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ICT with Open and Distance Learning for Capability Enhancement: Practices of Higher Education Institutions of Nepal

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Abstract

This paper deals with the role of Information and Communication Technology (ICT) in higher education institutions in terms of capability enhancement of learners. In addition, the intents of this research paper is to focus towards online and distance education related with higher education institutions of Nepal. Particularly, the relation of ICT with capability enhancement, the relation of ICT and ODL mode of higher education learners, and the relation of ICT and capability with student learning has been explored in this paper. Theoretically, capability enhancement has been discussed in terms of connectivism and learner autonomy. Moreover, the theories of capability enhancement as interpreted by Amartya Sen and Martha Nussbaum have also been used to discuss this issue. Besides contributing to quality human life, ICT is found to be helpful in promoting good behavior and attitudes, increasing their ability toward being, doing, and functioning. Integrating technology in education can help change people's lives.

Keywords: ICT; Capability Enhancement; Connectivism; Learner Autonomy

Introduction

The term “Information and Communication Technology” (ICT) is an extension of “information technology” (IT), that is the study or use of systems (especially computers and telecommunications) for different types of processing, storing, retrieving, and sending information (Bhangu,2013). Furthermore, ICT is an umbrella term that includes many types of components like communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems to name just a few. In addition, there are various services and applications

associated with them, such as videoconferencing and distance learning. ICTs are often expressed in multiple contexts, such as ICT in education, ICT in health care, or ICT in libraries which all supports ICT in occupying meaningful space in global discourse for development. Andema, Kendrick, and Norton (2010) have explained that ICT has become one of the most common terminologies in development discourse. It is considered the primary force in socio-economic transformation.

Relating to the rapid spread of ICT, Nicholas and Mugeni (2014) mentioned that ICT has brought a

significant shift in both the technology itself and our perception of it. But again they argue that ICT is not only technology; it covers a wide range of spheres bridging the “hard” knowledge like mathematics with “soft” knowledge like social sciences. Similarly, the communication component of ICT affirms the change in the character of technology. This creates ICT global technology. Therefore, our society in the era of information society, ICT can be referred to as Global ICT society – a society supported by ICT as universal technology.

In recognition, ICT plays an important role in our lives and societies. The World Summit on the Information Society (WSIS, 2005) also declared a people-centered, inclusive, and development-oriented information society, and acknowledged the immense impact of ICTs on virtually all aspects of human life. Likewise, the ability of ICT to transcend time and space is often acknowledged (Anderson, 2005). Thus, ICT provides opportunities for self-learning and distance learning without binding us to a certain time or place. There are some online course materials, which may be accessed 24/7. Moreover, ICT based education delivery, for example, educational programming broadcast over radio or television, does not need the learner and the instructor to be in one physical location.

Development of ICT in Education

There are many ways to describe the historical concept of ICT. While I interacted with Haigh, (2011), I understood that information technology started in the early 1960s. However, the computers were not able to produce mass support but some of the companies had adopted special training. However these pieces of training were continuously changed into the first stages of personal computers (Haigh, 2011). Similarly, the second stage of ICT development came to be operated by human beings within the organizations. Likewise, the third stage and that is where we are now is dealing not only with user computers but also with large networking systems and computation embedded into the environment (Haigh, 2011).

Moreover, the concept of ICT was accessed with the accessibility of internet-based services such as electronic mail and the World Wide Web (WWW). After that educators became more focused on the use of technology to improve learning and instructional practices. However, the use of ICT in the academic process has been categorized into two broad categories: ICTs for Education and ICTs in Education. ICTs for education refers to the development of information and communications technology specifically for teaching/learning purposes, while on the other hand, ICTs in education involves the adoption of general components of ICT in the teaching-learning process (Sallai, 2012), of which, one example is online learning education. Online learning represents that the learner and tutor are in different locations. So, different terminologies have been used for online learning. These terms commonly include e-learning, Internet learning, distributed learning, networked learning, del e-learning, virtual learning, computer-assisted learning, web-based learning, and distance learning. Despite all those terminologies, Carlinear (1999) defines online learning as an educational material that is presented on a computer. However, online learning requires the use of internet to interact with the learning materials, instructors, and other learners and come to the learning process.

