

PREFERENCE DETERMINES PERFORMANCE: COMPARATIVE ANALYSIS OF STUDENTS' PREFERENCE OF ON-CAMPUS AND ONLINE LEARNING AND THEIR ACADEMIC PERFORMANCE DURING COVID-19

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ABSTRACT

On-campus and online learning modalities provide rich and diverse learning experiences to students with certain physical, psychological and Covid-19 limitations. Present study was carried out to compare the students' preference of on-campus and online learning and their academic performance in both modes with the purpose of identifying the causes behind their choices. Mixed method research design was selected. 358 students from two public universities of Islamabad participated in research. The research instrument consisted of a mixed questionnaire containing close ended items followed by an open-ended research question. Results showed that majority of students preferred on-campus classroom learning. GPAs of students were better in online classes as compared to on-campus classes. Students favored on-campus learning due to good teacher-student relationships, better course content understanding, more class participation, high motivation, use of a variety of pedagogical practices, and more reliable assessment technique. Those students who favoured online classes said that it is easy to attend from any place, it saves travelling time and cost. Trainings may be provided to teachers about the use of various teaching strategies and suitable assessment techniques for online classes to enhance its effectiveness.

Keywords: Online learning, On-campus learning, students' performance, GPAs, Pedagogical practices, Trainings

INTRODUCTION

Traditional on campus and online education systems share many common qualities. Students require to learn course content, attend classes, complete projects, and submit coursework. Teachers need to design courses, motivate learners to learn, enhance teaching quality and assign grades. With these commonalities, there are difference between these two modes of learning (Paul, & Jefferson, 2019). In general, online learning is largely seen equal to teaching conducted on campus face-to-face by professionals. However, research studies

exploring the performance of students in both modes of learning has been varied (Cavanaugh, & Jacquemin, 2015). Results differ as context, environment and resources are different. Although online subjects in higher educational institutions are getting popular, but evidence is questionable about whether students enrolled in online are academically more motivated and successful as compared to students attending on-campus face-to-face subjects (Francis, Wormington & Hulleman, 2019).

Higher education community is facing significant challenges due to present pandemic. One of the unexpected and urgent challenge which universities faced is online teaching (Rapanta, et al., 2020). Since 2020, universities adopted online, on campus and hybrid modes of learning due to COVID-19 pandemic. In the beginning, when universities started online classes, faced many problems, but with passage of time they overcome many of the difficulties. Attending online classes provide opportunities for teachers and students to equip themselves about online teaching and learning. Online learning was not a choice of students in fact, it was the only option available in the present situation. Present research compared students' performance in online and on campus classes with focus of identifying preferences of students about online and on campus modes of learning. Research studies such as Alnabelsi, Al-Hussaini, and Owens (2015); Francis, Wormington, and Hulleman (2019); Kemp, and Grieve (2014) conducted in comparison of online and face to face on campus learning explored situations in which limited students choose online classes by choice. Present research is different in context in which all university students choose online classes due to COVID-19. Automatically comparison comes into this situation where students attended both online and on campus modes of learning. Paul, and Jefferson (2019) also suggested that benefits and shortcomings of both modes of instruction require to be explored fully for purpose of comparing effectiveness of students' performance in both modes. Though both modes have their own effectiveness, but still need further research to explore that which one is more effective.

As both online and on campus modes of learning has advantages and disadvantages. It is evident that electronic communication is getting popular due to its convenience in many ways and many higher educational institutions are offering flexible opportunities of learning to their students. Once classes delivered on campus often are switched by online discussions and activities. Although, there is still less research studies on comparing students' learning and experience in online and on campus modalities (Kemp, & Grieve, 2014). Online education is growing rapidly as it provides many benefits to both teachers and learners. Online education is more affordable and accessible (Kalpokaite, & Radivojevic, 2020). Online education offers more flexibility to learners regarding transportation and scheduling (Yoo & Huang, 2013). Although, online education is also becoming popular in higher educational institutions, but still, it is difficult to access for those who are facing internet technology issues (Crea, & Sparnon, 2017). In fact, technological advancement has opened new doors of online learning in the field of teaching. Traditional on campus teaching has limitations of location and time. Moreover, physical presence of teachers and students at the same location is also another factor.

