Developing Learning Abilities among Students for the Information Age

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Abstract

This paper focuses on the need of developing certain learning abilities among students in order to prepare them for adult life which may involve higher education, new work situations or multi-tasking. It also shows the relevance of these skills in today's world where the growth in information is exponential with the old information often getting obsolete and the need arises to keep oneself updated life-long. The paper describes the learning paradigms that have evolved and gained more significance with the emergence of the Information and Communication Technology (ICT). It emphasizes the need to empower learners with the ability to learn independently and to build their confidence and zeal to do so throughout their lives. It stresses on facilitating learners to be co-creators of new knowledge and to work collaboratively with their peers to build upon the existing knowledge so that they can in future contribute to make the world a better place to live in. It suggests certain strategies that a teacher can adopt to facilitate the development of these learning abilities among the students. The role of the teacher as a facilitator may be more prominent in the initial phase of the students' learning but as the students become more familiar and confident the teachers' role is subtle, till the students can manage their own learning.

Keywords: Information and Communication Technology; Technology-mediated learning; Collaborative learning; Independent learning; Life-long learning; Independent learning

Introduction

Information and Communication Technology plays a dominant and vital role in every aspect of our lives. It makes information accessible to the whole world by cutting across time

and space and thereby promotes rapid discovery of more and more new information. In recent times not only is information growing exponentially but along with it access to this information is also growing exponentially, making the whole world one global village. As there is continuous flow of information, old information often gets obsolete. No longer can we be content with what was learnt in the school and college education. Neither can we pause to learn in future. Learning has to continue throughout our life. We have to constantly update ourselves with new information. Learning has to be a life- long process for individuals and society at large.

Are we ready to continuously adapt to the rapid changes and contribute significantly to its development? Are we sufficiently aware of the recent developments in the areas of our interest? Do we have the skills to learn from the varied resources available through the internet? How can we sustain a life-long quest for knowledge? These are questions we often are troubled with as we are doubtful about our ability to cope with the new era of technology. For ages untold we have hooked onto our conventional educational systems that suited the industrial world. In recent times however these systems fail to meet the demands of the Information and Technological age. They are ill equipped with suitable infrastructure, skills and competence to initiate technology- mediated learning. Learning is centered round experiences provided by traditional schooling where the teacher is considered as the repository of information and the learner, a passive recipient. The focus is on teaching the content rather than developing thinking abilities among learners.

Many educationists have begun rethinking about the role of the teacher and the learner. According to John Holt "Since we cannot know what knowledge will be most needed in the future, it is senseless to try to teach it in advance. Instead, we should try to turn out people who love learning so much and learn so well that they will be able to learn whatever needs to be learned." There is a need to enable the learners to take up the initiative and the responsibility of their learning. It is only then that they can become learners for life. "The role of the teacher has to change from that of a transmitter to a mediator of learning who helps the learners construct their own knowledge, solve problems independently and understand their own thinking processes" (Fraser, 2006: 13, 21). "Institutions should move away from providing content per se to learners. It is necessary to focus on how to enable learners to find, identify, manipulate and evaluate information and knowledge, to integrate this knowledge in their world of work and life, to solve problems and to communicate this knowledge to others. According to Kershaw & Safford(1998) "In the present situation, the role of the instructor changes to that of a learning facilitator. The instructor assists students to access information,

to synthesize and interpret it and to place it in a context – in short to transform information into knowledge. Such a role demands the transformation in the training imparted to teachers. Teachers now have to be equipped with the essential skills, knowledge and attitudes needed for the education system in the present scenario".

Our teacher training programs have focused on providing training in teaching based on Bloom's taxonomies of learning. Bloom and his associates (1956) have categorized the objectives into three domains namely the cognitive, psychomotor and affective domains. Anderson et al. (2001) revised Bloom's taxonomy. He pointed out that there are four categories of knowledge within the cognitive domain, each requiring different kinds of learning. They were factual, conceptual, procedural, and metacognitive that could be mapped across all six levels of the cognitive domain. These taxonomies provided a base to many emerging thoughts in education. According to L.D.Fink (2003) "There is a need for new kinds of learning that go well beyond the cognitive domain of Bloom's taxonomy and even beyond cognitive learning itself. There is a need for a new and broader taxonomy of significant learning which will bring a lasting change in the learner's life". Fink has created a taxonomy that includes the following six kinds of significant learning: Learning How to Learn, Foundational Knowledge, Application, Caring, Human Dimension and Integration. In contrast to Bloom, Fink moves instruction from teacher-centered to learning-centered. Teachers are encouraged to create learning goals that expand beyond content, provide learning activities that engage students actively and deliver frequent, immediate feedback and assessment in a supportive manner (Fink, 2003,). The role of teachers has changed from lecturing to being primarily designers of learning methods and environments (Barr and Tagg 1995, cited in Fink 2003). Such methods empower the teacher to help the learner develop the essential abilities needed for his lifetime. Ability to learn independently, Ability to pursue life-long learning, Ability to learn collaboratively and Ability to use ICT proficiently are certain abilities that the teacher can develop among the students. The importance of these abilities and the manner in which the teacher can develop them are discussed below. Ability to Learn Independently