Moreover, regarding online learning, Baiely et al. (2013) explained that online learning is mostly a teacher-led education that takes place over the internet, with the teacher and students separated geographically and using web-based education delivery. This system includes software to provide a structured learning environment. Moreover, they mentioned that it may be synchronous (communication in which participants interact in real-time, such as online video), or asynchronous (communication separated by time, such as email, or online discussion forums).

ICT and Capability Approach

I interacted with Amartya Sen’s human capability approach in ICT research for the past several years.

As a matter of fact, educational institutions have started thinking of providing access to the people so they have more opportunities through the effective use of ICT rather than limiting themselves only to the use of technology for academic purposes. Thus, for the development of human capability, ICT these days is considered as a means and not as an end in itself. However, there is always a challenge to adopt Sen's philosophical frame of thought because the educational institutions need to go through the theoretical as well as methodological base to implement it.

Talking about the human capability approach, Amartya Sen (1985) and Martha Nussbaum (1988) focus more on the freedom of people and their opportunities. They emphasize "beings and doings" as capability theorists term "functionings". There are multiple ways of well-being and people are considered active agents of their lives towards achieving them. Relating this to ICT, Garnham (1997) says that functionings and capabilities allow a human being to achieve beyond superficial access and usage. Similarly, Van den Hoven and Rooksby (2008) link the capability approach with information and distributive justice that are directly linked with the philosophy of on-line/distance education. To support this concept, Sen (2010) also recognizes the value of ICT saying mobile phones have helped to strengthen people's capabilities in the global market. Coeckelberg (2011) analyses the possibility of such capability in the developing world and says that it is equally applicable to all and that it does not bar anybody from being capacitated. He argues that human enhancement through ICT equates with the minimum level, i.e. human existence to the maximum level of capability, i.e. human excellence.

According to Coeckelberg (2011), we need "a hermeneutics of techno-human change, involving interpretations of dynamic relations between unstable capabilities, technologies, practices, and values" (p. 84). Some other writers, for example, Oosterlaken and Hoyer (2011) argue that the integration of ICT and capability should be linked with critical theory.

They further assert that the orientation to technology is not 'value-neutral'. Enriching human capabilities and their agency through ICT depends upon the design and regulations of technology as critical theorists look ICT beyond the man and machine. ICT is concerned with "ideological qualities" as the critical theorists claim that technology is both inherent in power delegation and in oppression (Zheng & Stahl, 2011). Close collaborative dialogue is essential between ICT and human capabilities, says Birdsall (2011), to explore the process of contributing to expanding human capabilities and talks beyond the traditional approach of communication freedoms. The new technologies go beyond one-way communication and facilitate people to participate in societal dialogues enhancing their capability. Thus right to communicate, ICT, and human capability are linked to each other fostering the capability. Critiquing on the view of ICT in human capability, Kleine (2007) claims that sometimes technology limits human choices rather than widening them explaining the role of the development industry as pushing the sale-products with limited choices affecting capability.

The term capability could be used in a variety of contexts. Capability has been considered the ability to generate expected outcomes or effects. The specific requirement in enhancing the overall goal demands human capability. In this premise Sen (1999) believes that human development is built upon a particular capability approach. He considers human development as the outcome of human capabilities in accordance with freedom of choice. Sen's human development theory contributes to social justice through the Capability Approach; the support of positive freedoms to be or to do something, "to choose a life one has reason to value" (Sen, 1999, p. 74). Human freedom of choice depends upon functioning's or, "the various things a person may value being or doing" (Sen, 1999, p. 75). The term "capability enhancement", in this paper, has been used as the freedom of choice of the programs and the opportunity to work people to enhance their qualifications without giving up their jobs or place

of living.

Nussbaum (2006) builds on Sen's work and prescribes a list of capabilities for social justice. She claims that right alone is not enough until it gets the opportunity to exercise hence enhancing capability. According to Nussbaum (2008), considering ICT for capability enhancement provides us a benchmark to secure someone's rights by involving affirmative material and institutional support, not simply a failure to impede (p. 38). Of the ten capabilities that Nussbaum (2006) identifies, three have direct relevance to education and learning, and the other two have significant supporting roles. Those directly related to education and learning is Senses, Imagination, and Thought. Education helps people to be able to use the senses, to imagine, to think, and to reason in a "truly human" way.

My argument, here is to see if ICT has helped to enhance the capability of higher education students. In this context, I would like to delimit the context of ICT in online and distance education.

