Authentic Learning for Acquiring Competency in Professional Education

K. Sukumaran

(Shridevi Institute of Engineering and Technology, Tumkur 572106, India)

Abstract: Education is meant for the development of knowledge. Educational technology encompassing pedagogy, cognition, teaching and learning styles has made rapid strides with the advancement of science and technology. Innovations in computers, information and communication technology added new dimension to the teaching and learning methods as the knowledge explosion warrant problem based and practical oriented learning techniques in preparing the professional education students to become competent to secure employment. In the development of educational technology many types of teaching and learning styles have been evolved based on its relevance need and application. Among the many methods of learning, "Authentic Learning (AL)" is considered as one of the effective method in imparting cognition as it is framed on thinking, activating, discussing, formulating ideas and concepts based on real problems with practical application. The AL found to be more relevant in building the competency of students for placement as well as to acquire the required qualities like soft skills, personality development, cognition, etc. The paper brings out the glimpses of AL and also the significance of ICT in AL. It is suggested teaching and learning in professional education shall adapt AL for greater success and career building of professional courses students.

Key words: intelligent tutoring, concept mapping; multiple interpretation, synchronous communications, integrated assessment

1. Introduction

Many students in the present time do not actually understand what has been learnt and for many students the education becomes a drill or an exercise to obtain a degree or qualification to secure a job. This trend result in failure of endeavours in imparting knowledge and developing skills to prove the qualities and competency required for a professional student or graduate. In the present day, the success rate of employment of professional graduates is less than 15% which shows the colossal failure rate, leads to economic loss and knowledge mismanagement. The root-cause and reasons for this type of scenario in professional education being education is not pursued with purpose and values. Learning is a process of interacting with the outside world, continually reanalyzing and reinterpreting new information and its relation to the real world (Brown J. S., Collins A. and Duguid P., 1989). Traditional learning situation in which students are passive recipients of knowledge are inconsistent with the learning situations of real-life and to make student learning relevant to real-life experiences, it is essential to make learning environments must be "authentic".

"Authentic Learning (AL)" is pedagogical approach that allows students to explore, discuss and meaningfully construct concepts and relationships in contexts that involve real world problems and projects that

---

K. Sukumaran, Ph.D, dean-academic, Shridevi Institute of Engineering and Technology. E-mail: drksukumaran@gmail.com.

are relevant to the learner. The term "authentic" is defined as genuine, true and real and if the learning is pursued in this sense that would foster the opportunity to find solution to the problems and issues with innovation. These kinds of experiences enhance student motivation in learning more than in the classroom. The true power of authentic learning is the ability to actively involve students and kindle their intrinsic motivation. Authentic learning typically focuses on real-world and complex problems and their solutions using role-playing exercises, problem based activities, case-studies and participation in virtual communities of practice (Marilyn M. Lombardi, 2007). The learning environments are inherently multidisciplinary and authentic learning brings to play multiple perspectives, ways of working, habits of mind and community.

2. Characteristics of Authentic Learning

Authentic instruction will be effective and different from traditional methods of teaching and AL has several key characteristic as indicated.

- Learning is centered on authentic tasks that are of interest to the learners;
- Students are engaged in exploration and enquiry;
- Learning most often is interdisciplinary;
- Learning is closely related to real problems, beyond the relevance of classroom learning;
- Students become engaged in complex tasks and higher-order thinking skills such as analyzing, synthesizing, designing, manipulating and evaluating information;
- Students produce a product that can be shared with an audience outside the classroom;
- Learning is student driven with teachers, parents and external experts, all assisting or coaching in the learning process;
- Learning employ scaffolding techniques;
- Students have opportunities for social service and discourse;
- Authentic Learning (AL) helps to understand the basics, concepts, principles, fundamentals to think alternatively and instill research orientation;
- Authentic Learning (AL) practices would be successful when a team or group is formed in learning, understanding, brainstorming, and deliberating, analyzing, imagination, enhancing the interest and inducing involvement in knowledge acquisition process;
- Authentic Learning (AL) evolves self-belief, confidence, boldness, competitiveness, in exploiting the inherent potentials and harnessing the power of learning.

3. Design Elements for Authentic Learning

According to learning researchers the essence of authentic learning experience is formulated down to ten design elements, which can be used as a checklist for authentic learning of any subject domain (Reeves T. C., Herrington J. and Oliver R., 2007).

(1) Real-world Relevance: Authentic activities match the real-world tasks of professionals in practice as much as possible. Learning rises to the level of authenticity when it expects students to work actively with abstract concepts and facts, in realistic context.

(2) Ill-defined Problem: Challenges cannot be solved easily by the application of an existing algorithm unless

authentic activities are clearly defined and open to multiple interpretations.