Recent developments in the field of network technology have enhanced quality of online teaching and learning. Moreover, the synchronous learning mode has also overcome the concern of presence of teachers and students at the same time in online learning imposed by traditional teaching (Alnabelsi et al., 2015). Arghode et al. (2017) said that adult learners perform better in online courses as they are more autonomous and self-directed. A Selection of online education also depends on the type of students as a study conducted by Yoo and Huang (2013) reported that most adult learners attend online courses due to family and work commitments. Less knowledge of online learning environments also affects students'

performance (Lai, 2018). The process of designing a conducive learning environment is more important in which students learn better irrespective of the approach used for teaching (Parchoma et al., 2020). Moreover, online learning trend's popularity also raise a question of modality importance and more pedagogic research studies are needed in the context of comparison of online and on-campus learning (Mullen, 2020).

Paul and Jefferson (2019) said that although researchers are supporting online education, but its efficacy is still questioning. There are research studies which addressed the usefulness of computer-assisted teaching, but student experience, student performance and cost-benefit analysis also need careful consideration while claiming that online learning is a feasible substitute of classroom learning. Cavanaugh and Jacquemin (2015) also favoured that comparison of students' performance in terms of grades between online and on-campus modalities is also important because of rapid growth of online courses in recent years. Education professionals also viewed online learning equal to face-to-face classroom learning.

Objectives

Objectives of the research study were to:

1. Compare students' performance in online and on campus classes.
2. Compare GPAs of students who favoured online and on campus classes in both of these modalities.
3. Compare students' perspectives regarding on campus and online learning modes.
4. Identify reasons of students' preferences of on campus learning.
5. Explore reasons of students' preferences of online learning.

LITERATURE REVIEW

Online and on-campus teaching have both advantages and disadvantages. There is a need for more studies on the comparison of two modes to achieve learning outcomes before taking well-informed decisions (Paul, & Jefferson, 2019). Present research is an effort to explore students' perspective about online and on-campus learning and their performance in both modes during COVID. Research evidence are inconsistent regarding students' motivation and success in online learning and traditional education (Francis, Wormington & Hulleman, 2019). As, online programs are available increasingly and popular in higher education (Allen & Seaman, 2016). Online courses work as an opportunity for students to increase their access to learning (Drew et al., 2015). Classroom instruction is teacher-centred and needs passive learning, while online learning is student entered and promotes active learning (Paul, & Jefferson, 2019). Student interest of integration e-learning in courses is also increasing as study conducted by Asad (2020) discovered that students learn effectively when teacher integrates technology in the course. This section covers the details about online and on-campus learning.

Online Learning

Covid-19 has brought technological advancements in various sectors including online learning (Renu, 2021). Online learning has improved a lot in the last two years since this pandemic, with the addition of virtual whiteboards as well as more powerful file and learning management systems. Moreover, in research study conducted by Wahid et al. (2021) introduced Smart Campus Framework in new normal which integrates Information Technology and Hybrid Classroom System. The online environment has certain benefits as well as drawbacks. Now online learning modes such as Webinars also provide direct exposure of interaction among members and instructor. There is no need to be present in physical location. The ubiquity and geographical flexibility are the advantages of video-

