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Enhancing Digital Skills for the Deaf in Lahore: A Study of Training Program Effectiveness

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Abstract: *This research aimed to explore the effectiveness of computer courses offered in different vocational institutes as perceived by persons with hearing impairment (PWHI). The research utilized a quantitative paradigm with a descriptive design. The target population comprised PWHI who had undertaken computer training. A convenience sampling technique was used to collect data from 180 PWHI enrolled in computer courses across four institutions in Lahore, Pakistan. SPSS software-enabled analysis of the data using frequency distributions for demographic information and respondent statements. Findings revealed most participants were satisfied with their acquired knowledge from the training courses, without facing substantial difficulties. Furthermore, respondents conveyed an understanding of the concepts and perceived the skills as beneficial for employment. Responses relating to instruction indicated most instructors used sign language during lessons and provided adequate time for supervised practice. Recommendations from the study advise enhancing course content to include skills to enable earning potential from freelancing.*

Key Words: Computer Training, Hearing Impairment, Vocational Education, Student Perceptions, Accessibility, Employability, Pakistan

Introduction

Hearing impairment, an umbrella term to describe individuals of the deaf community, refers to all degrees of hearing loss, from slight to profound (Westwood, 2009). Deafness describes an impairment in hearing that is severe to the point that a child's language is damaged in communication, and this impairment prevents the learning of language through hearing (Nathan et al., 2010). Three terms are frequently used when describing students with hearing loss: hearing impairment, deafness, and hard of hearing (Komesaroff, 2005). Nowadays, deaf people are accepted by society (Marschark, Lang, & Albertini, 2001). They get an education, do jobs in the community, and are linked with different fields with their skills and education. There are some issues like one of the major issues is

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communication in sign language that may not be understandable for hearing persons.

A man is suffering from these issues in recognizing sound clearly because of sound-related issues. The disability might be one-sided or reciprocal. The level of listening to misfortune can be characterized into five levels are as per the following: Mild, moderate, moderately serious, severe, and profound. Hearing impairment influences children's improvement in each part of life preferences: language, emotion and behaviour, self-certainty, social collaboration, and academic execution. The effect of Hearing impairment on the youngster is dictated by a variety of components. As a rule, early treatment can minimize the developmental issues brought about by Hearing problems.

Labeling hearing impairment, three points following are those:

1. Type of hearing loss (Influenced by the part of the hearing device).
2. Degree of hearing loss (range and loudness or minimal sounds that are not received).
3. Configuration (range of pitch or frequencies at which the loss has changed).

Hearing impairment, an umbrella term to describe individuals of the deaf community, refers to all degrees of hearing loss, from slight to profound. Deafness is described as the impairment in hearing that is severe to the point that a child's language is damaged, and this impairment prevents the learning of language through hearing. Nowadays, deaf people are accepted by society as they get an education, do jobs in the community, and are linked with different fields with their skills and education (Bukhari, Butt, & Muhammad, 2021). There are some issues like one of the major issues is communication in sign language that may not be understandable for hearing persons.

The field of information technology is continuously expanding and evolving (Allee, 2012). In today's world, most individuals acquire technological literacy and skills through various resources, including the Internet, computers, mobile devices, and formal education. Information technology knowledge is a fundamental need, given current societal and industry trends and requirements (Tariq, Dilawar, & Muhammad, 2019). Computing and technology-focused courses are now popular means of gaining lucrative employment.

Like other computing subjects, graphic design is a prominent computing field utilized in newspapers, magazines, publications, brochures, billboards, websites, and more. Graphic design enables and channels individual creativity into visually compelling outputs. By developing skills in graphic design through formal education or self-directed learning, this subject can lead to full-time employment or self-employment in the graphic design industry. Relevant software commonly used in graphic design includes packages from major vendors like Microsoft Office, Adobe Creative Suite (including InDesign, Photoshop, and Illustrator), CorelDraw Graphics Suite, Autodesk's FreeHand, and Maxon's Cinema 4D for animation and 3D modelling, and QuarkXPress for page layout and publishing. Overall, information technology capabilities open diverse career paths and opportunities for innovation, creativity, and adding value to society. Pakistan also looks after the hearing impairment needs, thinks about the improvement of deaf persons, and tries to empower them through different channels such as educational and vocational skills.

