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Reimagining Pedagogical Approaches for the Twenty-First Century

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ABSTRACT

This thematic paper focuses on pedagogical approaches for the twenty-first century. In education teachers facilitate student learning. The objective is typically a course of study, lesson plan, or a practical skill, including learning and thinking skills. The different ways to teach are often referred to as the teacher's pedagogy. When deciding what teaching method to use, a teacher will need to consider students' background knowledge, environment, and their learning goals as well as standardized curricula as determined by the relevant authority. It is a common misconception that knowledge of a subject is all that's required to be a good teacher; that the students should be willing and able to extract the meat from what you say regardless of how it is delivered. This might be true at the upper graduate level, but elsewhere it is definitely untrue, it is especially untrue at the undergraduate level. A good teacher allows students to understand the material, and to understand what it means. This can be achieved by finding innovative and creative ways to make complicated ideas understandable to the students. There is a saying, "Give me a fish and I eat for a day, teach me to fish and I eat for a lifetime." This is the philosophy of a good teacher.

Keywords: pedagogical approaches, twenty-first century

Introduction

The past three decades have seen the demands for a new model of learning, the specific competencies and skills needed for learners, and the pedagogy required to stimulate those capabilities for the twenty-first century. Educators have argued that present approaches to teaching and learning environments are inadequate to addressing and supporting twenty-first century learning needs (Carneiro, 2007; Delors et al., 1996; P21, 2007; VISIR Consortium, 2012). The emergence of a new model of learning for the twenty-first century demands a transformative reform in pedagogical approaches to better support acquisition of twenty-first century skills. Traditional approaches emphasizing memorization will not promote learners' critical, creative, and innovative thinking skills or autonomy. To develop the higher-order skills, individuals must engage in meaningful enquiry-based learning. It has been established through research that the 'transmission' or lecture model is highly ineffective for teaching twenty-first century skills. In spite of worldwide agreement that learners need skills such as critical thinking and the ability to communicate effectively, innovate,

and solve problems through negotiation and collaboration, pedagogy has seldom adapted to address these challenges. This paper presents the concept and overall vision of twenty-first century pedagogy and some models of pedagogy that may contribute to the development of twenty-first century skills among learners.

What is Pedagogy?

The etymology of the word "pedagogy" refers to the instruction of a child, although it historically has been used to refer to the education of someone of any age. Some point out that the word should only be applicable to children and suggest that the practice of, methods for, and theories about teaching adults should be called andragogy. In English, the word receives numerous definitions, most related to education. It is the art of teaching, its theory, its practice, and its methods. In other words, it is the art and science of how something is taught and how students learn it. It is a deliberate attempt of improving learning process by considering their nature, contents, methods, media, and other aspects of the environment. Essentially, the idea of pedagogy concerns several related concepts. Exactly what should be taught and how it should be taught are deep pedagogical concerns, and the ongoing history of education shows that this question is never fully answered. Pedagogy includes how the teaching occurs, the approach to teaching and learning, the way content is delivered and what the students learn as a result of the process. It is created from theories on learning, which then influences practice and/or subject. A teacher always has pedagogy, even if it is not clearly defined. A pedagogue must know the children, the content and must know how to put these two for quality learning. It is expected that a pedagogue must have knowledge of learners and their characteristics; knowledge of educational contexts: groups, classes, school and wider community; knowledge of educational ends, purpose and values and their philosophical and historical grounds.

Vision of Twenty-First Century Pedagogy

Today's students are active learners rather than spectators. Accordingly, twenty-first century instruction is based on three pedagogical principles: personalization, participation and productivity (McLoughlin and Lee, 2008a). This framework allows learning through authentic real-world contexts, carrying out projects from beginning to end, and solving problems as they arise, all of which constitute powerful learning strategies. The following sections describe the Vision of Twenty-First Century Pedagogy and perspectives that will promote learning.

