



**Ministry of Higher Education (MoHE)**  
**Higher Education Development Program (HEDP)**  
**Operations and Monitoring Support Team (OMST)**

**Information and Communication Technology (ICT) Assessment**

**June, 2021**

**Operation and Monitoring Support Team**

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## **Background**

### **Introduction to HEDP project:**

Higher Education Development Program (HEDP) is a national multi-donor funded, government-led Program supported by the World Bank through IDA and ARTF. The overall objective of the program is to “increase access to, and improve the quality and relevance of, higher education in Afghanistan”. The HEDP supports the NHESP-II 2015-2020, which aims to develop the higher education sector by expanding enrollment, improving quality, and orienting higher education to promote the future economic and social development of Afghanistan.

MoHE has implemented several key initiatives successfully under the Higher Education Development Project (HEDP) since 2016. These initiatives include the introduction of outcome-based education and student-centered learning (OBE-SCL), with more than 2,000 academic members of public and private universities trained and practicing OBE-SCL; the establishment of Quality Assurance and Accreditation system to ensure quality at all higher education institutions both public and private. So far 56 universities have been accredited nationally, including 20 public universities; promotion of development-oriented research among Afghan lecturers by awarding over 150 research projects both individual and groups; and several other initiatives such as the establishment of ICT’s, Research Centers, several lecture blocks and female dormitories, and capacity building programs for administrative and academic staff of public universities, including the award of over 400 master and 50 Ph.D. scholarships. HEDP has two components which include the program component (Higher Education Development Program) coming under component one and also Operations, Monitoring and Support Team (OMST), coming under component two of the program.

### **Information and Communications Technology Centers**

The objective of establishing ICT centers and IT or ICT facilities at public universities is to support the use of ICTs to enhance the quality of teaching and learning in the higher education. HEDP established 12 ICT centers at KEU, SZU, Konar, Takhar, Paktya, Ghazni, Faryab, Bamyán, KMU, Baghlan, KPU, and Alberoni universities. Apart from establishing ICT centers at public universities, the program also provided IT equipment and installed solar systems in public universities and higher education institutes. The program has awarded and completed 40 IT equipment projects, which also included packages of PC Lab. Likewise, the HEDP also provided solar systems for six universities.

As a response to the covid-19, the program decided to scale up the ICT and IT-based activities and facilities to cover more public universities and higher education institutes. This initiative was aimed to help the effective implementation of e-learning through HELMS and other platforms. The program identified 18 projects including the IT equipment, networking, and solar system facilities for 16 public universities and higher education institutes. The above-mentioned projects are either in the procurement or implementation process.

In order to ensure the full functionality of the established ICT centers, the project has put in place the ICTs scorecard review process which is undertaken annually. The scorecard is composed of four indicators: a) Students and PCs ratio, b) Technician and PCs ratio, c) ICTs utilization by the student; and d) ICTs utilization by the academic members. The recent ICTs scorecard review indicated the functionality of 10 ICT centers out of 12.

HEDP also provided technical support to the ministry of higher education and public universities in providing opportunities for upgrading the knowledge and skills of ICTs technicians. A series of training programs were designed and conducted over the past five years of the HEDP life span. In those training programs, more than 60 technicians have been trained in a variety of topics, including, e-learning technical skills training workshops, basic and advanced network administration workshops.

### **Objectives of the ICTs Assessment:**

The specific objectives of the assessment included the following:

- To assess the relevance, effectiveness, sustainability, and outcomes of the established ICT centers at public universities;
- To assess the effectiveness of ICTs services in enhancing teaching and learning in the higher education system;
- To assess the extent of ICTs utilization in e-learning and teaching during the covid19 lockdowns; and
- To identify challenges and provide useful recommendation and take appropriate measures to overcome the challenges and improve the use of ICTs in enhancing teaching and learning;

### **Methodology:**

This assessment was conducted through a survey questionnaire. A close-ended and open-ended questionnaire survey was conducted across 12 universities where the project established ICTs. The key respondents in this assessment survey were mainly the students, academic members, and ICT leads. Students ranging from 15 to 20 in number were targeted for the assessment in each university. Similarly, the same number of academic members of different disciplines were selected for the survey. Both, academic members and students were selected through a purposive sampling method. Students were picked from the university's campus, while the academic members were selected from their faculties. Those who were available were selected and interviewed.

### **Executive Summary:**

The beneficiaries' survey generally indicates a strong positive effect of information and communication technology on enhancing teaching and learning practices in higher education. The survey reveals that 11 of 12 ICT centers are functional and operational, contributing to improving teaching and learning pedagogies of higher education in Afghanistan. The ICT centers at Baghlan University remained closed and even not inaugurated. The university was transitioned from its original campus to another area due to security threats. The ICT center established in its original campus is closed and not utilized. The study shows that a large number of students interviewed (78%) have computer literacy skills and have access to their laptops and smartphones, utilizing the ICT services either at universities or their residential houses.

Among the students, almost 74% of the students were aware of the ICT centers established in their universities. Of the total students, only 56% have confirmed that they are visiting ICT centers for different purposes, including, but not limited to, benefiting from the internet services, utilizing computers and attending other informative sessions, such as seminars, conferences, and receiving technical services from the ICT centers. Likewise, 70% of the students have said that the ICT centers are either effective or very effective in addressing their ICT needs, while more than 70% have confirmed the relevance of the ICT centers to their educational needs. Only half of the respondents have said that the internet speed at ICT centers is fast enough, while half others rated it either slow or very slow.

More than half of the students believed that the ICTs services improve the teaching and learning pedagogy of higher education, providing the opportunity for both the academic members and students to access digital resources and boost their knowledge and skills of their expertise. The students also revealed that they use ICT centers for their research purposes. Many students have expressed that the ICT facilities are crucial for the student's research activities, linking them to the resources and providing opportunities to access them to the computers and technical assistance.

During the lockdown, the ICTs have proved to be of significance for both academic members and students. Academic members have used the ICT facilities, including the internet, and infrastructures for providing distance learning and teaching. Of the total, 60% of the students said they received distance teaching and learning services from different platforms. WhatsApp and HELMS have been the dominant platforms used for distance learning and teaching. However, it should be explicit that distance learning and teaching in the context of this report means the exchange of data such as lectures, PowerPoints, and other material among students and academic members through various means. Students received PowerPoints, textbooks, assignments, and other helpful material from their academic members, using the means mentioned above. Only 4% of the students said they were connected to an online classroom using the zoom application. The effectiveness of distance teaching and learning is still an issue for a large number of students. Only 17% of the students have said the distance learning and teaching (sharing material and documents) were effective, while many other students rated this means of teaching and learning either not effective at all or less effective. In contrast, a large number of academic members believed that distance learning was effective in delivering their academic programs. MoHE had produced

tutorial videos on the utilization of HELMS in 2020 to facilitate and easy the said platform for e-learning. Both students and academic members had access to view the tutoring material.

There have been a number of challenges as follow: They have been described in details in the last part of the report “challenges and recommendations”.

- Baghlan ICT center is not inaugurated despite being completed two years ago. It remained unutilized due to security reasons.
- Lower internet bandwidth at the ICT centers. Graph #4 indicates a higher internet bandwidth disparity among the different ICT centers ranging from 155 MB/second to only 12 MB/second.
- Lack of regular electricity power. All ICT centers are connected to public power cable. When the power goes out, the ICT centers remain non-functional and the users cannot utilize it until the power comes back.
- Despite the tashkeel being approved for Majority of the existing ICT centers, there are still vacant positions at some universities such as KPU, KMU, Paktya and Baghlan.
- Low level of technical knowledge of students and academic members to effectively utilize the NHELM for e-teaching and learning.
- The fiber transmitting line (internet connection) of Ghzni, Wardak, Helmand, Bamyar and Faryab universities have been cut off. These universities are connected through private internet provides, having a lower bandwidth compared to fiber line.
- Low effectiveness of e-learning during the covid19. Only 17% of the surveyed students marked the e-learning as effective, while in contrasts, a large number of them said the e-learning was ineffective at all.

### Demographic Information

For this beneficiary survey, we reached out to three types of beneficiaries: the students, academic members, and ICT technicians. The survey included 12 public universities where the project established ICT centers. At each of these universities, students and academic members, and the ICT leads were interviewed. Almost 66% of the students were male and the rest female. The students were picked up on the university’s campus. Up to 25 students were interviewed in each of the universities. Also, academic members were selected for the interview. Around 15 academic members were reached out at each of the 12 universities. The majority of them were masters, while a few others also reported being Ph.D. and Bachelor, standing at eight and 20% each. Among the academic members, 90% were male and 10% female. A large number of the academic members fall in the age group (25-30), while some 6% also belong to the age group above 50.

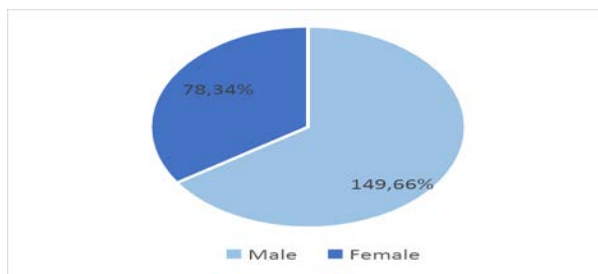


Figure 1: Students by Gender

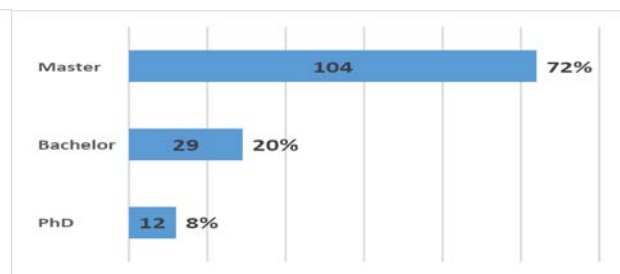


Figure 2: Lecturers by Qualification

## Key Findings and Recommendations

### Findings:

#### *ICT Management and Arrangements:*

The ICT centers are well managed and maintained. MoHE has developed a policy on the provision of ICT services which describes the overall ICTs administration and management, roles and regulations, responsibilities of technicians, networking, cyber security, protection and maintenance of the equipment and repairing the broken devices. The policy is shared with all ICT centers and is implemented.

The assessment indicates that of the current 43 *tashkeels* positions (civil servant positions), only 35 have been recruited, which include the ICT managers, software and database experts, video conference in charges, and technicians. We realized that no dedicated *tashkeel* positions have been approved for all ICT centers. The universities have transferred the technicians from IT departments and have included the responsibilities of ICT centers' operations in their daily tasks. However, there ToRs are not officially amended to reflect the operations of ICT centers. The MoHE should make sure all existing ICT centers have full-time dedicated *tashkeel* staff to ensure its proper maintenance, operationalization and sustainability. In some other instances, we also came to know that the approved *tashkeel* for some universities are not fully filled such as KPU, KMU, Paktya and Baghlan universities.

The following table describes the status of the *tashkeel* positions for the established ICTs.

*Table 1: Total Employees at ICT centers- Approved tashkeel staff*

No	University Name	Approved Tashkeel (IT Dept)	Recruited Tashkeel	Temporary Contracted	Transferred	Total Onboard
1	Sayed Jamaluddin Afghan	1	1	1		2
2	Kabul Polytechnic	8	7	0		7
3	Ghazni	4	4	4		8
4	Faryab	3	3	2		5
5	Kabul Medical Sciences	9	6	0		6
6	Kabul Education	3	3	2		5
7	Alberoni	3	3	0	1	4
8	Sheikh Zayed (Khost)	4	4	1		5
9	Bamyan	2	2	1		3
10	Paktia	3	2	0		2
11	Takhar	3	3	0		3
12	Baghlan	3	0	1		1
<b>Grand Total</b>		<b>43</b>	<b>35</b>	<b>12</b>	<b>4</b>	<b>51</b>

Among the surveyed centers, we observed the existence of annual ICT plans at nine centers, while the three others including Kunar, Baghlan, and KMU universities did not have the plans. We also observed that all ICT centers had the user's registration logs but the users were not registered in some ICTs, such as Alberoni, Bamyan, Kabul Polytechnic, and Baghlan.

MoHE has allocated a specific budget for each ICT center for the operationalization, repairing, and maintenance of the ICT equipment. Despite having a proper arrangement at the ICT centers, the services still need to expand, and focus should be put on improving the effectiveness and efficiency.

*Utilization of ICT Centers:*

The survey indicates that 11 of the 12 established ICT centers are functional, operational, and utilized. Baghlan ICT centers remain closed and unutilized due to the security reasons. The information provided by the universities confirms that all ICTs and their facilities, and spaces are being used merely for the intended purpose. All respondents have confirmed that the ICTs and resources are not used elsewhere for other purposes.

Both students and academic members use the ICT centers for different purposes. The ICTs log books present different figures of the beneficiaries. At some ICTs, around 1,000 students in a month, while in others, up to 4,000 students visit. Ghazni, Faryab, KMU, and KEU ICTs are among the lowest number of its beneficiaries, while KPU, Kunar, Bamyán and Khost ICTs are reported with larger beneficiary numbers. The ICT logs also show the number of academic members utilizing ICT centers. On average, from 1 to 300 academic members use the ICT centers on monthly basis, as evident in the following tables.

*Table 1: Range of students and academic members visit the ICT centers per month*

University	Average Monthly Visits by students	Average Monthly Visits of Academic Members
Ghazni	<1,000	<200
Faryab	<1,000	<300
Kabul Medical Science	<1,000	<100
Kabul Education	<1,000	<200
Paktia	<2000	<100
Al-Beroni	<2000	<100
Takhar	<2000	<200
Sheikh Zayed (Khost)	<3000	<300
Bamyán	<3000	<200
Kunar	<4000	<100
Kabul Polytechnic	almost all of the students	<100



The number provided above is also confirmed by the student's and academic members' surveys. The students randomly picked at the universities' campuses, confirm that more than half of them have either visited the ICTs once or more than once in a month or/and a semester. Of the total students, around 56% have confirmed that they are visiting ICT centers for different purposes, including, but not limited to, benefiting from the internet services, utilizing computers and attending other informative sessions, such as seminars, conferences, and receiving technical services from the ICT centers. The study also expresses that 44% of the students do not visit the ICT centers. Generally, we can conclude that more than half of the students are benefiting from the ICT centers. The students have identified different reasons for not visiting the ICT centers, which include the low speed of internet connection in the ICTs, being far away from their faculties, students having their own internet connection and computer facilities to utilize, etc.

A large number of the beneficiaries reported materials seeking as their primary reason for visiting ICT centers, while research purpose, e-learning (retrieving and downloading shared data), and checking social media are the other purposes reported by the beneficiaries. The following graph presents the said information.

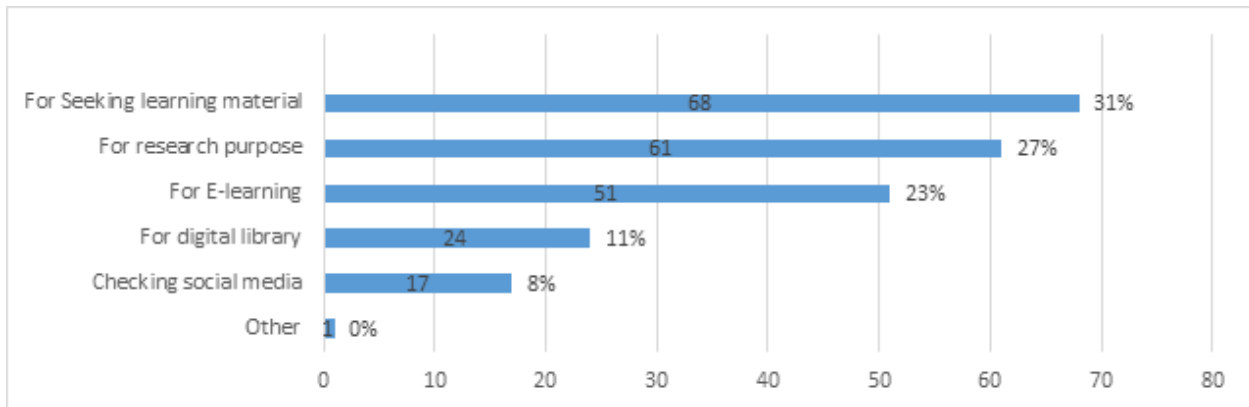


Figure 3: Purposes of student's visit to ICT center

It is worth mentioning that the ICT team of Kabul Medical Science University developed a system in which they register students into a domain system ( domain controller ), whenever students come to ICT center they can log in into their own accounts to access the computers of ICT center, the laws are very specific for them if they use any of the prohibited website they will be blocked for 2 months, so the internet of ICT center is being used in very beneficial way possible since the system is in pilot phase ICT Team distributed 100 student registration forms from which only 23 male and 12 female filled the forms and they were registered to utilize ICT center services. In addition, since the establishment of the WiFi-Zone at KPU, most of the students and faculty staff are using internet facilities from their smartphones or personal computers, so almost all of the students are utilizing the ICT center.

