Research Article

Rethinking Pedagogy: Interrogating Ways of Promoting Deeper Learning in Higher Education

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ABSTRACT

Teaching and learning in higher education should shift from surface learning to deeper learning. Deeper learning provides opportunities for students to achieve high learning outcomes. However, there is a dearth of information on the utilization of deeper learning in higher education. Deeper learning demands educators to employ pedagogy that enhances the acquisition of higher-order skills. Through deeper learning, students develop critical skills that are necessary for the twenty-first century. Such skills enable the students to succeed in their careers and social life. In this paper, the authors explore deeper learning for enhancing teaching and learning in higher education. In particular, unpacking the competencies of deeper learning. The paper focuses on promoting problem-solving, content knowledge, critical thinking, communication, and collaboration, contextualising learning, learning how to learn, transferring of knowledge and skills, the utilisation of digital technology supporting students to become life-long learners, as well as deeper learning and the 21st-century skills. To collect data, a desktop review of deeper learning competencies was done. In conclusion, the paper proposes the most appropriate strategies for promoting deeper learning for the attainment of 21st-century skills.

Keywords: critical skills, digital technology, deeper learning, higher education

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INTRODUCTION

There is a continuous need to relook and revisit teaching and learning approaches in higher education. Of importance is the need to empower learners with skills that will assist them to succeed in life after college. The learners should be able to participate meaningfully in a global and highly technical environment. As noted by Dean and East (2019), learners in higher education institutions require more than content knowledge in the different disciplines and technical skills should be complemented by soft skills such as communication, teamwork, motivation, problem-solving, enthusiasm, and trust. Similarly, Rickles et al. (2019) argue that learners should be prepared to adapt and adjust to the ever-changing demands of the workplace and the democratic environment. Such preparation for the students is possible by utilising teaching and learning approaches that result in deeper learning.

The knowledge economy requires learners who can think critically, communicate effectively and manage their learning (Rickles et al., 2019). Course instructors in higher education institutions should reflect on the teaching and learning methods, with the view to engage students more in the learning process. The creation of independent learners who are critical thinkers and problem-solvers should be at the heart of teaching and learning in higher education institutions.

UNPACKING DEEPER LEARNING

The Hewlett Foundation (2013) defines deeper learning as "a set of competencies students must master to develop a keen understanding of academic content and apply their knowledge to problems in the classroom and on the job." The foregoing definition alludes to the importance of content mastery in different disciplines and the ability to apply knowledge in settings outside the classroom. Deeper learning, therefore, entails the development of competencies that would allow an individual to function optimally in different environments by applying knowledge.

Fink's (2003) theory of significant learning identifies six important categories of deeper learning and these include foundational knowledge, in which learners learn the basics of the discipline, including key concepts and terms. The second category entails the application of knowledge and skills. The knowledge and skills are applied in real-life contexts to solve problems and make decisions. The third category is about integration and in this category learners are taught how to make connections. There is also the human dimension category, which involves the ability to relate the knowledge gained to others and oneself. Caring is another category, which allows learners to develop new ways of looking at the community, the society, the country, the world, and the planet. The last category involves meta-

learning, the ability to learn how to learn by integrating elements of critical thinking into the learning process (Fink, 2003).

Draper (2009) states that "difference between deep learning and surface learning stems from the fact that surface learning focuses on retaining facts and mastering terms, whereas deep learning focuses more on understanding and making connections". It is, therefore, clear that to achieve deeper learning, higher-order learning outcomes should be achieved. Appropriate pedagogical practices for the attainment of higher-level skills should be utilised. Deeper learning can also be viewed as the blend of a deeper appreciation of principal learning content, the skill to apply that understanding to innovative situations, and the growth of a range of skills, including people skills and self-management (Bitter & Loney, 2015).

Promoting Problem-Solving in Deeper Learning

Rahman (2019) defines problem-solving as a process, which involves methodical reflection and critical thinking to find a proper way out to reach sought after goals. To ensure deeper learning experiences in the learning process, students use tools and techniques obtained from main subjects to improve and resolve problems. These tools include data analysis, statistical reasoning, creativity, and nonlinear thinking. For example, Jantakoon et al. (2019) proposed Virtual Immersive Learning Environments (VILEs) based on digital storytelling to enhance deeper learning for undergraduate students in all fields.