1. Foster participation

With the advent of new pedagogies, learners assume active roles as contributors of course content and the production of ideas. Teachers are also experimenting with social media to engage learners and explore new possibilities for collaboration, co-creation of new concepts, and application of twenty-first century pedagogies. Social media now make it convenient for learners to engage with their peers, teachers, subject-matter experts and the community. Through these tools, individuals can create and maintain their own collections of ideas online. Thus, social media has played a critical role in facilitating the 'participation' model of learning as opposed to the 'acquisition' model. Ultimately, participatory learning is not simply a matter of interaction, but of interaction that results in the co-creation of learning.

2. Personalize and customize learning

As people learn in a variety of ways and may take multiple pathways to skills acquisition, education must be reorganized around each 'learner's journey' (Leadbeater, 2008). Twenty-first century education will require more personalized learning with an emphasis on supporting rather than oppressive creativity. With personalized learning, individuals approach problems in their own way, grasp ideas at their own pace, and respond differently to multiple forms of feedback (Hampson, Patton and Shanks, 2011).

3. *Emphasize project and problem-based learning*

McLoughlin and Lee (2007) highlight the opportunities afforded to students by Pedagogy 2.0 to direct and manage their own learning process. They also cite evidence about the effectiveness of giving learners control over and responsibility for their learning (p. 8). This is the main concept behind project and problem-based learning and is central to twenty-first century pedagogy. With project and problem-based learning, students learn by designing and constructing actual solutions to real-life problems (Cornell University, 2014a). Project and problem-based learning are ideal instructional models for meeting the objectives of twenty-first century education, because they employ the 4Cs Principle – critical thinking, communication, collaboration and creativity.

4. *Encourage collaboration and communication*

Collaboration is a twenty-first century trend that shifts learning from teacher or lecture-centred settings to collaborative ones. Collaborative learning – the intentional grouping and pairing of learners for the purpose of achieving a learning goal – has been widely researched. Smith and MacGregor (cited in Barkley, Cross and Howell Major, 2014) note that collaborative learning is a broad term for a ‘variety of educational approaches involving joint intellectual effort by learners, or learners and teachers together’. In most collaborative learning situations, learners work in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product’ (pp. 4-5). What makes this approach particularly appealing is that all members of the group are responsible for teaching their peers and managing questions and clarifications. In other words, learners are responsible for each other’s learning as well as their own (Srinivas, cited in Laal, Laal and Khattami-Kermanshahi, 2012). It teaches learners to monitor each other, detect errors and learn how to correct their mistakes.

5. *Cultivate creativity and innovation*

Innovation and creativity are very valuable competencies in knowledge societies. Creativity is deeply social, with most creative insights typically emerging from collaborative and creative circles. Few schools teach students to create knowledge; instead, learners are taught that knowledge is static and complete, and they become experts at consuming knowledge rather than producing it. McLoughlin and Lee (2008) argue however that the ultimate goal of learning is to stimulate learners’ capacities to create and generate ideas, concepts and knowledge. Teachers can play a key role by encouraging, identifying and fostering creativity (Saavedra and Opfer, 2012). Encouragement helps students to recognize and develop creative capacities in themselves that they might otherwise overlook.

6. *Employ appropriate learning tools*

The transformation of pedagogy goes beyond the idea that new technologies will produce new forms of learning and new competencies. While technological developments play an important role in learning and can create new and unprecedented opportunities, technology alone cannot ensure a successful learning experience (Davies, Fidler and Gorbis, 2011). There are many different instructional tools available to teachers to stimulate learning and help learners create new knowledge in collaboration with their peers.

7. *Strategic questioning*

Questioning is an effective technique to engage learners. Asking probing questions can foster curiosity; and teaching learners to ask questions gives them practical tools to make sense of challenging content. Cornell University’s Center for Teaching Excellence (2014) notes that students who can ask insightful questions are more likely to be successful in school. While questioning is a means to assess learners’ understanding of specific concepts, open ended questions that probe and

elicit expanded thinking can be instrumental in stimulating deeper learning. Divergent questions have multiple possible answers and encourage learners to be creative. Asking appropriately challenging and engaging questions stimulates discussion and creative and critical thinking. Questions encourage learners to explore and redefine their understanding of key concepts.