conferencing technologies (Ebner, & Gegenfurtner, 2019). Online learning modes are synchronous and asynchronous. Gegenfurtner et al. (2017) said that synchronous mode provides the opportunity to directly communicate with participants and teachers can provide instant feedback. While the asynchronous mode is flexible and supports self-paced learning as compared to synchronous mode in which students attend classes at the same time and same place as campus classes (Petronzi, & Petronzi, 2020). Asynchronous learning mode use document repositories, chat functions, recorded footage and videos. There is more flexibility in context of time and location in asynchronous mode as compared to synchronous mode of learning. Another benefit is that students can access learning material from anywhere through technological devices. But this flexibility also has drawbacks (Ebner, & Gegenfurtner, 2019). Online learning has become an unexpected distraction of a traditional classroom system. Online education also faced resistance from students, teachers, and administrators. Online education works as successfully as conventional on-site learning (Vivolo, 2016). Online teaching enhances classroom dynamics and provide the opportunity of face-to face interaction between students and teacher (Kemp & Grieve, 2014).

Asad et al. (2020) in their research discussed that communication technologies have become a powerful force in education globally. Similarly, e-learning usage has been increased in Pakistan in last ten years. While latest educational policy has also focused on e-learning and ICTs usage in educational institutions. It is also suggested that teachers should integrate e-learning resources in their teaching. Students are also deficient in use of ICT in an effective manner. Shehzadi et al. (2020) explained that quality of e-information and e-service has an important role in e-learning that eventually helps in creating positive electronic word-of-mouth and satisfaction of students. This results in university's positive brand image. Universities are offering a flexible environment of learning due to fast-developing technologies and changing lifestyles of students. Moreover, e-learning helps students to take responsibility of their knowledge acquisition (Ituma, 2011).

With benefits certain drawbacks are also attached with online learning. Driscoll et al. (2012) said that literature regarding efficacy of online programs is divided and expansive. Moreover, Atchley et al. (2013) explained that there are studies which support traditional classroom teaching and claimed that online learners more easily quit and lack feedback for both teachers and students. The students' satisfaction, performance, and retention compromise due to certain deficiencies attached with online mode of learning. One of research finds that majority students faced health issues such as eyesight, head, shoulders, right hand, and neck pains dues to online learning. The more time people will be spent on online modes of learning each day, more they will face health issues (Karingada, & Sony, 2021). Motivation is a significant factor that affects performance of students in online classes. One of the major challenges which faculties are facing is to motivate students in online classes. In present pandemic, the social distancing was another barrier due to which students did not study in groups. Combined studies help students to discourse areas in which they feel difficulty due to online learning (Dratcott, 2020). Therefore, students must be self-motivated and attentive to join online classes. Vigil factor is also lacking in online classes. It is difficult for teachers to understand the students' body language which results in monotonous learning patterns in online classes. Therefore, teachers should pay more attention to these factors in their online classes (Zia, 2020). Teachers expect from their students to learn in every course. Therefore, teacher attempts to provide a conducive learning environment which helps in learning. But in online programs it is difficult to develop such environments and require a lot of effort on the part of teachers. This may result in a decrease of students' performance as compared to classroom learning even in the same courses (Kennette, & Redd, 2015).

On-Campus Learning

Students prefer online classes in case of easy academic subjects while in important or difficult subjects they choose face-to-face classroom classes (Jaggars, 2014). In research study conducted by Sussman and Dutter (2010) identified that students' performance is same in both face-to-face classroom classes and online delivery. On-campus learning has both pros and cons. On-campus teaching is a well-established medium of instruction in which teaching structures and styles are refined. There are numerous benefits of face-to-face teaching which are not present in online classes (Xu&Jaggars, 2014). In classroom settings, students feel more encouraged, directed, and motivated. It is also helpful in students' retention. Kemp and Grieve (2014) said that in online teaching modes, teachers face difficulty in understanding verbal and non-verbal communication which is one of benefit of classroom classes.

In physical classroom settings, teacher guide and support students' learning with the help of scaffolding to ensure their understanding and command of concepts. They provide resources like readings, illustrating ideas, discussing examples from real-life, engaging students in various activities or demonstrations which help students to discover. However, some methods are difficult to apply in online modes of learning, particularly in situations where more interaction is needed between teacher and student (Kennette, &Redd, 2015).