Nowadays, there are many institutes offering computer-related courses to empower hearing-impaired persons and make sure to provide the facilities. Usually, in some institutes in Pakistan, there are some common computer courses conducted for hearing impairment, such as Typing, Internet, Email, MS Office, Coral Draw, and Graphic designing, but every Institute has some different content for these courses.

The purpose of this study was to investigate the effectiveness of computer training programs for persons with hearing impairment in Lahore.

Several higher education institutions in Pakistan have started providing access to learners with hearing impairment for learning

computer courses. The students with hearing impairments use sign language for their communication, whereas students with typical abilities use spoken language. This study aimed to explore the Effectiveness of Computer Training Programs for Persons with Hearing Impairment in Lahore.

This research aims to accomplish the objectives that are following:

- To identify the effectiveness of computer courses learning by students with hearing impairment.
- To analyze the effectiveness of computer course learning by students with hearing impairment.
- To suggest improvement strategies to those institutes offering computer courses to hearing-impaired students on the basis of the result.

Results would be of approximate significance for relevant participants and directly to students with hearing impairment doing computer courses. It is important for different special institutes to participate and for researchers to see the effectiveness of their Institute's environment, the content of computer courses, and their instruction style and prepare them for getting a good job. It is also important for their parents, siblings, and other relatives to give them a platform for their independent living.

Literature Review

Computer studies are more useful and suitable for impaired students because of many features like Graphical user interface (GUI), deaf-friendliness, and visual concentration; therefore, most hearing-impaired persons have good drawing and graphic designing skills. Career-related computer work is more suitable for deaf persons because impaired persons respond more response to learning computer skills like system designers, software developers, information system analysts, web designing, graphic design, graphic animation, and other computer-related professionals (Muhammad, Masood, & Anis, 2019). Results show that students enjoyed and effectively learning computers as compared to normal classroom environments with books because, in computer learning, graphics attract students more as compared to black-and-white sentences on books (Nordin, Zaharudin, Yasin, & Lubis, 2013).

A man who is suffering from these issues recognizes sound clearly because of sound-related issues. The disability might be one-sided or reciprocal. The level of listening to misfortune can be characterized by five levels are as per the following: Mild, moderate, moderately serious, severe, and profound. Hearing impairment influences children's improvement in each part of life preferences: language, emotion and behaviour, self-certainty, social collaboration, and academic execution. The effect of Hearing impairment on the youngster is dictated by a variety of components. As a rule, early treatment can minimize the developmental issues brought about by Hearing problems.

Individuals with hearing problems are altogether different from other inability groups. Since a sizeable section utilizes sign language, which is the particular form of talked language utilized around them, the frankness needed for this gathering includes language interpretation. The test of significant confronting the individuals with Hearing problems in communication. Hearing-impaired people change broadly in their interpersonal abilities.

According to the National Education Policy 2002 (GoP, 2009), they also understand the importance of technology and computers where persons who are disabled can benefit and rehabilitate with the use and learn about technology that plays a special role in the accessibility of disabled persons. In policies, there is specially focused thought on giving to technology to overcome deficiencies (GoP, 2009; Muhammad, Masood, & Anis, 2019). When they work with the help of technology, they can perform well because computer functions and software overcome their deficiencies and make easy work for them. Unfortunately, frameworks of policies are just based on paperwork not done in action and not thinking about implementing it with action very nicely as it was hoped to see the country's development was thinking about the future and

accessibility of disabled persons. Disabled persons can learn computers and technology because computers are needed in every office, firm, company, factory, mill, school, and college, and there is no need to explain communication because it is all based on graphic skills, writing, reading all work can be done in computer (Ali, 2007).

Computer education was about illustration and graphical out what was at that point inside the student. Webster describes education as the procedure of instructing and teaching. Further describe as to build up the information, ability, or personality. Thus, from these definitions, we may accept that the reason for instruction is to build up the critical thinking, expertise, or character of students (Jamil, Muhammad, Masood, & Habib, 2020; Yasmin, Muhammad, & Siddiqui, 2021). In computer education, all logical and technical aspects of teaching and learning for the deaf are necessary. When you get the degree or certificate, your appreciation shows that you are educated and well educated and skilful if you are applying it in a good way and getting a good earning job also. When someone is educated, he can face all problems and manage well. Job holder can afford all necessities and fulfil their needs and wishes without any problem. By getting an education, you fulfil all your needs and desires in your life. Being parent's requirements are increased, then you should have a degree that gives you a job with a good salary package that provides you approval to live a better life.