Significance

 ICT is gaining momentum as a reservoir of learning. Hence it is imperative that the learners be equipped with the essential skills needed to learn in a technology-mediated environment. Moreover they have to learn on their own-----something that they did not attempt to venture on, because they always had the teachers who organized, decoded, transmitted and controlled their learning. When the learners accustomed to this setting, step into a world of knowledge

much beyond what the teachers can give, they find themselves at loss unable to independently locate the information, select the most relevant and check the accuracy of it. The learners cannot afford to continue with their age old habits. They have to change their views about learning, and stop being too dependent on the teachers. They should be proactively committed to their learning and be interested in seeking information on their own through various sources like library or the Internet. To enable this transformation it is necessary that the teachers change their role to facilitators and promote the development of certain skills in the learners that form a foundation to learning independently. Independent learning skills promote learners' ability in reviewing, recording and reflecting on their learning. They also encourage independence in problem-solving, decision-making and organisation. Therefore, if learners have to become independent in their own learning, they need to acquire the ability to learn how to learn.

In his paper—Technology in K-12 Educators: Envisioning a New Future, David D. Thornburg emphasizes that

The educational system of today needs to impart to all learners three new foundational skills:

1. How to find information.

2. How to determine if what is found is relevant to the task at hand.

3. How to determine if the relevant information is accurate.

When the learners acquire these skills, they will accept the responsibility of directing their learning. Learning to learn can lead learners to spend more time in learning without them feeling disinterested or facing fatigue. It is more relevant in this technological age, where knowledge is growing in leaps and bounds making it necessary that we keep ourselves continuously abreast, failing which, we may end up being unproductive, unemployed, outdated and lost in the gamut of knowledge. Learning has to go on as a process that never ends. It has to be life-long.Approaches like Inquiry -based learning, Discovery learning, Situated- based learning, Collaborative learning and Problem-solving are strategies that motivate learners, sustain their interest and provide excellent results. In such processes, the learners show higher levels of intrinsic motivation. Life-long learning habits can be sustained when the learners reach these levels. The task of the teachers in these strategies is to build these levels of intrinsic motivation through appropriate techniques. The role of the teacher has been discussed below keeping in mind the skills that the learners need to learn independently and sustain them as life-long habits.

Role of the teacher

Introducing the concept of independent learning

The teachers should introduce the students to the concept of independent learning in an e-environment. They have to make it clear to the students' right in the beginning that they would not be information providers but mentors who would guide them in their learning.

Enabling the learners to know themselves

The teachers should motivate the students; help them understand their current situation of learning. They should make them aware about their prior knowledge, motivation, strengths and weaknesses and attitude towards learning. This would enable the students to work along with the teachers in developing the required behavior needed for learning. It would also help in setting a clear and practical goal. At this juncture, the teachers should help students to develop their goals and plans. The students should be made aware of the different approaches to learning. They should be helped to identify the particular learning style that enables their efficient learning.

Developing the skills of learning independently

The teachers should initiate the process of independent learning by assigning students to undertake some tasks, projects or prepare for debates & discussions. The students may be helped to accurately decode and understand the task. As the students begin to look out for resources, the teacher should make them aware that they should not just refer to a single source but use a number of different sources to locate required information for completing the tasks. The teachers should lend them support by showing where & how to access reliable information quickly and efficiently. As varieties of sources of information are available, the teachers should guide the learners to work independently in making their choices. They should train them to preview or skim the materials before reading them in detail. The teachers may guide the learners in decoding and understanding the information, seeing its relevance to the assignment in hand and checking whether the information is authentic. This would enable the students to learn how to question, how to develop strategies for evaluating information, how to contextualize it and how to work out meaningful relationships so as to complete the task in hand. As evident, the students will not work in isolation. To facilitate and support their efforts, the teachers may often work along with the students as co-partners in the learning process. Sometimes the students may share information that the teacher is not aware of. In such situations, the teachers will readily learn from them. There may be some students who have difficulty to start, some others who get stuck during the process and still others who lose focus while they are learning or doing an investigation. The teachers should be

