

# Evaluating Students' Perceptions of Microsoft Teams for Online Academics Improvement

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**Abstract-** Online academic learning throughout the world has gained much importance and this is mainly due to the presence of Information and Communication Technologies. Even so, due to the COVID-19 pandemic situation, all physical academic activities stopped in educational institutes and the delivery of education was shifted to an online learning platform. From this standpoint, many educational institutes use various types of online applications such as Microsoft Teams, Zoom, Skype, Whatsapp, and so on, to continue their studies, which is an important aspect, particularly when there are no physical classes. These online applications have gained popularity because they offer an opportunity to connect with people anywhere, at any time and provided a platform to share knowledge and experience with people around the globe. In education, these online applications play a vital role in strengthening the knowledge of students, teachers, and trainees. This paper focuses on the use of Microsoft Teams as an online application in education and evaluates the effects of its use on university students' performance in education. For this purpose, the Technology Acceptance Model (TAM) has been used to investigate the acceptance of Microsoft Teams as an online source in education. For the study, data has been collected from the undergraduate and postgraduate students of Quaid-e-Awam University of Engineering, Science, and Technology, Nawabshah. Key parameters like ease of use and perceived usefulness have been considered for measuring the performance of students. From the results obtained regarding perceived usefulness, Overall, the Microsoft Teams were found to be useful in education for learning, improving the quality of tasks and assignments and allowing the students to use modern educational skills in order to organize the learning process more effectively. Participants agreed that online learning through Microsoft teams is required now and in the future and will be a significant part of the educational process. The outcome regarding perceived ease of use indicated that the Microsoft teams found it easy to use, clear and understandable. However, few respondents reported that it is rigid, inflexible, and requires much thinking in order to interact. However, it is recommended from respondents' feedback that the Microsoft team platform requires a significant amount of time and practice to get acquainted with using Microsoft Teams. Also, it is suggested that Microsoft teams is not optimal full-time in the learning process instead they prefer to be implemented as a part-time approach within the traditional education system.

**Index Terms--** Information & Communications Technology (ICT), Microsoft Teams, Online academic learning, Technology Acceptance Model (TAM).

## I. INTRODUCTION

Online academic learning throughout the world has gained much importance, and this is mainly due to the presence of Information and Communication Technologies (ICT). At present, by utilizing technology, education and learning activities can be carried out in schools, colleges, and universities as well as over long distances [1]. The introduction of online learning has led to the vast usage of personal computers (PCs), tablets, laptops, and smart phones, and by using these devices, students are heavily utilizing internet technologies in their daily lives [2-3]. Therefore, in education, it is also necessary that these students use internet technologies in order to enhance their learning. The internet has developed a culture of sharing content that has been helpful in the progress of social and distance learning [4]. Bentley and Selassie described the integration of internet connections into learning systems with teaching processes is known as a "virtual or online

learning system" [5]. In this sense, facilitating the entire educational distance learning- related courses completely using internet technology is called online learning [6].

In short, this type of educational process is different from face-to-face or conventional learning in which students are available with a physical presence in a classroom. Online learning can improve educational learning by enabling collaboration, interaction, active participation, resources and information sharing, and critical thinking. To make the user experience more helpful and significant, the learning activities and resources on online platforms of learning should be useful, usable, findable, desirable, credible, valuable, accessible, etc [7].

The drawback of online learning is the lack of ability of the teacher or presenter to observe the students' body language, as happens during unfocused doodling in a student's copy that might help them assess understanding. Therefore, teachers must get

extra time to assess students from the start [8]. An additional reason for the lack of success in the online delivery of education is the deficiency of a set schedule, repetitive studying, and restricted self-motivation [9]. It indicates that teachers could try to offer good body language, pleasant facial expressions, and learning directions to build good interaction and stimulate the participating students during an online class. In addition, it is verified that learner interaction and satisfaction, course structure, teacher presence, and student engagement are the suitable proportions of online learning education [10].

Recent forms of online resources, such as social networking sites, wikis, folksonomies, blogs, virtual communities, and so on, enable users with similar interests to connect, contribute ideas, and collaborate [11]. Several researchers [12-14] have agreed that there is a need to study and analyze the impact of social networking platforms and tools in the academic sector. The literature indicates that among many social networking sites, Facebook has been the focus of research as compared to other social networking sites. Some previous studies [15-20] show that after the invention of the Facebook application, this application remains active for researchers for different purposes. Due to the COVID-19 pandemic situation, all physical academic activities stopped in educational institutes and the delivery of education was shifted to online learning platforms [21]. In that scenario, many educational institutes utilize different types of online applications for academic purposes, like Microsoft Teams, Zoom, Skype, WhatsApp etc. These online applications provide numerous new methods for students to gain knowledge that are not feasible in the conventional teaching system, but before using these apps, usability criteria are required to check for user satisfaction [22].

The word usability was primarily used in the 1980s for providing directions to software developers concerning the development of apps that are user friendly. The study by Molano et al. found that there is a requirement to consider the users' perspective at the time of designing the structure or system because the user has to perform the task [23]. The usability feature is defined as "the capability of any technology or computer software to be used, learned, attractive, and understood for the user" while used within a specified setting [24]. There is an important role for usability in meeting the demands of users and fulfilling user satisfaction. Therefore, usability testing is required in order to develop good quality software or systems that meet the requirements of the users.

## II. TECHNOLOGY ACCEPTANCE MODEL

According to Louho et al. technology acceptance is about how people accept and apply some technology to their lives [25]. User acceptance of technology has also been defined as the willingness within a user group to employ IT for the task [26]. Technology is worthless unless it is embraced and put to use [27]. Because the most essential benefit associated with access to new technologies is an increase in the supply of information [28].

Researchers are primarily concerned with determining why people accept information technology in order to improve processes for building, reviewing, and forecasting how users will react to new technology. Many scholars have suggested technology acceptance theories and models to explain the

acceptance of technology in order to account for rapid change in both technology and its environment.

The most cited technology models are given as [29-37] in the existing literature. From those models, the Technology Acceptance Model (TAM) is the most popular model and is being used extensively in different fields like healthcare, e-learning, and business in order to analyze the acceptance of such applications when integrated with Information technology (IT) [38]. TAM is easier to use and provides a rapid and low-cost approach to getting general information regarding a person's attitude toward technology. King and He (2006) concluded that the TAM is a valid and robust model based on a meta-analysis of 88 published research articles. For the past two decades, extensive empirical evidences [39] have supported TAM.

## III. MICROSOFT TEAMS

One of the most efficient platforms for learning through online mode is Microsoft Teams. Microsoft Teams is a cloud-based app digital hub, which contains files, apps, meetings, and conversations simultaneously in a single learning system [40]. This application can be simply installed on either a desktop personal computer or a mobile phone, and people anywhere can utilize the features of this application, at any time. Microsoft Teams gives enhanced features similar to other social networking sites, like collaborative discussion, chat, video conferencing, and content sharing. Teachers or trainers can send as well as alter assignments to the full class or to individual students using the assignment function in this app [41-42]. Microsoft Teams, according to Hubbard and Bailey, can be thought of as "one main application that incorporates numerous diverse programs into one program [43].

In short, teachers can use Microsoft Teams features such as sharing invitation links, scheduling and joining meetings, conducting and interacting in web conferences, sharing screens, sharing documents or files, changing participants' positions as presenters or attendees, communicating in the chat box, recording and downloading audio and video classes. Students' interactions and the academic environment are the significant factors that assist the students in achieving the goal of learning optimally. The scope of online learning includes technology, learning preferences, face-to-face, learning environments, collaboration, and face-to-face interaction [44-46].

Studies reveal that Microsoft teams have attracted 2.7 billion people as their users, and this trend is rapidly increasing [47].

Ireddy and Nungonda described Microsoft team approaches to resolve the requirement for collaboration in teamwork. In organizations, team collaboration is an attempt to make things easier, improve work quality and staff engagement. Microsoft Teams's collaboration makes it easier to bring people together. In one place, all of your communication tools are gathered, and you may share your workspace. According to the survey results on team collaboration, stronger team collaboration practices are required to assure success [48].

Collaboration systems such as Jive, Slack, and Microsoft Teams, which are used to support communication and collaboration, are a primary driver for these advances. A rising number of organizations is using them, and as a result, they are having an

increasing impact on how work is done and organized in general, and cooperation in particular. Microsoft Teams, for example, surpassed Slack in July 2019 with 13 million daily users [49].