There is more facilitation for deaf persons for doing skilled training short computer courses that are offered by private institutes and at the government level. Courses are more important for them to move in a society like others based on their skills. They become useful in job competitions with their computer skills because they are more comfortable with computer visual usage, and all know that the deaf feel at ease with computer and visual use things. These institutes provide very fruitful training to make them skilful under skilled trainers. However, according to their capabilities, these courses are based on a very basic outline where they had taught basic to complex that is not that much enough for competing job market as normal persons. The technological world is enhancing and growing very speedily. A deaf person's minor efforts are not enough to go on higher, but it is very fruitful to get jobs and earn a good living life (Ali, 2007).

In Australia, the Styrian Association of the Deaf noted that hearing-impaired persons lack job opportunities in any reputed job market because of a lack of communication issues. So, the Styrian Association of the Deaf started a project named Get It. In this project, they give computer training to impaired persons. After training, they get jobs in any reputed institute or organization and earn money in a better environment. In this project, the organization hired both a trainer and an interpreter to overcome the lack of communication problems; hearing-impaired person enjoys the comfortable class environment to learn their skills and help them build their self-confidence after getting the certificate, and many hearing-impaired people get promoted to the job.

Esam et al. (2017) show that impaired persons have difficulty studying subjects other than a computer or related subjects like computer skills and different courses because of a lack of facilities for hearing-impaired persons, special aids, and learning disabilities, and they feel isolated in study different subjects like engineering and medical, etc. It investigates the readiness of hearing-impaired students to pursue their education in the field of computer science in Saudi Arabia. Data collected from 47 Hearing-impaired students at a high school in Jeddah and results show that students with hearing impairment are ready to study computer science if they get the chance with facilities.

In Pakistan, there are many flaws in the vocational training centres and their facilities where deaf persons are doing short courses to get jobs. It's not that easy for them. They are facing many problems. First, while doing courses, they face problems related to understanding things and their uses, especially in technical and skills-related courses. Course instructors are not trained enough to give training to deaf persons and make them skilful, so they are not experts and capable of handling

the responsibilities as gently as normal persons. Their capabilities of getting jobs and retaining them are very tough for them. Training institutes are making efforts to make them employed, but then adjustment problems occur. Also, they are facing problems related to communication. After getting a certificate, they face problems getting jobs and then adjustment problems, likewise to facilities of accessibility issues conveyance problems, including movement and communication problems. Deaf persons need an acoustic environment, a noise-free environment where soundproof walls can enhance their listening power stronger than when using hearing aids devices. Job givers are reluctant to give them jobs because they fear their workplace outcomes and image, which may be affected by customer negative feedback (Ali, 2007).

Ali (2007) found that people with disabilities do not have the worst difficulties finding jobs, but according to the condition of disability, the outcomes vary like other disabilities face problems. All disabilities have their own problems. VI has listening problems, so they face transport problems; HI has communication problems, is physically limited, and has movement and accessibility problems at the workplace. The visually impaired have found jobs like a telephone operator, and the hearing impaired have found jobs related to visual, like computer or graphical jobs as a painter, drawing teachers, and, of course, one of them is a computer operator, which is why they are going towards learning computer skills. They can find jobs more easily according to their skills, but if software and systems are updated and modern, then they feel comfortable and do work more easily at the workplace. But mostly, they are hiring for low-grade jobs such as peon, helper, assistant, photocopier, etc. When they do courses related to computers, they have powerful skills that move with the modern community in competition with normal hearing persons. According to the analysis of the research, deaf persons are hired with the quota system where there are fixed seats for disabled persons, and after getting jobs, they are happy to get jobs related to the computer field, getting good salaries, bonuses, and happy to earn for their livelihood with their skills likewise normal persons. Deaf persons are not limited to walking and movement as physically disabled persons, so they have no vehicle and conveyance issues. They can arrange their own vehicle.

