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The Uses of Information Technologies in the Educational Process of Higher Educational Institutions

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Abstract

It is impossible to exaggerate the importance of technology in higher academic institutions. According to study, even while technique is used in teaching and learning to some extent, its uptake has lagged behind that of other sectors. With moderate progress, various frameworks have been created in an effort to describe how to promote the proper application of technological use. Information technologies have touched every part of human life and have a crucial part to play in the sphere of education and training, specifically, in distance education to change it into a unique type of exposure. Emerging innovations are becoming more and more necessary in teaching and learning activities. E-learning systems are being used increasingly frequently by students in their learning processes as a result of advancements in technology and communications tools. Finding out how students view using e-learning portals is important in the case of implementing an appropriate learning process. This essay tries to demonstrate how e-learning portals have been incorporated into the traditional offline education system using information and communication technology (ICT). The purpose of the study is to ascertain how students see the curricula designed for e-learning systems. The study's data were handled using IBM SPSS Statistics 20.

Keywords: Information & Communication Techniques, E-Learning Portals, Higher education

Introduction

The academic organization actually perks from significant advancements in learning methods, transforming the old system with one in which ICT are part of the curriculum or in other aspects of training, establishing a complicated task that lacks sturdiness and is full of interactivity, eradicating time and space impediments and concentrating on impactful and long-lasting learning (Livingstone, 2012). When students are involved in classes coordinated in the computer lab, when they need to conduct research for their coursework or take a quiz on a specific area, or when they want to connect with students from public universities, they frequently come into direct contact with ICT (Buabeng-Andoh, 2012).

Information technologies (IT) have expanded significantly during the past 20 years, especially in the field of education. As a consequence, both organizations and faculties have encountered substantial challenges. Institutions have made investments—possibly significant financial ones—to create IT infrastructure and the potential for online learning. In return, educators are required to advance their technical proficiency and adopt more effective teaching methods that will enhance students' educational experiences. University faculty can better prepare their students for life in the online age by allowing students to achieve projects and assignments involving the application of IT services. These kinds of activities help students make the transition from being merely information users to being active participants in their own education (Roblyer, 2006).

The usage of information technologies tends to substantially impact life and is acquiring new aspects every day. By highlighting the idea of globalization, as in other industries, the education industry brings national and international issues to the forefront, like integrity and competition. Students' desire and propensity to quickly internalize aspects relevant to such disciplines grow as a result of ICT being integrated into their learning process. Moreover, students are demonstrating greater attention in their pursuit of knowledge, enhancement in their classroom demeanour, and growth of teamwork skills. Using ICT tools helps pupils develop skills that will assist them to meet the needs of the community which is constantly changing. Other advantages of ICT use in student learning processes include the stimulation of logical reasoning and the growth of creativity, the enhancement of scientific research skills, and the formation of the urge for self-improvement (Constantin, & Dinica, 2006)

IT used in education is frequently referred to as educational technologies (Delgado et al 2015). Information technology in education refers to computers and other IT that, when integrated in teaching strategies, have the ability to radically transform traditional education. IT in education can be seen in the creation of course materials using computer programmes like Word, PowerPoint, databases, mail, websites, blogs, etc. The information management systems, such as Course or Learning Management Systems, that are used to handle various courses are another example of tertiary level educational technology. IT can be used by professors to create lesson plans, do online research, record lectures for online presentations, and more.

Academic institutions are under pressure to offer reliable services in the global ecosystem because of the potential afforded by information systems and technology, just like in other academic institutions. Today, R&D is more important than ever, but education used to be more concerned with learning and information retention. In order to access all information created on specific issues and to address all facets of those areas, this calls for the most implementation of information technology (Anderson et al, 2012). Latest developments in

information technology necessitate access to the appropriate information and also its timely, accurate, on-time, coordinated, and correct location delivery.