### Relevance and Effectiveness of ICT centers

The intervention (establishing information and communication centers) at the public universities seems to be very relevant to the needs of students and academic members. Given the high number of students and academic members utilizing the ICT centers, and the satisfaction they have expressed, the centers are effective in addressing their needs. Almost 80% of the students have said that the ICT's services are either effective or very effective in addressing their teaching and learning needs. More than 80% of the students have said that the services provided by the ICT centers are relevant or very relevant to their educational needs and requirements. The effectiveness of the ICT centers is also confirmed by the academic members. Of the total academic members interviewed, more than 80% of them agreed that ICT services are effective or very effective in addressing their needs. Also, they have expressed their satisfaction with the overall services provided by these centers.

### Speed of internet

Universities are connected through the fiber internet connection, but the universities are not provided with the same bandwidth. Some have been provided a relatively higher bandwidth, while others with very lower bandwidth. A higher internet bandwidth disparity was observed among the different ICT centers. A higher internet speed at 155 MB/Second, while the lower at 12 MB/Second was reported. The MoHE needs to harmonize the internet speed considering the university's capacity, students number and other applicable factors. The current internet speed is not responsive at all.

The following graph indicates the speed of the internet by universities.

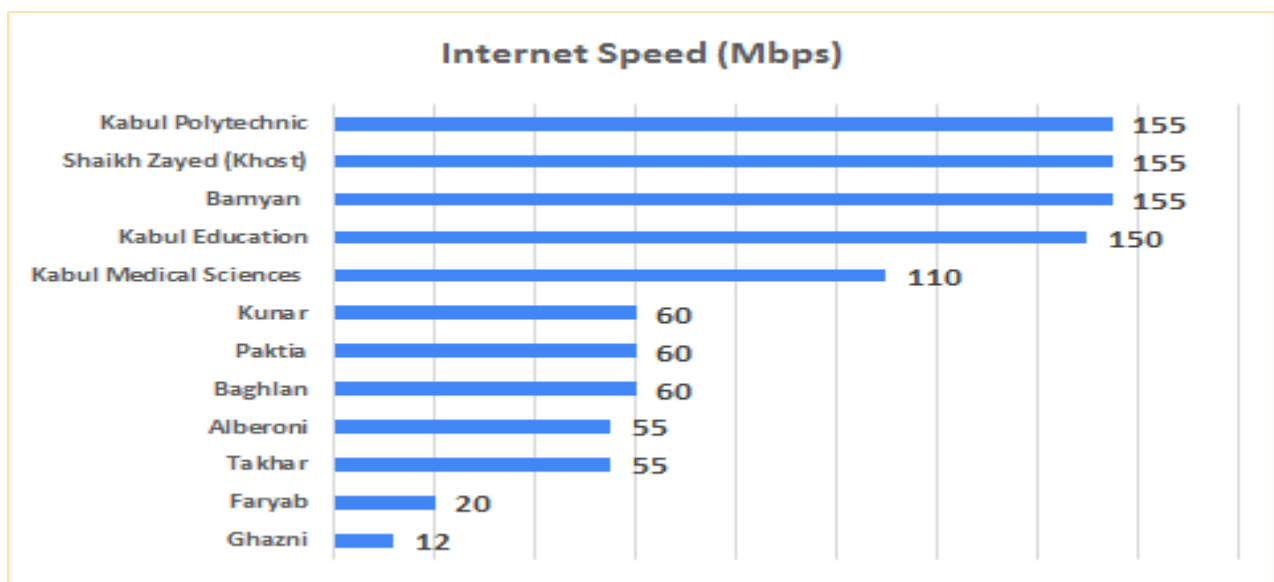


Figure 4: Internet Speed at universities

The student's survey points out that almost half of the interviewed students have said that the speed of the internet is good to some extent, while the other half expressed their concern and

said that the speed is slow or very slow. This information is also confirmed by the academic members, who have also suggested increasing the speed of the internet at faculties and universities. Given a large number of students, academic members, and faculty staff at a university, the existing internet speed is not responsive. At one instance, it needs harmonization across the universities, while on the other hand, it needs a substantial increase in bandwidth and speed. The survey also expresses that none of the ICTs provide Wi-Fi connections in the university's compound for the students and academic members. The Wi-Fi connection around the university campuses is vital for the students to explore more about their lectures and studies, as has been done only by KPU, till now. Two universities which include KAMU and KPU have already installed Wi-Fi zone's devices, but the access to internet is not given to students around the universities campuses.

### ICTs enhancing teaching and learning

A primary objective of the information and communication technology is to support the higher education system of Afghanistan and enhance the teaching and learning performances. The study expresses that the established ICT centers have greatly contributed to achieving the set objective. Almost 82% of the students said that ICTs facilities and services positively impacted their teaching and learning practices. The students have expressed that they have access to relevant information and knowledge to support their classroom learnings. Also, the students said that a few of the academic member's showcase real-life examples, videos, and simulations using Google and other academic websites in the classrooms. students have also said that with the use of information and communication technology, they have created networks with classmates and academic members, which makes significance in resolving their issues on time and helping each other in their issues. More than 80% of the students have said that ICTs are either important or very important factors in enhancing teaching and learning. However, there is a strong consensus that ICT enhances teaching and learning, the existing facilities and utilization of ICTs in the classroom do not suffice. The facilities should be further scaled up and faculties should provide Wifi-connection to the students and academic members. Students have said that they are using their personal internet connection when they need to explore things on the internet in their classrooms or university campuses. The academic members also agreed that ICT improves the quality of teaching and learning to a great extent as evident in the following graph. More than 95% of the academic members believed that ICTs remained a vital tool for promoting research activities in the universities. They mentioned that instant access to digital resources enables them to conduct their research and publish the articles in their due times.

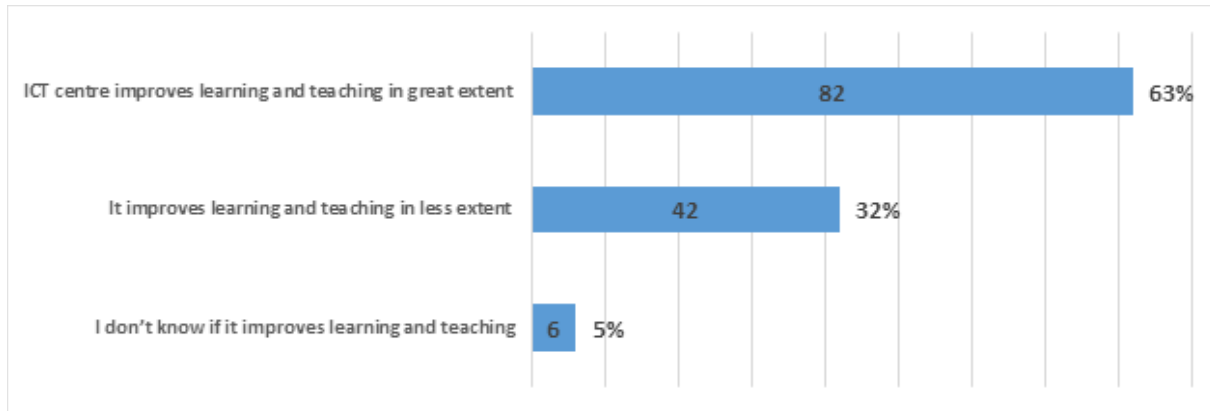


Figure 5: Perspective of academic members on ICT centers improving the quality of learning and teaching

### E-learning during lockdown

During the covid19 outbreak in 2020, all educational institutions were closed down for around four months. To respond to the covid19 disruption, MoHE initiated HELMS for higher education to continue e-learning in the country. The expectation was that academic members would conduct online classrooms, share videos, lectures, and study materials with the students. The study does not confirm the full implementation of e-teaching and learning in the country. According to the student's survey, around 60% of the students received learning materials from academic members during the lockdown period. Similarly, around 73% of the academic members also said they used e-teaching during the said period. 40% of students did not benefit from e-learning during the course of lockdown. A larger portion of the respondents said that they did not have access to the internet to participate in the e-learning process. However, the others also said that they did not have access to personal computers or smartphones, and the technical know-how is also a reason reported for not benefiting from e-teaching and learning.

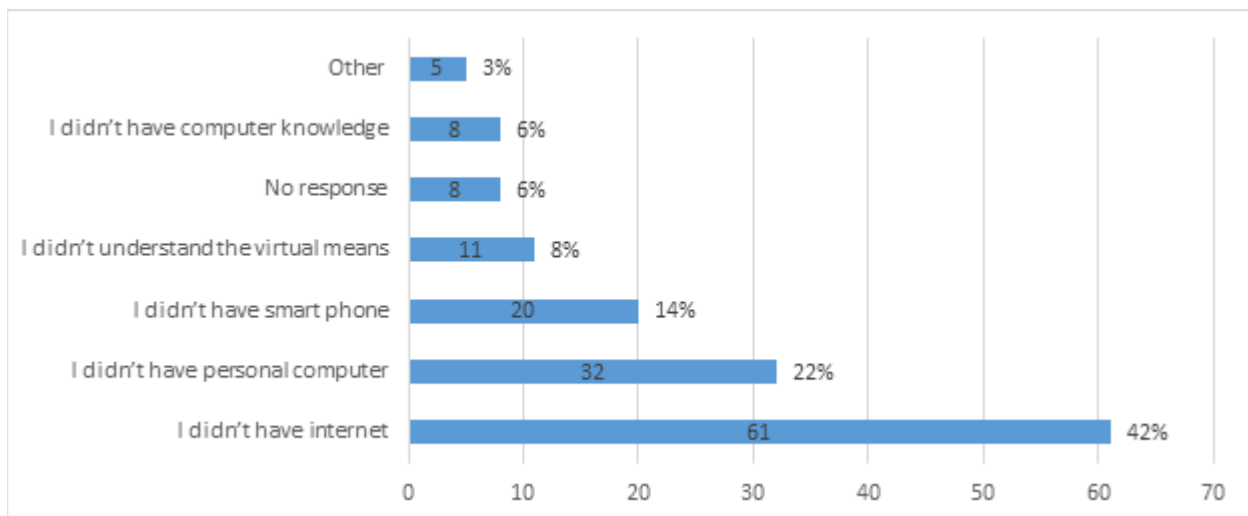


Figure 6: Reasons, students did not receive Teaching and Learning through virtual means during COVID-19

The study, however, indicates that 60% of the student confirmed e-learning, the concept of e-learning in the context of this report does not represent online classrooms where students and teachers interact and exchange information, but rather than that, this context means the sharing of study materials, including lectures, PowerPoints, textbooks, and others as applied in the context of e-teaching and learning in Afghanistan. Having said this, a larger number of students and academic members used HELMS and WhatsApp for sharing the study materials, while google meet and emails are also the platforms used. A small percentage of the respondents, only four percent confirmed the online classrooms through zoom. Refer to the following graph for details.

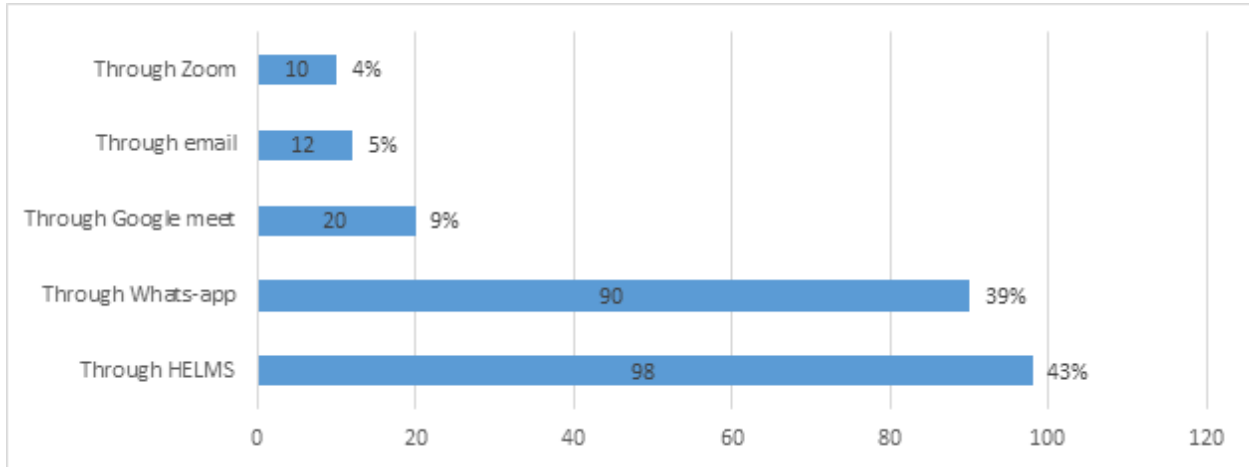


Figure 23: Means of teaching and learning received by students during COVID-19

The 40% of students who did not benefit from e-learning have used other alternative ways to continue their education. The majority of them said that they had obtained their course syllabus and were studying with themselves during the lockdown period. However, some also said that they received material and were studying with their peer classmates who had access to the internet and followed the e-learning. Some also said that they did not study during the lockdown. The following graph presents the figures and the alternative ways for continuing their education in absence of e-learning.

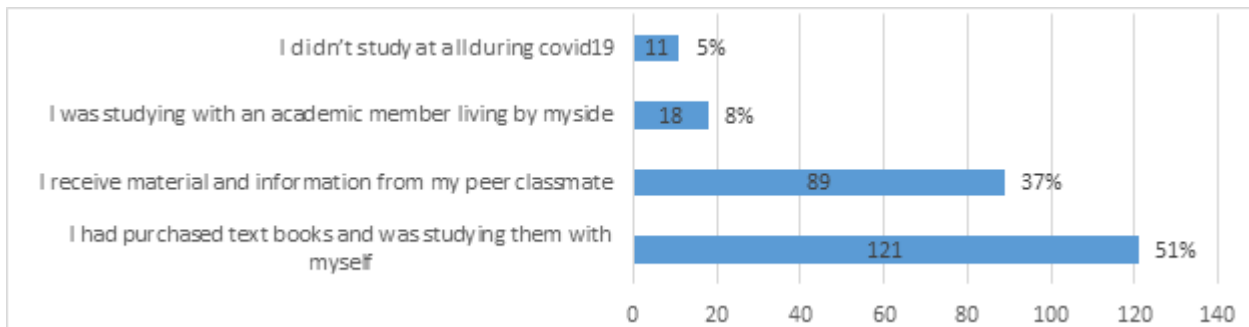


Figure 7: Alternative means of teaching and learning followed by students during COVID-19

### Effectiveness of the e-learning

The effectiveness of e-learning depends on a number of factors, including the capabilities of its users, both students, and academic members; faster internet connectivity; technical support, and the availability of adequate infrastructural facilities and functioning e-learning platforms. Accepting the fact that e-teaching and learning is a new phenomenon in Afghanistan, it has faced numerous challenges and issues. The dominant issue has been with limited access of students and academic members to the internet and digital devices. Limited technical knowledge of the students and faculty members on e-learning platforms, lower internet speed, weak teaching and learning pedagogy are among the other factors affecting the effectiveness of e-learning in the country. According to the survey conducted, more than 50% of the respondents have said that e-learning was either very challenging or challenging for the surveyed students, however, only eight % of the respondents said it was less challenging for them. On the other hand, close to half of the respondents said e-learning was either less effective or not effective at all. Only 23% of the respondents argued that it was effective or very effective for them. In contrast, the academic member's survey does not confirm the ineffectiveness of e-learning. More than half of the respondents said e-learning was effective or very effective, instead of doing nothing. They have also agreed with the student figures on their claims that e-learning platforms were challenging. Similar to the students, a large number of the academic members (69%) also experienced the e-learning platforms to be challenging or very challenging. Refer to the following graphs for details.

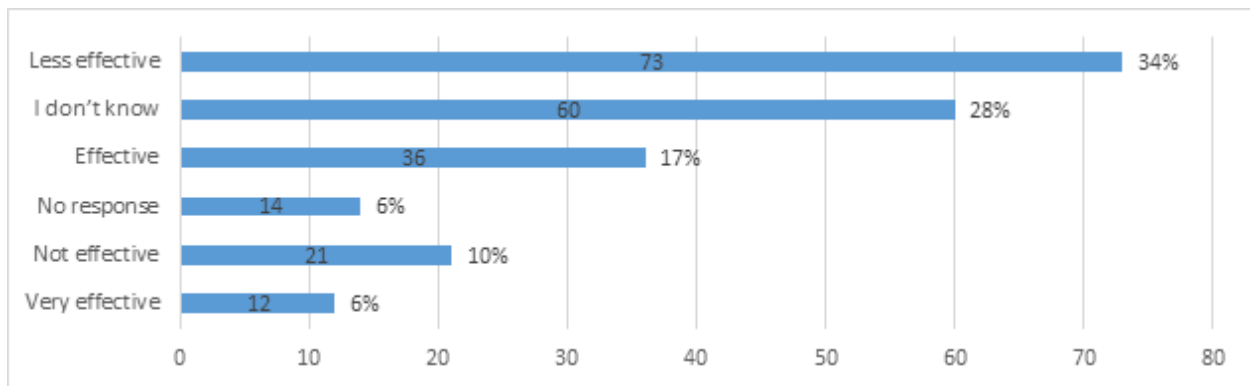


Figure 8: Effectiveness of the virtual and online teaching and learning for students

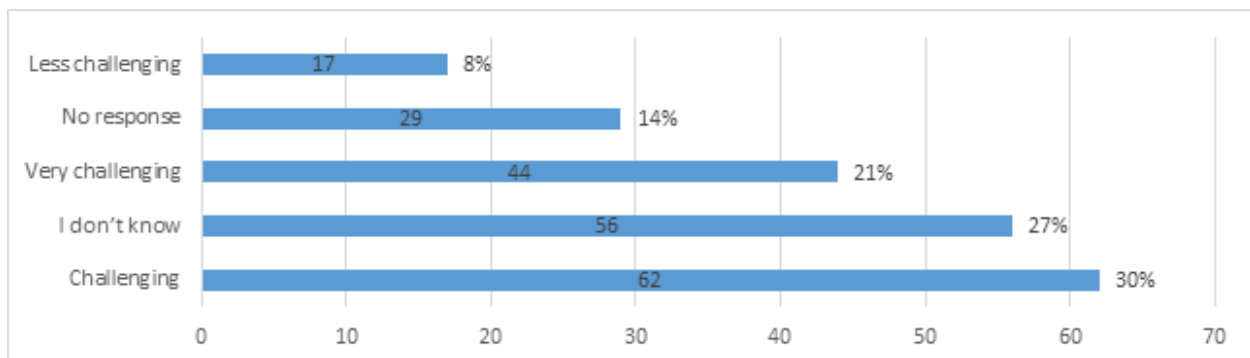


Figure 9: Level of challenges students faced while connecting online via virtual platforms

### *Extension of ICT Centers:*

Apart from the HEDP, the ICT centers are also supported and financed by other donors or from the ordinary budget of the MoHE. Since the establishment of the 12 ICT centers, three of them (Alberoni, Ghazni, and Takhar) have further expanded their ICT's capacity by providing more computers and other technical required equipment. They have provided Desktop Computers, Laptop Computers, Tables, Chairs, Color Printer, Scanner, Security Camera, Water Dispenser, and other required hardware and software accessories to their ICT centers. Ghazni university also established a smart-classroom for the agriculture faculty and have installed CCTV cameras across the university campus from their own budget.