vigilant to identify those students that need help and also sense the type of help they need. They should immediately provide the help and information accordingly. The teachers may lead the students by asking questions which stimulate their thinking. They may also ask questions which help the learners to link the task in hand with what they are familiar or what they know. The support the teacher gives would make it easier for the students to pursue the activity. The teachers should keep the learners moving by encouraging the flow of ideas, clarifying doubts, guiding them to construct knowledge through experiences and enable them to probe into relationships among various disciplines.When the students complete the task they will gain confidence to learn independently. The success of this initiative will largely depend on the skill of the teachers in making a suitable blend between leading and guiding the students.

Training learners to assess their performance

After the students have learnt, the teachers should explain to the students how to analyze and assess their own performance. The peers may also be asked to assess their peer members. Such an approach of evaluation develops the ability to be reflective and to think critically. The teachers should make the students aware that the assessment would be on the basis of what they have learnt and not how much they have learned. The feedback should be immediate and constructive. The atmosphere should not be threatening but rather encouraging. Such a procedure would motivate the learners who would take up the responsibility for their learning. They would perceive learning as important for their growth and begin to appreciate it as a life-long process.

Promoting the use of learning skills

The teacher will have to arrange the above mentioned sessions regularly. They should let the students complete the task without intervention for longer periods of time. Repeated exposure to such processes will promote students' motivation to learn on their own as they become empowered with the necessary skills needed for learning independently. Teachers can also evaluate the outcomes of their learning to show the effectiveness of their individual efforts in bringing about the learning.

Ability to Learn Collaboratively

Significance

Collaborative strategies are recognized as the most ideal strategies in the present scenario, where knowledge is growing exponentially due to the collaborative efforts of dedicated researchers, who, though at distance from each other, work in coordination to build up

knowledge. Thus collaborative learning is a global endeavor to make the world a better place. The collaborative learning strategies view man as a social being who learns meaningfully through interaction with others and the environment. These strategies encourage interdependent learning as the learners actively engage in learning with their group. They also enhance learning as the learners process and synthesize information rather than simply memorize and regurgitate it. Learners benefit when exposed to diverse viewpoints from people with varied backgrounds. Collaborative learning is an approach of teaching and learning in which students work together as a team to solve a problem, complete a task, work on a project or create a product. In this approach the students get an opportunity to learn to work with all types of students. Thus it helps students to become open minded and better communicators. They begin to rely on each other for building information and develop collective understanding. They experience the thrill of contributing to building of knowledge. It develops virtues of cooperation and team spirit. The teachers play a very important role in the collaborative learning process. They have to plan the procedure and ensure that the right type of learning is taking place and that all the students are participating and learning. Taking into account the skills that the teachers have to help the students develop; the role of the teachers is discussed below.

Role of the teachers

Preoperational preparations for effective implementation

The teachers should prepare a detailed plan of how they are going to go about guiding the students in collaborative learning. They should identify those topics, projects or tasks that relate to student's interest and abilities, instructional goals and which can be best learnt through collaborative learning. In order to have efficient collaborative learning the teachers should focus on the composition of the group. As small groups seem to function better than large groups, the teachers may form teams of small groups. They then should work on procedures that would help these groups work among themselves. The teachers should create rubrics to guide the learning process and for assessing final work. The teachers may form questions on the topics or tasks chosen. While doing so they should ensure that these questions cover the content adequately, address real-life problems, and range from lower-level facts and comprehension to higher-level application and critical thinking. The first question should be framed carefully ensuring that it is motivating and based on what the students are familiar with. This would help the students to draw new ideas from their past experiences and knowledge.

Briefing the learners about the activity

The teachers should carefully explain to the students the objectives of the group activity, how the groups should operate, how they can start, how they can know whether they have completed the task, how they have to participate and how they would be graded. Students should be explained and assigned the roles of organizer, reporter, questioner, recorder, facilitator, assessor, etc. In order to develop the students' skills in learning in a collaborative set up, the teacher should provide them exercises to practice the skills of active and tolerant listening, helping one another in mastering content, giving and receiving constructive criticism, and managing disagreements. This would enable the students to learn to be responsible and dependent on each other.