Universities that play the most substantial function in the information age and societies are those that were first established in higher education. Since these organisations are in charge of producing and disseminating information, the foundation of the information society (Ates 2020). ICT has an impact on higher education institutions and also all other institutions. If we consider the role and significance of ICT in today's R&D and educational, where the majority of students and lecturers in these organizations were outsiders until recently, we can clearly understand the necessity of ICT for these organizations.

1.1 Need of the Study

Learning and education are ongoing activities that have no beginning or end dates. Learning enables us to get fresh perspectives in daily life, which alters the way we perceive the world and how we interpret other people's actions. Students receive a variety of facts through schooling. Information technology can transmit information more quickly, which can be used to enhance the teaching-learning experience. Technology is being used by both teachers and students to accomplish certain instructional objectives. The price of schooling has decreased because to information technology. For instance, the rising use of broadband internet enables students to quickly access academic material. Teachers may now design and deliver lessons utilising videos and graphic representations owing to this broadband internet. It permits electronic email communication between educators and students. Information technology hastens the dissemination and sharing of information. Students who pass online exams receive degrees that qualify them for better jobs. Nowadays, academic institutions post their results online, allowing students to learn about their progress quickly. IT also makes group conversation easier. The emergence of audio-visual tools in the classroom has altered how students understand as a result of information technology. Through its media or means, it impacts individuals, groups, and masses, whether they are privileged or not. Teachers, students, academics, administrators, and educational planners can all benefit from information technology by having access to a wealth of knowledge, skills, and applications to aid them with their respective duties. The newest ideas and developments on the educational agenda in our nation are distance learning, virtual classrooms, m-learning, and e-learning.

E-learning aims to support students in achieving their objectives without the use of teachers, physical activity in the classroom, or attendance at classes. The challenge with e-learning is to create programs that are conducive to the way people educate by delivering a lot of synthesised data in a way that the mind can establish connections to remember it.

Thus, the measure of delivering the educational activities and information technologies used in the learning process has a substantial effect on the growth in the potency of the learning system, which is ascertained by variables like student motivation, teacher professionalism, and teaching techniques (Mormuzheva, 2013). Additionally, the use of information technology makes it possible to simulate the circumstances, foresee potential solutions to the problems, and visualise the educational material, all of which are crucial when working on a task for applied economic courses.

1.2 Research Problem

It is important to handle IT integration appropriately since it tends to make delivering university services more challenging. The optimal way to connect technology with educational programs is now under debate, notwithstanding the efforts made by HEIs to integrate IT systems and accompanying IT investments. It is unclear what appropriate approaches are for

integrating technology with academic activities to improve instruction, studying, investigation, and management. Accordingly, a large number of IT projects in a number of HEIs in emerging regions have failed as a result of this lack of coordination.

1.3 Objectives

This research's primary goal was to examine how effectively technological innovations are implemented in HEIs. The foregoing was listed as one of the clearly defined goals:

- To be aware of the value of information technology in education.
- To understand how information technology affects instruction in the classroom.
- To be familiar with the main uses of information technology.

Literature Review

Alavi & Gallupe (2003) Technology-mediated learning (TML), often known as the use of information technology to facilitate learning, is currently a significant development in postsecondary business schools in North America and internationally. However, every time academic institutions deploy technology-mediated education programmes, they are essentially starting from scratch. Regarding these activities, there isn't a lot of knowledge and experience exchange. By summarising the findings of five comprehensive case studies of TML projects in American business and management education programmes, we address this issue. The findings show that implementing and maintaining technology-mediated learning programmes requires extremely high levels of cultural change and institutional resources and that only a limited number of first objective evaluations of these programmes' competence are made. The cultural transformation and resource constraints of the TML campaigns were frequently undervalued by officials from the five universities that took part in this research.

Skiba et al (2008) With the development of the Internet and other information and communication technologies, higher education is now confronting new difficulties. It is essential that higher education be transformed. This paper mentions how higher education is changing and how that has affected nursing programmes. Three significant problems still exist for nursing education, which is widely regarded as a forerunner in the use of instructional technologies. The Institute of Medicine's suggestion of 5 basic competences for all healthcare practitioners presents the first difficulty. The second issue is preparing nurses to work in healthcare settings that heavily rely on informatics. The utilisation of cutting-edge techniques, like Web 2.0 tools, to close the generational difference between nursing school teachers and students is the final obstacle. In order to teach the next generation of nurses, nurse educators must comprehend and harness the potential of technology.