Methodology

The present study utilizes a descriptive research design (Akram, Butt, & Muhammad, 2022; Mills & Gay, 2019) to investigate the effectiveness of computer training programs for persons with hearing impairment in Lahore, Pakistan. The target population comprises students with hearing impairment enrolled in computer courses across various government and private sector institutes. Given time constraints and the aim to gather rich, relevant insights, the study population is appropriately confined to students with hearing impairment acquiring computer skills training.

The sampling technique enables researchers to select representative units from which meaningful data can be collected, supporting valid inferences about the broader population (Cohen, Manion, & Morrison, 2018). Sampling confers efficiencies of time, effort, and resources compared to conventional census approaches across expansive target populations (McKenney & Reeves, 2018). The total population across institutes numbers approximately 180 students with hearing impairment undertaking computer courses.

A convenient, non-probability sampling method is employed whereby participants meeting the inclusion criteria are readily accessible to the researcher (Patton, 2015). This pragmatic approach enables feasible data collection within the resource limitations of the study. The sample is drawn from students at the University of Management and Technology Lahore, Deaf Reach Lahore, Social Welfare Nasheman Township Lahore, and Deaf Welfare Awareness Foundation Lahore. These settings provide a sample of students with hearing impairment studying computer courses in both public and private institutes in Lahore.

A survey methodology is utilized to gather quantitative data from the sampled participants. Specifically, a questionnaire

instrument is developed and administered, given its appropriateness for investigating student perspectives and experiences (Cohen et al., 2018). The selection of research tools should align with the aims and nature of the research problem under examination. This study aims to explore the effectiveness of computer training programs for persons with hearing impairment in Lahore. Therefore, gathering insights directly from students with hearing impairment undertaking computer courses allows assessment of program outcomes and areas for improvement.

The questionnaire comprises three sections covering 1) learning environment factors, 2) course content factors, and 3) instructional factors. It also gathers demographic information, including respondents' names, institutes, course duration, course title, Year of study, course fees, current employment status, role, and salary. Fifteen items measure the key aspects under the three domains of environment, content, and instruction using a 5-point Likert scale.

The data collected was analyzed using descriptive statistics to summarize results across items, sections, and demographics (Pallant, 2020). This indicated levels of satisfaction and perceived effectiveness regarding the computer training programs.

While this study utilizes a limited sample at select institutes, findings could inform policies and practices to strengthen inclusiveness and accessibility in computer training education more broadly. This aligns with global sustainable development goals emphasizing equitable quality education and decent employment for people with disabilities (United Nations, 2015). With appropriate computer skills training, students with hearing impairment can gain knowledge, capabilities, and credentials to meaningfully participate and contribute as empowered citizens and professionals in the digital age. The respondents were required to respond to three (3) points scale, i.e., 1= No, 2= To some extent, and 3= Yes.

Students with hearing impairment doing Computer course from govt. And private institutes. Either the computer training programs are effective for persons with hearing impairment to earn money or get jobs. In this study, I have used the convenient sampling procedure to choose the sample of the study. Through the present study, the researcher collects data from different institutes under govt. Private institutes of Lahore where the hearing impaired do computer courses with different time durations with the hope of earning money or getting jobs. Data were collected through a Questionnaire, which is a survey method. The Questionnaire consists of three points: No, To some extent, and Yes. This scale-based instrument was developed to collect data. The instrument was developed in the Urdu Language and translated in English Language to enter data in SPSS software and then entered in SPSS software for analyzing the data and getting the outcomes in numerical form. After the collection of data, the responses were tabulated using (SPSS) software to analyze and draw the results. On the results and findings of the study, conclusions were drawn, and recommendations were presented.

The following were delimitations of the present research:

Due to the limited resources and time, the sample was delimited to hearing-impaired students.

1. The study was limited to the four (4) institutes of Lahore. The sample of the study was selected from the University of Management and Technology, Lahore, Deaf Reach, Lahore, Social Welfare Nasheman Township, Lahore, and Deaf Welfare Awareness Foundation, Lahore.