#### A. SIGNIFICATION AND SCOPE OF STUDY

During the COVID-19 period, there have been topics connected to online learning in prior research papers. Still, there may be no specific study related to software like Microsoft Teams to examine and focus solely on challenges faced by students while using Microsoft Teams. In addition, there is some important information for teachers to consider when evaluating their teaching techniques. To provide the answers to the difficulties and issues faced by students, this research has been conducted to find solutions for online academic improvement.

The popularity and extensive utilization of online applications have become outstanding among students. There is a need to evaluate the students' perceptions towards the use of these online applications for their educational purposes. Keeping in view the increasing usage trend of Microsoft Teams applications, this paper explores the perception of students towards adopting Microsoft Teams for academics improvement purposes that is, whether students accept Microsoft Teams technology for academic improvement or not. Based on the main goal, the following objectives have been formulated.

- To investigate the perceived usefulness of Microsoft Teams for academic improvement.
- To investigate the perceived ease of use of Microsoft Teams for academic improvement.
- To determine how satisfied or dissatisfied students are with the above two constructs.

This study is expected to help in understanding the impact of using Microsoft Teams for academic improvement.

Furthermore, as a result, this study may motivate the students to use Microsoft Teams technology to enhance their learning and realize the benefits of using Microsoft Teams.

The rest of the research paper is structured as follows: Section IV presents the methodology, TAM questionnaire, and key evaluation parameters: perceived usefulness and ease of use. Section V presents the survey results and discussion. Finally, Section VI concludes the work.

#### IV. METHODOLOGY

This section describes the use of the Technology Acceptance Model (TAM) as a standard in order to evaluate the impact of learning through Microsoft teams on students' education. The Technology Acceptance Model (TAM) was proposed by Davis in 1989 to investigate the user trend towards acceptance of technology. The study investigates whether the use of Microsoft teams has a positive impact on students' education. For the study, data has been collected by means of a TAM questionnaire from a sample size of 416 undergraduate and postgraduate students at QUEST University Nawabshah. The research was aimed to help and statistically evaluate the academic improvement while learning online through MS Teams.

#### A. EVALUATION PARAMETERS

As shown in Figure.1, TAM is a theoretical model used for evaluating the acceptance of technology by its users. In order to evaluate the impact of Microsoft teams on students' education, two key constructs from the TAM model have been chosen.

- Perceived usefulness
- Perceived ease of use

**i. Perceived usefulness:** refers to the degree to which someone thinks that his or her job or task performance increases with the use of a particular system. This also means how much technology is effective as far as its usage is concerned.

**ii. Perceived ease of use:** refers to the degree to which someone perceives that a minimal amount of effort is required to complete a task. This means how much technology is easy to use or how much technology is understandable and clear.

Based on these two constructs, a TAM questionnaire has been developed for the students. The questionnaire has twenty-five questions, including five questions about demographics and ten questions on each of the two constructs.

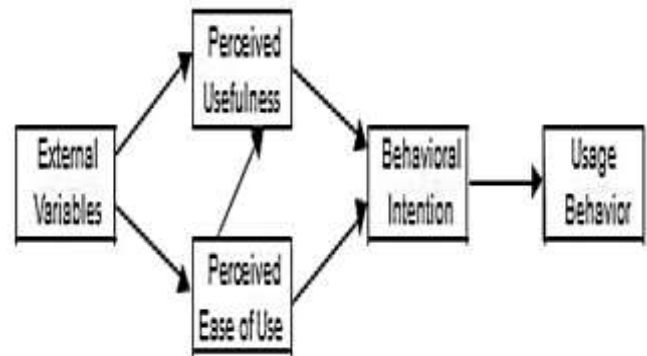


FIGURE 1: TAM Model.

#### B. QUESTIONNAIRE

Table 1 and Table 2 show the lists of questionnaires for perceived usefulness and the lists of questionnaires for perceived ease of use, respectively.

TABLE I  
PERCEIVED USEFULNESS QUESTIONNAIRE

S.No	QUESTIONNAIRE
1	The use of Microsoft Teams improves my academics study quality
2	Microsoft teams give more control over what educational work I perform
3	Microsoft teams enable me for quick completion of my study related tasks
4	Microsoft teams support critical aspects of my studies
5	Microsoft teams increases my study productivity
6	Microsoft teams improve the performance of my study
7	Microsoft teams allow me to complete more educational work than would otherwise be possible
8	Microsoft teams enhance my study effectiveness
9	Microsoft teams make it easier to do my study
10	Overall, I find Microsoft teams useful application towards my studies

TABLE II

## PERCEIVED EASE OF USE QUESTIONNAIRE

S.No	QUESTIONNAIRE
1	I find it difficult to use the Microsoft teams
2	Learning how to use Microsoft teams is easy for me
3	Using Microsoft teams is sometimes frustrating
4	I find it easy to get it done using Microsoft teams what I intend to do
5	The Microsoft teams is rigid and inflexible to interact with
6	I find it easy to remember how to perform task(s) using Microsoft teams
7	Interacting with Microsoft Teams requires a lot of my mental effort
8	My interaction with Microsoft teams is understandable and clear
9	I find that it takes a lot of effort to become skillful at using Microsoft teams
10	Overall, I find the Microsoft teams easy to use

## V. RESULTS AND DISCUSSION

In this section, online survey results are presented, which consist of a total of 25 questions, of which 5 questions are demographic, 10 questions are related to perceived usefulness, and 10 questions are related to ease of use. The questionnaire was delivered to 416 students at the Quaid-e-Awam University of Engineering, Science and Technology Nawabshah. The obtained responses are collected by means of an online website. All the students were users of an online class for one complete semester through Microsoft Teams.

### A. DEMOGRAPH

Figure 2 shows the gender information of the respondents. Among 416 respondents, 284 were male and 132 were female students.

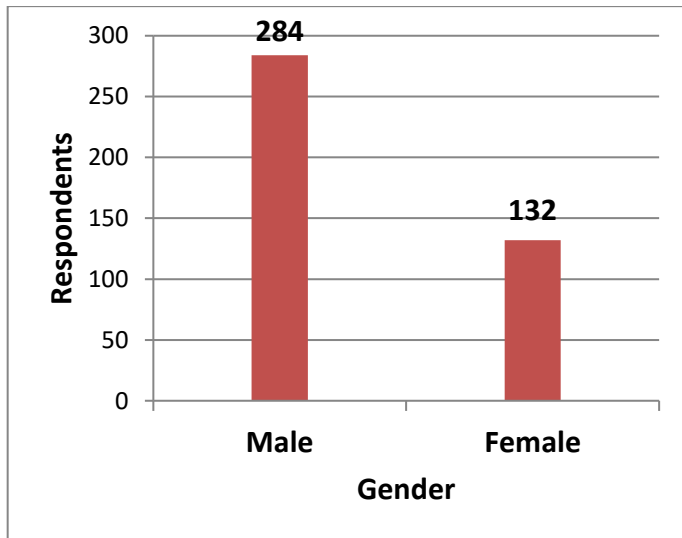


FIGURE 2. Respondents' Gender

Figure 3 shows the respondents' qualifications. Out of 416 respondents, 324 are studying at an undergraduate level and 92 are studying at a postgraduate level.

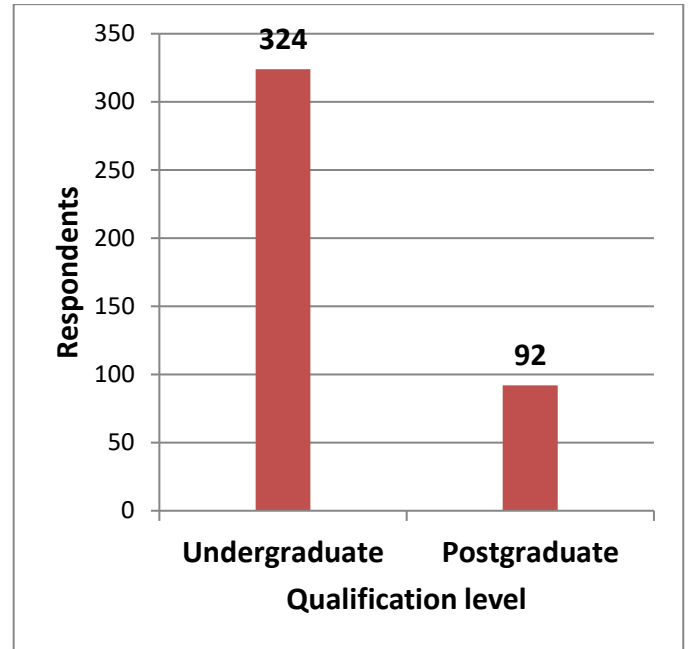


FIGURE 3. Respondents' Qualification

In order to provide justified results, students were chosen from different departments of the University as shown in Figure.4.

