

S	F	P
SA	161	83.41
A	23	11.91
UD	04	02.07
DA	05	02.59
SDA	00	00.00
Total Students	193	100

The statistic of table of 13 indicated that in this survey total number students of 193 partook in this research. In the opinion of (83.41 %) students strongly agreed that the attitude of coordinator and allied staff is cooperative for effective learning at the university level. The results, furthermore, show that (11.91%) students agreed with this statement.

Table14 your suggestions are appreciated while online teaching program organized.

S	F	P
SA	148	76.68
A	19	09.84
UD	02	01.03
DA	07	03.62
SDA	08	04.14
Total Students	193	100

The values of table 14 indicated that the total number of 193 students partook in a research survey. View (76.68%) students strongly agreed that your suggestions are appreciated while online teaching program organized at the university level. The results, furthermore, show that (09.84%) students agreed with this statement.

Table 15 Online teaching programs help to improve your knowledge and skills.

S	F	P
SA	46	23.83
A	143	74.09
UD	04	02.07
DA	00	00.00
SDA	00	00.00
Total Students	193	100

The values of table 15 indicated that the total number of students partook in a research survey. View (74.09%) students agreed that online teaching programs help to improve your knowledge and skills at the university level. The results, furthermore, show that (23.83 %) students agreed with this statement.

Table 16 There is a need of advancement in online teaching for the better student's achievement.

S	F	P
SA	09	53.37
A	177	27.46
UD	02	11.91
DA	03	03.10
SDA	02	04.14
Total Students	193	100.00

The values of table 16 indicated that the total number of 193 students partook in a research survey. View (64.24 %) students strongly agreed that there is a need of advancement in online teaching for the better student's achievement at the university level. The results, furthermore, show that (23.31 %) students agreed with this statement.

RQ 1

Is there a link of online teaching effectiveness with students' academic achievements at the university level?

Table 17 correlation coefficients for online instruction usefulness and students' educational achievements

Correlations		Online teaching effectiveness	Students' academic achievement
Online teaching effectiveness	Pearson Correlation	-	0.385**
	Sig. (2-tailed)		.010
	N		193
Students' academic achievement	Pearson Correlation		-
	Sig. (2-tailed)		
	N	193	193

** . Correlation is significant at the 0.01 level (2-tailed)

The above table 17 exhibited a moderate affiliation of online teaching effectiveness with learners' academic achievements with $r=0.385$ and the $p=.010$ for $n=193$.

RQ 2

Is there a link of online teaching effectiveness with learner learning attainment in online based learning environment at the university level?

Table 18 Correlation coefficients for Online Teaching Effectiveness and Students' Learning Achievement

Correlations		Online teaching effectiveness	Students' academic achievement
Online teaching effectiveness	Pearson Correlation	-	0.472**
	Sig. (2-tailed)		.020
	N		193
Students' academic achievement	Pearson Correlation		-
	Sig. (2-tailed)		
	N	193	193

** . Correlation is significant at the 0.01 level (2-tailed)

The above table 18 displayed a moderate link of online teaching effectiveness with learners' learning achievement with $r=0.472$ and the $p=.020$ for $n=193$.

Findings

- (70.98 %) students agreed that online teaching methodology provides an opportunity for collaborative learning, (76.66 %) students agreed that online lectures are mostly related to your academic course of study, (84.45%) students strongly agreed that online teaching is effective as face-to-face instruction, (69.43 %) students agreed that online teaching keeps pace with advancement in the educational field for better results, (78.75 %) students strongly agreed that learning achievement in online teaching is equal as formal education , (91.70%) students agreed that online teaching provides emergency learning for key target areas, (80.31%) students strongly agreed that mood of communication in online teaching is easy to understand the learning concepts, (72.02 %) students agreed that the online teaching process is the best alternative teaching method for students, (87.56%) students strongly agreed that students are always motivated for learning in online classes, (91.19%) students strongly agreed that sound and video quality during lecture effects on learning process, (68.91%) students agreed that performance evaluation technique is necessary for both teachers and students in online teaching, (77.72%) students agreed that in online teaching facilities provided were up to your expectations, (83.41 %) students strongly agreed that the attitude of coordinator and allied staff is cooperative for effective learning, (76.68%) students strongly agreed that your suggestions are appreciated while online teaching program organized, (74.09%) students agreed that online teaching programs help to improve your knowledge and skills and (64.24 %) students strongly agree that there is a need of advancement in online teaching for the better student's achievement at the university level . (tables 1- 16)
- Findings indicated a moderate correlation of online teaching effectiveness with students' academic achievements with $r=0.385$ and the $p=.010$ for $n=193$ and online teaching

effectiveness and students' learning achievement with $r=0.472$ and the $p=.020$ for $n=193$. (tables 17-18)