Because of the lack of availability of students with hearing impairment doing computer courses, the sample was limited, and the sample size is only One Hundred and Eighty (180) population of hearing-impaired learners in Lahore.

Data Analysis

This section deals with the analysis of the data. The data were collected with the help of a self-developed Questionnaire consisting of 15 items. That questionnaire consisted of close-ended questions. The analysis of the data was

done by using a statistical package for social sciences (SPSS). Calculated the percentage of the responses of students with hearing impairment and the sum of the percentages of the different options were taken. Following is the analysis of the data which were collected from the students with hearing impairment.

Frequency Distribution of Demographic Variables

The following tables show the demographic details of the respondents of this study

Table 1

Frequency distribution of respondents' Gender

Gender	f	%
Male	170	94.4
Female	10	5.6
Total	180	100.0

Table 1 shows that out of a total of 180 respondents, 170 (94.4%) of the participants were male, and 10 (5.6%) of the participants were female.

Table 2

Frequency distribution of respondents' Duration of Course

Duration	f	%
Less than 6 months	166	92.2
More than 6 months	14	7.8
Total	180	100.0

Table 2 shows that out of a total of 180 respondents, 166 (92.2%) of the participants had a course duration of fewer than 6 months, and 14 (7.8%) of the participants had a course duration of more than 6 months.

Table 3

Frequency distribution of respondents' Institute

Institute	f	%
University of Management and Technology	49	27.2
Deaf Reach	43	23.9
Social Welfare Nasheman Township	32	17.8
Deaf Welfare Awareness Foundation	56	31.1
Total	180	100.0

Table 3 shows that out of total 180 respondents, 49 (27.2%) of the participants were studying at University of Management and Technology, Lahore, 43 (23.9%) of the participants were studying at Deaf Reach, Lahore, 32 (17.8%) of the participants were studying Social Welfare Nasheman Township, Lahore and 56 (31.1%) of the participants were studying at Deaf Welfare Awareness Foundation, Lahore.

Table 4

Frequency distribution of respondents' course

Course	f	%
MS Office	176	97.8
MS Office and Corel draw	4	2.2
Total	180	100.0

Table 4 shows that out of a total of 180 respondents, 176 (97.8%) of the participants were enrolled in the MS Office course, and 4 (2.2%) of the participants were enrolled in the MS Office and Corel Draw course.

Table 5

Frequency distribution of respondents' Year

Year	f	%
2003 to 2010	13	7.2
2011 to 2020	167	92.8
Total	180	100.0

Table 5 shows that out of a total of 180 respondents, 13 (7.2%) of the participants were enrolled from 2003 to 2010, and 167 (92.8%) of the participants were enrolled from 2011 to 2020.

Table 6

Frequency distribution of respondents' Course Category

Category	f	%
Free	152	84.4
Paid	28	15.6
Total	180	100.0

Table 6 shows that out of a total of 180 respondents, 152 (84.4%) of the participants were enrolled in free courses, and 28 (15.6%) of the participants were enrolled in paid courses. Free courses and 28(15.6%) of the participants were enrolled in paid courses.

Table 7

Frequency distribution of respondents' job status

Job Status	f	%
Studying	134	74.4
Employed	46	25.6
Total	180	100.0

Table 7 shows that out of a total of 180 respondents, 134 (74.4%) of the participants were Studying, and 46 (25.6%) of the participants were Employed.

Table 8

Frequency distribution of respondents' Qualification

Qualification	f	%
Under Matric	3	1.7
Inter (FA)	30	16.7
BS-BFA	34	18.9
MA-M. Phil	6	3.3
BA	107	59.4
Total	180	100.0

Table 8 shows that out of a total of 180 respondents, 3 (1.7%) participants were Under Matric, 30(16.7%) respondents were Inter, 34 (18.9%) respondents were BS-BFA, and 6 (3.3%) respondents were MA-M. Phil, and 107 (59.4%) of respondents were BA.

Table 9

Frequency distribution of respondents' Job Category

Job Category	f	%
Job Less	134	74.4
Public Institute	31	17.2
Private Institute	15	8.3
Total	180	100.0

Table 9 shows that out of the total 180 respondents, 134 (74.4%) of the participants were Jobless, 31(17.2%) of the participants were doing jobs in public institutes, and 15 (8.3%) of the participants were doing jobs in private institutes.