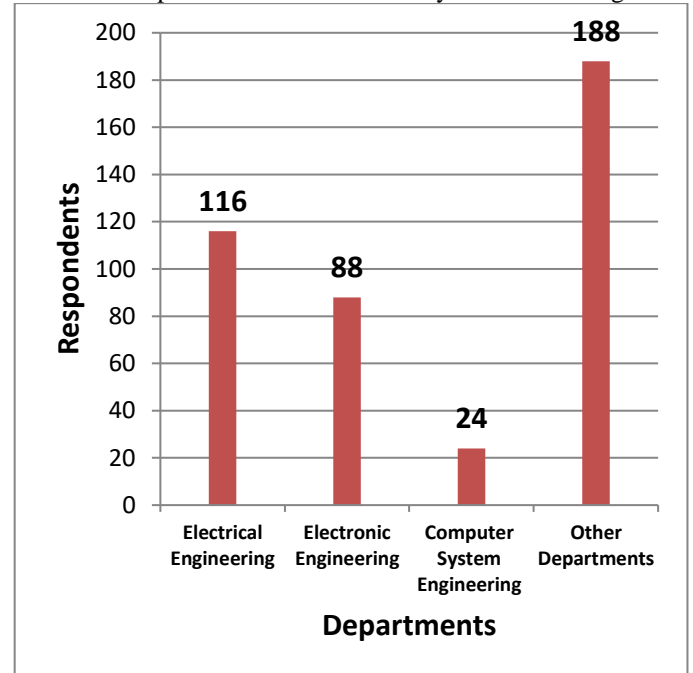


FIGURE 4. Department wise respondents

Furthermore, the students chosen for the survey were studying in different academic years. Figure 5 shows that 74 students were studying in the first academic year, 98 in the second academic year, and 110 and 134 were studying in the third and final academic years, respectively.

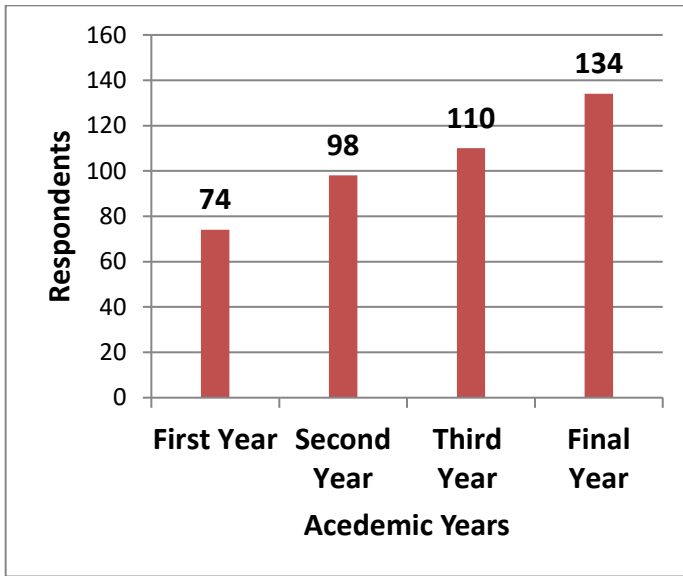


FIGURE 5: Academic year wise respondents

Figure 6 shows the online applications liking level of students.

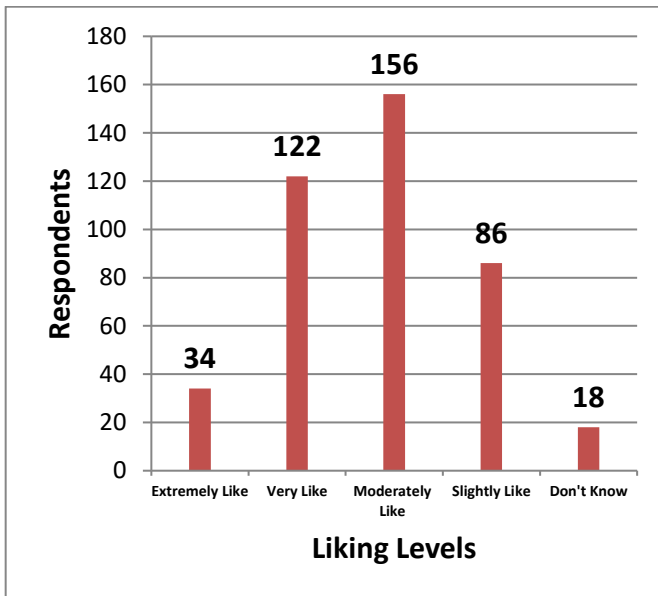


FIGURE 6: Like level of online applications

#### B. FIRST CONSTRUCT “PERCEIVED USEFULNESS”

In order to analyze the impact of Microsoft teams on students’ education, a 5 scale TAM-based questionnaire Like Strongly Agree, Agree, Neither agree Nor disagree (Neutral) ,Disagree, Strongly Disagree was distributed among 416 respondents belonging to a different departments of the QUEST, University.

1. The use of Microsoft teams improves my academic study quality

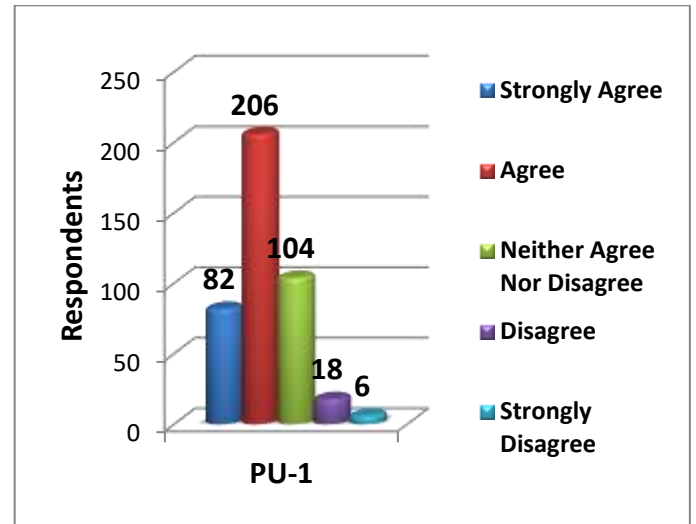


FIGURE 7: Respondents’ response to Q.No.PU-1

Figure 7 shows the responses of the respondents to question No. PU-1. 82(19.7%) of the students’ responses were strongly agree. 206 (49.5%) of the students’ agreed, 104 (25%) of the students’ responses were neutral. 18 (4.3%) of the students’ responses were disagreed with, and only 6 (1.4%) of the participating students’ responses were strongly disagreed.

From the graph mentioned in Figure.7, it is clear that about 50% of students agree that Microsoft teams help in improving the quality of study because of the availability of good materials, files, animated videos, and enjoyable activities combined in Microsoft Teams through online classes.

2. Microsoft teams give me more control over what educational work I perform.

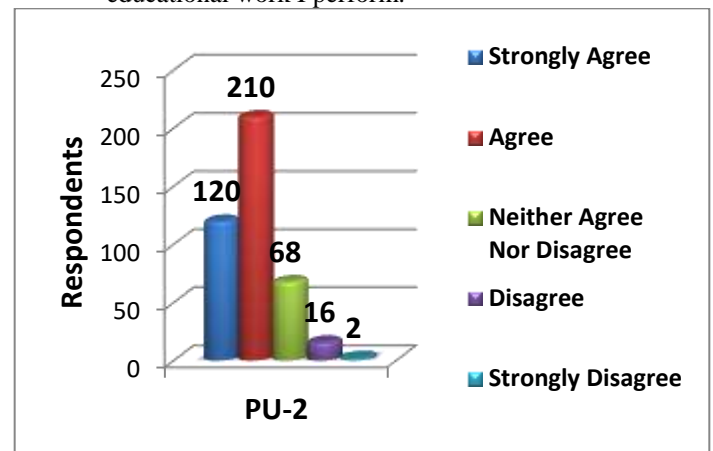


FIGURE 8: Respondents’ Response to Q.No.PU-2

Figure 8 shows the responses of respondents to question No.PU-2. 120 (28.8%) of the students’ responses were strongly agreed. 210 (50.5%) of the students’ agreed due to the flexibility of Microsoft teams. About half of the respondents feel comfortable

when they are involved in conducting an online class due to the new, interesting, and easy material they get. It indicates that students organize multiple academic tasks in a better way.