Discussion

It was found that online teaching methodology provides an opportunity for collaborative learning, online lectures are mostly related to your academic course of study. These findings favor the studies of (Abuhassna et al, 2020). It was noted that online teaching is effective as frontal instruction, online teaching keeps pace with the advancement in the educational field for better results, and learning achievement in online teaching is equal to formal education. These findings are backed by the research works (Arbaugh, 2014; Khan et al, 2012; Gopal et al, 2021). The findings that online teaching provides emergency learning for key target areas, the mood of communication in online teaching is easy to understand the learning concepts, the online teaching process is the best alternative teaching method for students, and students are always motivated for learning in online classes, the studies of Asarta, and Schmidt, (2017) support these findings of the study. It was found that sound and video quality during lectures affect the learning process, performance evaluation technique is necessary for both teachers and students in online teaching, in online teaching facilities provided were up to your expectations, the attitude of coordinator and allied staff is cooperative for effective learning, your suggestions are appreciated while online teaching program organized, online teaching programs help to improve your knowledge and skills, and there is a need of advancement in online teaching for the better student's achievement at the university level. These findings are supported by (Baran, & Correia, 2014; Brinkley-Etzkorn, 2018).

Findings revealed a moderate association of online teaching effectiveness with students' academic achievements and online teaching effectiveness and students' learning achievement in online-based institutes. The studies of Fraser and Walberg (2005) favor these findings.

Conclusion

The study was conducted to make an appraisal of online teaching effectiveness and its relationship to students' academic learning achievements in Punjab-Pakistan. The researcher made an evaluation of the emerging trend of online teaching which has a great influence on performance and students' academic achievements based on their use, usefulness, and positive impact. This research disclosed use of online teaching has a moderate relationship between online teaching effectiveness and students' academic achievement.

Recommendations and Future Research

Keeping in view the discoveries of the examination, following suggestions regarding suggestions for training will defeat the feeble regions featured in the investigation and almost certain acquire upgrades to guarantee quality in open and distance instruction in Pakistan, it is suggested that

- Teachers in web-based education should give compulsory preparation and retraining of ICT projects to give them viable and practical information on the PC, web, and related zones of ICT.
- Providers of online schooling ought to endeavor to utilize quality and solid ICT equipment and programming upheld by exceptionally talented staff furnished with information and aptitudes expected to guarantee that the framework runs easily.
- The Government of Pakistan ought not just to permit the continuation of open and distance learning; it should be upheld with satisfactory subsidizing.
- The Government ought to guarantee that the electric force supply in the nation is made accessible nonstop. Country regions without power supply should be provided with power on the grounds that countless forthcoming understudies are provincial occupants.
- The quality circle approach should be received in the planning obviously substance and learning materials to guarantee quality in course content conveyance.
- Online evaluation of understudies works and end obviously assessment should be empowered in web-based instructing and learning. This will check assessment misbehaviors and consequently, improve the nature of the evaluation of the understudy's exhibition.
- Pakistan is rapidly arising as a force to be reckoned with in the district, halfway because of its high-speed industry. Government approaches toward unfamiliar speculators have likewise added to making the nation stick out.

- An expanding number of unfamiliar organizations additionally inclined toward Pakistan for their re-appropriating activities because of the enormous pool of experts capable of English, modest network rates, and serious operational expenses. Maybe the most energizing improvement throughout the most recent couple of years is the expanding part of business people in ICT-based undertakings, with more youthful individuals exploring different avenues regarding dispatching their own organizations as opposed to searching for occupations.
- With everything taken into account, the Pakistani soul is perfectly healthy. It has demonstrated versatility in defeating affliction and in changing over difficulties into circumstances. Development in all areas is positive and in spite of the major political and outside difficulties, all areas of the Pakistani economy are going to easily develop.

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