Sife et al (2007) The organization and delivery of higher education are already changing as a result of the use of information and communication technologies (ICTs). Higher education institutions have adopted and integrated ICTs into teaching and learning because of pedagogical and socioeconomic factors that include improved pedagogy, enhanced data access, improved communication, synchronous and asynchronous learning, enhanced coordination and collaboration, and cost-effectiveness. ICTs have not, meanwhile, been widely adopted in most higher education institutions in underdeveloped nations due to a variety of socioeconomic and technological factors. The pedagogical, financial, and technological ramifications of new learning and training methods are described in this article. With experiences from Tanzania, it also explores the difficulties in incorporating these innovations into higher education institutions and offers solutions that are based on best practises.

Achimugu et al (2021) The use of science and technology, especially ICT, in practically every stage of the learning system is becoming increasingly common in higher education. Virtually every area of the Nigerian economy has benefited from the rapid development of ICTs, and the Internet has evolved as an important driver of this progress. Computers are used in academic programmes at higher education institutions in the education industry to facilitate high-calibre learning and research. This essay highlights some of the key effects that ICT dissemination has had on Nigeria's higher education system. The study also reveals the impact of ICT dissemination on tertiary students in Nigeria, both undergraduate and graduate. As a method of data collection, this study used a blend of observation, interviews, and material sources. The study's findings imply that ICTs are increasingly serving as a catalyst for educational transformation and that they are now integrated into national education policies and plans in Nigerian tertiary institutions.

Scalabrin Bianchi et al (2021) In order to create business value from IT investments, information technology governance (ITG) mandates the establishment and execution of formal practises at the highest level in the company. These practises should involve structures, procedures, and interpersonal practises. It is exceedingly doubtful that the ITG practices of the financial and health industries can be immediately adapted to universities because universities have numerous distinctive characteristics. This research establishes a framework with suggested practises for the university sector utilising Design Science Research (DSR). Through multiple case studies including interviews with IT directors at ten universities in five countries, the evaluation of thirty-four case reports from the existing literature offers a set of practises as a basis for the formulation of the baseline prototype suggestion: eight new practises arise in this research. Experts assessed the conceptual model. As a consequence, a foundational paradigm with sufficient practises for IT governance in universities has been produced, together with a set of recommendations for its execution. Results showed that, when considering certain settings, the baseline of the ITG procedures might be extended.

The use of technology specifically for the purpose of promoting education is referred to as educational technologies. In latest days, educational radio, television, personal computers, computer-based training, the Internet, Web 2.0, m-learning, and Web 2.0 have all been used in education (Veletsianos, 2010). These educational technologies are instruments used in a variety of educational environments (including online, in-person, and hybrid types of education) to fulfil a variety of educational objectives (for example instructional, social, and organisational goals). Most often, educational technology has been considered as interchangeable with information and communication technology because computers, mobile phones, and television have made up a significant portion of these instructional technologies (ICT).

According to Ward et al. (2001), ICT has advanced quickly in recent years, and the widespread use of the internet in daily life has significant effects on education. The majority of medical schools offer their students access to robust computer networks, which are rapidly playing a key role in the learning and teaching process. These developments change how we teach and how students learn, as well as how the curriculum is created and delivered. They also present new challenges and opportunities for medical education. Both students and staff need to be educated how to successfully navigate the enormous amount of information available on the internet. The difficulties posed by new technologies must be addressed, and medical schools must devise explicit ways to do so. We explore the manner in which medical schools are addressing this difficulty, some applications of ICT that can improve the atmosphere for learning and teaching, and the possible effects of upcoming changes on medical education.