(3) Sustained Investigation: Tackling and solving problems require more time and students should be developed to have explorative or investigative mindset over a sustained period of time with intellectual qualities.

(4) Multiple Sources and Perspectives: Students should be provided with resources to gather relevant information from various sources to analyze, process and to arrive at the results.

(5) Collaboration: Success is not a single person's endeavour and the collaborative learning as a team will bring achievements with triumph.

(6) Reflection (Meta cognition): Authentic activities enable learners to make choices and reflect on their learning both individually and as a team or community.

(7) Interdisciplinary Perspective: Relevance is not confined to a single domain or subject. Students should be encouraged to adopt diverse roles and think in interdisciplinary terms.

(8) Integrated Assessment: Assessment shall reflect the competency, understanding and knowledge level of learning of a subject or domain with perfection, and proficiency.

(9) Polished Products: Final derivatives should indicate the attainment of completeness or fulfillment of the knowledge in a domain, which can be revealed by drawing conclusions or inferences.

(10) Multiple Interpretation and Outcomes: Rather than one method or one way of finding a solution to a problem applying multiple and diverse interpretations would yield a competing solution is an optimal way.

Educational researchers opinioned that learning pursued in authentic learning style would motivate the students despite initial disorientation or frustration till team work prevails in achieving togetherness in solving and succeeding stupendous tasks of challenges.

4. Use of ICT in Authentic Learning

Authentic Learning is new style of learning and as a matter of fact, AL was the primary mode of instruction for apprenticeship. Educational research infer that authentic learning not only confined to learning in real-life location and practice, but making use of teaching aids offered by technological innovation of ICT viz., e-learning, m-learning, Internet, Web-based learning, multimedia based learning, etc., can develop curiosity, interest, orientation, concentration, interest and mind regulation in learning habits. For instance, Web-based access to radio astronomy data, students have discovered stars overlooked by veteran researchers. With online access to remote instruments, students are using rare or expensive equipment to run experiments and interpret data for themselves. Students can reflect on their learning and performance by taking 'Snapshots' of their group activities with the help of blogs, e-portfolios and video-capture tools. Authentic Learning can rely on educational software developed to simulate typical sceneries that professional encounter in real world settings. Along with communication tools, these on-line experiences often integrate intelligent tutoring systems, concept mapping, and immediate feedback, opportunities for reflection, including the chance to replay recorded events and adopt alternative decision paths (Reeves T. C., Herrington J. and Oliver R., 2007).

Authentic learning environment is supported by technological advancement that includes (Reeves T. C., Herrington J. and Oliver R., 2007):

- High-speed Internet connectivity for provision of multimedia information, including dynamic data and practical visualizations of complex phenomena and access to remote instrumentation in conjunction with expert advice.

- Asynchronous and synchronous communication and social networking tools for the support teamwork, including collaborative online investigation, resource sharing and knowledge construction.
- Intelligent tutoring system, virtual laboratories and feedback mechanisms that capture rich information about student performance and assist students to transfer their learning to new situations.
- Mobile devices for accessing and inputting data during field-based investigations.

5. Significance of Authentic Learning

An educator or a teacher can introduce authentic content, replacing textbooks with historical documents and scientific data from different sources. Higher education should focus on higher order thinking skills viz., analyzing, evaluating and creating rather than lower order thinking skill like remembering, understanding and applying in inculcating cognitive skills. Apart from developing the lower-order thinking skills, educators have largely ignored major learning domains, particularly the cognitive, which determines whether a student has the necessary will, desire, commitment, mental energy and self-determination to perform with goals and objectives. There are eight critical factors that researchers say must be aligned to ensure a successful learning environment (Reeves T. C., Herrington J. and Oliver R., 2007).

- Goals
- Content
- Instructional Design
- Learner Tasks
- Instructor Roles
- Student Roles
- Technological Affordances
- Assessment

Authentic Learning may be more important and relevant in a rapidly changing world, where individuals can progress through multiple careers with the required skills and competency. According to Frank Levy and Richard Murnane, expert thinking and complex communication will differentiate those with career-transcending skills from those who have little opportunity for advancement (Levy F. and Murnace R., 2005). Expert thinking involves the ability to identify and solve problems for which there is no routine solution, which requires pattern recognition and metacognition. Another differentiator is complex communication such as persuading, explaining, negotiating, gaining trust and building understanding. Although the basic skills like reading, writing, mathematics, history, languages, etc., remain essential and apart from these more complex set of competencies are required for the present and future. Besides the technical competency, leadership qualities, ethics, integrity, team spirit, working together, critical thinking, organizing skills, innovative thinking, creativity, imagination, effective communication, etc., are the dynamic skills to be developed to attain competency in profession and career. Authentic Learning exercises expose the confusion or disorderliness of real life decision making, where there may not be a right or wrong answer per se although one solution may be better than other in a particular context. This type of delicate difference of understanding involves considerable reflective judgment and valuable lifelong skills. To become competent and competitive, students must be exposed to complexities of real-world problems in a planned way and systematically.