Classroom teaching is enormously dynamic and provides face-to-face interaction. It encourages students to ask innovative questions. It allows flexible content delivery and immediate response of the teacher. On the other hand, online teaching diminishes the learning process as pupils limit their questions (Salcedo, 2010). On campus learning provides research libraries and accredited staff to students. Students can take help from administrators about course selection and take professorial help. Library technicians help students to edit their research papers. Moreover, in on-campus learning, teachers guide students to improve study habits, and find valued study material. Research libraries are also helpful in finding materials which are not available by computer. The classroom learning experience provides significant auxiliary tools for students, which helps in maximizing classroom performance (Paul, &Jefferson, 2019). The traditional classroom provides communal learning, direct interaction, student-teacher bonding, and class discussions. Some students view online teaching negatively. Maybe these students are technophobes and feel more comfortable in the classroom setting where they can take notes instead of absorbing data sitting in front of online learning modes (Roval& Jordan, 2004).

One of the beauties of traditional classroom is that teachers can discuss ideas both collectively and individually with students and may apply various interactive activities. Teachers may perform same ideas in online classes, but with limitation of social dimension which is a significant strength of classroom learning. Additionally, it will be difficult for teachers to organize engaging activities in the same manner for online learning modes which was prepared for physical classroom. Physical presence of teachers and students in a classroom is another important strength of classroom learning and in asynchronous online learning environment, it is tough for teachers to create such a sense of presence (Kennette&Redd, 2015). Although students are adapting online modes of learning and universities are more focused on computer-based training, but this does not reject the fact that many students still prefer classroom learning. Classroom teaching does not depend on networked systems as online learning where students face internet access issues and may face difficulty in communication, assignment submission, and access of study material due to technical problems. These problems may hinder students' performance. Research studies showed that students in online classes may quit classes in case when they do not like the course format, instructor, and feedback as in online classes, students work independently,

depend on self-direction and self-motivation (Paul, & Jefferson, 2019). Moreover, organizations prefer those employees during hiring who have learned in face-to-face classroom classes as compared to online education. Even many professional and academic, organizational bodies do not consider those employees who are having degrees earned from online education (Columbaro & Monaghan, 2009).

In short, both online and on campus learning has its own advantages and disadvantages. Both modes of learning help students to get their goals. The online learning mode is alluring, viable option for students with limited options of attending regular physical classes. In online learning, students may access to quality programs at any time and from any place. Classroom teaching is dynamic, and it promotes organic teacher- student bonding and communal learning. Present research is significant as it explores students' preferences of online and on-campus face to face learning. It also identified causes of selection of online and on-campus face to face learning. Results and recommendations may help teachers in modifying teaching strategies keeping in view need of students. Moreover, university administration may also help students, though inclusion of students' needs in their policies. Students highlighted various reasons for section of online and on-campus learning preferences. Considerations of students' point of view may further help in developing a conducive learning environment for students.

RESEARCH METHODOLOGY

Research Design

Present research is a mixed method research as Erickson and Kaplan (2000) said that questionnaire which contains both open-ended and closed-ended items is a type of mixed method research as it covers both qualitative and quantitative data collection techniques and analysis (Vitale, Armenakis, & Feild, 2008).

Sample Size and Sampling Technique

The sample of study was taken from students of two public sector universities of Islamabad who were attending classes in online mode due to COVID-19 and previously had taken classes in university campuses. Total 358 students from two public universities of Islamabad were participated in the present research. Due to present scenario in which educational institutions were practicing different modes of learning, including online, on campus and hybrid learning modes, convenience sampling was selected to collect data from a sample of students. Questionnaire in the form of Google Form was shared with students.