Research Methodology

Latest technological advancements have made it possible to combine traditional offline education with education delivered through e-learning platforms. The study's goal is to understand how students feel about courses that are held on online learning platforms.

Research Design

In this research, the qualitative method was employed in collecting and analysing data. It is a formative qualitative assessment research since the investigation concentrated on a few factors that may be utilised to assess the university's complete technology integration programme. The two categories of this methodology are conceptual analysis and relational analysis. The end result of qualitative research is deeply descriptive because it concentrates on process, meaning, and understanding. Researchers utilise a content analysis technique to measure or define the existence, significance, and connections of key words and concepts. With this method, assumptions can be drawn based on details from textual data. Furthermore, the researchers chose this strategy since it offered thorough information about that particular population. As a result, information was acquired through artefacts, observations, and interviews in line with qualitative research principles. After gathering qualitative data, conceptual content analysis was used to examine the collection of regulations and other academic papers pertaining to ICT and education. The subjects were chosen through the use of purposeful sampling.

A variety of data collection approaches were employed depending on the sorts of data to be gathered for this study. In order to do this work, data collecting and analysis tools were created for each individual study, adhering to predetermined standards for each chosen study approach. As a result, this study used survey questionnaires, interviews, document surveys, and observations. The purpose of each study and the research issue that would be covered across the three research activities guided the choice of each data collection method.

Questionnaires are survey instruments that are mainly used for collecting structured numerical data. In some cases, questionnaires can be administered to research participants and can be filled out without the presence of the researcher.

Between July 2017 and August 2017, 98 students from the Academy of Business administration, participated in an inquiry-based survey to gather data on how students felt about the courses created for e-learning platforms. There are 15 questions in the questionnaire given to each student individually, and it is well structured. The study's data were handled using IBM SPSS Statistics 20.

Results and Discussion

When the data were analysed, as shown in the figure 4.1 below, 100% of participants indicated that they had taken part in at least one online course.

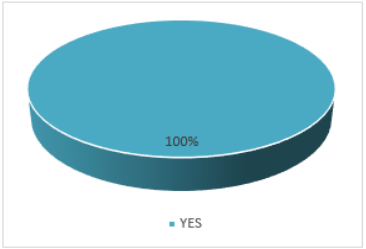

Fig. 4.1. *Students' involvement in online courses so far*

Through Figure 4.2, we can see that 66% of participants see online courses as a supplement to traditional/offline courses, while 39% of them say they are a substitute for traditional education. Only 20.86% of participants believe that online courses are a useful way to develop their area of interest, whereas 31.49% of participants find it to be an excellent approach to learn a complementary field. As a result, the study's initial hypothesis is verified.