6. Practicing of Authetic Learning

Teachers and educators who want to implement authentic learning should follow the given tips for its effectiveness (Reeves T. C., Herrington J. and Oliver R., 2007).

(1) Think like a Coach: Authentic instruction differs from traditional teaching method and effort should be exercised to make learning as an effective task by the students with interest and curiosity.

(2) Activate the learning: Students should be activated for learning by working effectively, participating in discussions, searching for information and showing inclination for energetic learning and energetic activities.

(3) Receptiveness for Learning: Students should be explained about the significance of learning with competency to become competent and achieving success with acclamation.

(4) Supportive Role Playing: Teacher should develop a rapport in encouraging students to look for sources of information, guiding them to reach their goals and also to solve the problem encountered in their learning.

(5) Learning Opportunities: Authentic Learning makes teachers to learn more with clarity and understanding such that learning becomes a venture of life-long learning.

7. Discussion

Teaching and learning has to be pursued with a purpose with motivation to inspire, innovate and ignite the learning minds. Though many pedagogical methods and learning styles are prevailing, on the context of professional education, which warrant skills such as talent, competency, creativity, analytical mind-set and critical thinking, soft skills, command over communication, leadership qualities, organizing ability, crisis management, etc., which are essential skills to secure a job in an organization of high repute. Implementation of "Authentic Learning" prepares a student with a practical orientation by developing an explorative mind-set that would impart expertise in learning domain such as:

- Cognitive capacity to think, solving problems in finding solutions and create new concepts or ideas；
- Affective capacity to sensitize value, appreciate and care；
- Psychomotor capacity to perceive, change, modify, and transform by applying physical skills；
- Cognitive capacity to act, decide and commit ultimately to prepare a learner (teacher as well as student) should develop wisdom to become wise, clever, intelligent, talented, achiever, inventor, innovator, leader, motivator, pathfinder in evolving the youth as an effective force with knowledge, which becomes as an armour to safeguard them in their professional pursuits.

8. Conclusions

(1) As the world has become dynamic with the advancements of science, technology and humanities, the requirements of cognitive needs have become very challenging and competitive by adapting appropriate pedagogy by the learner or student.

(2) Though many methods of pedagogy have been developed, their relevance in dissemination of knowledge would be the base on the purpose and type of education, goals, objectives, purpose and needs.

(3) Among the variety of learning styles prevailing, the 'Authentic Learning' considered to be more effective in pursuing professional and technical education as these type of education warrant practical or experimental knowledge in understanding the concepts, basics, fundamentals and also to think further to find solution to the

unsolved problems still prevailing and persisting in many domains of science and technology.

(4) "Authentic Learning" facilitates the student to think in depth as every practical aspect of theory is to be understood by interrogation why? what? when? how? where? which could develop dynamic thinking to enhance cognitive power.

(5) Developments and avenues available with ICT could be utilized in imparting cognition in adapting authentic learning by using Internet, Web-based learning, multimedia based learning, e-learning, m-learning, etc.

(6) The success rate of employability of professional graduates is about one-seventh which implies that technical education is not imparted to the learners in understanding the subject matter. The prevailing trend of pedagogy will be dangerous as the level of knowledge is diminishing among the learning professionals, graduates and students.

(7) Education is to be pursued by the students with ethical and moral values in realizing its purpose and goal. Teachers have to emulate themselves as role-model in motivating the student to become achievers with value oriented education.

(8) Professional career should be embedded with social responsibility with a common concern for the world, society, nation, environment, peace and harmony and also contribution towards growth and development of the country and world.

(9) Educationists, teachers, engineers, technocrats and professionals should evolve themselves as a pathfinders and guides in bringing awareness about the importance of cognition among the students to make country as a developed and knowledge base for the benefit of the world and for its sustainability.

References:

Brown J. S., Collins A. and Duguid P. (1989), "Situated cognition and the culture of learning", *Educational Researcher*, No. 18, pp. 32–42.

Marilyn M. Lombardi (2007). "Authentic learning for the 21st century: An overview", *Educause Learning Initiative*, ELT Paper No.1, pp. 1–12.

Reeves T. C., Herrington J. and Oliver R. (2007). "Authentic activities and online learning", *Proceedings of Higher Education Research and Development*, Society of Australia, available online at: http://www.ecu.edu.au/conferences/hersa/main/papers/ref/pdf/Reeves.pdf.

Levy F. and Murnace R. (2005). *The New Division of Labour: How Computers are Creating the Next Job Market*. Princeton NJ, Princeton University Press.