Research Instrument

The research instrument consisted of mixed questionnaire containing close-ended items followed by an open-ended research question. Research instrument was developed by researchers. Research Literature on online learning and on-campus learning guided in designing and development of research instrument, used in this study. The first section was comprised of close-ended questions. Close-ended questions contain the information about students' GPAs in on-campus classes and online classes, previously attended online-classes and students' choices of online and on-campus learning from areas of student-teacher relationship, course content understanding, class participation, motivation, pedagogical practices, and assessments of higher order thinking.

Statistical Techniques

Frequencies and percentage, mean, SD and t-test were calculated to analyse closed-ended questions. Moreover, t-test was used for comparison. Second section of the questionnaire

contains an open-ended question of giving a reason of selecting your preferred mode of learning. Themes were derived from answers of open-ended question and frequencies of these themes were also calculated.

DATA ANALYSIS

Data Analysis of Closed Ended Questionnaire

Table 4.1

Attended Online Classes before COVID-19

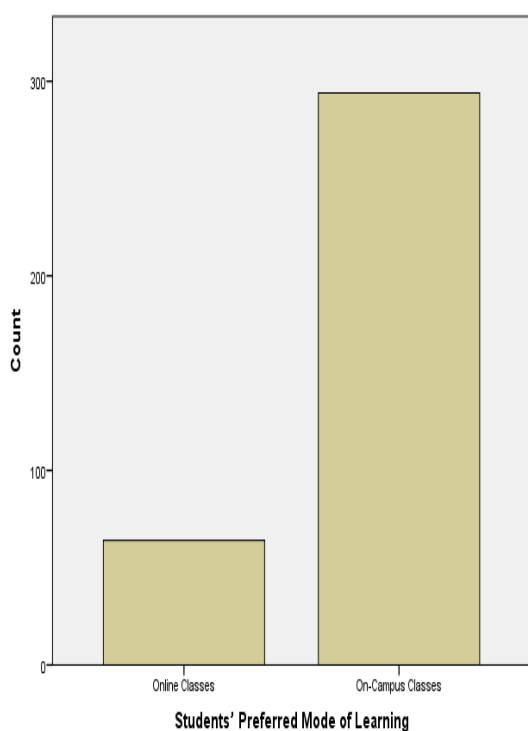
Statement	Yes F/%	No F/%
Have you attended any online course/s before COVID-19?	90/25.1	268/74.9

Table 4.1 explained that most of the students (74.9%) did not attend any online course before COVID-19. Only 25.1% of university students attended online courses before COVID-19. Data were collected from students who attended both on-campus and online classes. Most of the students attended online classes first time during the present pandemic.

Table 4.2

Students' Preferred Mode of Learning

Statement	Online learning F/%	On-Campus learning F/%
Which mode of learning do you prefer/like the most?	64/17.9	294/82.1



Most of the students (82.1%) showed their liking about learning in physical classrooms while 17.9% students said that their preferred mode of learning is online.

Results of Figure 1 showed that majority of students' preferred mode of learning is on-campus classes while less number of students opt the option of online classes.

*Figure 1: Results regarding students' preferred mode of learning*Table 4.3
Students' Academic Performance in On-Campus and Online Classes

Students' GPA	Mean	SD
Online Classes	3.18	.798
On-Campus Classes	3.12	.807

Table 4.3 is about students' performance in online and on-campus classes. Results showed that students performed better in online classes in comparison to on-campus classes.

Table 4.4
Comparative Analysis of Students GPAs

Variable	Students Who Favoured Online Learning	Students Who Favoured On-Campus Learning	t	Sig.
	Mean/ SD	Mean/ SD		
The GPA of students during the semester, which was attended on campus	2.75/.943	3.20/.752	4.171	.000
The GPA of students during the semester, which was attended online	3.11/.838	3.20/.789	.786	.425

Table 4.4 discussed the results of students who favoured online classes and on-campus classes. The mean score of GPAs of both groups was calculated and t-test was applied. Results showed that there is a significant difference in scores of students in online and on-campus classes GPAs who favoured online classes. Those students who favoured online classes scored higher in online examination as compared to the on-campus examination. Moreover, no significant difference was observed in scores of students in online and on-campus classes GPAs who favoured on-campus classes. Additionally, those students who favoured on-campus classes scored same in both online and on-campus examination.