### *Capacity Development Programs:*

The ICT centers have reported a number of capacity building events they have organized for both the academic members and the students. Some of the training topics are listed as follow:

- ICT utilization training for lecturers and administrative staff (introductory, and intermediate level).
- Basic computer courses for students and lecturers, in order to establish a better computer literacy.
- HELMS training and workshops for both lecturers and students.
- HEMIS training for lecturers and nonacademic members (administrative staff).
- Office Package, PDF tools, and operation system training and workshops.
- An overview of the beneficial use of the internet.
- How to use digital libraries and modern technology.
- Workshop about troubleshooting management.
- Accounting software training (QuickBooks).
- Hardware and software training.
- Network Training.
- Security Training.

### **Challenges and Recommendations:**

The assessment has identified a number of challenges and issues which are outlined below:

- Baghlan ICT centers are not inaugurated despite being completed two years ago. The said ICT center remains closed due to security reasons. The university campus has been transitioned from Said Khail Area, the main compound of university, where the ICT center was established to Pol e Khomri. The MoHE needs to take corrective measures to enable the said ICT center to be functional and operational soon.
- Lower internet bandwidth at the ICT centers. Graph #4 indicates that the maximum internet speed is 155 MB/second, while the lowest reported to be 2 MB/second. This higher internet bandwidth disparity among the public universities must carefully be

reviewed and harmonized. The university capacity, student numbers, academic members can be the factors harmonizing the internet bandwidth.

- The ICT centers do not have regular electric power. When the public power goes out, the ICT centers remain non-functional and the users cannot utilize it until the power comes back. A solar system can be a good alternative to enhance the effectiveness of the established ICT centers.
- Despite the tashkeel being approved for all existing ICT centers, there are still vacant positions at some universities such as KPU, KMU, Paktya and Baghlan. The ICT is managed by academic members or contracted employees in these universities. MoHE is expected to accelerate the hiring process and ensure they are recruited soon.
- The irresponsible organizational structure of the ICT centers is the other issue reported by ICT managers. Almost all of the ICT centers requested increasing their tashkeel positions both administrative and technician positions, to better support, maintain and operationalize the ICT centers. This might have been due to the vacant positions of the ICT centers. By filling them, this issue will be resolved to some extent.
- The assessment indicates that only 60% of the students could use e-learning platforms, the majority of them used NHELMS and Whatsapp. The remaining 40% of the surveyed students did not use it due to internet, digital devices, or technical difficulties. While extending the e-learning practices, the MoHE is expected to design and implement appropriate strategies to increase the number of e-learners.
- The Information provided in the survey report expresses a lower level of e-learning effectiveness. Of the total students, only 17% agreed that the e-learning platforms and practices were effective. Going forward, the MoHE is expected to improve its effectiveness by providing technical assistance to both students and academic members. Guiding tutorials can be produced and circulated with the students and academic members to enable them to utilize the platforms in the best possible way.