Facilitating the process of collaborative learning

The teachers should set up a collaborative environment to encourage interdependent learning. They should help the students form teams with each team working on a different topic. The student who assumes the role of the questioner should raise the questions and the students in the team should be encouraged to respond. Thus a variety of responses would be got. The students should reflect and interact with the fellow students and add their own perspectives to the issue. The teacher should ensure that each of the students in the team is actively involved. The students should work together to create their own product after taking into account the various responses. This would help the students to develop better social skills. It would also enable them to take up ownership of their material. The teachers may help students to explore ideas collaboratively, pose questions and support each other in their learning. They should assist students to reflect on their progress on a regular basis. The teacher should resolve small-group conflicts as soon as they arise and show students how to prevent trouble in future. The teachers and students should regularly reflect on group progress and make adjustments to improve the outcomes. When teachers come across such students who need help to open up and interact or those who dominate the discussion, they should become a part of the discussion, encourage communication and flow of ideas, offer support and show willingness to listen.

Training the learners to reflect and assess the success of the activity

After the team completes the activity they should be asked to reflect on their performance. The group should check whether the main goal was achieved; whether every member contributed and to what extent; how did the members motivate each other to participate; what did they not learn, what areas do they have to improve and so on. Each student's performance should be assessed by calling students to present their group's work. At the end the students

should be asked to give a brief evaluation about their overall accomplishments, the student's role, and suggestions for changes in future group work.

Ability to use Information and Communication Technology Proficiently: Significance

Information and Communication Technology (ICT) literacy is a broad term that includes the use of a range of communication tools such as e-mail, video-conferencing and the World Wide Web (WWW) for the location of information, and the subsequent dissemination of information. It serves as a communications tool, which promotes the development of creativity, interactivity, collaborative learning, critical thinking and problem-solving. Linda Tyler (2005) has expressed the need of developing ICT skills as follows "Students will spend their adult lives in a multi-tasking, multifaceted, technology-driven, diverse, vibrant world— and they must arrive equipped to do so." The students who pursue higher education use these technological skills in conducting research by referring to academic journals, articles and speech transcripts available through the Web. Students receive assignments online and they e-mail completed projects to their teachers. Many use spreadsheets, graph plotters, presentation programs and multimedia tools on a regular basis. While some schools have equipped the students with these skills, there are many others that have not pursued the matter. The schools need to prioritize the training in this skill and build up the capacity of their students to make appropriate use of ICT for the purpose of learning. Considering the various skills that the teacher needs to develop among the students for the potential use of the ICT, the role of the teachers is discussed below.

Role of the Teacher

Providing a supportive learning environment

The teachers should employ the resources of ICT for teaching their subjects. This would make the students familiar with the use of these devices and hence become more receptive to learn to operate them. The teachers have to make available these electronic resources to students for accessing anytime.

Developing ICT skills among the learners

Teachers should explain to the students the ICT tools and their general functions and uses. They should focus on developing the students' ability to operate personal computer systems independently. The students should be made to understand how and when to use ICT tools. The students should be assigned projects and shown how to complete them using the ICT. They should be trained to use software for preparing presentations. In order to reinforce the learning the teachers can use self –paced learning materials on ICT. ICT can be used as a learning tool for subjects or for remedial learning.

Empowering learners to use technology as a tool for exploration and mining information

The students should be trained to access the internet, select and use the information. They may be given assignments which demand learning new things for the completion. The students are expected to access the information from the net and note down the references in their assignments. They should also be given research projects which demand the use of internet for accessing the relevant information.

Training learners to use the Internet and its various features as a communications device

Students can be trained to set up an email account, send emails and chat online. Teachers and students can have email addresses and use email in communicating to each other. They can develop their homepages to deliver information and exchange school work and ideas. The teacher can support student participation in online collaborative projects by forming student teams and assigning them projects to be worked in collaboration by using the internet, e-mail, chat, messaging and discussion forums. Students can work together to create Web pages or find and share data got from the Net. Such activities will enable them to communicate with others and work interactively with local and global learning communities.

Providing ICT –related activities to enhance the Quality of Learning

Teachers should provide ICT-related activities which engage students in new dimensions of exploring and experimenting, thinking and working creatively, reflecting and planning and creating new knowledge. Providing problem-solving challenges can also enhance the quality of their learning.

Conclusion

The teachers' role in developing these abilities is crucial. In the initial phase of the students' learning the teacher's role may be more prominent but as the students become more familiar and confident it becomes subtle, till the students can finally manage their own learning. While the teachers assist the learners in developing these abilities their personality should reflect what the students should learn from them. The behavior they depict, the attitudes they display, the confidence they exhibit, the enthusiasm they show to learn something new, the thrill they experience to learn with their students and their colleagues go a long way in transforming the lives of their students.

"Learning systems must adapt to the changing ways in which people live and learn their lives today" (Memorandum on Lifelong Learning 2000)

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