Table 4.5
Students Perspectives regarding Online and On-Campus Learning Modes

		Online learning F/%	On-Campus learning F/%
Teacher -Students Relationships	Which mode of learning facilitates good relationship among teachers and student?	29/8.1	329/91.9
Course Content Understanding	In which mode of learning course content is more understandable?	34/9.5	324/90.5
Class Participation	In which mode of learning you ask more questions to clarify your confusion and	69/19.3	289/80.7

	concepts?		
	In which mode of learning you actively participate in the class?	58/16.2	300/83.8
Motivation	In which mode of learning you feel more motivated to learn?	49/13.7	309/86.3
Pedagogical Practices	In which mode of learning, teachers use a variety of teaching methods and strategies?	89/24.9	269/75.1
	In which mode of learning conduction of group tasks/work is easy?	68/19.0	290/81.0
	In which mode of learning, teachers use and prefer cooperative learning techniques?	82/22.9	276/77.1
	In which mode of learning, teachers use and prefer active learning?	61/17.0	297/83.0
Assessment of Higher Order Thinking	Which mode assessment focuses more on assessment of higher order thinking?	96/26.8	262/73.2

Regarding relationships among students and teacher, most students (91.9%) said that students and teachers can develop better relationships in physical classrooms. In response to course content understanding, most students responded that they understand the course content (90.5%) more in on campus classroom classes. Regarding participation in classes, most students (80.7%) responded that they ask more questions in on-campus classrooms. Additionally, they also actively participate (83.8%) in on-campus classrooms. In response to students' motivation to learn, most of the students responded that they feel more motivated to learn (86.3%) in on-campus classrooms. In response to questions regarding pedagogical practices, 75% university students said that teachers use a variety of teaching methods and strategies in on-campus classrooms. 81% students were of the view that conduction of group tasks/work is easy in on-campus classrooms. Moreover, 77.1% students reported that teachers use and prefer cooperative learning techniques in on campus classrooms. 83 % students said that teachers use and prefer active learning in on-campus classrooms. As far as assessment activities are concerned, 73.2% students favored that on-campus assessment focuses more on assessment of students' higher order thinking.

Table 4.6

Comparative students' perspectives about online and on-campus learning modes

Variable	Students Who	Students Who	t	Sig.
	Favoured Online Learning Mode	Favoured On-Campus Learning Mode		
	Mean/ SD	Mean/ SD		
Good Teacher -Students Relationships	1.59/.495	1.98/.1006	12.62	.000
Better Course Content Understanding	1.59/.495	1.97/.162	10.76	.000
More Class Participation	3.03/.890	3.77/.537	8.81	.000
High Motivation	1.43/.500	1.95/.205	13.35	.000
Use of Variety of	5.75/1.511	7.46/.892	12.10	.000

Pedagogical Practices				
Assessment of Higher Order Thinking	1.40/.495	1.62/.483	3.32	.001

Results of table 4.6 described significant difference in choices of students who favored online and on-campus learning modes in context of teacher-students' relationships, course content, understanding, class participation, high motivation, use of variety of pedagogical practices, and assessment of higher order thinking. Results of mean score revealed that students favored on-campus learning in all areas of good teacher -student relationships, better course content understanding, more class participation, high motivation, use of a variety of pedagogical practices, and assessment of higher order thinking.