## Part C: Annexes- Survey Questions and Graphs.

### Student Section

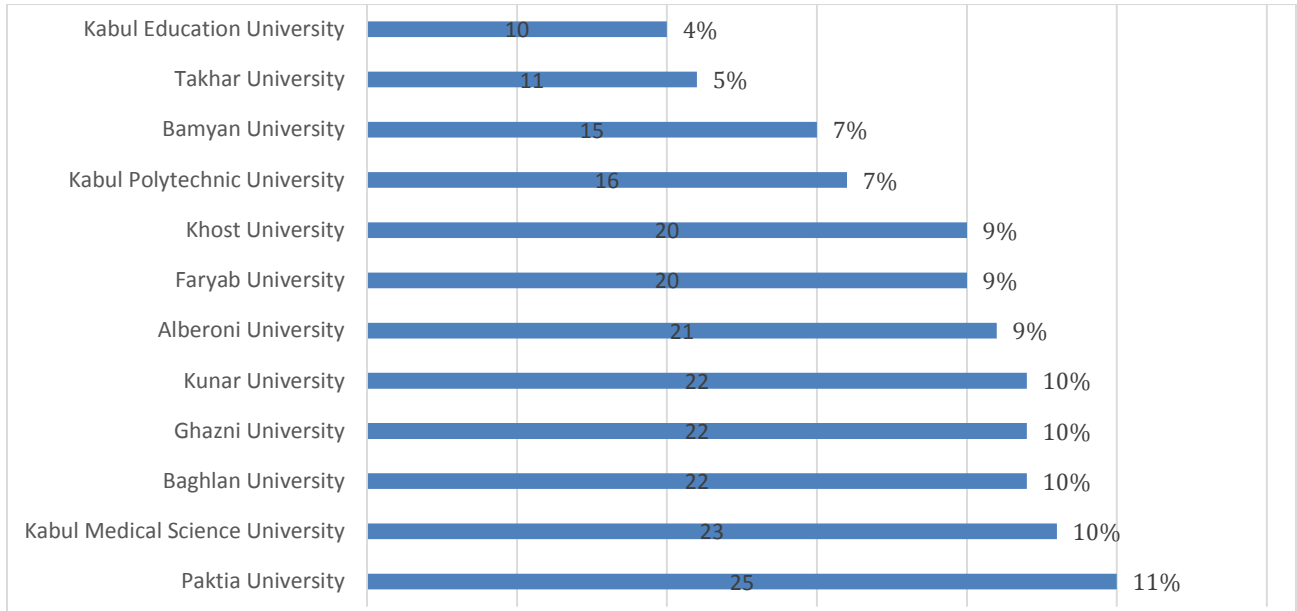


Figure 1: Student participation by University

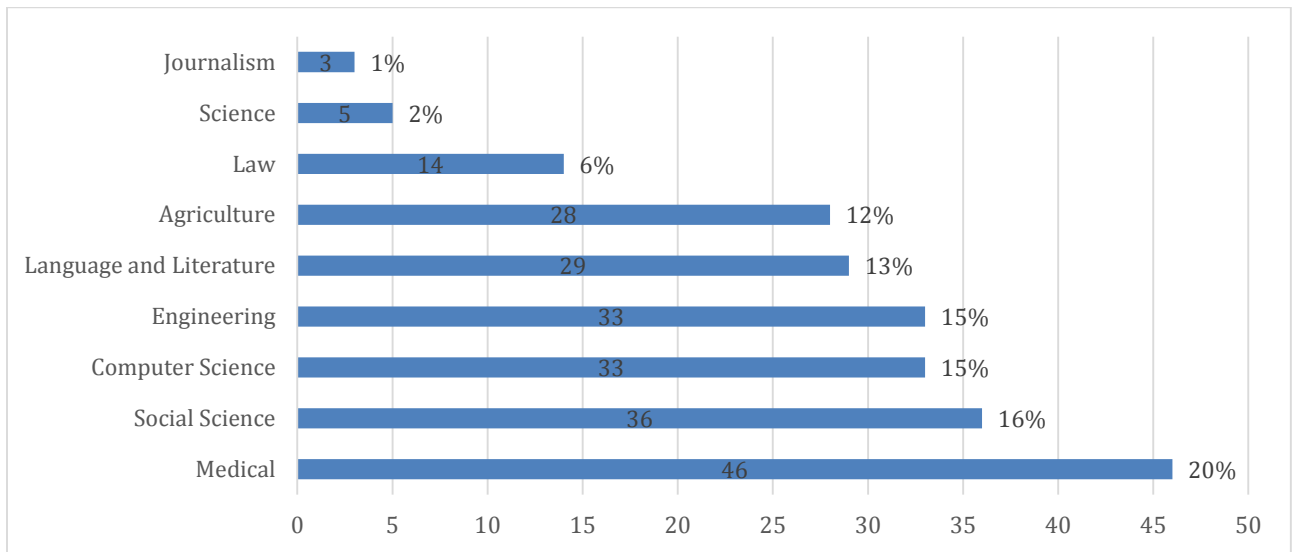


Figure 2: Student participation by Faculty

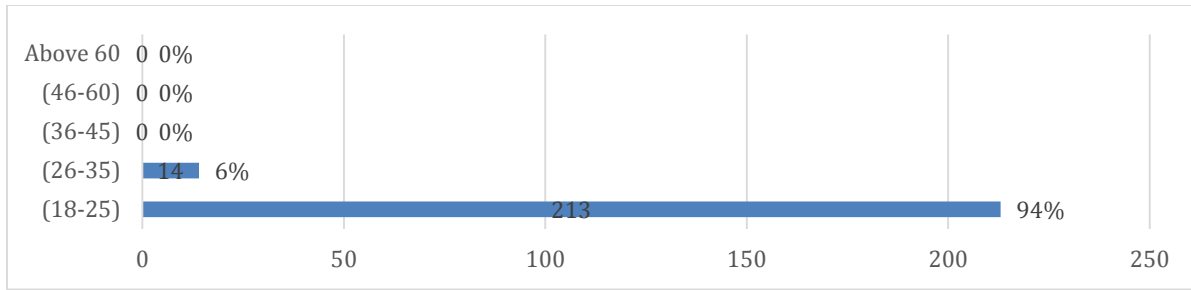


Figure 3: Student participation by Age

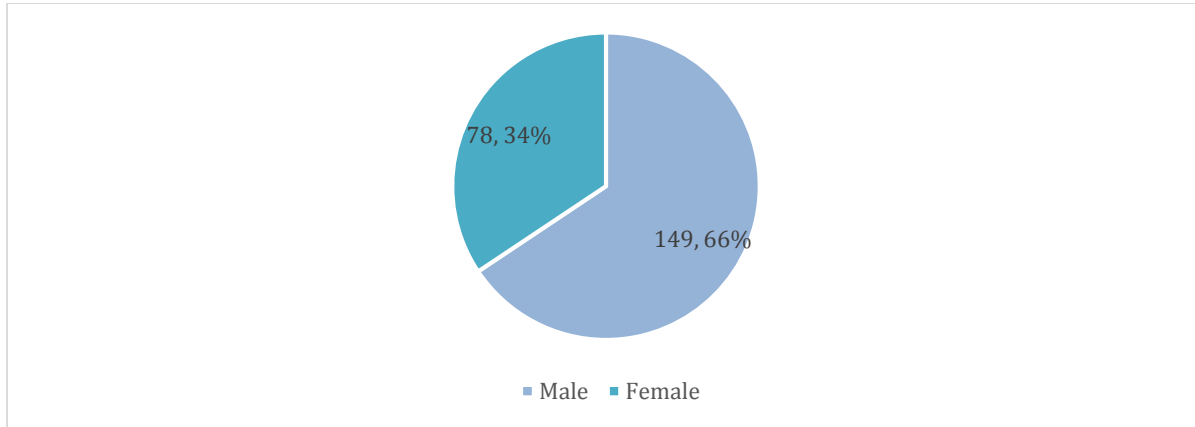


Figure 4: Student participation by Sex

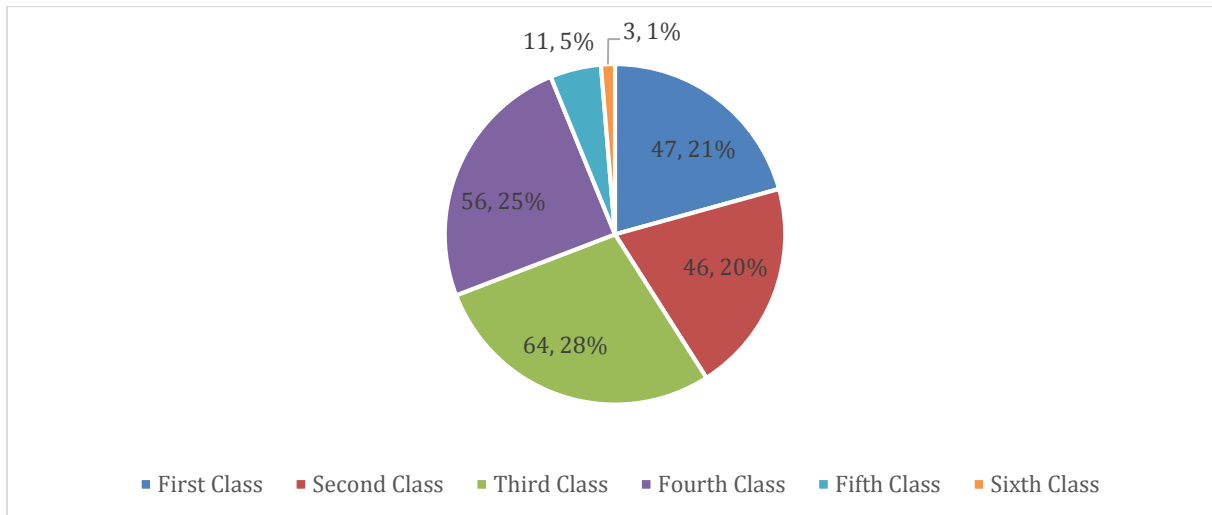


Figure 5: Student participation by Class

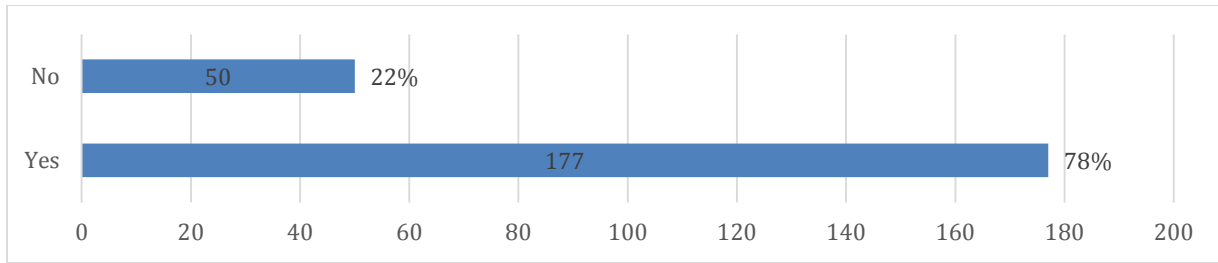


Figure 6: Students' computer literacy knowledge

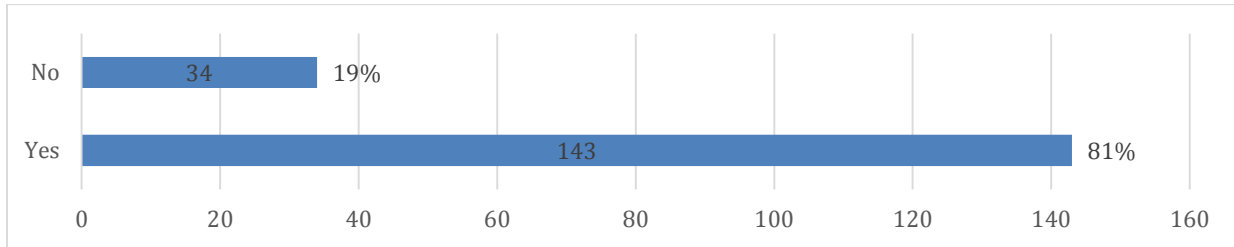


Figure 7: Accessibility of students to personal laptop

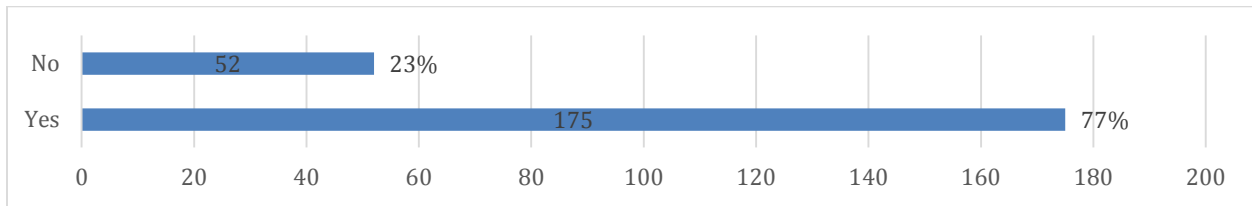


Figure 8: Students access to personal smart phone

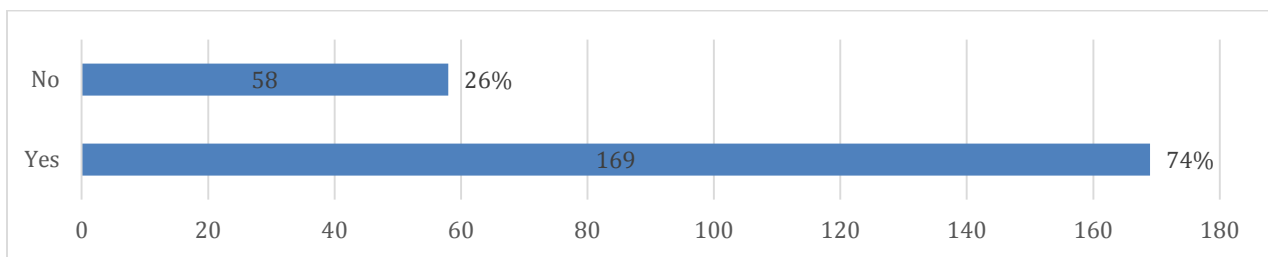


Figure 9: Student's awareness about ICT centers

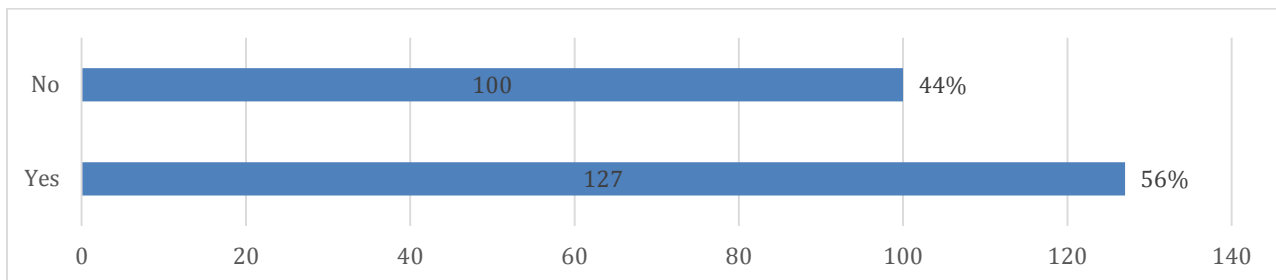


Figure 10: Student's visit to ICT centers

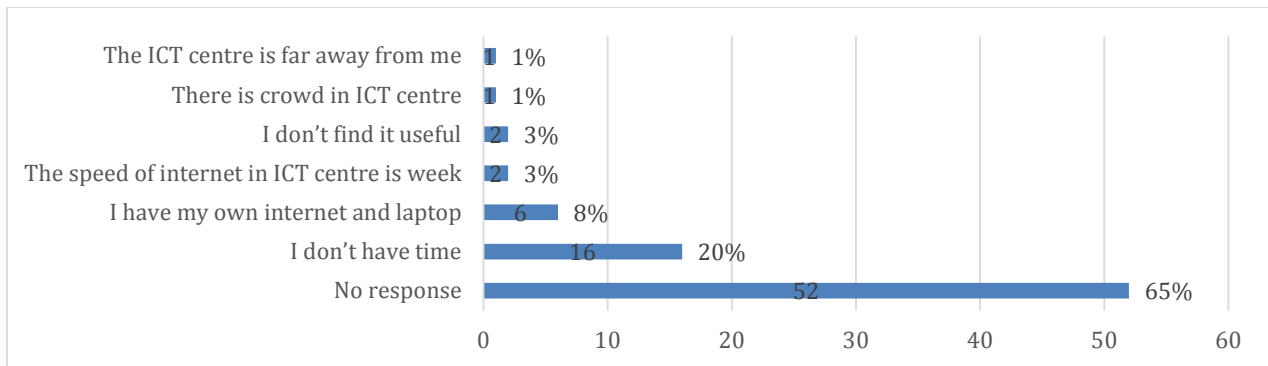


Figure 11: Reasons students did not visit ICT centers

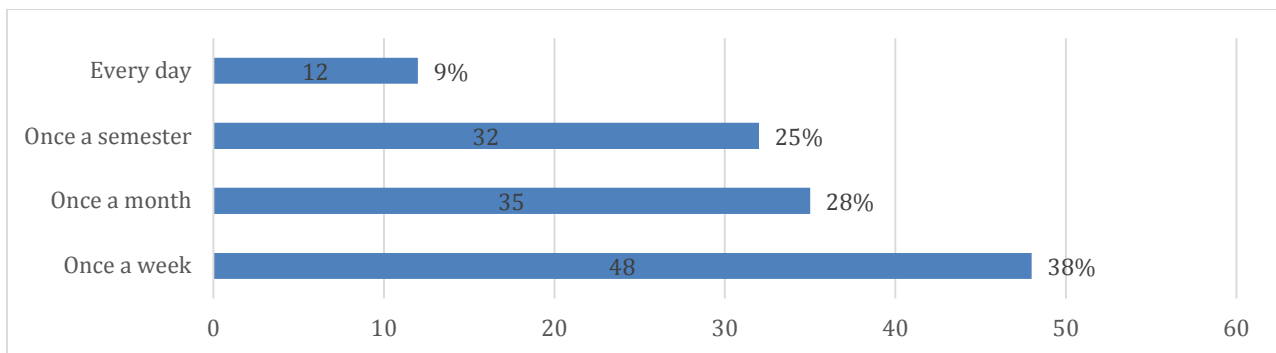


Figure 12: Student's regular visit to ICT centers

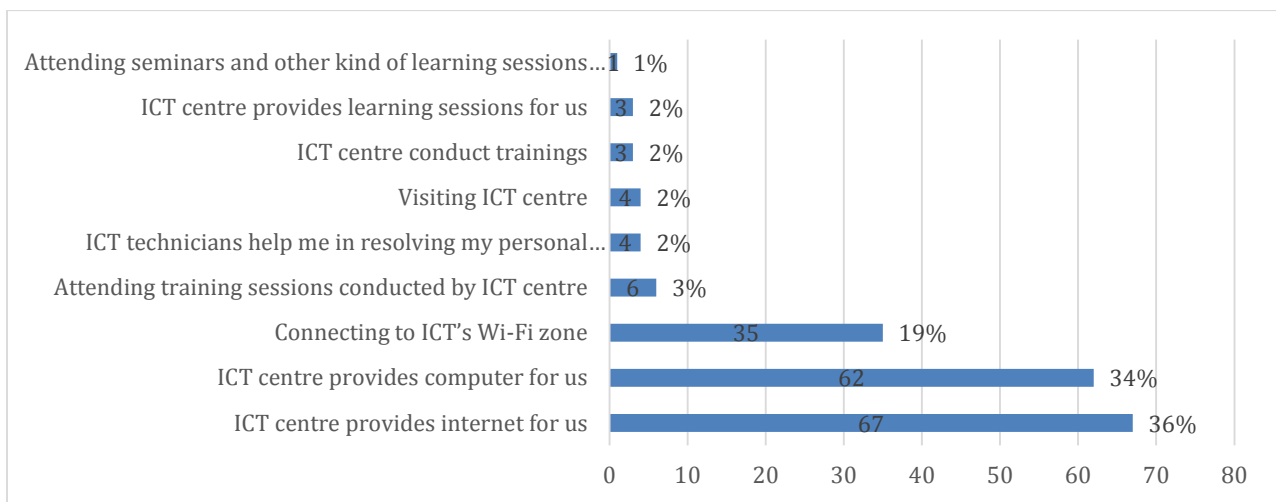


Figure 13: ICT center's services received by students

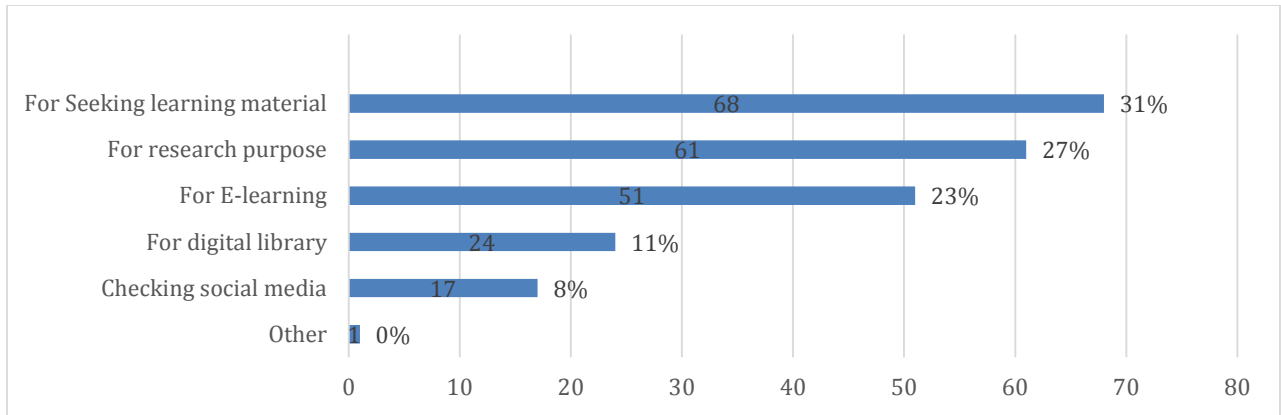


Figure 14: Purposes of student's visit to ICT center

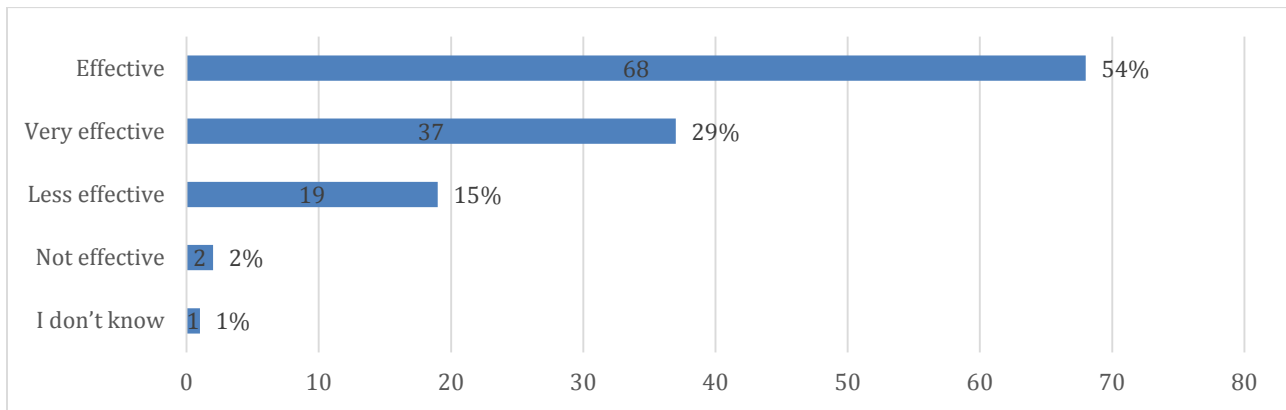


Figure 15: ICT center's effectiveness in addressing needs of students

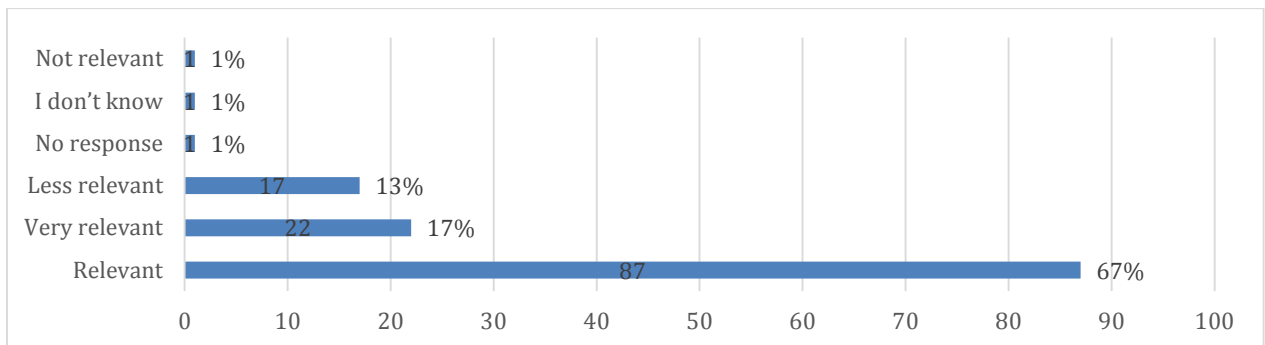


Figure 16: Relevancy of ICT center's intervention for student's activities

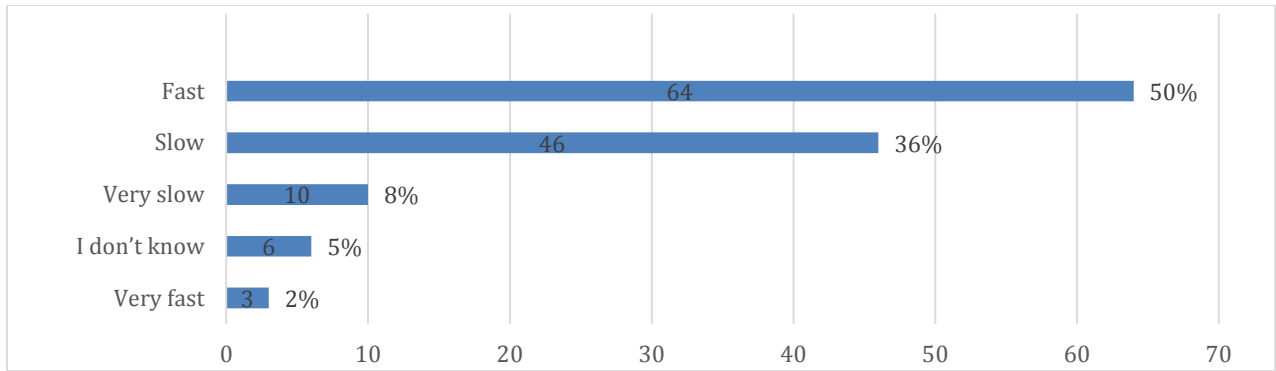


Figure 17: Satisfaction of students from the Speed of the internet in the established ICT centers

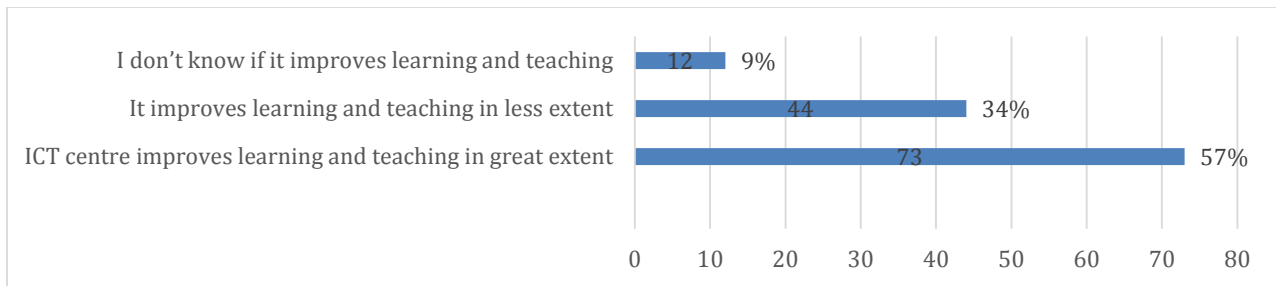


Figure 18: ICT center contribution in improvement of learning and teaching for students