3. Microsoft Teams enables me to quickly complete my study related tasks.

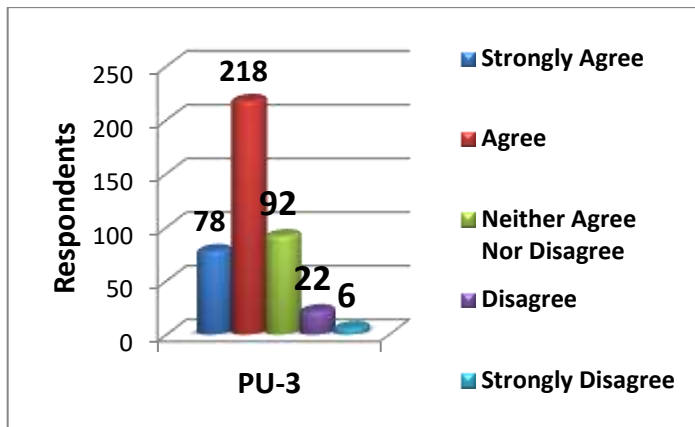


FIGURE 9: Respondents' Response to Q.No.PU-3

Figure 9 shows the responses of the respondents to question No.PU-3. That statement was responded agree by 218 (52.4%). It indicates that students felt comfortable due to quick and attractive materials, which are helpful in completing difficult tasks or assignments through the Microsoft Teams application. This enables the users of this application to increase their ICT skills for competency.

4. Microsoft Teams supports critical aspects of my studies.

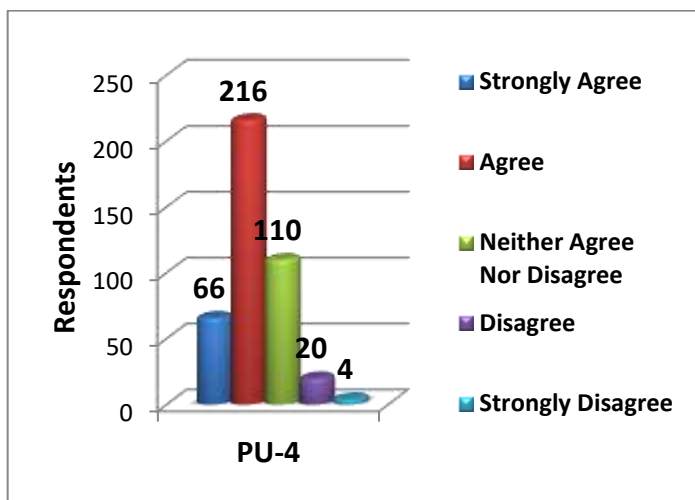


FIGURE 10: Participants' Response to Q.No.PU-4

Figure 10 shows the responses of respondents to question No.PU-4. 216 (51.9%) of the students' were agree that Microsoft teams is useful for the background of study and relate to current prototypes of communication and information research. Here, 110 (26.4%) respondents were selected as neutral because a few students had no understanding of virtual answers to the numerical problems. Some students are relaxed with face-to-face

communication during occurrences of trouble with the assigned responsibility or task.

5. Microsoft teams increases my study productivity

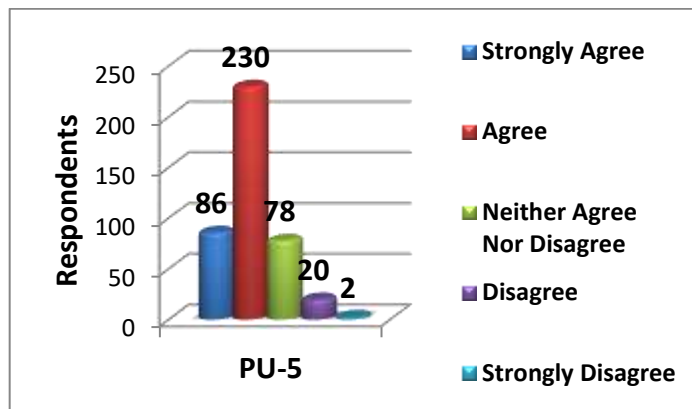


FIGURE 11: Participants' Response to Q.No.PU-5

Figure 11 shows the responses of respondents to question No.PU-5. 86 (20.6%) of the students' responses were strongly agreed. That statement was agreed upon by 230 (55%), who said that using this online application, the productivity of students was increased and students were able to access and share the materials on the internet. This increases the output of the study.

6. Microsoft teams improve the performance of my studies.

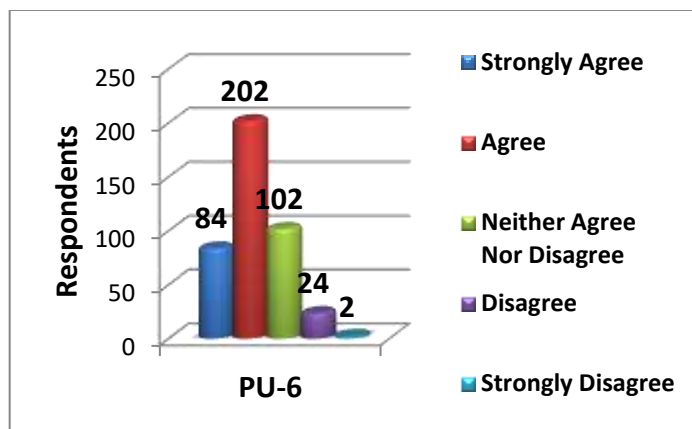


FIGURE 12 Participants' Response to Q.No.PU-6

Figure 12 shows the responses of respondents to question No.PU-6. 202 (48.5%) of the students' agreed that Microsoft teams help students build up their own improved self-study abilities and encourage them to go forward in line with their abilities. This motivates them to learn and build up their time-management skills. Students and teachers can keep in touch and assist each other using conversations and capabilities just like they are gathered in live meetings. A teacher can track a student's progress in their daily work using assignments. Various students who study online say they believe they have an additional voice and they feel more connected to their teacher or instructor.

7. Microsoft teams allow me to complete more educational work than would otherwise be possible.

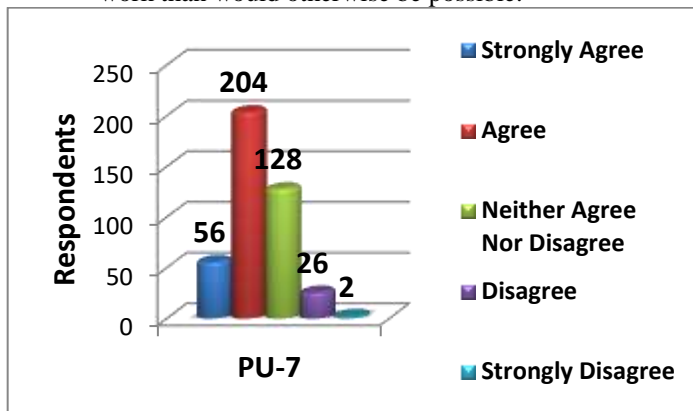


FIGURE 13: Participants' Response to Q.No.PU-7

Figure.13 shows the responses of respondents to question No.PU-7. 204 (48.7%) of the students' agreed. Students agree that online learning is now necessary and will become an essential part of the educational process, leading to modern education and interaction. Without using online learning, it is impossible to compete. 128 (30.7%) of the students' responses were neutral because some students even wanted to use the same conventional system of learning.

8. Microsoft teams enhance my study effectiveness.

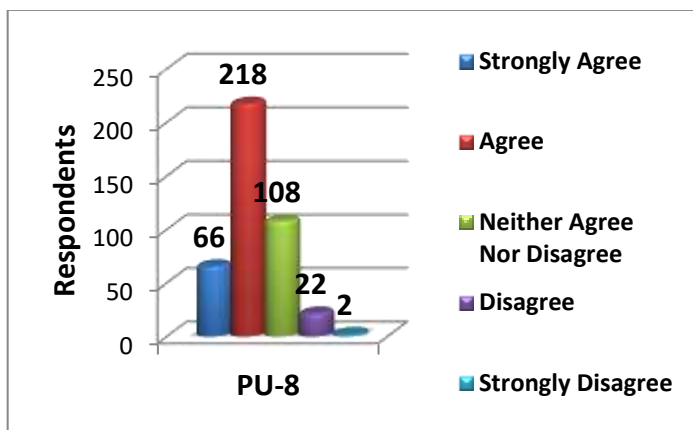


FIGURE 14: Respondents' Response to Q.No.PU-8

The response of participants to question no.PU-8 is depicted in Figure.14. One of the reasons why 218 (52.2%) of the students' agreed with this statement could be owing to their ease of accessing the materials or tasks on the internet. As efficiency is a connection between the obtained results (outputs) and the used resources (inputs), so far the experience of getting quick completion of tasks through Microsoft teams from students' side was more than enough. Therefore, their efficiency in performing was increased.