Data Analysis of Open-Ended Questions

Reasons for preferring on-Campus Classes

Table 4.7
Reasons for preferring on-Campus Classes

Themes	Frequencies	Percentage
Better understanding of content	141	40%
Promote positive interaction among students and teacher	72	21%
Students pay more attention	42	12%
Conducive learning environment	28	8%
Facing problems of internet connectivity in online classes	24	7%
Brings punctuality in students	11	3%
Application of variety of teaching strategies	9	3%
Less distraction	9	3%
Active learning	8	2%
More reliable assessment of students learning outcomes	4	1%

Table 4.7 explained response of students about favouring on-campus classrooms learning in response to open-ended question of giving reasons for your preferred mode of learning. 294 students out of 358 took favour of taking on-campus classes. 250 out of 294 students provided justification of selecting the choice of on-campus classes. Main themes that derived from open-ended questions were better understanding of content, promote positive interaction among students and teacher, students pay more attention, conducive learning environment, facing problems of internet connectivity in online classes, brings punctuality in students, application of variety of teaching strategies, less distraction, active learning and more reliable assessment of students learning outcomes.

Better understanding of the content was first theme and 40% students selected on-campus classes due to this. 21% selected said that on-campus classes promotes positive interaction between teacher and students. 12% students said that students pay more attention in on campus classes. While 8% students selected on-campus classes due to a conducive learning environment of physical classrooms. 7% students said that due to poor internet connectivity issues they like to learn in on-campus classrooms. 3% of students said that they like on-campus classrooms because students become more punctual, teachers use a variety of teaching strategies and less distraction in on-campus classes as compared to online classes.

2% students liked on-campus classes due to active learning. 1% students preferred on-campus classes due to more reliable assessment of students learning outcomes.

Reasons for preferring online Classes

Table 4.8

Reasons for preferring online Classes

Themes	Frequencies	Percentage
Easy to attend classes from anyplace.	23	28 %
Prevention from COVID-19 infection	14	17 %
Saves travelling time and cost	11	14 %
Easy to manage workload	9	11 %
Opportunity to learn from home	8	10 %
Good grades	4	5 %
Facilitates students (recorded lectures, PPT slides etc)	4	5 %
Technology awareness	3	4 %

Table 4.8 described replies of students about favouring online classes, learning in response to an open-ended question of giving reasons for your preferred mode of learning. 64 students out of 358 took favour of taking on-campus classes. 43 out of 64 students provided justification of selecting the choice of online classes. Main themes derived from open-ended questions were easy to attend classes from anyplace, prevention from covid-19 infection, saves travelling time and cost, easy to manage workload, opportunity to learn from home, improves grades, improves attendance, facilitates students in the form of recorded lectures, ppt slides arts and technology awareness. 28% students responded that online classes are easy to attend from anyplace. 17% students replied that online classes helped in the prevention of COVID-19. 14% students said that online classes save travelling time and cost. 9% were of the view that it is easy to manage workload in online classes. 10% students said that online classes provide opportunity to learn from home especially in COVID-19 and students can complete their semesters. 5% students expressed that in online classes they get good grades, and university and teachers facilitate students in the form of recorded lectures. 4% students said that online classes provide opportunity to learn about technology.

DISCUSSION AND CONCLUSIONS

Present research employed both structured and open-ended questions for assessing students' preferences of on-campus and online classes and their performance. Mixed method research approach was applied, and data was gathered from both close-ended and open-ended questionnaires. Open-ended questions helped to get a deeper understanding of the reasons behind the selection of on-campus or online classes. Total 358 students participated in the study.

Objective one of research study was to compare students' performance in online and on campus classes. It was found that students performed better in online classes. Moreover, objective two was to compare GPAs of students who favoured online and on campus classes in both modalities. Although performance of students was better in online classes but in further analysis, it was found that those students who favoured online classes they performed better in online classes while those students who favoured on-campus classes they performed good in both online and on campus classes assessment. Cavanaugh and Jacquemin (2015) in their research also identified that those students who have higher grades will also perform

better in the online programs. Kemp and Grieve (2014) disclosed that students' performance is almost same in online and on-campus modalities. But another study conducted by Xu and Jaggars (2014) results does not match with present research as they claimed that in online courses students face decrease in their performance. Findings of Francis, Wormington, and Hulleman (2019) also does not match with present study, which identified that students in online classes got lower grades as compared to face-to-face on-campus students.