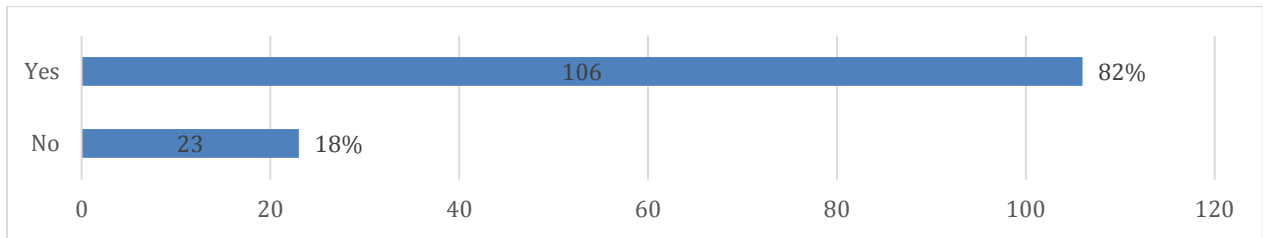


Figure 19: ICT's services assistance in student 's research activities

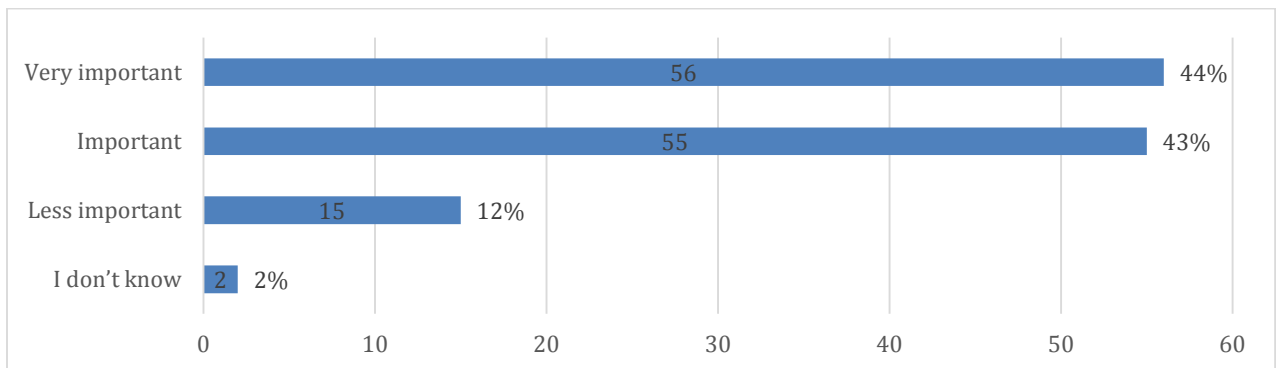


Figure 20: Importance of ICT center for improving teaching and learning of students

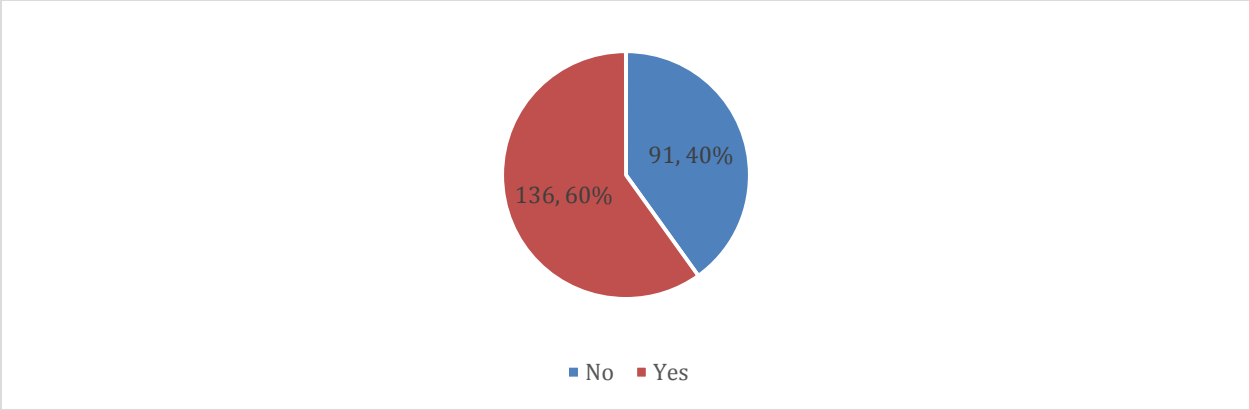


Figure 21: Teaching and learning services received by students through virtual means during COVID-19

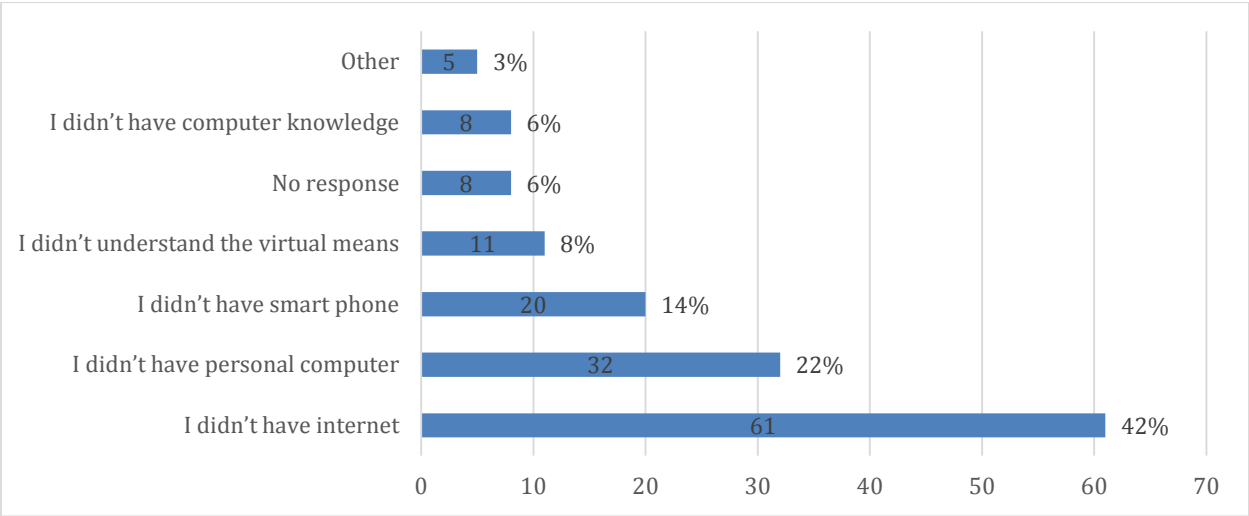


Figure 22: Reasons, students did not receive Teaching and Learning through virtual means during COVID-19

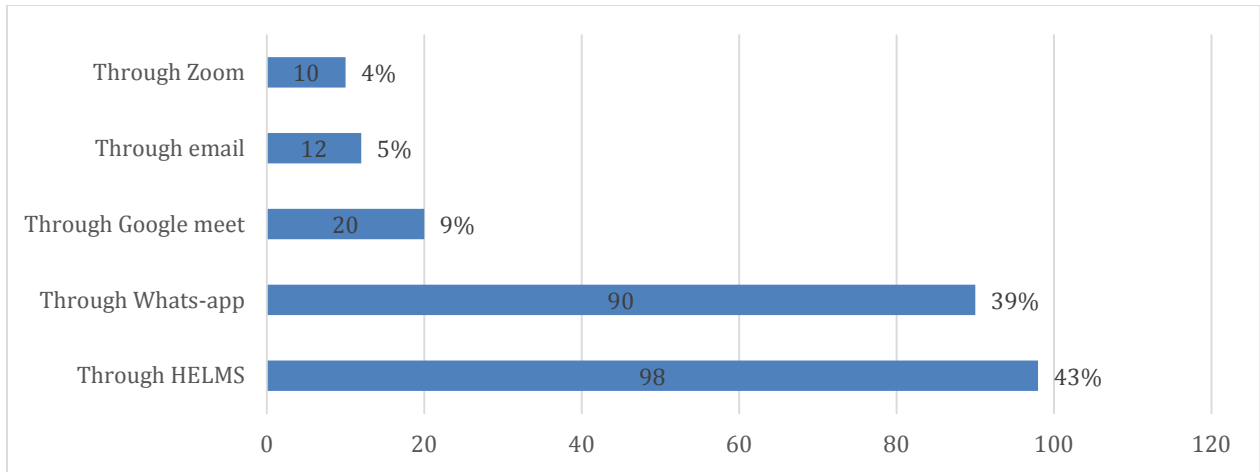


Figure 23: Means of teaching and learning received by students during COVID-19

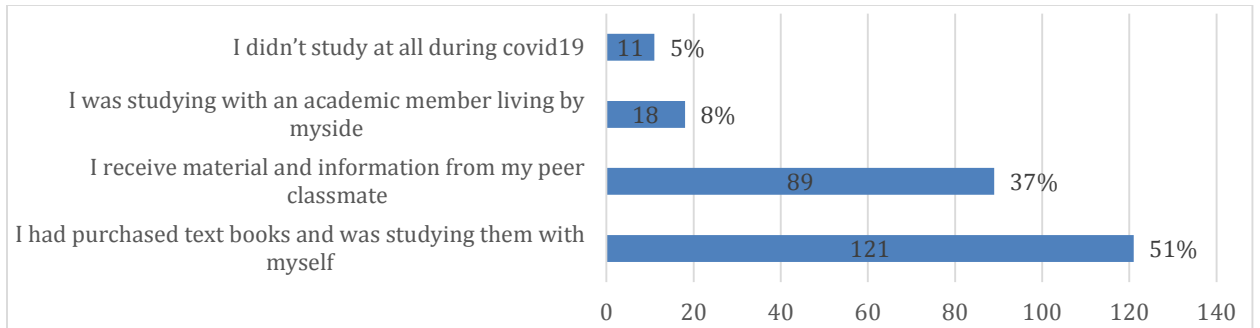


Figure 24: Alternative means of teaching and learning followed by students during COVID-19



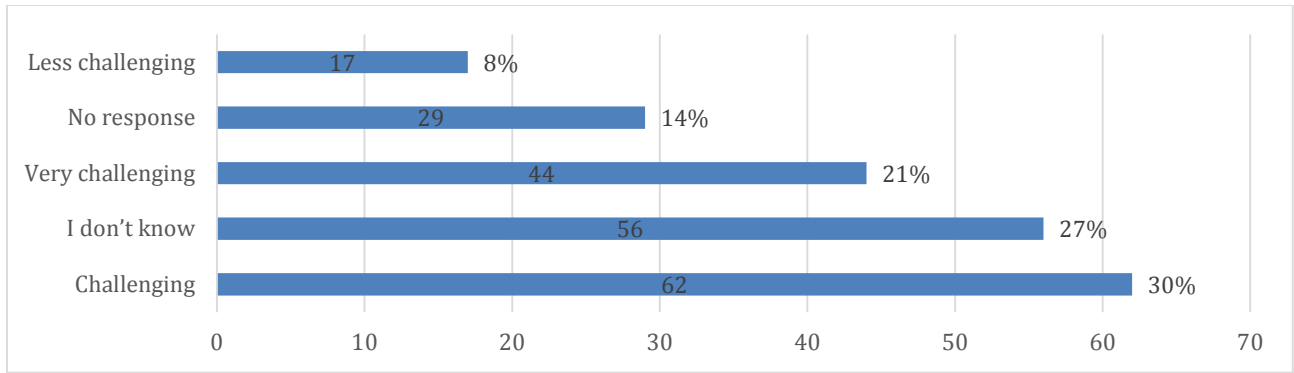


Figure 25: Level of challenges students faced while connecting online via virtual platforms

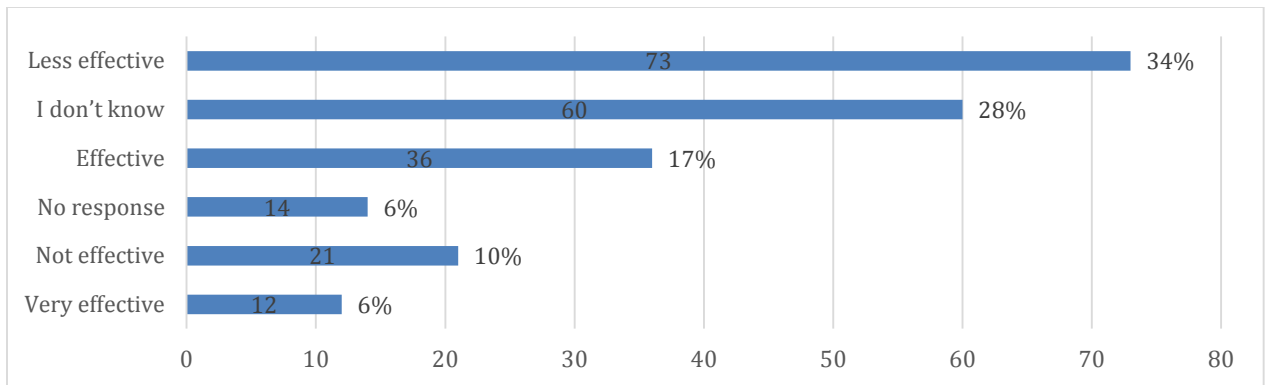


Figure 26: Effectiveness of the virtual and online teaching and learning for students