8. Capitalize on learners' interest in mobile technologies

Mobile technologies still play only a minor role in education. When used appropriately, technologies can offer multiple forms of learning, rather than functioning as mechanisms to replace teachers. Solis (2014) argues that the use of mobile technology has the potential to improve the dynamics of learning. In future, however, mobile devices will facilitate learning by reducing the boundaries between formal and informal learning. By using a mobile device, learners can independently and easily access supplementary materials to clarify ideas and share that knowledge with others (UNESCO 2013a). UNESCO (2012) believes that the portability and widespread use of mobile devices will make them ideal tools to influence teaching and learning in ways that surpass the use of personal computers.

9. Make the most of social media

Using social media in traditional education and training appears to be a promising strategy for facilitating and improving learning opportunities (Redecker, Ala-Mutka and Punie, 2010). Facer (2009) states that social media can be used as a mean to support, facilitate, enhance and improve learning processes (p. 3). Research by Redecker et al. (2009) suggests that using social media in learning promotes pedagogical innovation by encouraging teaching and learning processes based on personalization, collaboration and changing interaction patterns between and among learners and teachers (p. 70).

10. Design relevant and real-world learning activities

To ensure effectiveness, curriculum must be relevant to the lives of students (Mansilla and Jackson, 2011; Perkins, cited in Saavedra and Opfer, 2012). Learning activities that are designed to connect student experiences to real-world problems will transform their focus. The Partnership for 21st Century Skills (P21, 2007b) echoes this point: 'when students realize the connection between what they are learning and real world-issues that matter to them, their motivation soars, and so does their learning' (p. 3). McLoughlin and Lee (2008a) stress that learning tasks should be authentic, personalized, experiential, learner-driven and designed; and enable the creation of content and innovative ideas by learners (p. 15). More active learning, more relevant curricula, more real-world learning and better-trained teachers will improve the quality of education and increase student engagement (Redecker and Punie, 2010).

11. Teach meta-cognitive skills

Put simply, metacognition is 'thinking about one's thinking'. It refers to the processes used to plan, monitor and evaluate one's understanding and performance. Metacognition reflects an individual's critical awareness of how they think and learn, and their assessment of themselves as a thinker and learner. Metacognition is not solely an intrinsic talent; it can be taught and cultivated. Teachers can cultivate a metacognitive culture that promotes greater learning by giving learners 'permission' to identify their confusion, asking them what they find confusing and acknowledging their difficulties. For learners to use metacognition successfully, they must be taught explicitly about the concept and its language. We must regularly ask, not only 'What are you learning?' but 'How are you learning?' We must confront them with the effectiveness (or ineffectiveness) of their approaches. We must offer alternatives and then challenge students to test the efficacy of those approaches (Weimer, 2012).

12. Highlight learner-centric models

Twenty-first century learning must be relevant, engaging, effective and learner-centric (Vockley and P21, 2007). It is, therefore, essential to replace ‘closed classroom’ models of teaching and learning, which emphasize delivery of information by an instructor and/or from a textbook, with new more ‘learner-centric’ models (McLoughlin and Lee 2008a, p. 641). Tailoring learning strategies to the characteristics and aspirations of individual learners will demand significant organizational changes in schools (Furlong and Davies, 2012) Other critical changes include a greater emphasis on learners taking responsibility for their own learning and the development of systems that nurture such responsibility (Davies, Fidler and Gorbis, 2011; Facer, 2011). Research has shown that learners’ attitudes, ownership of learning and level of independence are all affected when they take responsibility for their learning (Meyer et al., 2008). Adapting education to the needs of the twenty-first century learner means adopting a flexible curriculum and provide learning that is individualized and self-regulated. This places additional demands on learners to make the right choices (Ericsson, 2012) and on teachers to facilitate learner autonomy and independence.

13. Promote learning without borders (anytime and anywhere)

People can learn anytime and anywhere. In a knowledge society, memorization of facts and procedures will not be enough. Learners will continue to seek and acquire knowledge wherever and whenever they need it from a variety of sources including books, websites, informal learning, third-party educational providers, social media and experts around the globe (p. 58). Mobile devices will also make learning possible anywhere and at any time. Today’s learners must recognize that learning and relearning can occur outside classrooms and schools throughout their lives. It is likely that these learners will require an introduction to learning options available to them now and in the near future.

