SHORT COMMUNICATION

Technology Deployment in Self-directed Learning: A Guide for New Path in Medical Education

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Abstract

Knowledge acquired by medical students in medical institutions becomes obsolete during their medical career. Thus, medical profession is in acute need for continuous learning that can be obtained by motivating and guiding students in the practice of self-directed learning (SDL). SDL enhances critical reasoning skills, amplifies curiosity, enhances the ability to recognize knowledge deficits, and enhances enthusiasm for learning. Technology is a captivating source of interactive tool in medical education. Exploiting technology brings deeper connections between student and educational content. It helps enhancing academic performance and also improves critical thinking. The right guidance for the utility of technology by the medical students will help them to become self-directed lifelong learners.

Keywords: Education, Medical students, Self-directed learning, Technology.

SBV Journal of Basic, Clinical and Applied Health Science (2021): 10.5005/jp-journals-10082-03112

Introduction

In 1970, Malcon Knowles introduced andragogy to adult educators; self-directed learning (SDL) appeared as a model that helped adult learners and discriminated them from children.[1] SDL has become an important part in medical education. Prodigious medical curriculum requires SDL as a part of customary teaching. Medical professionals are continuous formal or informal learners. Medical education emphasizes on learner independence and embraces the ethos of lifelong learners. The customary medical teaching has not fully achieved the goal of developing the skills necessary for lifelong learners among medical students. The lacuna is not the absence of appreciating the importance of creating lifelong learners, but it reflects the change in pedagogical practice and teaching habits.[2] The well-known verity is "habits are overtly difficult to change." Educators deny the significance of implementing teaching methods that promote and foster skills that are linked of creating autonomous and self-directed learners.[3] SDL was defined by Malcon Knowles in 1970 as "The process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing learning strategies, and evaluating learning outcomes." SDL is not a single process; it requires skills for independent involvement and learning method as determined by individual learner.[4]

Student's lives are seized by academic activities, and the only windows to evade are technologies and social networks. This digital interest among students can be convened to gain academic knowledge. Technology provides a compelling source of interactive tools for academic purposes ranging from taking note, involving in discussion forums, accessing supplementary resources, problem-solving, student–faculty interaction, and it may foster interest with SDL. Students utilizing the information technology are more likely to contribute and participate in active academic collaboration.

Information technology helps to create a deeper connection between the educator, students, and educational content, resulting in enhancement of academic performance and learning outcomes like critical thinking, reflective writing, and individual student development.[5–9] Rooted firmly in the dominion of adult education, the concept of SDL has been recognized for decades. The boom in digital technology has brought SDL to the forefront, and its context has changed with the current technology in various learning avenues (Fig. 1).

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How to cite this article: Singaravelu SLD, Nair AS. Technology Deployment in Self-directed Learning: A Guide for New Path in Medical Education. J Basic Clin Appl Health Sci 2021;4(2):51–53.

Source of support: Nil

Conflict of interest: None

Types of Technical Support for Students

The technology support like online reading exposes students to a wide range of resources available online, covering their areas of interests, which they can learn at their own space, personally. Online learning increases the effectiveness in student learning methodology (Table 1). SDL becomes handier for students with open educational resources (OER), which provide free resources for learning. These resources enable students to learn any subject of interest without constant need of a teacher. Social media has always had a negative impact on student's academic development, as it is believed to hinder academic concentration and considered as time waster. However, with the era of personal learning networks (PLNs) that create the core for passionate SDL through blogs and social networks like Twitter, Facebook, and WhatsApp, PLNs are ever-growing connections with resources, people, and communities