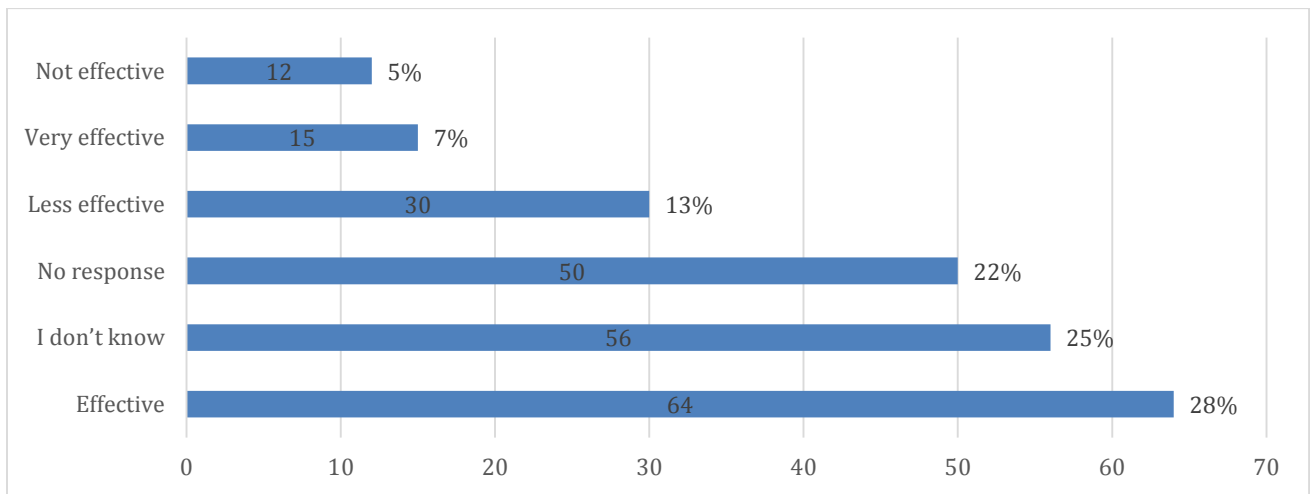


Figure 27: Effectiveness of the ICT center in distance learning of students

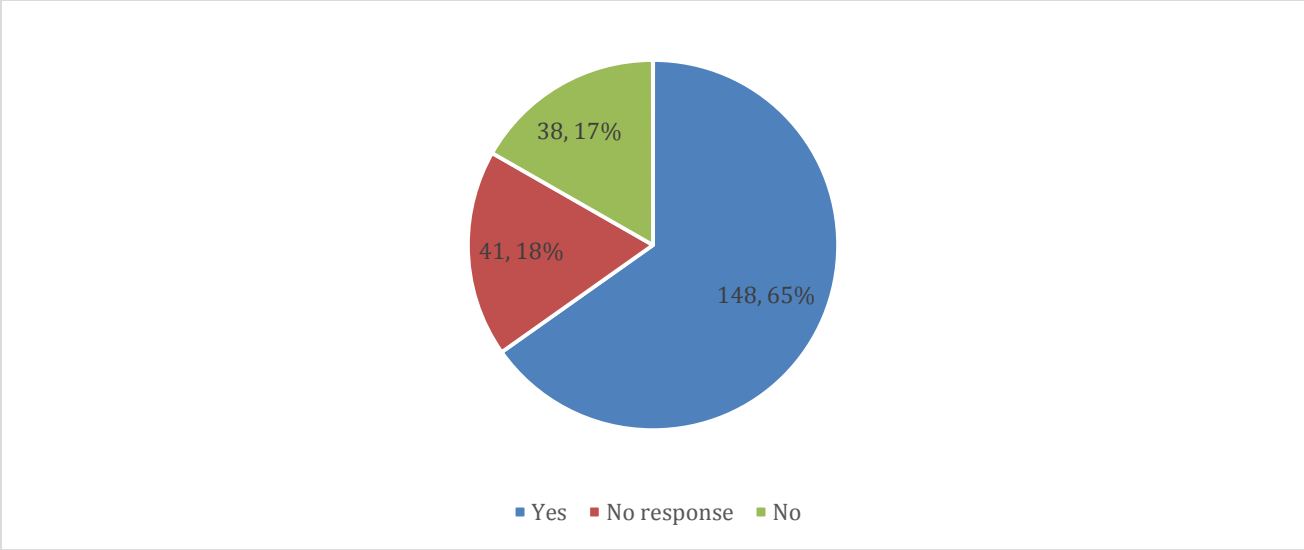


Figure 28: Availability of electricity at ICT centers mentioned by students

**Lecturer section**

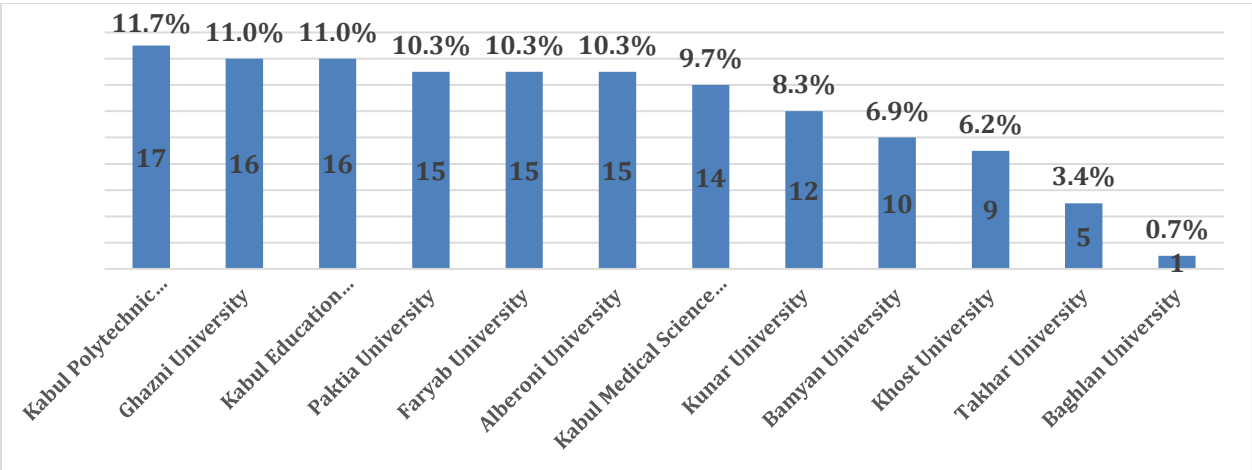


Figure 29: Number of Lecturers participated by 12 universities

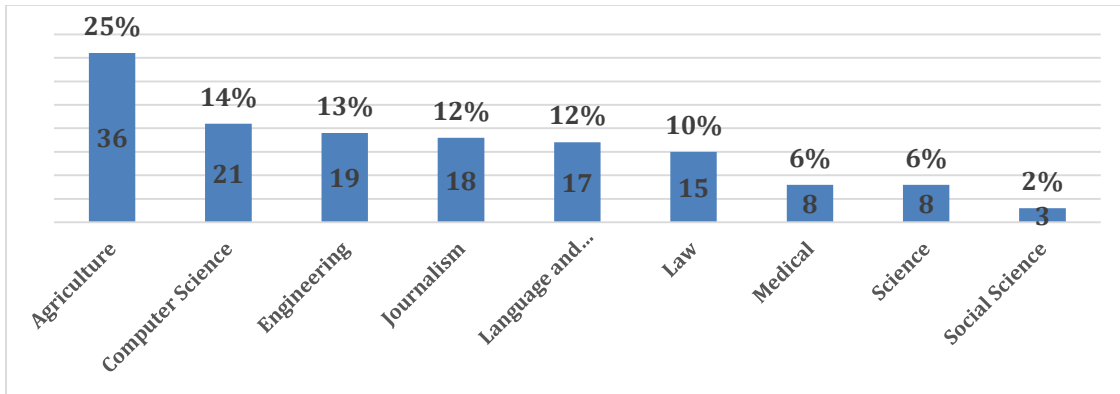


Figure 30: Number of Lecturers participated by Faculties

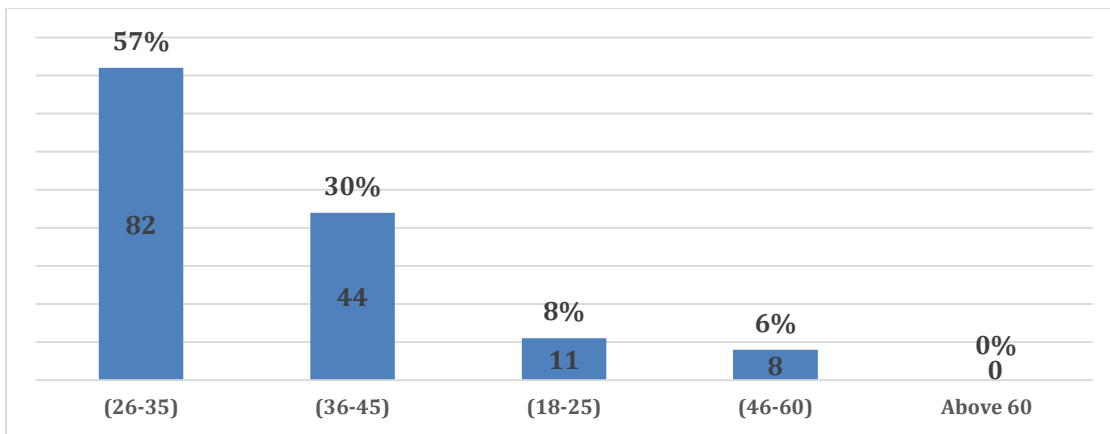


Figure 31: Lecturer's age

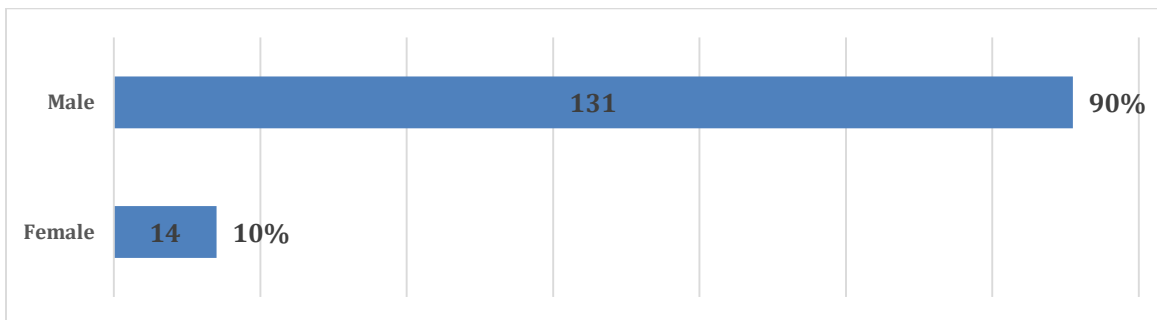


Figure 32: Lecturers by Gender

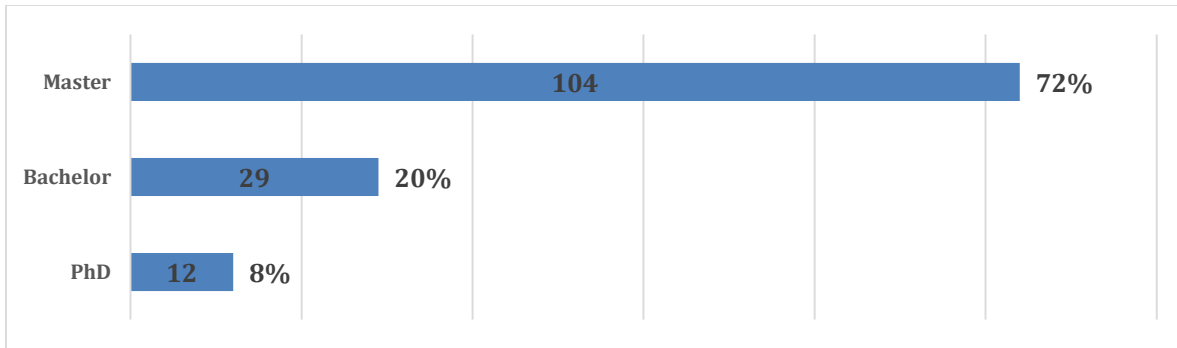


Figure 33: Lecturers by Qualification

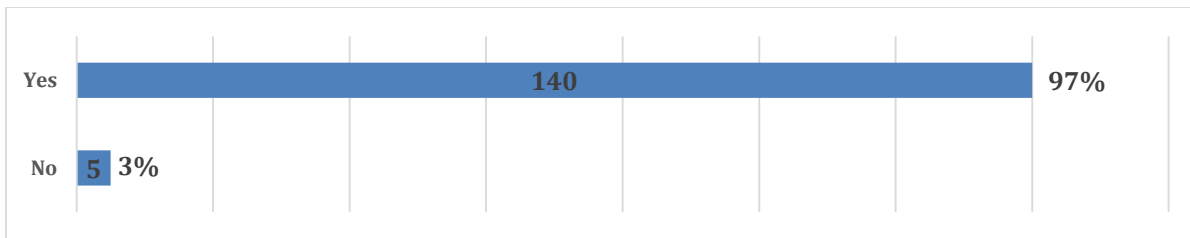


Figure 34: Lecturers' computer literacy knowledge

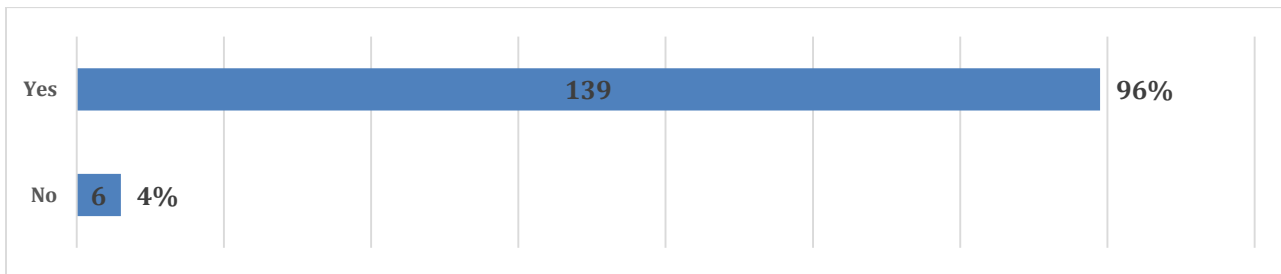


Figure 35: Lecture's access to personal laptops

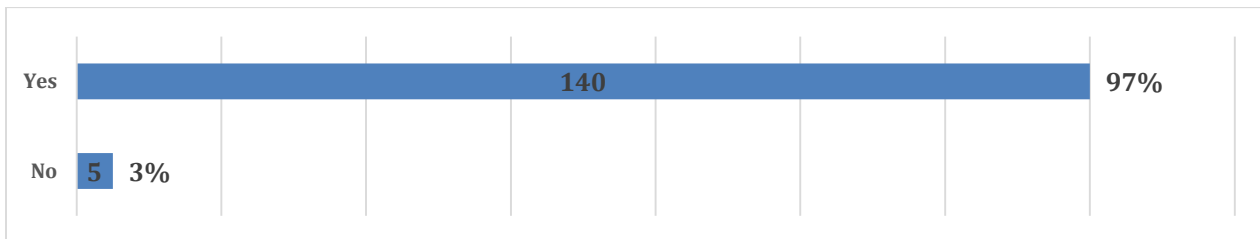


Figure 36: Lecturer's access to personal smart phone

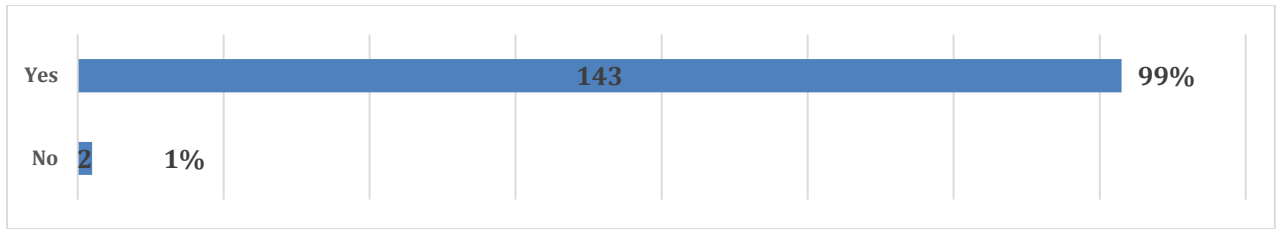


Figure 37: Lecturers' awareness of the ICT centers

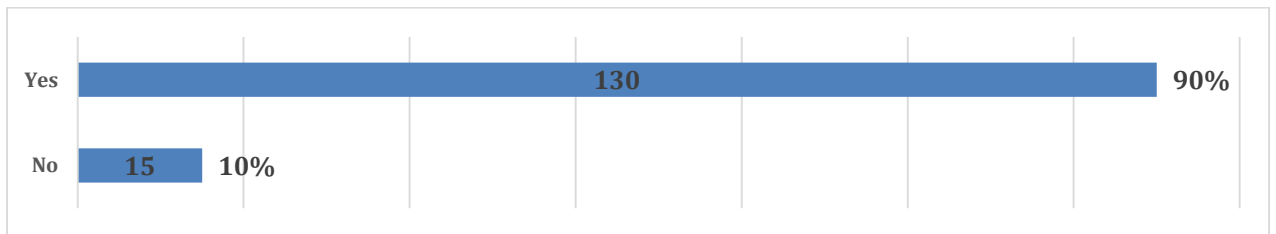


Figure 38: Lecture's visit to ICT center

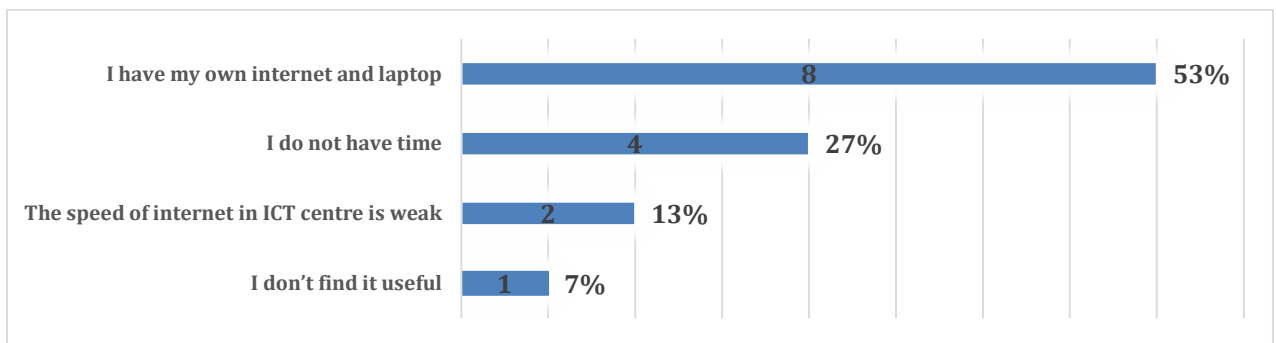


Figure 39: Reasons, lecturer's did not visit the ICT Centers

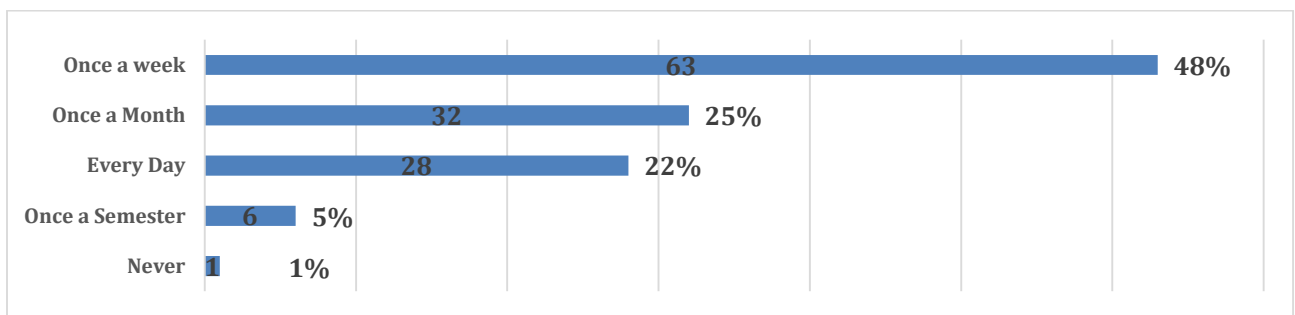


Figure 40: Regular visit of ICT centers by Lecturers

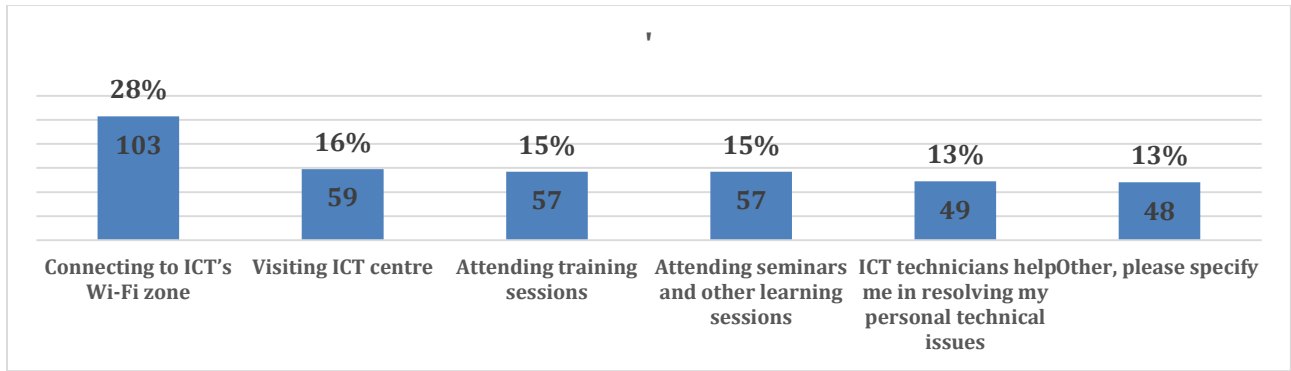


Figure 41: Services provided by ICT centers to their lecturers