14. Encourage lifelong learning

Lifelong learning embodies the philosophy, conceptual framework and principle for education in the twenty-first century. A comprehensive lifelong learning framework combines formal, non-formal and informal learning opportunities to accommodate differences in learning needs. Mega-trends such as population growth and continuing threats from climate change have an impact on current learning and the level of relearning in future years. Carneiro (2007) notes that people would face meta-learning challenges throughout their lives. They would include multiple sources of information, learning to learn from experience, learning to self-regulate time and effort to learn, learning to forget and to un-learn whenever necessary, and learning to make room for new knowledge (p. 6). In the future, learners of all ages will be able to access knowledge needed to solve simple or complex problems as they appear without the need to enroll in formal degree programmes, leave their jobs to attend school, or spend money to upgrade their skills.

15. Redefine teacher roles and functions

The role of teachers and other learning professionals remain central, no matter how education is conceptualized (UNESCO, 2013b). However, the role of teachers in the twenty-first century must move away from imparting knowledge, towards guiding, discussing and measuring the progress of learners (Hampson, Patton and Shanks, 2011). In classrooms of the future, teachers may assume the role of ‘invited professors’ to support student learning (Learnovation, 2009). If the main goal of twenty-first century education is to build the learning capacity of individuals and support their development into lifelong, active, independent learners, then teachers need to become ‘learning coaches’ – a role very different from that of a traditional classroom teacher. Their main role is to offer the kinds of support that will help students attain their learning goals. Teachers as learning coaches will encourage students to interact with knowledge – to understand critique, manipulate, design, create and transform it. Teachers will need to reinforce learners’ intellectual curiosity, problem identification and problem-solving skills, and their capacity to construct new knowledge

with others (Bull and Gilbert, 2012). Twenty-first century teachers will not be proficient in every topic on the curriculum, but must become experts in, along with their students, ‘how to do something, how to find out something or how to use something to do something new’. A key part of their role will be to form confidence, openness, persistence and commitment for learners in the face of uncertainty (Bull and Gilbert, 2012).

Models of Pedagogy

Many transformative pedagogical approaches based on the assumptions derived from theories of learning/intelligence/motivation, learning styles, instructional design theories, have been evolved from time to time that are effective to promote 21st century skills and competencies among learners. Some worth mentioning strategies, which have drawn the attention of educators in the past several years are presented as follows:

Project-Based Learning

The research on project-based learning has illustrated significant benefits for students who work collaboratively on learning activities in contrast with students who work alone. An additional research finding was that students who have difficulties with traditional classroom/ textbook/lecture learning benefit significantly from a project-based learning experience which more closely aligns with their learning style and preference (Darling-Hammond et. al., 2008). Best practices for project-based learning (Thomas, 2007) include a) tying project outcomes to curriculum and goals, b) employing questions or posing questions to introduce students to central concepts and principles, c) student responsibility for designing and managing much of their learning, and d) basing projects on authentic, real-world problems and questions that students care about (Thomas, 2007).

Problem-Based Learning

Problem-based learning, a form of project-based learning, allows teachers to develop, and students to focus, on complex, real-world problems using a case study approach. When students work in small groups to research and pose solutions to problems, both a collaborative and multifaceted environment is created. Within this environment, students can explore multiple solutions and best practices for tackling projects. Studies and meta-studies of research that has focuses on problem-based learning have found that for factual learning, problem-based learning has similar impacts to traditional learning methods, but that problem-based learning does exceed traditional learning methods when skills such as critical thinking, communications, collaboration, and applying knowledge to real world situations are measured (Darling-Hammond et. al., 2008).

Design-Based Learning

Design-based learning has been shown to have the most impact in the areas of math and science (Darling-Hammond et. al., 2008). Popular design-based learning activities include robotics competitions wherein student teams design, build and then pilot their robots in a series of competitive challenges. Research has found that students who participate in learning by design projects have a more systematic understanding of a system’s parts and functions that control groups (Hmelo, Holton, & Kolodner, 2000).