Contribution of ICT to Higher Education

The growing trend of using ICT in education shows the quality expectation of educational institutions in their outputs and outcome. The main purpose of ICT in education is to provide the strategy and trends of integrating ICT in general education (Fu, 2013). Similarly, Balanskat, et al. (2006) conducted a study to see the benefits of ICT in school achievement and found out that it has a positive impact. The finding of the study suggested that "schools with a higher level of e-maturity show a rapid increase in performances in scores compared to those with lower-level" (Blanskat et al., 2006, p. 55) Likewise, Srivastava et al. (2014) found significant growth in the educational attainment of higher education students through ICT. They observed that it is not only the integration in teaching; it is also the independent use of technology by the students be it digital library, online learning, or other approaches. The integration of ICT in higher education thus seems impressive not only in terms of pedagogy but

also for enhancing students' skills to communicate with the technology and their social and professional world.

ICT in Higher Education in Nepal

Nepal has a history of implementing distance education for the past 4 decades. Now, Nepal Open University has already been established as well. Before this, other universities like Kathmandu University, Tribhuvan University and Purwanchal University had already started dual mode in some specific subect areas and academic levels. There are some foreign affiliated open education institutes running in the country too. The UGC has been playing an important role as an active member of SAARC Open University forum (UGC, 2014-15) that participates in the annual meeting on behalf of Nepal. The most initial attempt of the government for ODL can be cited from the time when it became a signatory of SAARC consortium to open and distance learning (SACODIL) in 1999. However the government of Nepal has allowed some foreign open universities to launch DEL program.

For example, IGNOU is one open university approved by the Ministry of Education. This university has carried out higher education programs through its learning centres located at the capital city of Nepal. The students graduated from IGNOU are recognized by the Public Service Commission and other Universities of Nepal. As per the educationists involved in the ODL practices in Nepal, it is very hard to trace the literature about Nepal's ODL practices in higher education. In this context I have formulated the following two research questions to explore the capability enhancement on the base of ICT implementing with Open and Distance Learning (ODL) mode.

Research questions

- a. How are the HEIs implementing ICT in ODL mode?
- b. How have ICT with ODL programs been helping to raise student's capability?

Methodology

This research paper has adapted qualitative research approach to illustrate and interpret the integration of ICT in higher education institutes along with its major issues and challenges. This research administered interpretive inquiry with multiple reality paradigms. The ontological assumption was the variety of perceptions of different researchers as stipulated in their published literature. Moreover, the perceptions of educationists as experts in related field also gave impetus to different reality of the contexts. I interacted with multiple literatures and discourse with the educationist's versions and one student research participant helped to generate the knowledge as epistemological concern of this paper. To generate appropriate contents and logic for the issue I adopted two approaches of data collection, literature review and in-depth interview with educationists and one student from B.Tech 3rd Sem.

I have conducted purposive sampling. The participants were selected on the basis of their experience in ICT integration in higher education institutions and their expertise in conducting online and distance mode of teaching and learning practices at different universities of Nepal. Similarly, I selected my student participant purposively. Purposively in the sense that he had experience in online and distance mode of learning and has used it to interact very actively during the online sessions.

I followed descriptive analysis to interpret the philosophy of ICT for the development and how to enhance capability in terms of functioning and understanding. I have provided pseudonyms to all the research participants like Guru A, Guru B, Guru C and Gopi (student).

Data Presentation and Analysis

In the following section, I would like to discuss my participant's narrative on the basis of ICT and ODL mode of teaching and learning. It would integrate with capability enhancement. First of all, I would present the educationists' version on ICT in higher education and ODL mode of instruction. Moreover,

they shared how their learners could enhance the capability technologically and pedagogically.

To contextualize my first research participant Guru A shared the historical background of ODL mode in Nepal.

Guru A says

Nepal has history of distance education since 2057 B.S. when adult education was broadcasted from Radio Nepal. It then continued to broadcast school programs and then teacher training of primary schools. The NCED as an apex body of teacher training continued it until the 2010's A.D.

Further, He shared: the use of distance education in higher education implanted around 2004 when Tribhuvan University (TU) faculty of Education launched its distance education B.Ed. program through 9 resource centers throughout the country. Unfortunately it could not continue for more than 3 years and now TU has launched a dual mode for M.Ed., both face to face and distance/online education. Later, Purwanchal University affiliated Distance education B.Ed. program to Institute of Open Learning (IOL) which has been continuing till today.