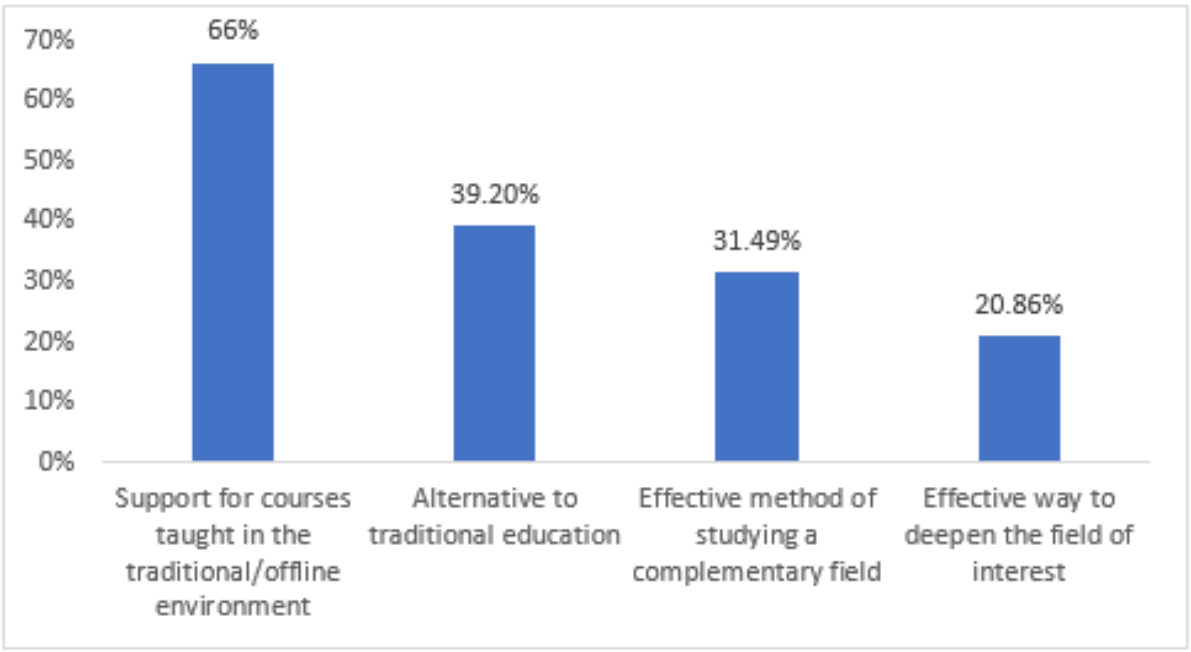

Fig. 4.2. *Students' perception of online courses*

When asked how many online courses they had taken so far, more than half of the participants stated they had only taken one, while 27.3% said they had taken two, and only 8.91% said they had taken three (see Fig.4.3).

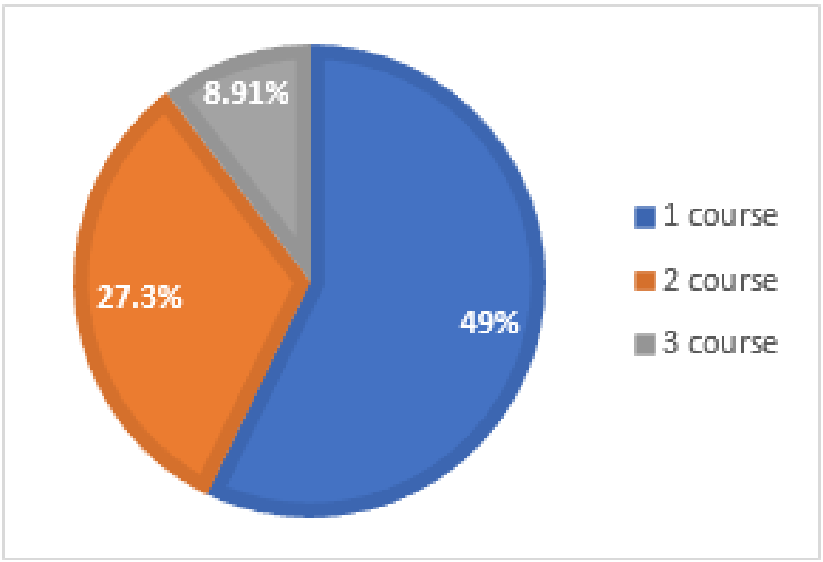

Fig. 4.3. *The population of students who take online courses*

According to graph 4.4, participants primarily take online courses in management (47.31%) and marketing (56%) respectively. Finance (11.19%) and IT&C (4.78%) are at the opposite polarity.