9. Microsoft teams make it easier to do my studies.

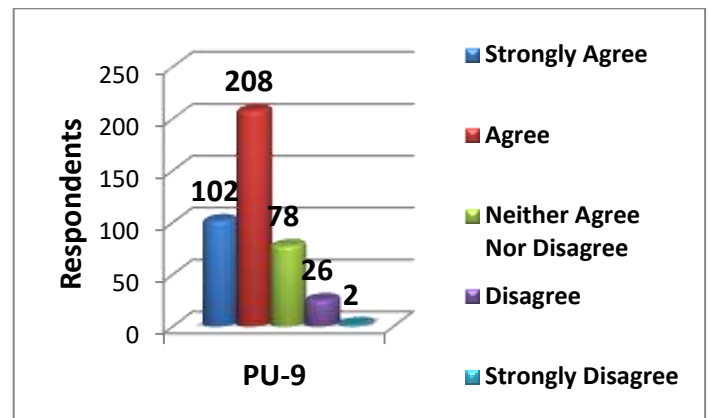


FIGURE 15: Respondents' Response to Q.No.PU-9

Figure.15 shows the responses of respondents to question No.PU-9. Due to the comfort zone learning environment of Microsoft teams, 208 (50%) of the students' agreed that their studies were very simplistic after the utilization of this online application. Also, 102 (24.5%) students strongly agree with this statement, which indicates that most students understand that their learning capability is much increased for complicated topics and thus easily cover all the portions of their syllabus.

10. On the whole, I find Microsoft teams a useful application for my studies.

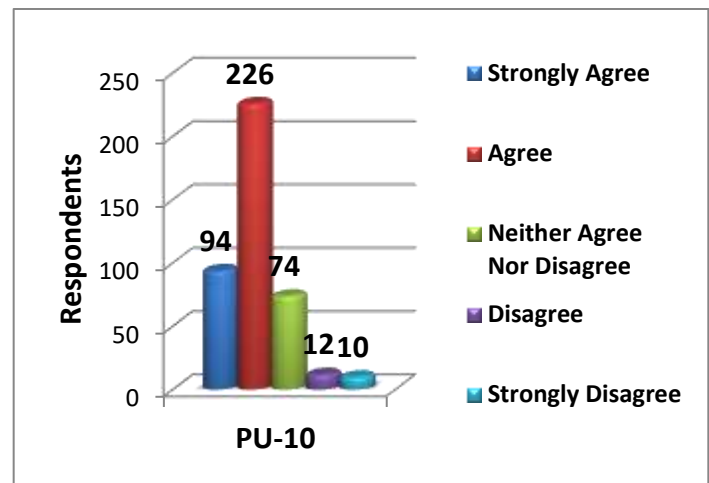


FIGURE 16: Respondents' Response to Q.No.PU-10

Figure 16 shows the responses of participants to question No.PU-9. 226 (54.3%) of the students' agreed that overcoming complications in any particular field or topic becomes easier online through the vast experience of individual users. Students' majority understand that academic performance was noticeably affected with the use of online Microsoft Teams platforms and students believe online learning connectivity on campus is very efficient. This is an indication that, in the future, students wants to continue their interaction with Microsoft teams to improve their academic work.

It is helpful here to identify the overall satisfaction level of students for the perceived usefulness of Microsoft teams for academic improvement. The reliability measure of the obtained



results was checked with the help of the Cronbach's alpha method. From the data, if the satisfied coefficient value is larger or approximately equal to the critical value of Cronbach's alpha (0.6), then results are passed from the reliability check.

Table.III shows the obtained perception data from students. Here, the calculation of the satisfaction coefficients has been done using [50]. So, as mentioned in Table III, the calculated value of the satisfied coefficient is larger than the Cronbach's alpha value, therefore the data is reliable.

TABLE III  
RESPONSES TO PERCEIVED USEFULNESS

Questions	SA	A	N	DA	SD	Satisfaction coefficient
1	82	206	104	18	6	0.69
2	120	210	68	16	2	0.79
3	78	218	92	22	6	0.71
4	66	216	110	20	4	0.67
5	86	230	78	20	2	0.76
6	84	202	102	24	2	0.68
7	56	204	128	26	2	0.62
8	66	218	108	22	2	0.68
9	102	208	78	26	2	0.74
10	94	226	74	12	10	0.77

From the results obtained regarding Perceived Usefulness the following points can be summarized.

- Overall, the Microsoft teams were found to be useful in education for learning.
- Microsoft teams have the potential to be useful in collaborative learning.
- Microsoft teams can be used to improve the learning of students in their education.
- Microsoft teams can be used to improve the quality of tasks and assignments.
- Microsoft teams permit students to use modern education skills and increase their ICT skills.
- Microsoft teams allow students to organize the learning process more effectively.
- The outcome indicated that the participants agreed that online learning through Microsoft teams is required now and in the future and will be part of the educational process.

However, it is observed from respondents' feedback that Microsoft team platform is not optimal full-time in learning process; instead, they prefer to be implemented as a part-time approach within the traditional education system.

#### C. SECOND CONSTRUCT "PERCEIVED EASE OF USE USE"

##### 1. I find it difficult to use the Microsoft teams

Figure 17 shows the responses of respondents to question No.PEOU-1. 40 (9.6%) of the students' responses were strongly agree. 174 (41.8%) of the students' agreed. 142 (34.1%) of the students' responses were neutral. 56 (13.4%) students' responses were disagreed with and only 4 (0.9%) of the students' responses were strongly disagreed with.

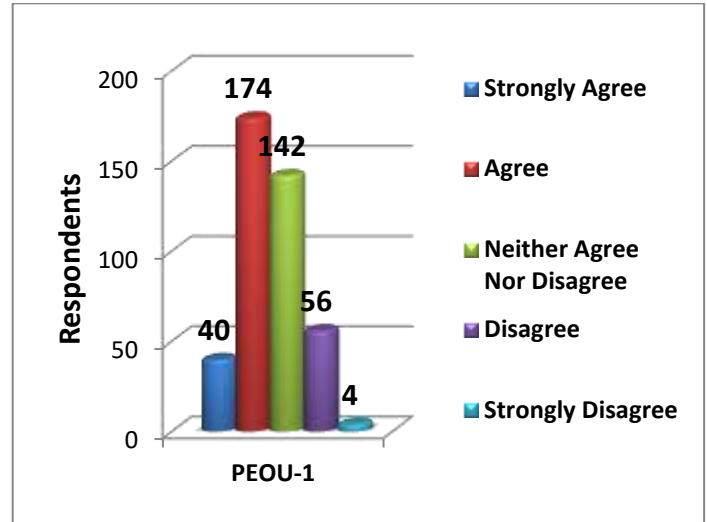


FIGURE 17: Respondents' Response for Q.PEOU-1

From the graph mentioned in Fig.7 , it is clear that about 40% of students agree that in Microsoft teams at their initial or starting stage, it was not easy for students to adjust to the functions given by Microsoft teams (e.g., it was not easy for the first time to find the list of participants). However, when learning materials are provided with discussion and significant tasks occur during class. This compelled students to join, connect, and learn more than they could.

##### 2. Learning how to use Microsoft teams is easy for me.

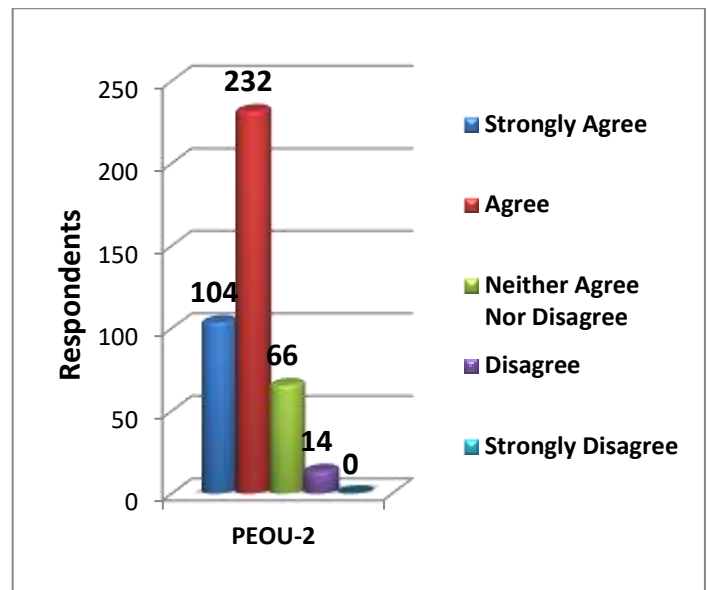


FIGURE 18: Respondents' Response for Q.PEOU-2

Figure 18 shows the responses of respondents to the question No.PEOU-2. 232 (55.7%) of the students' agreed with this statement due to the fact that most of the features and functions provided in Microsoft Teams are based on commonly used applications for video conferencing, chat, and more.