In 2011 KU started the dual mode in M.Ed. and launched distance and online education M.Ed. program which is still successfully running. Regarding the capability approach of the Universities through ICT, they have been recognized at par with the face to face mode and the graduates are competing in the job-market with others.

On the base of this narrative I could understand the historical context of ICT and Online and distance education. He opined that students are getting access to higher education through ODL mode. In the absence of which the in-service students would never have that opportunity. The Public Service Commission has accepted the graduates from ODL which gave the ODL graduates a golden opportunity to enter the government jobs. The graduates are also

eligible to further pursue their higher education degrees.

Guru B is a renowned educationist who has served more than three decades in higher education institution. Since the past few years, he is working in a university at the online and distance education section.

Similarly, Guru B, states that *TU has been a pioneer of DE program in Nepal. It initiated distance education program at Sanothimi Campus, Bhaktpur. It has expanded its DE program in six districts namely, Gorkha, Rupandehi, Siraha, Dadeldhura, Kathmandu and Surkhet. It has established one DE center in each of the six districts in which it has been launching DE in Health Education, Nepali and Curriculum.*

They use ICT for teaching-learning activities particularly in terms of mail, chatting and Skype. They however have not been able to develop MOODLE-the learning software through distance mode. As part of capability enhancement through ICT, they have launched teachers' training program for the teachers of the concerned districts. The teachers engaged in higher education program in these districts have been trained in developing blogs and MOODLE. Resource personas from Finland have also conducted training programs for the teachers on the use of ICT in distance mode of education.

The trainings as such have not been effective because they lack electricity on a regular basis. They also do not have high speed internet facility. They have opportunity to choose the course of their interest which can be taken as an alternative way of enhancing their capacity. Distance mode exam or let's say virtual exam has not been conducted yet for the students; they take their exam in the contact session.

According to this version I realized that ICT could enhance the capability in many ways. For example,

ICT based training makes the learners be able to engage in ICT based instructional practices through online and distance modes. Moreover, I understand that different ICT tools function as capability enhancing components and such tools are internet connection for email, skype, blog, etc. In terms of freedom of choice and functioning, I realize that accessibility of different courses has helped to pursue higher degree.

Guru C, who runs a Distance Education Institute, affiliated with the Purbanchal University-Nepal, said:

The university has been launching one-year B.Ed. program. The students use email to communicate and contact their experts and (Resource Persons) RPs at the IOL, Kathmandu. According to him, the students basically are benefitted in terms of their guidance and counseling through ICT. There is a separate website for DE under this university from which the students could access information from the distance education system. A group of DE experts is made available at the IOL. Kathmandu office for a specified period of time who respond to the queries and concerns of the students through telephone and other electronic media.

According to Guru C, there are 200 students presently studying the online program in Foundation of Education, Psychology and Curriculum courses. There are 15 teachers to facilitate the students in these different courses with the help of ICT.

As part of the capability enhancement through ICT, Professor III says that the students enrolled in the B.Ed. program did not even know how to create an e-mail ID in the beginning. Later, they developed their e-mail id on their own and are now engaged in the correspondent process through ICT. They have freedom in selecting the required course. They are able to meet the deadline in terms of submitting academic activities. There is one problem which is although the online education started 16 years ago;

the teachers have yet not been trained in online mode of education. The students who graduated from the online B.Ed. program have been recognized by the public service commission, which can be taken as a kind of capability enhancement through ICT.

Another research participant was Gopi, one of my students from B.Tech 3rd semester. Because of the pandemic due to COVID 19, many educational institutes have been affected and Nepal has also faced the same difficulty. So, most of the higher education institutions adopted the online and distance mode of education. Due to this reason, he was not able to join the face to face mode of regular classes, then, he came to join the online mode of instruction by using the TEAMS application. This scenario shows how ICT could enhance his capability or how to integrate ICT in his daily classes. For this reason, I decided to conduct an interview with him.