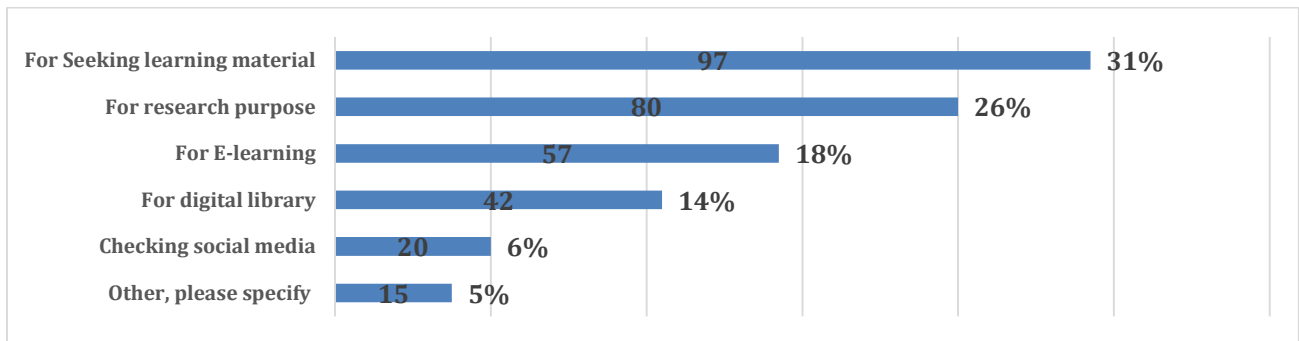


Figure 42: Purposes of Lecturers visit to ICT center

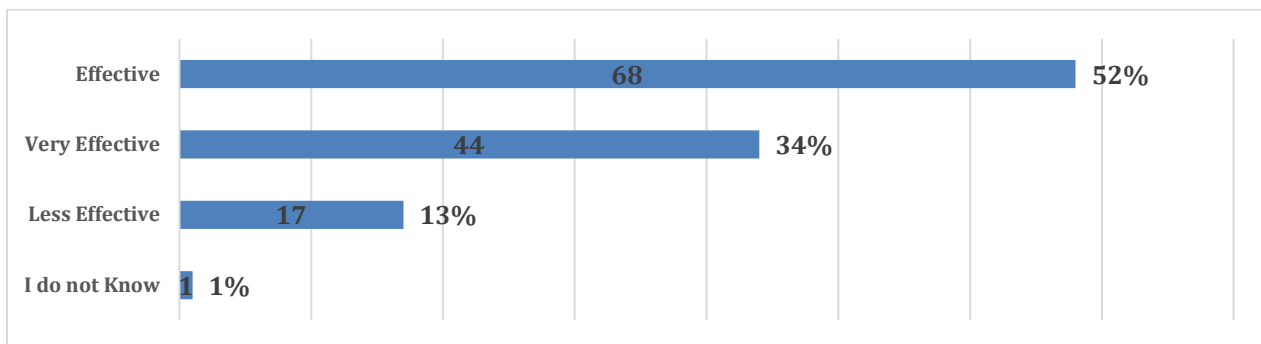


Figure 43: Effectiveness of the ICT centers for Lecturers

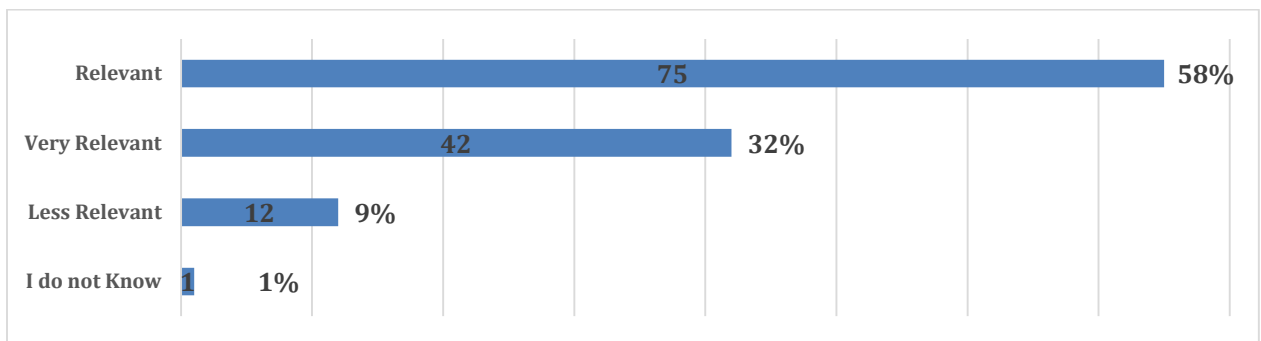


Figure 44: Relevancy of ICT 's intervention with activity and needs of Lecturers

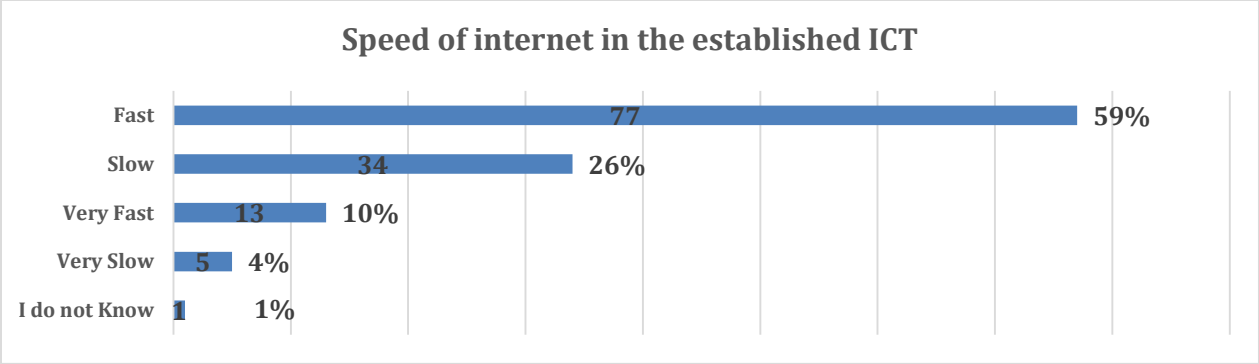


Figure 45: Speed of internet at ICT centers rated by lecturers

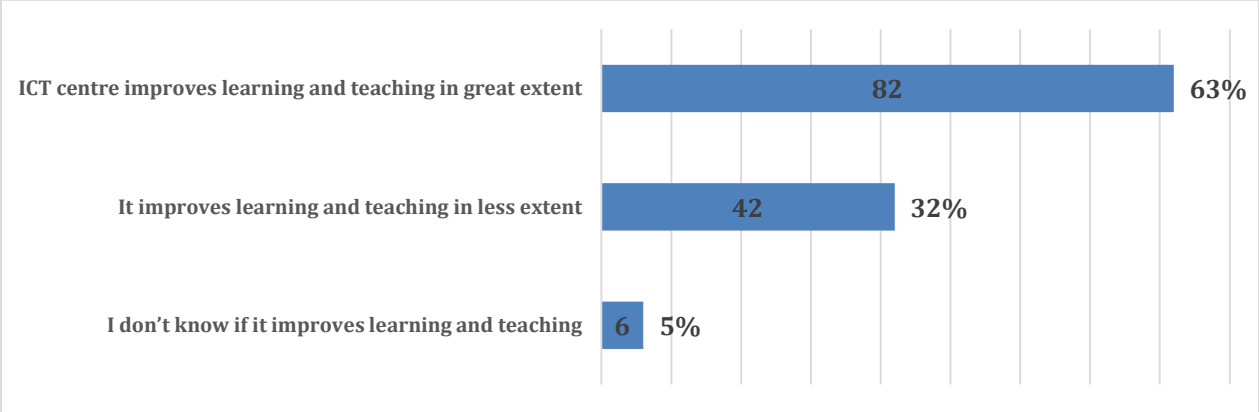


Figure 46: Contribution of ICT centers in the improvement of learning and teaching for Lecturers

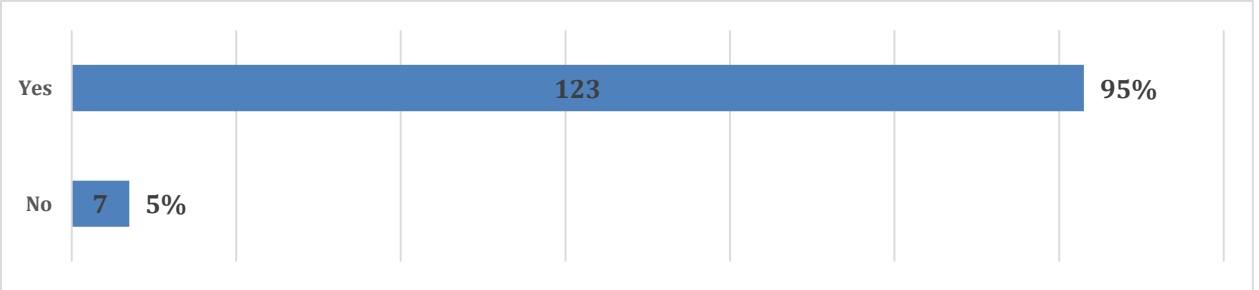


Figure 47: ICT center's assistance in the research activities for Lecturers

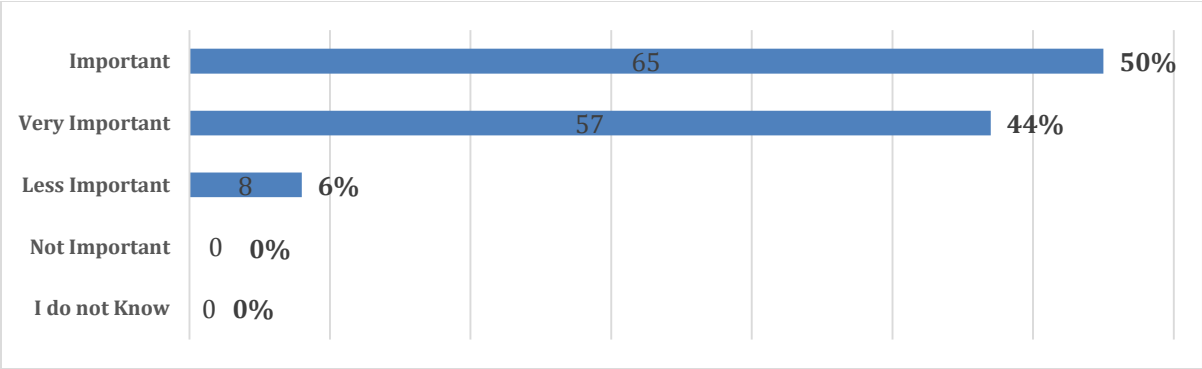


Figure 48: Significance of ICT centers in improving teaching and learning mentioned by Lecturers

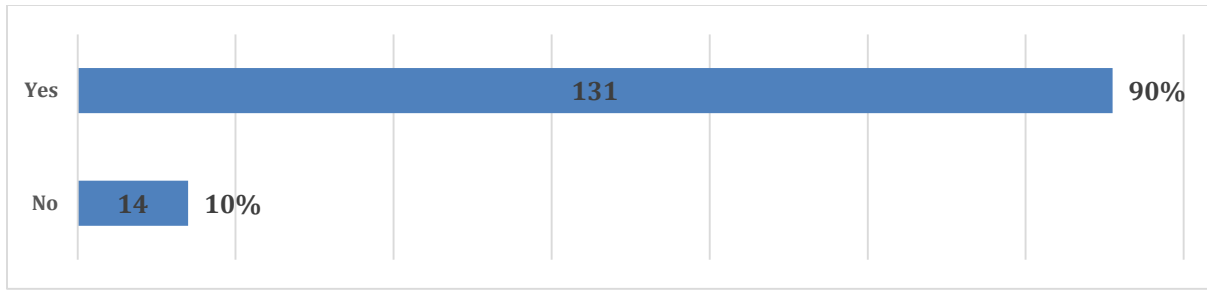


Figure 49: Percentage of Lecturers conducted classes during Covid19

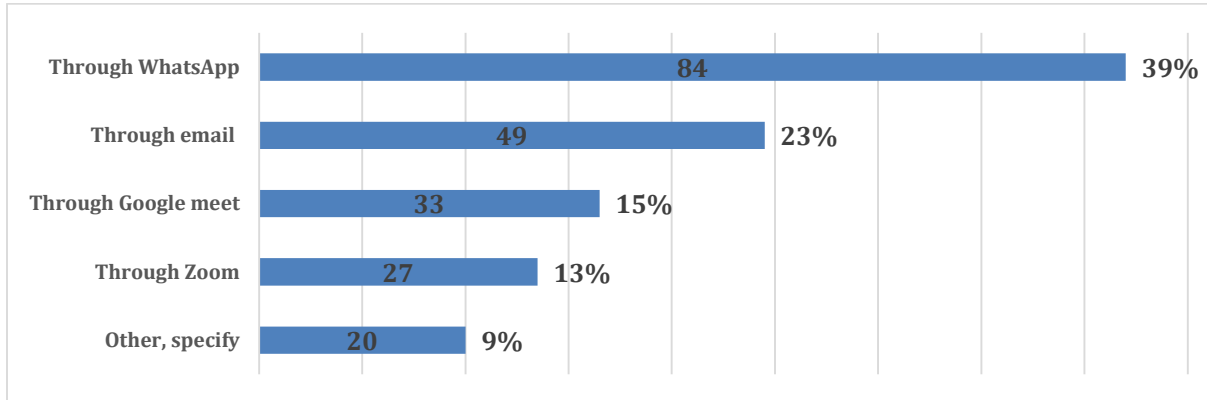


Figure 50: Means of teaching and learning delivered by Lecturers during COVID-19

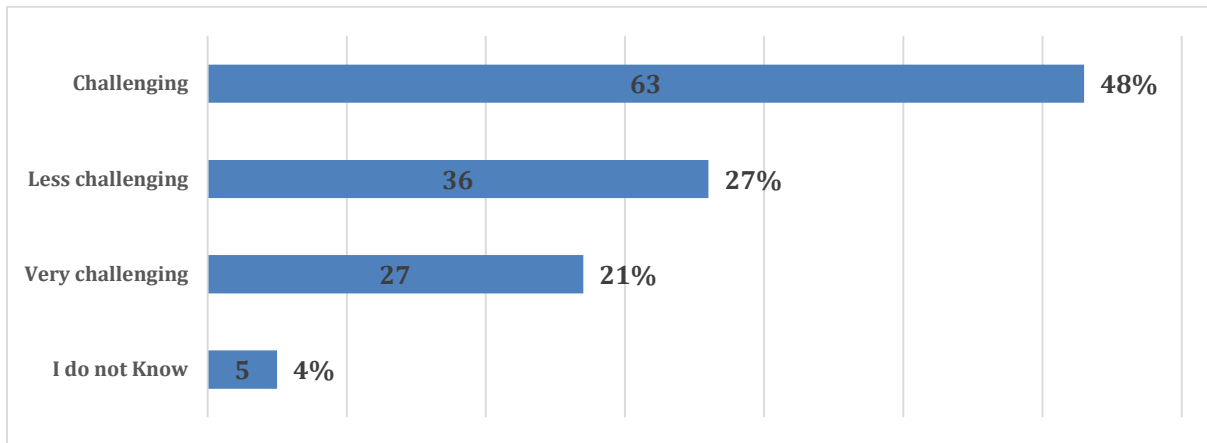


Figure 51: Level of challenges lecturers faced while conducting classes online via virtual platforms



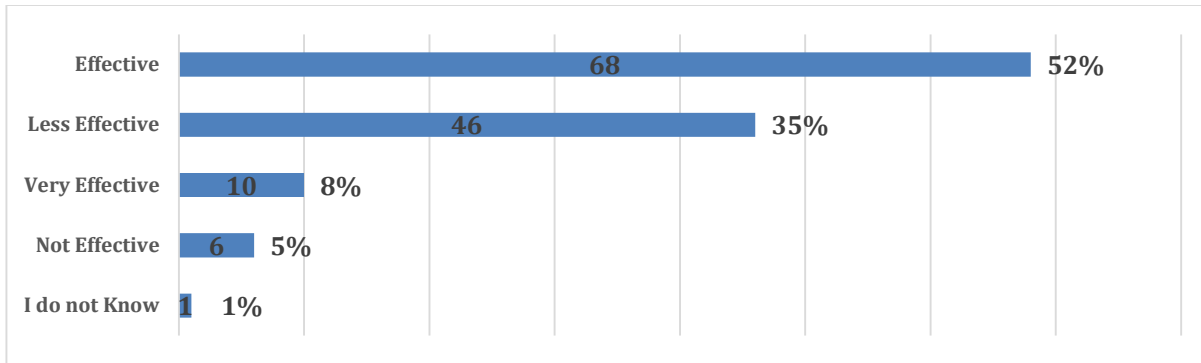


Figure 52: Effectiveness of online teaching and learning for lecturers

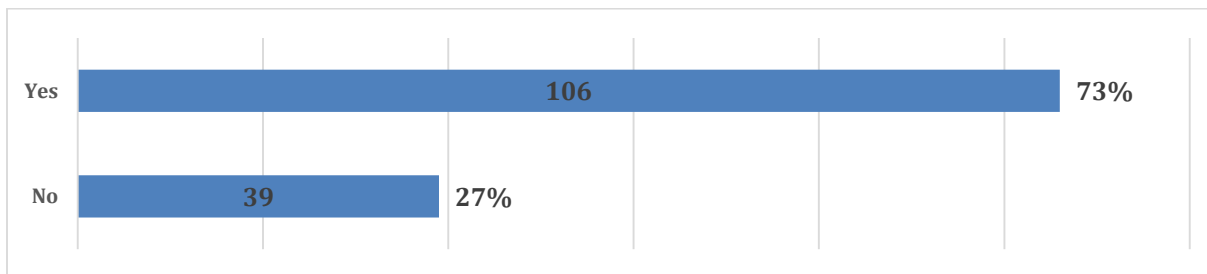


Figure 53: Utilization of ICT centers by lecturers for teaching and learning during covid19