3. Using Microsoft teams is sometimes frustrating.

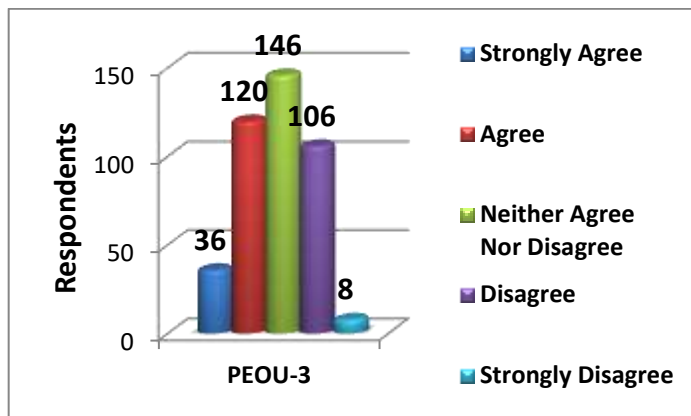


FIGURE 19: Respondents' Response to Q.PEOU-3

Figure 19 shows the responses of respondents to question No.PEOU-3. 120 (28.8%) of the students' agreed. It indicates that it is critical for both teachers and students to have a strong internet connection with good signal or mobile data to support and maintain the learning process in online learning. Occasionally, the teacher and student get very weak data signals, and the class can be disturbed many times, and both from their position struggle to re-join the online class. Another thing is that a number of students can't communicate until and unless they reply quickly and are self-confident. This thing produces frustration in students while using Microsoft Teams.

4. I find it easy to get it done using Microsoft teams what I intend to do

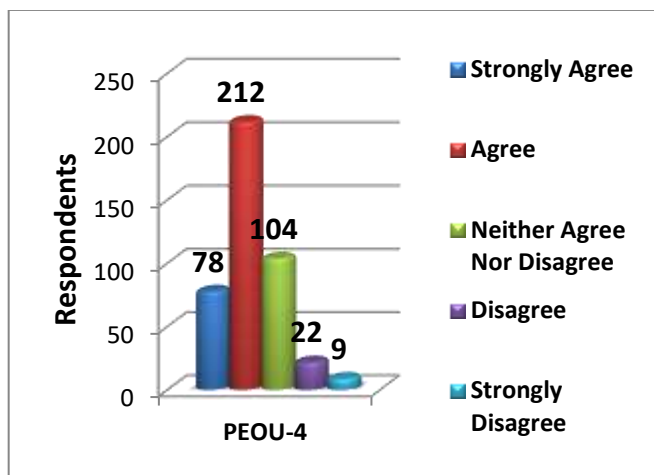


FIGURE 20 Respondents' Response to Q.PEOU-4

Figure 20 shows the responses of respondents to question No.PEOU-2. 212 (50.9%) of the students' agreed with this statement due to the fact that Microsoft teams provide different activities to study, to express, to explain a problem, to build up background knowledge, to review information, to model an activity, to explore, to react to an idea, and must keep students engaged in critical thinking.

5. The Microsoft teams is rigid and inflexible to interact with.

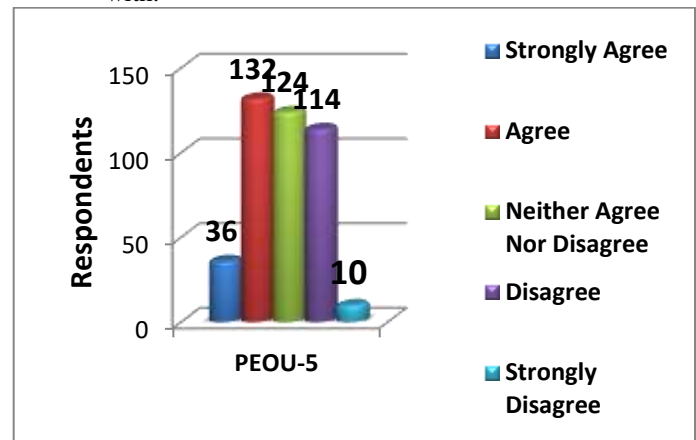


FIGURE 21: Respondents' Response to Q.PEOU-5

Figure 21 shows the responses of respondents to question No.PEOU-5. 132 (31.7%) of the students' agreed with that statement. This warns us that interactions between teachers and students are incredibly essential parameters to good communication between learning and teaching. This happens due to restricted face-to-face communication between the teacher and students during the online session. From the students' responses it is clear that online learning can be better if the interaction of software means Microsoft teams with the users is easier. Another thing in this regard is that students think that necessary action icons in Microsoft teams are located so close to each other that the probability of unintentional clicks is higher and the chances of disappearing from the meeting are higher while trying to present something by clicking the Share content icon.

6. I find it easy to remember how to perform tasks using Microsoft Teams.

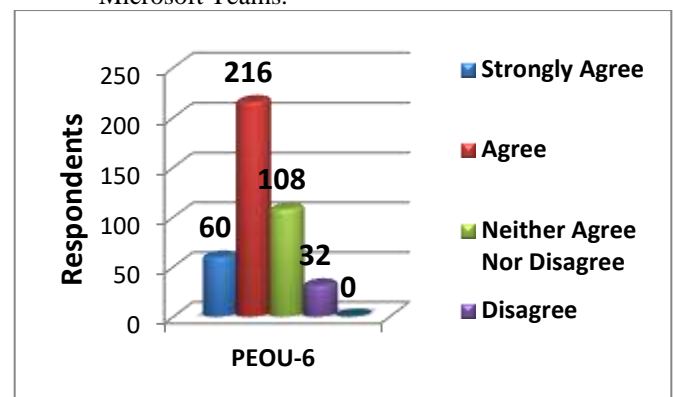


FIGURE 22: Respondents' Response to Q.PEOU-6

Figure 22 shows the responses of respondents to question No.PEOU-6. 216 (51.9%) of the students' agreed with that statement due to interface support that might help irregular users or students to simply execute infrequent tasks, like maintaining a standardized design language, straightforward navigation structure, timely view of immediate tips, automatic suggestions, rubrics, feedback tools, authoring tools, assignment submission, comment field, chat discussion, and document or file sharing. These features make it easy to remember how to use Microsoft Teams.

7. Interacting with Microsoft teams requires a lot of mental efforts

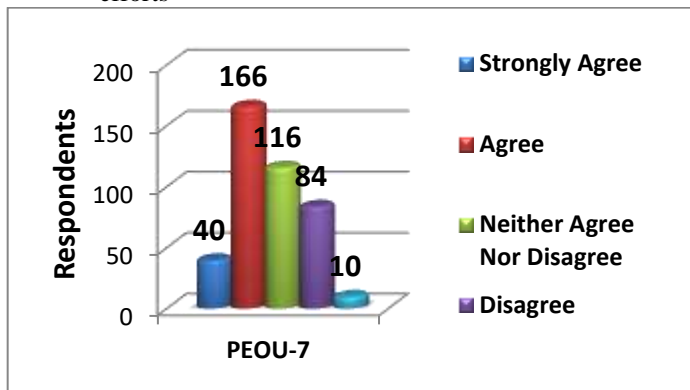


FIGURE 23: Respondents' Response to Q.PEOU-7

Figure 23 shows the responses of participants to question No.PEOU-7. 166 (39.9%) of the students' agreed with that statement. From the responses, it is clear that some students faced difficulties in using Microsoft Teams due to incomplete knowledge of the features provided in Microsoft Teams. This happens because students want to interact with the app without spending much more time and mental effort. Another reason for poor interaction is that teachers and students just interrelate through written words, like in chat conversations on Microsoft Teams and miscommunications produced repeatedly due to the fact face-to-face communication can't occur.