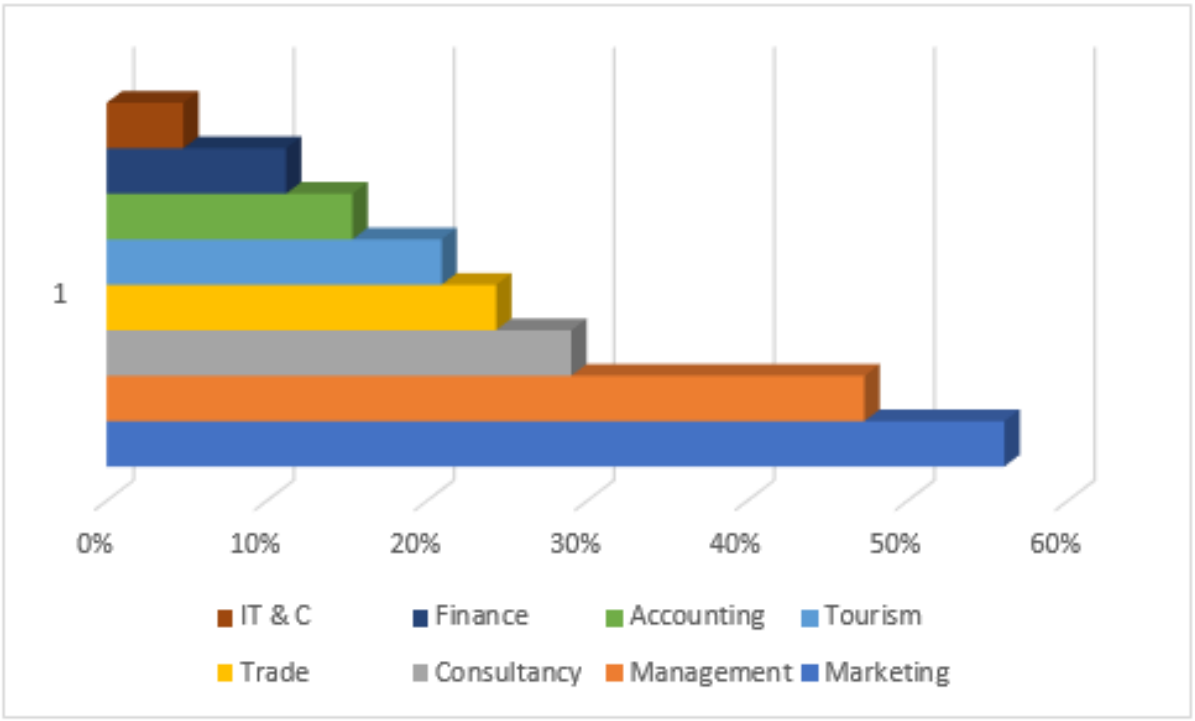

Fig. 4.4. *Primary topics covered in students' online courses*

Friends, colleagues, and family (74.21%) and the Internet (61.72%) have been the major sources of information about the availability of online courses. Only 6.04% of participants learned about the university's online courses from television, compared to 51.03% who learned about them from specialised periodicals and 32.19% who did so (see Fig. 4.5). The second study hypothesis is therefore disproved.

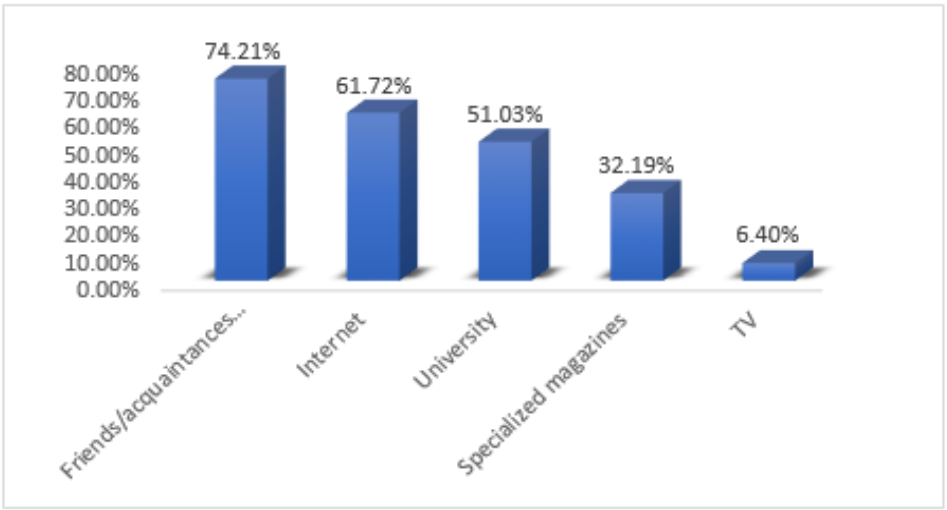

Fig. 4.5. *Principal pieces of knowledge for students about online courses*

60% of those respondents believed that accreditation for the certificate received after graduating is the primary requirement, preceded by course fee (49%) the credibility of the organization that organises the program (41.12%), when it comes to the important factors that we considered when determining online courses (see Figure 4.6). The uniqueness of the content offered in the online course comes in at number four in the rating, accompanied by how long it lasts and the assignments it requires. Finally, results support the third study hypothesis.