Furthermore, in the context of problem-solving in deeper learning, Instructional designers have a role to play that cannot be ignored. They should ask questions that will result in problem-solving (Czerkawski, 2014). Not only instructional designing addresses deeper learning issues, but also, Hanneya and Savin-Baden (2013) suggested project-based learning as an effective way to acquire and improve deeper learning competencies required for success in higher education studies, and workplace. The practice of project-based learning facilitates learning that is contextual, creative, and shared. Hence, students collaborate on projects that require critical thinking for them to answer challenging questions or solve complex problems (Coffey, 2015).

Promoting Content Knowledge in Deeper Learning

As earlier alluded to, in deeper learning students develop a deeper understanding of core academic content, which includes disciplinary concepts and terms which they should be able to apply to novel problems and situations (Bitter & Loney, 2015). Students should be able to master core academic content, among other things, to succeed in the 21st century (Martinez & McGrath, 2016). The promotion of content knowledge falls under the cognitive domain competency or foundational knowledge category of deeper learning (Martinez & McGrath, 2016). Students develop deep content knowledge and build a strong foundation in academic content areas and draw on their knowledge to complete new tasks (Martinez & McGrath, 2016). Bitter and Loney (2015) found that learners in schools that used deeper learning strategies scored high in tests that assessed content knowledge and problem-solving skills. The students develop cognitive competencies and understand disciplinary principles and concepts. The mastery of content enables students to transfer knowledge to different situations, think critically, synthesize and analyse information, and solve problems.

Promoting Critical Thinking in Deeper Learning

Scriven and Paul (2007) define critical thinking as "the intellectually disciplined process of actively and skilfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action" As observed by Shakirova (2007), it is important to develop critical thinking skills in learners because possession of critical thinking skills enables the learners "to deal effectively with social, scientific, and practical problems." Learners who can think critically are, invariably, able to solve problems that they face.

According to Fahim and Masouleh (2012), critical thinking entails the students' ability to question the credibility of information and information sources. In this internet age, there is a lot of information available and through deeper learning, students should be able to engage with the information and the different information sources in establishing credibility. Students will learn never to take anything for granted but to question and critique issues for veracity and authenticity. Furthermore, Fahim and Masouleh (2012) note that a critical thinker can analyse and evaluate information and propose alternative viewpoints.

The pedagogy of developing critical thinking in students dates back to the views of Freire (1970). Critical pedagogy allows students to be actively involved in knowledge construction and knowledge sharing. The process of knowledge construction involves engaging different knowledge sources, analysing and evaluating them. Such an approach is in contrast to the 'banking' approach to teaching where through the use of the lecture method, lecturers pour knowledge onto the minds of the students who will be passive recipients. Behar-Horenstein (2011) calls for a pedagogical shift in higher education from teaching what to think to teach how to think. This entails developing the lecturers professionally to embrace pedagogical approaches that assist in promoting critical thinking in the students.

Promoting Communication and Collaboration in Deeper Learning

Communication and collaboration in deeper learning are when students cooperate to identify and create solutions to academic, social, as well as personal challenges (Bitter & Loney, 2015). To communicate effectively students are expected to structure information and data in meaningful and useful ways (Hewlett Foundation, 2013). This can be achieved by giving students opportunities to make student presentations, student-led conferences, group work, interactive projects, and internships.

Learning is social, and including collaboration throughout the learning process is highly engaging for students. To foster a collaborative culture design options for collaboration, including flexible groups, peer tutoring, seminars need to be explored (Pijanowski, 2018). Further, digital teaching platforms have been found to offer powerful support for collaborative learning. For example, Hegedus and Roschelle (2012) describe how the curriculum is organized to allow highly engaging whole-class discussions.

The Contextualising of Learning

To promote deeper learning, teaching has to be based on real-life and be relevant to the lives of learners. Context-based teaching and learning promote a deeper understanding of concepts and meaningful learning as learners can apply the concepts in real-life (Pahomov, 2014).

Real-life examples should be used in instructional materials as well as during lessons. Learners should have opportunities to solve real-life societal problems. Assessment should be authentic. Contextualising learning promotes the development of coherent knowledge (Martinez et al., 2016). It is also important to note that contextualising learning assists students to understand what they learn and apply the knowledge and skills in solving problems.

Deeper learning strategies should link teaching and learning to genuine and real-life contexts. Hunde and Tacconi (2018) note that in deeper learning, teaching and learning should be contextualised. Learners should experience authentic learning environments such as the real world of work (Hunde & Tacconi, 2018). To this end, learning should not be merely theoretical but should expose students to real-life happenings in the social, economic, technological, and political spheres. Behrendt and Franklin (2014) also stress the importance of experiential learning where students are involved in excursions and field trips for educational purposes. The learners should, therefore, be involved in learning in real-life contexts as part of deeper learning strategies.