Table 10

Frequency distribution of respondents' Designation

Designation	f	%
Job Less	133	73.9
Junior Clerk	27	15.0
Computer Operator	6	3.3
4 grade Level	14	7.8
Total	180	100.0

Table 10 shows that out of a total of 180 respondents, 133 (73.9%) of the participants were Jobless, 27 (15%) of the participants were junior clerks, 6 (3.3%) of the participants were computer operators, and 14 (7.8%) of the participants were four grade level.

Table 11

Frequency distribution of respondents' Salary

Salary	f	%
Job Less	133	73.9
less Than 10000	4	2.2
11000 to 20000	10	5.6
21000 to 30000	30	16.7
More than 30000	3	1.7
Total	180	100.0

Table 11 shows that out of total 180 respondents, 133 (73.9%) of the participants were Jobless, 4 (2.2%) of the participants were earn less than 10,000, 10(5.6%) of the participants were earn 11,000 to 20,000, 30 (16.7%) of the participants were earn from 21,000 to 30,000 and 3 (1.7) of the participant were earn more than 30,000.

Table 12

Frequency distribution of the student: "Are you satisfied with what you have learned in the training course?"

Response	f	%
To some extent	7	3.9
Yes	173	96.1
Total	180	100.0

Table 12 shows that in answer to "Are you satisfied with what you have learned in the training course?" 7 (3.9%) respondents responded to some extent, and 173 (96.1%) said yes from a total of 180 respondents.

Table 13

Frequency distribution of the student "Were your all training fellows deaf"?

Response	f	%
To some extent	13	7.2
Yes	167	92.8
Total	180	100.0

Table 13 shows that in the answer "Were your all training fellows deaf?" 13 (7.2%) respondents responded to some extent, 167 (92.8%) as yes from a total of 180 respondents.

Table 14

Frequency distribution of the Student: "Were there normal training fellows with you too?"

Response	f	%
No	99	55.0
To some extent	50	27.8
Yes	31	17.2
Total	180	100.0

Table 14 shows that in the answer, "Were there normal training fellows with you, too?" 31(17.2%) respondents responded as Yes, 99 (55%) as No and 50 (27.8%) as to some extent from total 180 respondents.

Table 15

Frequency distribution of the student: "Have you faced any problems during the training course?"

Response	f	%
No	107	59.4
To some extent	44	24.4
Yes	29	16.1
Total	180	100.0

Table 15 shows that in answer to "Have you faced any problem during the training course?" 29(16.1%) respondents responded as Yes, 107 (59.4%) as No, and 44 (24.4%) as to some extent from a total of 180 respondents.

Table 16

Frequency distribution of the student: "Were there sufficient computers according to the strength of the students?"

Response	f	%
No	2	1.1
To some extent	41	22.8
Yes	137	76.1
Total	180	100.0

Table 16 shows that in the answer to "Were there sufficient computers according to the strength of the students?" 137 (76.1%) respondents responded as Yes, 2 (1.1%) as No, and 41 (22.8%) as to some extent from a total of 180 respondents.

Table 17

Frequency distribution of the student "Was the training Centre appropriate for deaf people?"

Response	f	%
No	9	5.0
To some extent	19	10.6
Yes	152	84.4
Total	180	100.0

Table 17 shows that in the answer to "Was the training Centre appropriate for deaf people?" 152(84.4%) respondents responded as Yes, 9 (5%) as No, and 19(10.6%) as to some extent from a total of 180 respondents.

Table 18

Frequency distribution of the student "Were the normal people supportive?"

Response	f	%
No	79	43.9
To some extent	59	32.8
Yes	42	23.3
Total	180	100.0

Table 18 shows that in the answer to "Were the normal people supportive?" 42 (23.3%) respondents responded as Yes, 79 (43.9%) as No and 59 (32.8%) as to some extent from total 180 respondents.

Table 19

Frequency distribution of the student "Was there any problem due to communication gap during training?"

Response	f	%
No	29	16.1
To some extent	39	21.7
Yes	112	62.2
Total	180	100.0

Table 19 shows that in answer to "Was there any problem due to communication gap during training?" 112 (62.2%) respondents responded as Yes, 29 (16.1%) as No, and 39 (21.7%) as to some extent from a total of 180 respondents.