I asked him how he came up with online distance mode for education. Responding to this query, Gopi said: *Every morning from 6 A.M to 10 A.M I need to join online mode of virtual class due to pandemic of COVID 19. This is my first experience in online mode learning practices. Before this I have been using ICT just for surfing the web, send or receive email and browsing for some of literatures. But now, I could sense that online and distance mode is also one of the best mode of instructional practices to enhance my knowledge. Here I could say that while I was participating in the online mode of instruction I developed two types of knowledge, one is content knowledge about the course shared by my tutor and another one is technological knowledge, such as how to operate video conferencing and share my power point slides. I also learned how to interact with my peers and respond to my tutor. In the same time I had the opportunity to observe different activities like chatting, raising the hand during online class and so on. So, in this way I was able to enhance my capability in terms of additional knowledge technologically, and pedagogically.*

According to his version I sensed that in order to enhance knowledge, technology could be a powerful equipment to enrich the capability enhancement in two ways, first content based and second technological based. Similarly, I understand on the base of this narrative the essence of capability he talked about while operating the online mode of instruction. In addition, he elaborated that somehow the online and distance mode also contributed in enhancing his technological knowledge like how to login with Microsoft TEAMS, and other different technological aspects. His active participation in that online forum also supported my epistemological thought as well.

Discussions and Findings

This paper has attempted to illustrate the capability enhancement of higher education in relation to ICT. In this perspective, I would like to discuss the Capability enhancement of students. The usual way to define the relation between capabilities and technologies is as Sen (1999) conceives the technology as one of the means to reach the aim (capabilities). Applied to the domain of information technology through open university having (access to) the resources like a PC or a mobile or any electronic device is not enough to enjoy, for instance exercising one's capability for an affiliation. Regarding the distance and online education there are some observations linked with some theories like theory of independence and autonomy; and theory of connectivism.

Basically this paper describes the ICT and capability enhancement in the context of higher education. In this context, primary data were collected from some renowned senior educationists from Kathmandu University, Tribhuvan University, Purwanchal University and one student from the Open and distance mode of B.Tech course.

Let me discuss the major issues of the themes ICT, capability and higher education as illustrated in this paper. The followings areas need to be discussed in order to clarify the concepts regarding the themes.

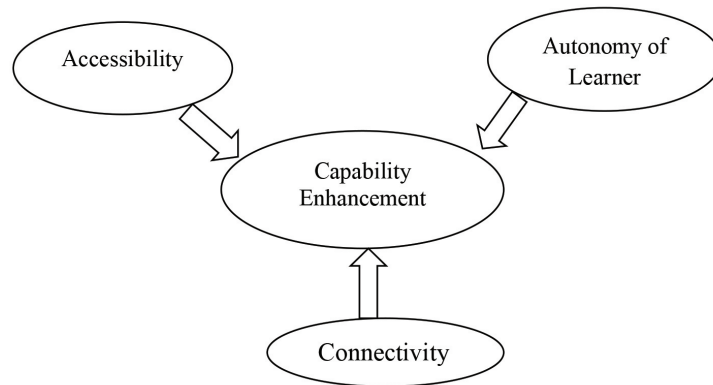


Figure-1 portrays that the capability enhancement could be furnished with three different components like learner autonomy, accessibility and connectivity

Connectivity

ICT has always raised an issue of connection between human and non-human subjects. Unless and until this kind of issue is resolved the major goal to provide benefit to the users remains incomplete. Thus, the provider of technology and the users of technology should always have connection or the connectivity between and among themselves.

In the past, learning theory referred to a limited kind of knowledge provided in an educational institutions. People would have their lifelong career path based on the knowledge they have acquired in those institutions. Knowledge change was rare because the research in knowledge area was very scarce. Basically, there were three ways of learning that time. They were behaviorism, cognitivism and constructivism as educational psychology indicates. Many theorists in the past based their study and research activities only on these theories of learning. Later, when technology developed and its impact became prominent in education and learning these three theories as discussed above were not sufficient. Considering this view, Siemens (2004) propounded a theory called "Connectivism" which, in his term, is known as a theory of learning at digital age.

The principle of connectivism asserts that learning is a process of connecting specialized nodes or information sources. Likewise, it also explains that

the information flow within an organization is an important element in organizational competence (Siemens, 2004). Here my issue demands for application of ICT in all the institutions. So this theory also builds up knowledge economy (Klees, Samoff, & Stromquist, 2012). The knowledge economy is only possible when there is flow of information. The flow of information is the equivalent to oil pipe in the industrial economy, creating, preserving and utilizing information flow should be a key organizational activity. Similarly, the notion of connectivism is cycle of knowledge development such as personal to network to instructor. Personal knowledge comprised of networks. Our ability to learn for what we need tomorrow is more important than what we know today.