Problem Posing

Problem posing lies at the heart of the survey method developed by Paulo Freire while working in adult literacy programmes in Brazil. It is a systematic approach to empowering learners to control their own learning. To problematize a term, a text, an opinion, or personal perspective is to construct them as challenges that encourage learners to attempt to transform their circumstances or views. Problematization is based on a dialogue or process that takes the common knowledge about a situation and transforms that knowledge into a problem. This allows the learners to adopt new points of view, to reflect and to move towards action. Rather than staying with the accepted ‘wisdom’ about

what is going on, the learner evolves an alternative viewpoint on the issue. One way to problematise a statement is to get the learner to ask some simple questions about the statements. For example, with regard to the statement: ‘*Industrialization helps in economic growth of nation*’, it is possible to ask: Who is making this statement? Why is the statement being made and why now? Who gets to benefit from the statement? Who is harmed? This approach helps learners’ question and challenge their beliefs and achieve critical consciousness.

Problem Solving

The problem-solving method has several advantages over expository methods. It assumes that students are active participants in the construction of new knowledge rather than passive receivers of knowledge. The problem-solving strategies give students opportunities to think rationally. The higher levels of learning, e.g. reasoning, critical reflection, imagination, which involve transfer and application of knowledge and understanding to new situations, can be achieved through problem solving. Learning through problem solving is more meaningful, permanent and transferable compared to learning through traditional expository methods. The process of problem solving includes the major steps of scientific method such as: (i) Recognizing the problem; (ii) Interpreting, defining and delimiting the problem; (iii) Formulating hypothesis; (iv) Collecting relevant data/conducting experiments; (v) Organizing and evaluating the data; (vi) Arriving at conclusions; and (vii) Verifying conclusions and generalization

Team Teaching / Co-teaching

Team Teaching/Co-teaching is defined as the collaboration between teachers in teaching. In a co-taught classroom, two teachers work together to develop a differentiated curriculum that meets the needs of a diverse population of students. In a co-taught classroom, teachers share the planning, presentation, evaluation, and classroom management in an effort to enhance the learning environment for all students.

Peer Supported Learning

Peer supported learning is based on the idea that ‘two, three, or more, heads are better than one’. Using peers as a resource can be useful in many different situations. It is possible to learn from others in many different situations including: tutorials/seminars; web-based discussion forums; e-mail groups; in-class discussions/debates; working as a group on an assignment; meeting up for a chat over coffee.

Critical Pedagogy

“Critical Pedagogy”, mentioned in India’s National Curriculum Framework, 2005 brought out by NCERT is based on the assumption that students are not just young people for whom teachers should devise solutions. They are critical observers of their own condition and needs, and should be participants in discussion and problem solving relating to their education and future opportunities. They should be made aware that their perceptions and experiences are important; and should be encouraged to think independently and to have courage to dissent. Critical pedagogy provides an opportunity to reflect critically on issues in terms of their political, social, economic and moral aspects. It entails the acceptance of multiple views on social issues and a commitment to democratic forms of interaction. Thus, critical pedagogy facilitates collective decision making through open discussion and by encouraging and recognizing multiple views (NCERT, 2005, pp.22-23).

Culturally-Situated/Relevant/Responsive Pedagogy

Culturally-situated pedagogy highlights the centrality of culture in students’ understandings of the world. It addresses the need for teachers to acknowledge students’ diversity and incorporate their backgrounds and experiences into the learning experiences and classroom environment. In “culturally relevant pedagogy” (Ladson-Billings, 2001), “culturally responsive teaching” (Gay,

2000), “culturally-situated pedagogy” (and other similar terms) teachers develop the knowledge and skills to teach children from diverse racial, ethnic, language, and social class backgrounds (Weinstein, Curran, & Tomlinson-Clarke, 2003, p. 270). Culturally relevant pedagogy aims to ensure that educators acknowledge and honor the diverse viewpoints of their student population and refrain them from promoting homogeneous perspectives. Dingus (2003) further emphasized the importance of this perspective: “No student should have to sacrifice cultural heritage, ethnic identity, and social networks in order to obtain an education” (p. 99).