Promoting Learning How to Learn

Another important aspect of deeper learning is how students should learn how to learn. As observed by Spronken-Smith et al. (2015) the students' understanding of learning how to learn involves elements of meta-learning. Meta-learning is about understanding what learning entails and developing one's learning practices and strategies (Spronken-Smith et al., 2015). To this end, as the students are involved in deeper learning there is the inculcation of values of taking control of one's learning. There is a large element of self-regulated learning in learning how to learn. Cheng (2011) states that in self-regulated learning, students should be intrinsically motivated to learn, set their own learning goals, take control of the learning process and develop learning strategies to achieve the goals.

Meta-learning is important in the students' development of lifelong learning habits. Cheng (2011) notes that when students are taught the ability to learn how to learn, they acquire knowledge and skills which make them life-long learners. Župarić (2011) asserts that lifelong learning calls for one to engage in continuous learning in life to improve on knowledge, skills, and competencies in the different facets of life. General life and life at the workplace require one who is willing and able to learn new skills and knowledge and can learn independently as well as manage time and information well.

As observed by Hewlett Foundation (2013) learning how to learn involves the student's ability to manage their learning. The ability to manage one's learning is an important aspect of lifelong learning. Course instructors in higher education should involve students in the curriculum development process so that they contribute to what they learn. Ngussa and Makewa (2014) state that the student's voice should be heard in the curriculum development process. Students should be empowered to make critical decisions on what they learn, how they learn, and how they are assessed.

Promoting the transferring knowledge and skills

Bellanca (2015), as well as Pellegrino and Hilton (2012), define 'deeper learning' as the type of learning that results in one's ability to transfer what is learned from one environment to another. Fullan et al. (2017) note that the learner's ability to transfer knowledge and skill to new contexts is the greatest evidence that deeper learning has occurred. The ability to transfer knowledge and skills enables the learner to deal with change and new challenges. The learner becomes adaptable as knowledge and skills can easily be applied when the environment demands.

As noted by Ruuskanen et al. (2018, p. 2) transferable skills are skills such as "written and verbal communication skills, interpersonal skills, problem-solving skills, as well as information technology and self-management skills", which are applicable in different social, political and business contexts. if for example, one has masters wrote and verbal skills from high school and university, such skills should be exhibited in different contexts. Such transferable skills become important graduate attributes required by employers. Hill et al. (2016) state that it is the role of higher education to produce graduates with the relevant attributes required by employers.

Deeper learning pedagogy should emphasize the development of transferable skills and as noted by Hill et al. (2016) include critical thinking skills, oral and written communication skills, leadership and teamwork skills, research and inquiry skills, information literacy, personal attributes such as self-awareness and self-confidence as well as personal values such as ethical, moral and social responsibility. Through the deeper learning pedagogy, a well-rounded graduate should be produced in terms of relevant and useful knowledge, skills values, and attitudes.

The Use of Digital Technology in Deeper Learning

According to VanderArk and Schneider (2012), digital technology includes adaptive software for students with special needs; learning platforms; participation in professional communities of practice; and access to high-level and challenging content and instruction. In other words, digital technologies promote deeper learning when there is a provision of institutions and tools that foster deeper learning. As a result, encouraging the objective of deeper learning will need an inclusive approach that includes staff training, curricular reform, and an extensive range of learning prospects for learners (Czerkawski, 2014).

To ensure smooth implementation of deeper learning, policymakers ought to consider technology and infrastructure needs. Improved internet connectivity in low-bandwidth areas can expand learners' ability to conduct research that can deepen their experiential knowledge and construct critical thinking about the sources they explore and for what purpose. Also, the impact of deeper learning strategies depends on stakeholder support. Educationists and relevant stakeholders need to build strategies, and benefits of implementing new deeper learning initiatives. Institutional management also needs to consider how policies that inspire deeper learning strategies can support and align with existing initiatives. Digital platforms can also support teachers in adjusting their teaching to meet learner needs. For example, online assessment tools are intended to detect any gaps in learner prior knowledge of a subject so that instructors can resolve exactly which skills each student will need to reinforce to comprehend new and more complex material (Dede, 2014).