Table 20

Frequency distribution of the student: "Did you understand all the concepts easily?"

Response	f	%
No	3	1.7
To some extent	49	27.2
Yes	128	71.1
Total	180	100.0

Table 20 shows that in answer to "Did you understand all the concepts easily?" 128 (71.1%) respondents responded as Yes, 3 (1.7%) as No, and 49 (27.2%) to some extent from a total of 180 respondents.

Table 21

Frequency distribution of the student "Were the skills taught in the training helpful in your job?"

Response	f	%
No	1	.6
To some extent	57	31.7
Yes	122	67.8
Total	180	100.0

Table 21 shows that in answer to "Were the skills taught in the training helpful in your job?" 122 (67.8%) respondents responded as Yes, 1 (0.6%) as No, and 57 (31.7%) as to some extent from a total of 180 respondents.

Table 22

Frequency distribution of the student: "Did you get any job on the basis of the training?"

Response	f	%
No	93	51.7
To some extent	53	29.4
Yes	34	18.9
Total	180	100.0

Table 22 shows that in answer to "Did you get any job on the basis of the training?" 34 (18.9%) respondents responded as Yes, 93 (51.7%) as No, and 53 (29.4%) as to some extent from a total of 180 respondents.

Table 23

Frequency distribution of the Student "In your point of view, is computer studies helpful for deaf students to get good occupation?"

Response	f	%
To some extent	55	30.6
Yes	125	69.4
Total	180	100.0

Table 23 shows that in answer to "In your point of view, are computer studies helpful for deaf students for getting good occupation?" 125 (69.4%) respondents responded Yes, and 55 (30.6%) to some extent from a total of 180 respondents.

Table 24

Frequency distribution of the student "Were teachers used sign Language during training?"

Response	f	%
No	28	15.6
To some extent	51	28.3
Yes	101	56.1
Total	180	100.0

Table 24 shows that in answer to "Have teachers used sign Language during training?" 101 (56.1%) respondents responded as yes, 28 (15.6%) respondents responded as No, and 51 (28.3%) as to some extent from a total of 180 respondents.

Table 25

Frequency distribution of the student "was appropriate time given for practice?"

Response	f	%
No	2	1.1
To some extent	47	26.1
Yes	131	72.8
Total	180	100.0

Table 25 shows that in answer to "Was appropriate time given for practice?" 131(72.8%) respondents responded as yes, 2 (1.1%) respondents responded as No, and 47 (26.1%) as to some extent from a total of 180 respondents.

Table 26

Frequency distribution of the student: "Did you practice in the presence of a teacher?"

Response	f	%
No	2	1.1
To some extent	55	30.6
Yes	123	68.3
Total	180	100.0

Table 26 shows that in the answer of, "Did you practice in the presence of a teacher?" 123 (68.3%) respondents responded as yes, 2 (1.1%) respondents responded as No, and 55 (30.6%) as to some extent from total 180 respondents.

Discussion

Computer studies are more useful and suitable for impaired students because of many features like Graphical user interface (GUI), deaf-friendliness, and visual concentration; therefore, most hearing-impaired persons have good drawing and graphic designing skills. A career related to computer work is more suitable for deaf persons because impaired persons give more response to learning computer skills. The finding of the current studies shows most of the participants were satisfied with learning computer courses because students enjoyed and effectively learning computer as compared to a normal classroom environment with books because, in computer learning, graphics attract students more as compared to black and white sentences on books (Nordin et al., 2013).

There is more facilitation for deaf persons for doing skilled training short computer courses that are offered by private institutes and at the government level. Courses are more important for them to move in society like others on the basis of their skills. They become useful in job competitions with their computer skills because they are more comfortable with computer visual usage, and all know that the deaf feel easy with computer and visual use things. These institutes provide very fruitful training to make them skilful under skilled trainers. However, according to their capabilities, these courses are based on a very basic outline where they had taught basic to complex that is not that much enough for competing job market as normal persons. The technological world is enhancing and growing very speedily. A deaf person's minor efforts are not enough to go on higher, but it is very fruitful in getting jobs and earning a good living life (Ali, 2007). The finding of the current

studies shows that 49(27%) were studying at the University of Management and Technology, Lahore, 43(23.9%) were studying at Deaf Reach, Lahore, 32 (17.8%) were studying Social Welfare Nasheman Township, Lahore and 56(31%) were studying at Deaf Welfare Awareness Foundation, Lahore.