8. My interaction with Microsoft Teams is understandable and clear.

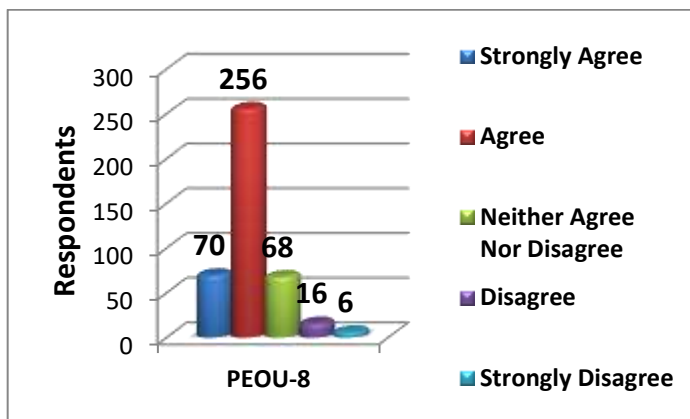


FIGURE 24: Respondents' Response to Q.PEOU-8

Figure 24 shows the responses of respondents to question No.PEOU-8. 256 (61.5%) of the students' agreed. This is one of the highest agreed responses from all the questionnaires, and it turns out that this platform provides the users with plenty of functionalities that will definitely help them carry out their tasks. The range of possibilities this platform offers is wide enough for the user to need more than one attempt to learn them all (at least the most basic usage) by trial and error.

9. I find that it takes a lot of effort to become skillful at using Microsoft Teams.

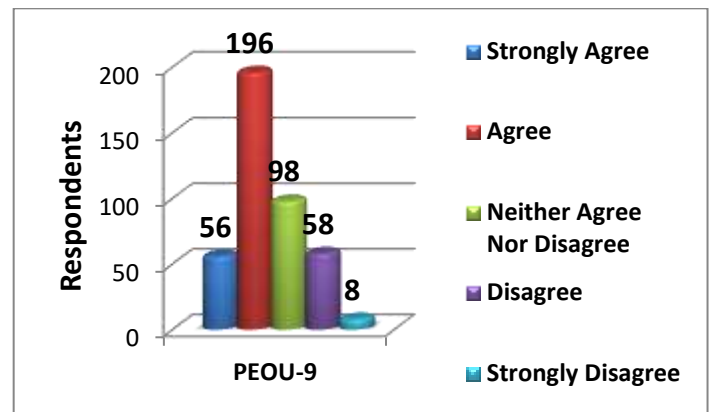


FIGURE 25: Respondents' Response to Q. PEOU-9

Figure 25 shows the responses of respondents to question No.PEOU-9. The above question was responded to 196 (47.1%) students who said "agree". That percentage indicates that the majority of students still faced trouble describing their difficulties to their teacher during an online learning class due to a lack of skills in operating Microsoft teams.

10. Overall, I find the Microsoft Teams easy to use.

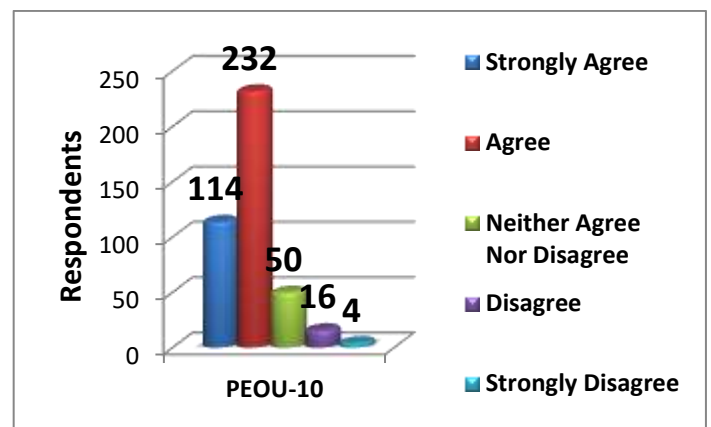


FIGURE 26: Respondents' Response to Q.PEOU-10

Figure 26 shows the responses of participants to question No.PEOU-10. 232 (61.5%) of the students' agreed. This indicates overcoming issues and hurdles among students in an online class becomes simple and easier by chatting with their friends related to group paper presentation. The Microsoft teams' interactive system allows users to operate the functions without any fear of malfunction, which also prevents them from being in terrible situations. Microsoft Teams platforms offer right-to-use of instructional resources and procedures 24/7 for the huge majority of students.

Overall, students' positive responses showed that a Microsoft team is an easy environment for learners who really want to learn something better, different, and more efficiently.

It is helpful here to identify the whole satisfaction level of students for the perceived ease of use of Microsoft teams for academic improvement.

TABLE IV  
RESPONSES TO PERCEIVED EASE OF USE

Questions	SA	A	N	DA	SD	Satisfaction coefficient
1	82	206	104	18	6	0.69
2	120	210	68	16	2	0.79
3	78	218	92	22	6	0.71
4	66	216	110	20	4	0.67
5	86	230	78	20	2	0.76
6	84	202	102	24	2	0.68
7	56	204	128	26	2	0.62
8	66	218	108	22	2	0.68
9	102	208	78	26	2	0.74
10	94	226	74	12	10	0.77

Table IV shows the obtained perception data from students. From the results obtained regarding perceived ease of use, the following points can be summarized.

- Overall, the Microsoft teams found it to be easy to use, clear and understandable.
- However, few respondents reported that it is rigid, inflexible, and requires much thinking in order to interact.
- Also, it was reported that it requires a significant amount of time and practice to get acquainted with using Microsoft Teams.

As from Table.III and Table.IV, it can be seen that the satisfaction coefficient for perceived usefulness is slightly greater than the satisfaction coefficient for perceived ease of use, which shows that students require a significant amount of time and practice to get acquainted with Microsoft Teams.

## VI. CONCLUSION

Today's students are heavily utilizing online applications in their daily lives. Therefore, in education, it is also necessary that, these students use internet technologies in order to enhance their learning.

The study was conducted to learn about the acceptance of Microsoft teams' applications in the context of online education for learning purposes. Acceptance criteria were based on constructs from the Technology Acceptance Model (Perceived usefulness & ease of use). An online questionnaire was created based on 20 questions from the constructs of TAM. Survey responses showed that the students found the Microsoft teams useful in enhancing their knowledge, self-study, efficiency of work, and improving the quality of assignments and tasks. Online learning through Microsoft teams has a positive impact on their academic improvement.

Although some of the responses found it a bit rigid and inflexible. When attending classes online, students face several challenges. Some obstacles, such as internet connectivity and peer interaction, must be addressed in order to provide a better distance learning experience. It can be concluded that university students have a comprehensible understanding and are prepared to learn various courses through the Microsoft teams' platforms. In the future similar studies can be conducted with other new online applications with the sample size greater than 416 by taking the responses from the students of various universities all

around Pakistan. Other technology acceptance models can also be used to determine the acceptance of various online applications in the context of education.