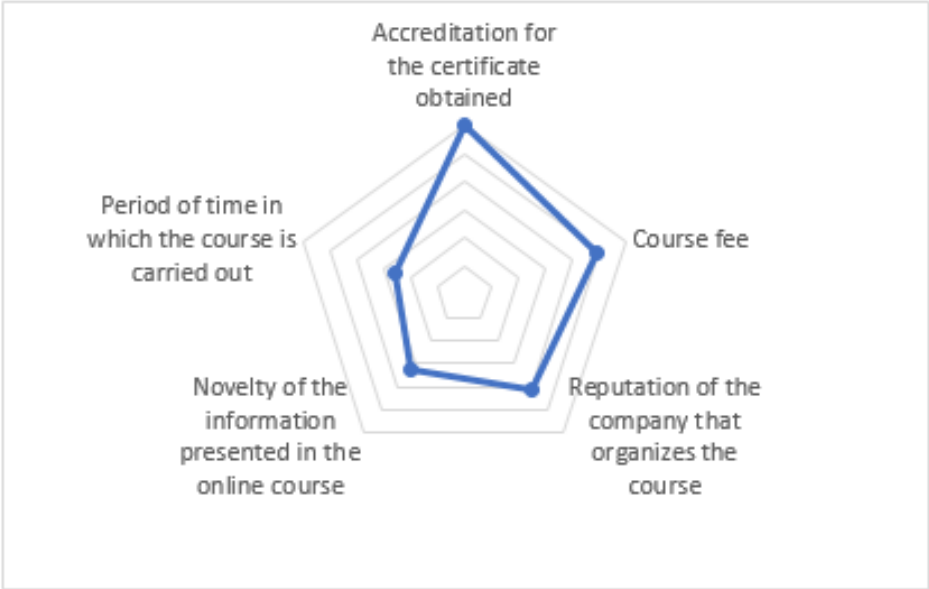

Fig. 4.6. *Principal factors in choosing an online course*

When asked "What are the key factors that influenced your decision to enrol in online classes? ", more than two-thirds of participants felt that the primary reason was due to being able to receive an approved certification at a reasonable cost, 84.50% - promptly, and two in five participants thought that these courses allowed them to take the exam online. 41.90% of participants stated the study program's adaptability as their top reason, whereas the majority of participants who chose online courses cited the course's correctness as their top reason. Only 9.89% of students said they are taking an online course on a teacher's advice, while 17.13% believe they chose to take it since their colleges didn't offer a course like it (see Fig. 9). The fourth research hypothesis is supported by this.