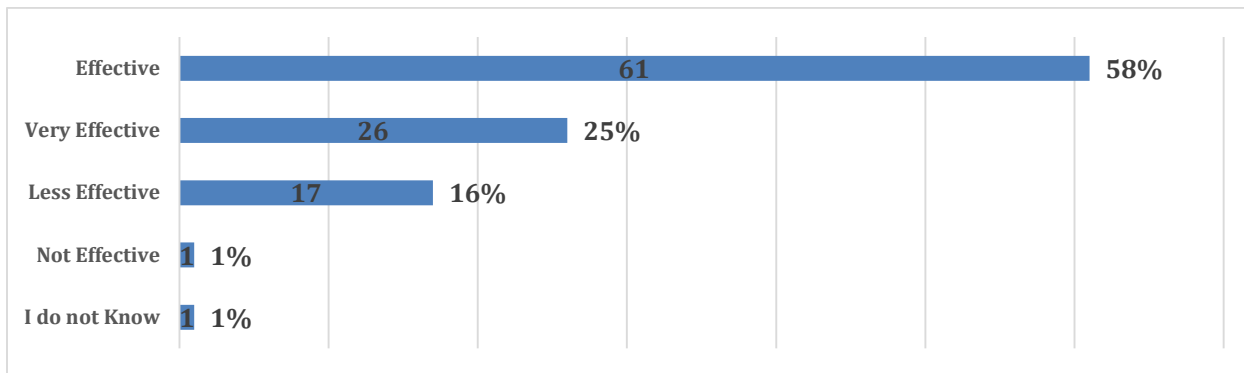


Figure 54: Effectiveness of ICT centers for online teaching and learning during covid19 rated by lecturers

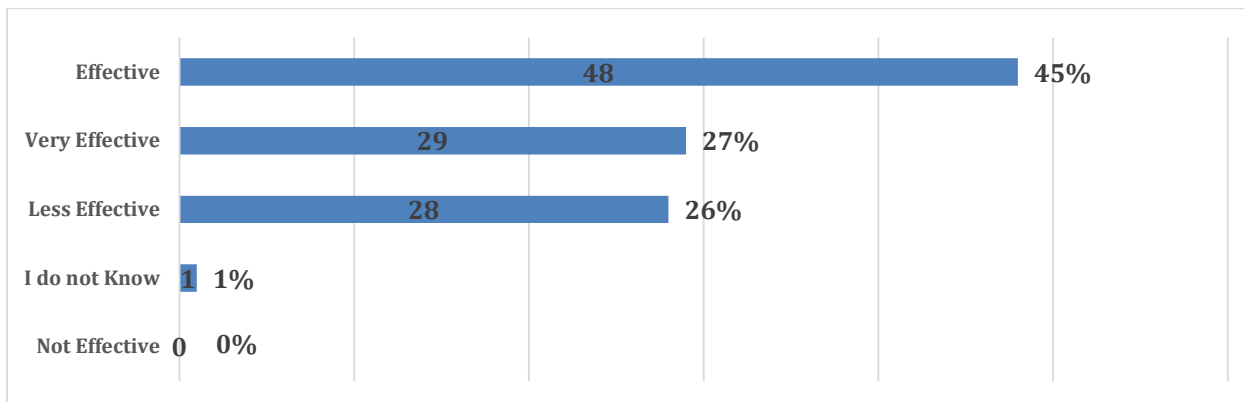


Figure 55: Effectiveness of ICT centers for distance learning rated by lecturers

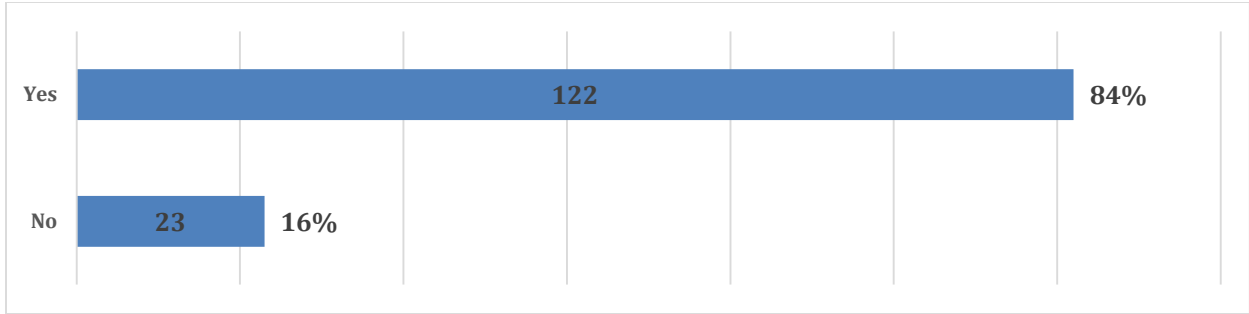


Figure 56: Availability of Electricity at ICT centers rated by lecturers

**ICT lead section**

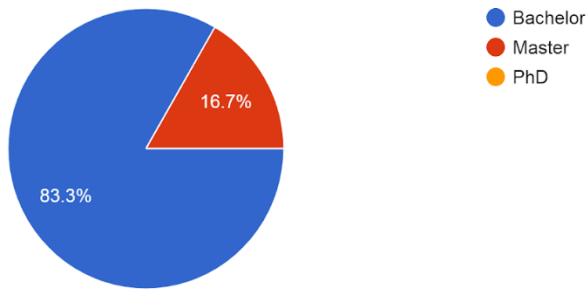


Figure 57: Technician's qualifications

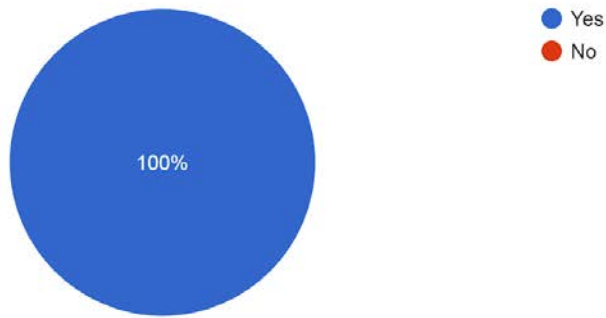


Figure 58: Permanent Tashkeel

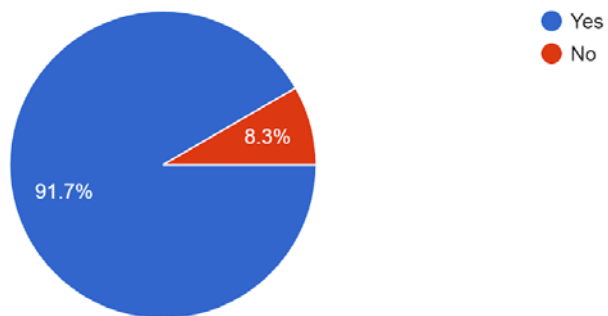


Figure 59: Percentage of technicians received technical trainings by HEDP and other sources

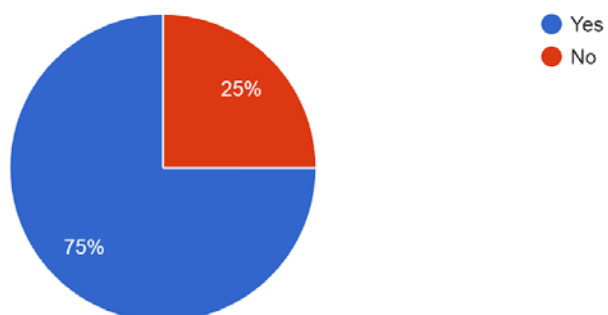


Figure 60: Existence of annual plan for ICTs in 2020

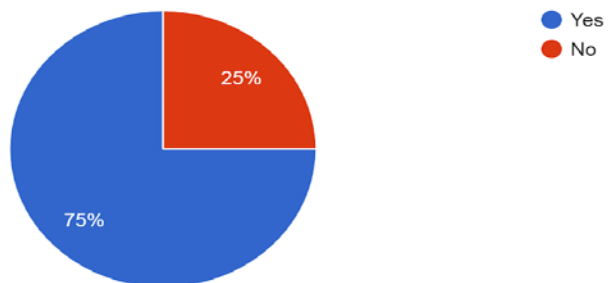


Figure 61: Existence of annual progress report for ICTs

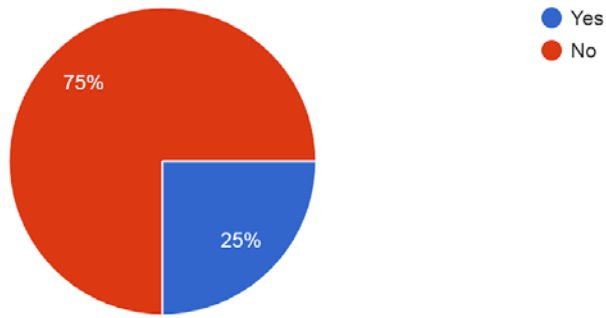


Figure 62: Extension of equipment at ICT centers in 2020

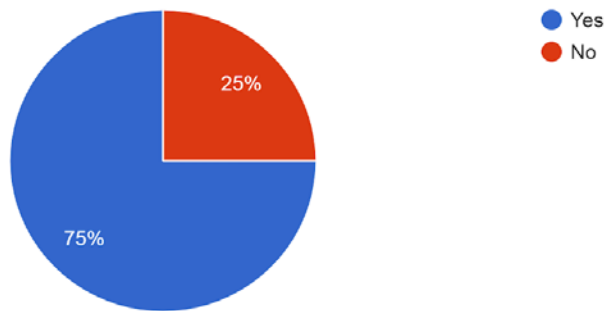


Figure 63: Support of leadership to ICTs as a priority agenda

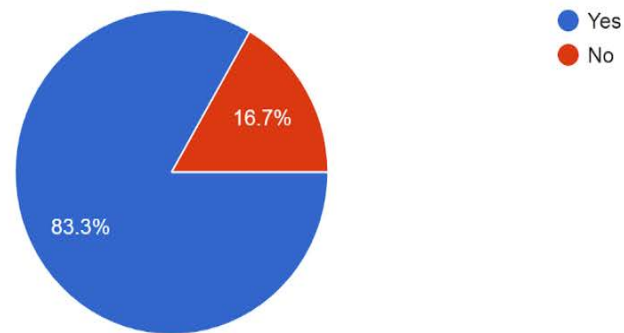


Figure 64: Percentage of IT capacity building programs held for lecturers and students by ICT center

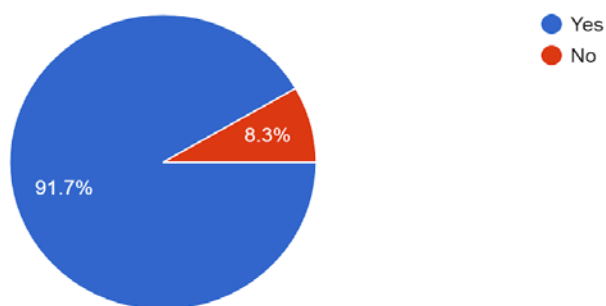


Figure 65: Promotion of ICT 's achievement on social media and university's webpages

Table 2: Range of students and academic members utilize ICT centers per month\

University	Average Monthly Visits by students	Average Monthly Visits of Academic Members
Ghazni	<1,000	<200
Faryab	<1,000	<300
Kabul Medical Science	<1,000	<100
Kabul Education	<1,000	<200
Paktia	<2000	<100
Al-Beroni	<2000	<100
Takhar	<2000	<200
Sheikh Zayed (Khost)	<3000	<300
Bamyan	<3000	<200
Kunar	<4000	<100
Kabul Polytechnic	almost all of the students	<100

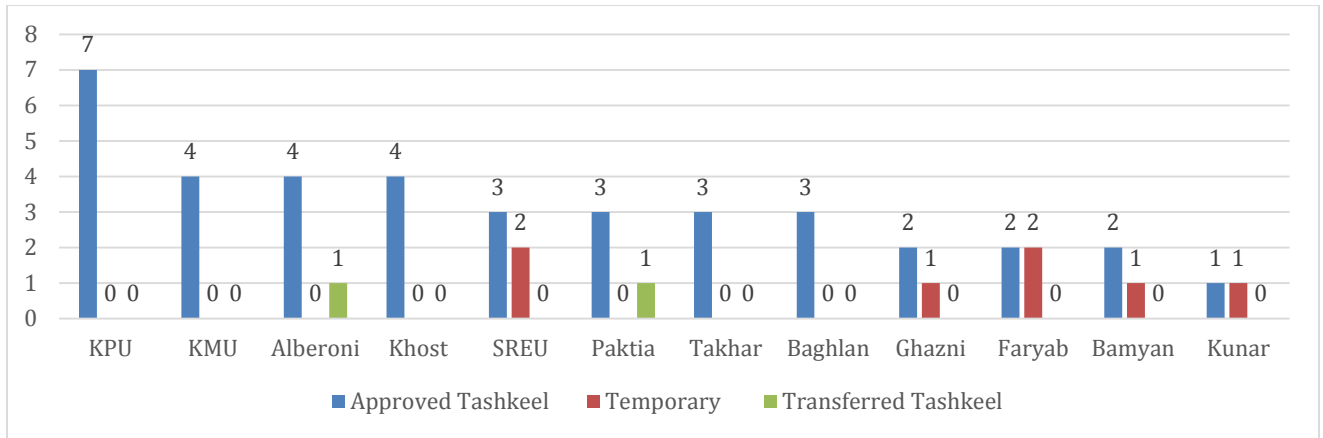


Figure 66: University-wise technician's Tashkeel

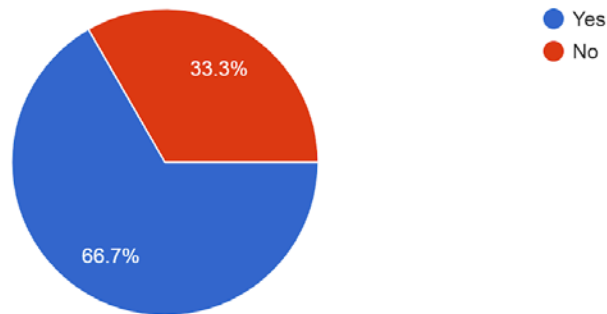


Figure 67: Initiative and activities undertaken by ICT centers during COVID-10

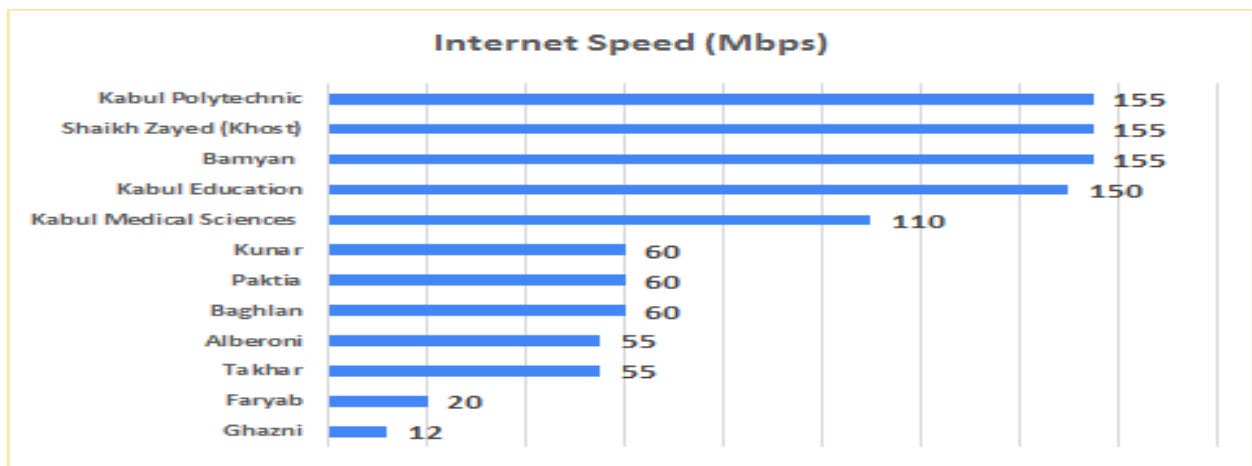
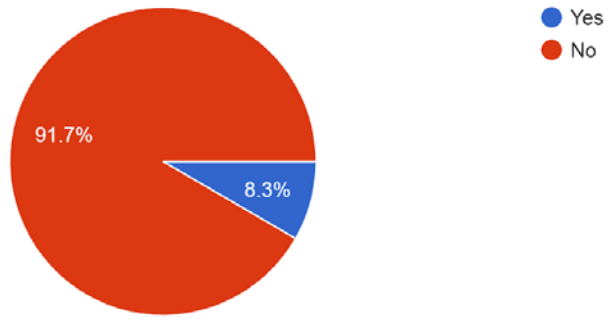


Figure 68: Internet Speed at universities



*Figure 69: Allocation of budget for ICT center's activities, maintenance and operations*