In Pakistan, there are many flaws in the vocational training centres and their facilities where deaf persons are doing short courses to get jobs. It's not that easy for them (Ali, 2007). Results show that 137 (76%) respondents reported that there is sufficient computer according to the student's needs, 2(1%) reported that there are not sufficient computer according to the student's needs, and 41 (22.8%) reported that there is sufficient computer according to the student's needs to some extent. Results show that 152 (84.4%) respondents reported that the training Centre was appropriate for the deaf, 9 (5%) reported that they did not have a training Centre appropriate for the deaf, and 19 (10.6%) reported that the training Centre appropriate for the deaf to some extent. They are facing many problems. First, while doing courses, they face problems related to understanding things and their uses, especially in technical and skills-related courses (Ali, 2007). Results show that 29(16%) respondents reported that they faced problems during the training course, 107(59.4%) reported that they did not face any problems during the training course, and 44(24.4%) reported that they faced problems to some extent. Course instructors are not trained enough to give training to deaf persons and make them skilful, so they are not experts and capable of handling the responsibilities gently as normal persons. Their capabilities of getting jobs and retaining them are very tough for them. Training institutes are making efforts to make them employed, but then adjustment problems occur. Also, they are facing problems related to communication (Ali, 2007). Results show that 112 (62.2%) respondents reported that they have a problem due to a communication gap during training, 29 (16%) reported that they do not have a problem due to a communication gap during training, and 39 (21.7%) reported that they have a problem due to communication gap during training to some extent.

After getting a certificate, they face problems getting jobs and then adjustment problems, likewise to facilities of accessibility issues conveyance problems, including movement and communication problems. Deaf persons need an acoustic environment, a noise-free environment where soundproof walls can enhance their listening power stronger than hearing aid devices. Job givers are reluctant to give them jobs because they fear their workplace outcomes and image may be affected by customers' negative feedback (Ali, 2007). Results show that 122 (67.8%) respondents reported that skills taught in training were helpful in their job, 1 (0.6%) reported that skills taught in training were not helpful in their job, and 57 (31.7%) reported that skills taught in training helpful in their job to some extent. Results show that 34 (18.9%) respondents reported that they got a job on the basis of training, 93 (51.7%) reported that they did not get a job on the basis of training, and 53 (29.4%) reported that they got a job on the basis of training to some extent.

Conclusion

The finding of the environment-related items shows that most of the participants were satisfied with the environment where they had learned training courses, and the majority of training fellows were deaf and did not face problems during the course. A sufficient number of computers was available according to the strength of the students.

The results of content-related items show that most of the respondents understood all the concepts easily and are of the view that these skills are helpful during the job as well as helpful for deaf students in getting good employment.

Results of the instruction-related items show that most of the teachers used sign language during training and were given appropriate time to practice in the presence of teachers.

Recommendations

The first environment for study, job, and community, especially in training institutes, will be ideal according to their needs and problems because they feel it is difficult to survive in the same environment as normal hearing persons and training institutes create creativity, so they need a comfortable environment.

1. In the informal education system, seating arrangements should be considered according to student needs, which are preferential seating arrangements.
2. When deaf students wear hearing aids, they can hear all the audible stuff irrespective of its need or not, so for them; the environment should be acoustic, and things that make the environment noise, like windows noise, soundproof walls, rooms, ceiling, furniture, carpet, revolving chairs, lightning and also treatment and therapies rooms available.
3. Content of computer training courses should enhance skills like graphic designing, SEO, Digital Marketing, Sketching, QuickBooks, and WordPress to earn from Freelancing.
4. The first should be to provide training to teachers on how to deal and communicate with hearing-impaired students in sign language and use total communication.
5. Provided training to teachers, especially hearing teachers, on how to deal and communicate with hearing-impaired students in sign language and use total communication.

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