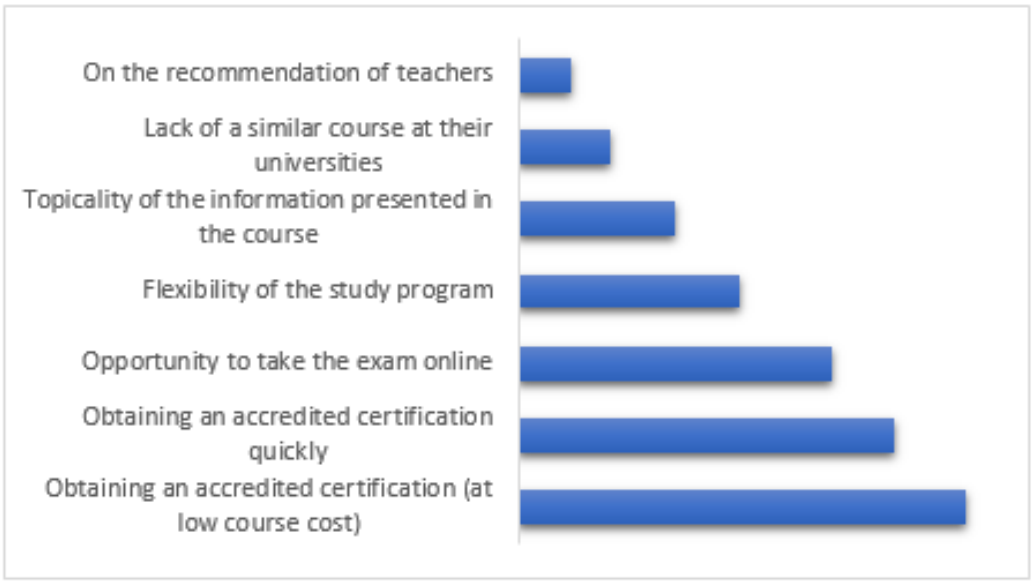

Fig. 9. *Main reasons for participating in online courses*

Developing entrepreneurial skills, as stated by 64.2% of participants, and increasing entrepreneurial skills, as stated by 52.8% of participants, are the two major outcomes from engagement in courses offered online. Only 17% of respondents think that taking online courses is intended to help them launch their own firm (see Fig.4.7).

Fig.4.7. *Principal outcomes of online course involvement*

The most prevalent fields in the analysis are management and marketing. Moreover, friends, colleagues, and family serve as students' primary sources of information regarding online courses. The certification of the certificate received after completing the programme was cited by the students as the most crucial factor in choosing online courses. Additionally, most students decide to enrol in courses offered through e-learning portals for the inexpensive cost of gaining approved certificates. The majority of students who have taken online courses report that they have developed entrepreneurial abilities and that they fully agree that the materials offered in the programs can be conveniently retrieved. Over half of participants later suggested them, indicating that most students were generally happy with the knowledge they had gained from the online courses they had taken so far. The majority of students are female, above the age of 21, and from urban regions, according to sociodemographic statistics.

Conclusion

Through a shift in viewpoint on educational practise and the addition of new, information-specific learning techniques to the educational framework, recent information means greatly improve the effectiveness of the educational process.

E-learning will not entirely restore classic academic systems, but will aid the teaching method, offering a substitute to conventional education. At the organisational level, e-learning methods will optimise the education technique by lowering the expenditure associated with this technique, while also enabling ongoing training of staff members without interfering with their work.

As a consequence, e-learning portals will be utilised more frequently in the instruction of students, enabling them to maintain a considerably bigger volume of knowledge in a short amount of time. Another significant benefit of using e-learning portals is that it is possible to overcome time and space constraints because students are no longer required to follow a predetermined path through a course or travel to a specific place in order to engage in it. Last but not least, students gain access to ongoing feedback on any issues they may have experienced. The user can select the study programme of their choice, access current material, and interact synchronously or asynchronously with instructors using e-learning portals.

The use of e-learning techniques in education is known to have a number of drawbacks, including high dropout rates, upfront platform design and maintenance costs, and a requirement

for some computer experience, but the knowledge of already workable e-learning portals has shown that students are able to become comfortable in the implicit world and, if sufficiently encouraged, will productively finish the programs they participate.

In order to promote education with the adoption of substitutes to the conventional educational system, numerous e-learning portals have been developed on a national and international level. E-learning systems facilitate personal growth and give customers access to a variety of virtual discussion forums.

By incorporating active and independent learning processes that boost student engagement and generate new formal or informal teaching settings, both independently and in groups, e-learning portals qualitatively enhance the value of the educational system.

To investigate how students feel about the programs they take on online learning platforms is the stated goal of the quantitative research. It is crucial to emphasise that the results cannot be applied to the population being studied due to the small sample size. Furthermore, additional research is necessary to provide a fuller picture of the subject chosen for review.

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