Supporting Students to Become Life-Long Learners

Lifelong learning entails developing in learners the ability, motivation, and disposition to learn continuously from the school days to life after school (Pearson, 2020). A deeper learning pedagogy supports students to become lifelong learners which have become mandatory in the technological age and changing world. Deeper learning enables students to develop skills and competencies which they

will need to succeed in the future (Martinez & McGrath, 2016). Life-long learners can be developed through project-based learning. The projects should be based on real societal issues/problems. Students develop critical thinking and independent learning as well as autonomy which will make them confident and lifelong learners. They must be given opportunities to reflect on their learning. Lifelong learning can also be developed through the use of technology in the classroom. This experience will prepare students for the workforce where they will constantly be learning to keep up to date with the latest technological developments (Pearson, 2020).

Deeper Learning and the 21st-Century Skills

Deeper learning should promote the development of important 21st-century skills. According to Fullan and Langworthy (2014), these skills include creativity, collaboration, communication, critical thinking, self-directed learning, and global citizenship. Salna (2012) notes that creativity is part of critical thinking and is important in preparing students for the future. Furthermore, Beghetto and Kaufmann (2010) argue that life in the 21st century is unpredictable and the development of creative thinking in the students assists them to adjust and adapt to changes in the social, economic, and political environment. The importance of teaching creativity is underscored by Crainer and Dearlove (2014) who state that one's inability to be creative poses great risks for failure in many areas of life. Higher education institutions should infuse the issue of developing creativity and creative abilities in students in their curricula (Robinson, 2013). Hosseini (2011) notes that universities should transform their pedagogical approaches to foster creativity in students. The use of transmission models of learning does not assist in developing creativity in students. students should be actively involved in learning, questioning what they learn.

Collaboration is another important 21st-century skill that should be inculcated in students. As noted by Laal et al. (2012) collaboration entail one's ability to work together with others by learning and respecting the abilities and contributions of others. The importance of collaboration in the world of business and social life is hinged on the understanding that in working as a team an individual's actions may promote or obstruct the success of the team. Laal et al. (2012) further note that individuals should work cooperatively to achieve a common goal and should avoid unnecessary competition or individualistic tendencies. The values and attitudes of cooperation are developed in students through pedagogical approaches utilized in higher education. Teaching and learning approaches should promote cooperation rather than competition. Robbins and Hoggan (2019) advocate for the use of collaborative learning techniques, which allow students to work together on common tasks thereby developing important deeper critical thinking skills. The ability to work collaboratively is a transferable skill that is required in the workplace in the 21st century.

Self-directed learning is also an important 21st-century skill that should be developed in students in higher education. Self-directed learning is an approach to education where students are responsible for the learning process (Bosch, 2017). As noted by Bosch et al. (2019) in taking full responsibility for their learning, students are expected to make conscious decisions in selecting their learning approaches and resources for utilisation in attaining the desired learning outcomes. it is also important to note that self-directed learning places emphasis on knowledge construction by students where discussion and dialogue play a major role in learning (Boyer et al., 2014). The teacher plays the role of facilitating learning and is also a co-learner. The teacher ceases to be the all-knowing figure who transmits knowledge to students. As further noted by Bosch et al. (2019) self-directed learning results in students who are self-motivated to learn and can monitor and manage themselves. The 21st century socio-economic and political environment requires citizens and workers who are self-directed learners to be self-starters in participating in activities in the different spheres of life.

Global citizenship is one other important aspect of the 21st-century skills that should be developed in the students. UNESCO (2015) defines global citizenship as a sense of belonging to a broader community and common humanity. The word is now a global village and interconnection and interdependence in the political, economic, social, and cultural spheres hence the importance of teaching students about what global citizenship entails and their role in it. Similarly, Del Carmen and Bartolome (2018) note that global citizenship involves students' acquisition of skills necessary for the promotion of social and environmental justice. Deeper learning, therefore, should include global citizenship education, which teaches students to identify social and environmental problems at the community level and address the challenges with solutions that have a global impact.

CONCLUSIONS AND RECOMMENDATIONS

This discussion has shown the importance of developing students' knowledge and competencies through deeper learning to equip them for solving societal problems, lifelong learning, and future jobs. Through deeper learning, students acquire a deeper understanding of content knowledge, problem-solving, content knowledge, critical thinking, communication, and collaboration, contextualizing learning, learning how to learn, transferring of knowledge and skills, the utilization of digital technology supporting students to become life-long learners, as well as deeper learning and the 21st-century skills. There is a need for pedagogical and curriculum transformation in higher education to foster deeper learning.

In line with this conclusion, it is recommended that institutions of higher learning explore the prospects deeper and use the most appropriate strategies for promoting deeper learning for the attainment of 21st-century skills.

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