Experiential Learning

The authors of experiential learning such as Mezirow, Freire, Kolb and others believed that the way we process experience are central to any conception of learning. Experiential learning is not just ‘field work’ which means connecting learning to real life situation. On the contrary, it is a theory that defines the cognitive processes of learning and asserts the importance of critical reflection in learning. Kolb, one of the exponents of experiential learning, developed a cyclic model of experiential learning involving four steps, viz. concrete experience, observation and reflection, formation of abstract concepts, and testing in new situations. According to Kolb and Fry (1975) the learning cycle can begin at any one of the four points mentioned in the model of experiential learning cycle. In reality, however, the process of learning begins with a person carrying out a particular action and then seeing the effect of that action in the situation.

Role of teachers to support acquisition of 21st century skills

Students may not master 21st century skills without the support of teachers who are well trained and supported in this type of instruction. Teachers of 21st century skills will need to be experts and have expertise in teaching the same 21st century skills that they are encouraging their students to excel in. Teachers will have to take conscious efforts to communicate and collaborate with each other and with students; become flexible with managing new classroom dynamics; be able to support and enable independent student learning, and be willing to adapt their teaching styles to accommodate new pedagogical approaches to learning. For the above to occur, teachers will need professional development opportunities and strong support systems.

The professional development of our nation’s workforce must be a top priority and teachers will need to become 21st century learners themselves. Developing successful 21st century teacher education programs and initiatives requires flexible and coordinated leadership. All of those involved in education need to be able to reflect and learn from each other’s experiences as new methods and processes are piloted and implemented. Trilling & Fadel (2009) argue that successful professional development programs tend to be:

- *Experimental*, engaging teachers in the concrete tasks of designing, implementing, managing, and assessing learning activities and projects, and observing other teachers methods and skills
- *Grounded* in teachers’ own questions, problems, and issues as well as what evidence-based research has to offer
- *Collaborative*, building upon the collective experiences and expertise of other teachers and the wider community of educators
- *Connected* to a teacher’s own work with students and the teacher’s curriculum
- *Sustained and intensive*, with ongoing support by modeling, coaching, mentoring, and collaborative problem solving with other teachers
- *Integrated* with other aspects of school reform and transformation.

Bybee & Starkweather (2006) argue that teacher and support staff professional development used to focus mainly on how to use technology, and that today, the focus now is on instructional strategies and needs.

Conclusion

The twenty-first century has immense potential to reaffirm the role of education with a view to equipping young and old learners to address complex societal, economic and environmental issues. The transformation from teacher-led learning to self-directed learning to self-determined learning will provide learners with a range of competencies and skills needed to succeed in modern global societies. Personalized and tailor-made instruction will help learners to reach their full potential. Learners will be better prepared to interact with their own communities, virtually and in person, and to deal confidently with people from different cultures, while continuing to learn throughout their lives. Education providers must adopt curricula that are comprehensive yet flexible, and centre on content that extends thinking and reasoning, so as to equip learners to tackle twenty-first century challenges and pressures.

Progressing from the transmission model to the 21st century model has important implications for the entire educational system. Because education standards and the purposes of education are changing, curriculum frameworks and instructional methods must also change. Those changes in curriculum and instruction have many important human capital implications, including those related to teacher training, professional development, career mobility, and general cultural standing of the teaching profession. Researchers and practitioners agree that building an education system that focuses on 21st century skills require a strong human capital base. Teachers cannot teach 21st century skills if they themselves have mastered only basic lower-order thinking skills and do not have a strong disciplinary background. The challenge is that not enough teachers currently have sufficient experience teaching 21st century skills. Teachers need time to develop, absorb, discuss, and practice new knowledge. Further, implementation of Pedagogy 2.0 approaches such as participation, collaborative learning, personalized learning, teaching for transfer, project based learning and real-world contexts, will present many challenges. To address these challenges, teachers must bring out pedagogical innovations so as to equip learners with the skills and competencies to function in a digital culture, using media and informal pathways to enrich their learning and develop essential forms of literacy. Teachers will require meaningful support and time to exploit available resources and tools to create tailor-made learning experiences that are motivating and engaging, yet efficient, relevant and challenging. Traditional educational institutions must experiment with alternative structural formats and strategies for learning and teaching that respond more flexibly to individual learners' needs and changing labour market requirements.

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