Findings of objective three of study showed that there is a significant difference in choices of students regarding online and on-campus learning. Majority of students favored on-campus learning in all areas of good teacher -student relationships, better course content understanding, more class participation, high motivation, use of a variety of pedagogical practices, and assessment of higher order. Jaggars (2014) in his research study provided a justification of taking only specific courses online and said that students feel difficulty in understanding of course material in online mode. Students said that this happened due to less teacher interaction and explanation of content in online classes. Moreover, the subject which focuses on hands on experience can be learned better in classroom classes. Moreover, research findings of Francis et al. (2019) do not match with the present study, which disclosed that students are not different in terms of their motivation level in both online and on-campus classes while present study results showed that students' motivation is high in on-campus classes. Moreover, students need adaptive motivation in online classes to stay engaged (Park & Yun, 2018).

Results of objective four which is about causes of preference of on-campus learning revealed that on campus classes facilitates good relationships among students and teachers. Students understand the course content in an effective manner in on-campus classes. In on-campus classes, students pay more attention; learning environment is conducive; it brings punctuality in students; teachers apply a variety of teaching strategies, including preferred cooperative learning and active learning; there is less distraction; and assessment of students learning outcomes is more reliable. In on-campus assessment, teachers can focus more on assessment of higher order thinking. Students also said that they prefer on campus classes as it is difficult to attend online classes due to poor internet connectivity. Jaggars (2014) in his study determined that most students preferred online learning mode only in academic subjects which are easy and chosen face-to-face classroom classes in important or difficult subjects.

Results of objective five about the causes of preference of online learning showed that those students who favoured online classes said that online classes are easy to attend from any place; it helps in prevention from covid-19 infection; it saves travelling time and cost; it is easy to manage workload; it provides opportunity to learn from home; it improves grades. In online classes, university and teachers facilitate students in the form of recorded lectures, ppt slides etc. Moreover, it provides opportunity to learn technology. Results of research study conducted by Jaggars (2014) also favoured the present research results and said that students favoured online classes due its time efficiency, convenience, and flexibility, but even with these advantages only few students wanted to take all courses online. Rapanta et al. (2020) in their study suggested that online learning needs pedagogical content knowledge for healthier learning experiences with the help of technologies. Universities should invest more in their teachers' professional development and update their effective pedagogical approaches. There are certain reasons for favouring online and on-campus learning. Different studies explored these reasons. As Paechter and Maier (2010) explored that student valued online learning as it provides a coherent structure of learning and support self-regulated learning. Moreover, those students who preferred on-campus face-to-face learning said that it promotes communication and helps in developing interpersonal relationships. Students prefer traditional classroom learning when they require conceptual knowledge of subject and skills for application of

knowledge. Although, students support online learning when they want to acquire skills of self-regulated learning.

RECOMMENDATIONS

Although students preferred on-campus classes, but online classes are need of the present situation. Keeping in view of this there is a need to improve environment of online classes to make it successful. Through improving the learning environment of online classes may help students get more benefit from this modality. Following recommendations may be incorporated by teachers and university administrators to make the teaching learning process more effective.

1. Teachers may use blended learning strategies due to the importance of both online and on-campus learning. This will also help students get benefit of both modes of learning.
2. Teachers may encourage students to participate more in online classes and use a variety of activities for active participation of students in online classes.
3. Teachers may design a separate course for online classes as online class demands are different.
4. Trainings may be provided to teachers about the use of various teaching strategies and suitable assessment techniques for online classes to enhance its effectiveness as it is the need of the present time.
5. Trainings may be provided to students regarding the use of technology for online classes. Faculty and students may be encouraged to use the Learning Management System (LMS) even after this pandemic.
6. Assessment strategies of online classes may focus more on evaluation of higher order thinking.

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