## REFERENCES

- [1] I. E. Allen and J. Seaman, "Digital Compass Learning: Distance Education Enrollment Report", *Babson Survey Research Group*, 2017.
- [2] L. Lockyer and J. Patterson, "Integrating social networking technologies in education: a case study of a formal learning environment" *IEEE International Conference on Advanced Learning Technologies*, pp. 529-533, 2008.
- [3] J. Ahn, "Teenagers' experiences with social network sites: Relationships to bridging and bonding social capital". *The Information Society*, vol.28, no.2, pp.99-109, 2012.
- [4] K. Golubić and J. Lasić-Lazić, "Analysis of on-line survey about need for presence of higher education institutions on social networks: A step towards creation of communication strategy" *Journal of Computing And Information Technology*, vol.20, no.3, pp.189-194, 2012.
- [5] Y. Bentley, H. Selassie, and A. Shegunshi, "Design and Evaluation of Student-Focused eLearning" *Electronic Journal of E-learning*, vol.10, no.1, pp1-12, 2012.
- [6] Nguyen, Tuan. "The effectiveness of online learning: Beyond Significant difference and future horizons" *MERLOT Journal of Online Learning and Teaching*, vol.11, no.2, pp.309-319, 2015.
- [7] J. Cain, "Online social networking issues within academia and pharmacy education" *American journal of pharmaceutical education*, vol.72, no.1, 2008.
- [8] M.F. Fortune, M. Spielman, and D.T. Pangelinan, "Students' perceptions of online or face-to-face learning and social media in hospitality, recreation and tourism" *MERLOT Journal of Online Learning and Teaching*, vol.7, no.1, 2011.
- [9] S. Koç, X. Liu and P. Wachira, "Assessment in online and blended learning environments" *IAP*, 2015.
- [10] J.A. Gray, and M. DiLoreto, "The effects of student engagement, student satisfaction, and perceived learning in online learning environments", *International Journal of Educational Leadership Preparation*, vol.11, no.1, 2016.
- [11] C. Greenhow, "Learning and social media: What are the interesting questions for research", *International Journal of Cyber Behavior, Psychology and Learning*, vol.1, no.1, pp. 36-50, 2011.
- [12] C.M. Cheung, P.Y. Chiu, and M.K. Lee "Online social networks: Why do students use facebook ", *Computers in Human Behavior*, vol.27, no.4, pp.1337-1343, 2011.
- [13] J. Fogel and E. Nehmad, "Internet social network communities: Risk taking, trust, and privacy concerns", *Computers in Human Behavior*, vol.25, no.1, pp. 153-160, pp. 2009.
- [14] S.L. Wang, and P.Y. Wu, "The role of feedback and self-efficacy on web-based learning: The social cognitive perspective", *Computers & Education*, vol.51, no.4, pp.1589-1598, 2008.
- [15] R.A. Sánchez, V. Cortijo, and U. Javed, "Students' perceptions of Facebook for academic purposes" *Computers & Education*, vol.70, pp.138-149, 2014.
- [16] M. Erdem and P.N. Kibar, "Students' Opinions on Facebook Supported Blended Learning Environment" *Turkish Online Journal of Educational Technology, TOJET*, vol.13, no.1, pp. 199-206, 2014.
- [17] S.G. Mazman and Y.K. Usluel, "Modeling educational usage of Facebook" *Computers & Education*, vol.55, no.2, pp.444-453, 2010.
- [18] M.D. Roblyer, M. McDaniel, M. Webb, J. Herman and J.V. Witty "Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites" *The Internet and Higher Education*, vol.13, no.3, pp.134-140, 2010.
- [19] S. Manca and M. Ranieri, "Is it a tool suitable for learning? A critical review of the literature on Facebook as a technology-enhanced learning environment", *Journal of Computer Assisted Learning*, vol.29, no.6, pp.487-504, 2013.
- [20] N.E. Hurt, G.S Moss, C.L. Bradley, L.R. Larson, M. Lovelace, L.B. Prevost, and M.S. Camus "The" Facebook" Effect: College Students' Perceptions of Online Discussions in the Age of Social Networking" *International Journal for the Scholarship of Teaching and Learning*, vol.6, no.2, 2012.
- [21] J. Bedford, D. Enria, J. Giesecke, D.L. Heymann, C. Ihekweazu, G. Kobinger and L.H. Wieler "COVID-19: towards controlling of a pandemic. *The LANCET*, vo.395, no. 10229, pp.1015-1018, 2020.

- [22] D. Zhang and B. Adipat, "Challenges, methodologies, and issues in the usability testing of mobile applications" *International Journal of Human-Computer Interaction*, vol.18, no.3, pp.293-308, 2005.
- [23] J.I. Molano, E.S. Yara, and L.K. Gaecia, "Model for measuring usability of survey mobile apps, by analysis of usability evaluation methods and attributes", *10th Iberian Conference on Information Systems and Technologies (CISTI)*, Aveiro , pp. 1-6, 2015.
- [24] S.V. Cáceres and J.A. Pow-Sang, "A systematic mapping review of usability evaluation methods for educational applications on mobile devices" *7th International Conference On Software Process Improvement (CIMPS)* (pp.59-68). IEEE, 2018.
- [25] R. Louho, M. Kallioja and P. Oittinen "Factors affecting the use of Hybrid media applications" *Graphic arts in Finland*, vol.35, no.3, pp. 11-21, 2006.
- [26] A. Dillon and C. Morris, "User Acceptance of Information Technology" In W. Karwowski (ed) *Encyclopedia of Human Factors and Ergonomics*, London: Taylor and Francis, 2003.
- [27] Oye, N. D., and N. A lahad. "The history of UTAUT model and its impact on ICT acceptance and usage by academicians." *Education and Information Technologies*, vol. 19, no. 1, pp. 251-270, 2014.
- [28] J.S. Suvarna and J. Godavari "Higher education through ICT in rural areas" *Golden Research Thoughts*, vol.1,no.X, pp.1-4,2012.
- [29] Fishbein, Martin, and Icek Ajzen. "Belief, attitude, intention, and behavior: An introduction to theory and research." *Philosophy and Rhetoric* vol.10, no. 2, 1977.
- [30] R. Rogers, M. Everett "Diffusion of preventive innovations. Addictive behaviors, vol. 27, no. 6, pp. 989-993, 2002.
- [31] A. Bandura, Human agency in social cognitive theory. *American psychologist*, vol. 44, no. 9, pp. 1175, 1989.
- [32] F.D. Davis, R.P. Bagozzi, and P.R. Warshaw, "User acceptance of computer technology: a comparison of two theoretical models. *Management science*, vol. 35, no. 8, pp. 982-1003, 1989.
- [33] R.L. Thompson, C.A. Higgins, and J.M. Howell, "Personal computing: toward a conceptual model of utilization". *MIS quarterly*, 125-143,1991.
- [34] F.D. Davis, R.P. Bagozzi, and P.R. Warshaw, "Extrinsic and intrinsic motivation to use computers in the workplace1. *Journal of Applied Social Psychology*, vol. 22, no. 14, pp. 1111-1132,1992.
- [35] T. Shirley and A. T., Peter, "Understanding information technology usage: A test of competing models". *Information Systems Research*, vol. 6, no. 2, pp.144-176, 1995.
- [36] W.H. DeLone and E.R. McLean, "Information systems success: The quest for the dependent variable" *Information Systems Research*, vol. 3, no. 1, pp. 60-95, 1992.
- [37] W.H. DeLone, and E.R. McLean, "The DeLone and McLean model of information systems success: a ten-year update". *Journal of Management Information Systems*, vol. 19, no. 4, pp. 9-30, 2003.
- [38] F.D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology ". *MIS quarterly*, pp. 319-340, 1989.
- [39] R. William and J. He "A meta-analysis of the technology acceptance model" *Information & Management*, vol.43, pp.740-755, 2006.
- [40] Microsoft, Welcome to Microsoft Teams. Microsoft Teams[Online]<https://docs.microsoft.com/enus/microsoftteams/teamsoverview>, 2018.
- [41] R. Buchal and E. Songsore, "Using Microsoft Teams to support collaborative knowledge building in the context of sustainability assessment" *Proceedings of the Canadian Engineering Education Association (CEEAA)*, 2019.
- [42] D. Henderson, H. Woodcock, J. Mehta, N. Khan, V. Shivji, C. Richardson and A. Burns, "Keep calm and carry on learning: using Microsoft teams to deliver a medical education programme during the COVID-19 pandemic" *Future Healthcare Journal*, vol.7, no.3, 2020.
- [43] M. Hubbard and M.J. Bailey, "Mastering microsoft teams: End user guide to practical usage, collaboration, and governance" *APRESS*, 2018.
- [44] M. McVey, A. Edmond and D. Montgomery, "Supporting Students to Develop their Digital Literacies using Microsoft Teams" *ALT Winter Conference*, 2019.
- [45] N. Allison and J. Hudson, "Integrating and Sustaining Directed and Self-Directed Learning Through MS Teams and OneNote: Using Microsoft Teams and OneNote to Facilitate Communication, Assignments, and Portfolio Management" *BALEAP TEL SIG Webinar*, 2020.
- [46] M. Pretorius, "SharePoint and Assignments" *Microsoft Teams for Education* [online], 2018.
- [47] S.K. Suresh, "Usability Review and Analysis: Microsoft Teams" *Critique Series UX planet*, 2020.
- [48] V.K. Ireddy, A. Nungonda, "Microsoft Teams Approaches to Solve Collaboration Needs" *International Journal of Computer Applications*, vol. 182, no.44, pp.13-16, 2019.
- [49] Forbes, "Microsoft Teams Hits 13 Million Users To Tighten Grip On Slack" *Retrieved November 15, 2019*.
- [50] A.A. Malik, "Analysis of Advantages and Problems in Teaching and Assessment with Online System during Covid-19. *LGURJCSIT*, vol.5, no.1, pp.15-24, 2021.