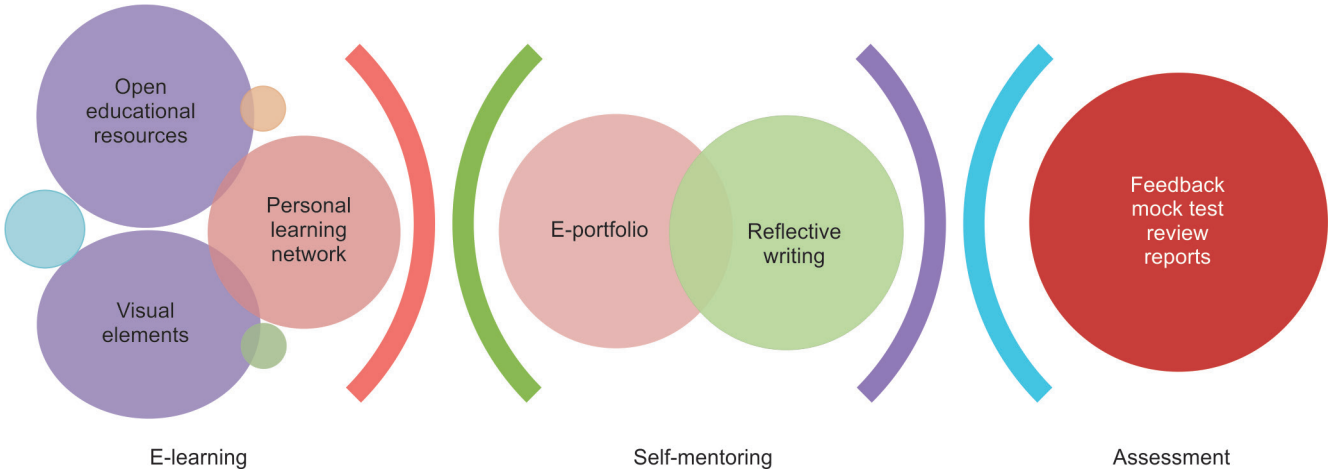

Fig. 1: Process of technology deployment in self-directed learning

Table 1: Self-directed learning and the list of technology sources

	Self-directed learning	*Technology sources*
1	Open educational resources	NYU libraries, National Network of Library of Medicine, Health Education Assets Library (HEAL), Directory of Open Access Journals, MedEd PORTAL, Peer-Reviewed Instructional Materials Online (PRIMO).
2	Personal learning networks	Twitter, Facebook, WhatsApp, Skype, Voxer, Diigo, edWeb, eduTopia, Classroom 2.0
3	Visual elements	Alison, Amazon Education, YouTube, edX, Khan Academy, SchoolTube, OpenMD Medical Video Directory, SchoolsWorld
4	Self-assessment	Community of Online Research Assignments (CORA), 4tests.com, BoardVitals, mdlinx.com, roshreview.com, webpath.com

all over the world. These global connections will allow them to develop knowledge, skill, and perspective and reflection. This mode facilitates collaboration, which helps in SDL. The visual elements that can be shared like lectures, educative animations, and short medical case videos in YouTube, MedCram, and MedEd online make learning more blissful. These platforms empower students to design their own learning style. Technology deployment in SDL in medical education can become successful only if students are efficient to validate the information after synthesizing and leveraging it. Thus, SDL will become less demanding. Communication and collaboration help the students to bridge up the space in which the clarity lacks.

Study by Tullis and Benjamin in 2011 showed that SDL using social media and other technologies provided a profound repercussion in the effectiveness of the users' learning efforts.[10] Study by Nelson Laird and Kuh in 2005 proved that using information technologies for academic purposes contributed actively in classes and had good academic collaboration with other students.[11] Research by Hu and Kuh in 2001 used data from 71 colleges and universities in United States and showed that Internet for course material has good effects on students' intellectual development and personal development.[12] Technology in SDL helps the students to keep a track of all the activities they undergo through a course of time by creating an e-portfolio. Maintaining an e-portfolio helps the student to detect his/her difficulties and analyze them for developing rational solutions. Reflective writing will help the students to play a moral role in society and motivate them for lifelong learning. Students can try to (i) assess themselves by sharing their work with others to get feedback for improvement, (ii) practice "mock test and review" on mock test websites, and (iii) create video of the gained knowledge and observe for views and comments, which will direct them toward perfection. Technology deployment in student's life is always debated with both positive and negative effects. However, if used with correct guidance, technology can bring a revolution in the educational history among students. SDL with right technology supports can replace an "educator and assessor" and engrave freedom among students. It will create lifelong learner leading to an erudite society.

Conclusion

SDL and technologies can bring promising changes in enhancing knowledge, self-responsibility, and critical thinking. Identifying the sources of required resources may be challenging, yet under apt guidance from mentors and faculties, it is achievable. This process will befit professionals into lifelong learners.

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