Furthermore, connectivism provides a model of learning that acknowledges the tectonic shifts in society where learning is no longer an internal, individualistic activity. The field of education has been slow to recognize both the impact of the new learning tools and the environmental changes in what it means to learn. Connectivism provides an insight into learning skills and tasks needed by the learners to flourish in the digital era.

Autonomy of Learners

The major thrust of ICT is to enhance the capability of the users in their area. Autonomy refers to the

freedom of choice for the learner which fosters their interest and makes them an independent learner. ICT, in fact, is a tool that supports the learners to make learning meaningful. In addition, ODL system has been the major medium for learning. Open universities throughout the world use ICT to educate their students. In the ODL system, the learner is always autonomous in many aspects like selecting the program, promoting one's strength, time management for learning, choosing the appropriate evaluation scheme provided as alternatives by the HEI, etc. Their autonomy plays an important role in the promotion of ODL as well as in the progress of the learners.

So far, the theory of independence and autonomy, (Wedemer 1977) talks about the close link between autonomy of learners and their achievement in the higher education systems.

In addition, this theory also emphasizes some key components, such as the student and teacher are physically separated, teaching is individualized, and learning is convenient for the student in their own environment. Moreover, the learners are able to adapt to the pace of learning, and the freedom to start and stop learning at any time. In my paper, all components are given the essence of capability in the sense of freedom of choice (Sen, 2006).

Similarly, Anderson (2003) asserts that distance education is composed of two elements each of which can be measured. The first component is the provision for two-way communication that represents dialogical form and offer greater amounts of two-way communication than others. The second component is the extent of the responsive to the needs of the individual learner. Moore and Anderson (2003) explained the second part of his theory and tried to link with distance education in such a way that he sees a gap between the teacher and the student and that the student must accept a higher degree of responsibility while conducting the learning activities. Furthermore, he classified distance education as autonomous (learner determined) and non-

autonomous (teacher determined) and determined the degree of autonomy.

Accessibility

Today, the world is moving towards global citizenship. This demands highly educated people in the society. However, the current face to face mode is not enough to educate the people at the desired level. Thus ODL came to the scene. This has been helping a lot in educating the mass with the same quality and at the same time.

This accessibility characteristic of the ICT/ODL system is a vital one in alternative and/or flexible learning today. The capability of students, first and foremost, demands accessibility where they can enrol in any programs without any difficulty. In fact, the accessibility to any program enriches the students' capacity to claim them as the counterparts of other students around the globe. Therefore ICT providers should always think of the quality of learners at par or more than other alternative avenues.

Accessibility can be viewed in terms of the way of delivering services as a part of the ICT/ODL system. Anderson (2003) talks for both face-to-face interaction and the use of the Internet at distance mode of education. For learners, online learning supports flexibility in terms of time and place. So, the distance may not be able to do any hurdle.

In asynchronous online learning, students can access the online materials anytime, while synchronous online learning allows real-time interaction between students and instructors (Anderson, 2003). Learners were able to access different ICTs to come up with the learning materials. In addition, they adopted more autonomously. The autonomous in the sense that they will be able to access relevant learning materials and can communicate with experts in the field which they are studying. While talking about access to the materials the instructors also instruct them to come up with appropriate information based on their needs.

Conclusions

To enhance the capability of higher education learners, ICT could play a major role. It is one of the major components in increasing the capability of students in higher education. So in global ICT society, ICT is considered as a means and not as an end in itself.

Thus, for the development of human capability, ICT these days demands the integration and the transformation of their attitude and behavior towards increasing their ability. Similarly, through ICT, they can live a better quality of life. These circumstances have made ICT a global technology. Therefore, our society in the era of ICT can be referred to as a Global ICT society. Consequently, the global nature of ICT has resulted in the knowledge of society being understood as a society with the capacity to create new capability. This research article came up with three components like accessibility, connectivism, and learner autonomy that could contribute to enhance the capability in terms of the degree of freedom and functioning.

Moreover, COVID 19 pandemics also demanded the online and distance learning mode to conduct the daily schedule of instructional practices at the higher education institutions. In order to enhance the capability, accessibility becomes crucial. Accessibility in the sense that integration of ICT to the day to day learning activities.

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