

Innovation Pedagogy of 21st Century: Challenges and Opportunities

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Abstract

Since its coinage, the term pedagogy has been defined variedly by a number of educationists. With passing time and expanding knowledge, our understanding about pedagogy has become more comprehensive and inclusive. In the 21st century, the educational practices are undergoing massive changes to meet the needs and expectations of an ever-changing society. Innovations and improvements are becoming constant practices to adapt with the transformative societal requirements and expectations. Therefore, Constant research is necessary in the educational sector to improve the conventional teaching methods, strategies, learning-teaching materials and overall classroom management. Innovation pedagogy is that continuous research process. Innovation pedagogy makes the students future-ready by providing them the ideal environment for developing innovation competence.

Keywords: Innovation pedagogy, Innovation competence

Introduction

The meaning of pedagogy is much broader than the word to word meaning of leading a child. Pedagogy is not limited within the teaching-learning process instead it encompasses the complex interaction between the pupils and the teacher (**Watkins & Mortimore; 1999**). **Marton and Booth (1997)** defined pedagogy as a discipline itself which aims not only to the intellectual development of the child but also to the development of kinesthetic fitness, social awareness and moral welfare of the learner in order to facilitate the societal needs and individual aims (as cited in **Watkins & Mortimore; 1999**). Thus, with passing time and expanding knowledge, our understanding about pedagogy has become more comprehensive and inclusive. Innovation pedagogy is the need of the time as it facilitates the learners' personal and professional growth and social skills in order to bridge the gap between education and working life, produced by the conventional pedagogical practices (**Konst & Kairisto-Mertanen, 2020**). Pedagogy shapes the students' competence in terms of curriculum specific knowledge, skills and attitude but innovation pedagogy makes the students future-ready by providing them the ideal environment for developing innovation competence (**Kettunen, Kairisto-Mertanen, & Penttilä, 2013**).

Objectives

The objectives of the study include-

- To explore the concept of innovation pedagogy.
- To know about innovation competence.
- To explore the recent developments regarding innovation pedagogy which can make learners future-ready.

Review of Related Literature

Innovative pedagogy tries to comprehend the teaching-learning process as an integration of different elements namely the teacher, the classroom, content, age of the learners, purposes, the process of learning and so on (Watkins & Mortimore; 1999). The impacts of innovation pedagogy have been acknowledged widely. There is a lot of research evidence about the capability of innovation pedagogy to develop students' innovation competences (Keinänen 2019; Konst & Scheinin 2018; Konst & Jagiello-Rusilowski 2017). Thus, innovation pedagogy has aroused interest widely and several higher education institutions have adapted innovation pedagogy successfully also on international markets, especially in Brazil, Indonesia and Poland (Konst & Kairisto-Mertanen, 2020).

Konst & Kairisto-Mertanen, (2020) briefly discussed about innovation pedagogy of early days (first decade of the 21st century) and its transformation through time. Watkins & Mortimore (1999) conversed about the initiation of innovation pedagogy from the viewpoint of different types of teachers, context of teaching and current views of pedagogy. Sharples *et al.*, (2016) deliberated about ten types of innovation pedagogy to be used in the teaching-learning process like learning through social media, productive failure, teachback, design thinking, learning from the crowd, learning through video games, formative analytics, learning for the future, translanguaging, blockchain for learning etc. Herodtoou *et al.* (2019) discussed about six innovative approaches to teaching and learning that originated from seven innovating pedagogy reports like place-based learning, learning with robots, learning with drones, citizen inquiry etc.

Innovation Pedagogy: Meaning and Ethos

In relation to the pedagogical process, innovation means the introduction of something new into the goals, content, methods, strategies and forms of teaching-learning process that improves the quality and effectiveness of education as a whole (Alisherovich, & Toshboyeva, 2021). The higher education system of a country is always associated with the social norms and cultural setting of the country. But in the context of 21st century, the organization of educational processes must be in accordance with global practice of educational technology, novel methods, enhanced and updated curricula. Hence, the answer lies in innovation pedagogy. Innovation pedagogy introduces a child to novel thinking. Innovation pedagogy aims to enable the learners to respond to the external needs based on their knowledge, skill and attitudes and transfer their learning in even complex working situations by developing innovation competence. In fact, innovation pedagogy emphasized much on the process of application instead of knowledge gathering and combined learning with information creation and its application (Konst & Kairisto-Mertanen, 2020).

Components of Innovation Pedagogy

The components of innovation pedagogy are flexible curricula, integration of research and development with studies, multidisciplinary approach, activating learning and teaching method, versatile and development-oriented assessment, renewing teacher and student roles. Flexible curricula enable learners to take different, alternative and unconventional learning paths. It caters to the individual needs and enables them to react quickly to the development needs of the surrounding environments. Research and development works should be integrated with the curricula at an early stage to boost the learners' creative thinking and its application. Multidisciplinary approach brings forth different competences and expertise to work together. Learning and teaching method should be versatile to facilitate learners' active

participation in the learning process and development of learners' innovation competences. Development-oriented assessment enables the learners to evaluate their own competences and through self-evaluation they strive for continuous development. Renewing teacher roles support, encourage and guide learners to make progress in the learning process and the learners require good study skills in order to take an active and accountable role on their own learning path. **(Konst & Kairisto-Mertanen, 2018)**.

Traditionally, innovation pedagogy can be of three types - individual learning, group-based or collaborative learning and networked learning. Individual learning in lecture halls, classrooms etc. is broadened to group-based learning which characteristically takes place in the classrooms, laboratories or other learning environments of the institution. The networked learning extends the learning to regional development, international activities and electronic network **(Kettunen, Kairisto-Mertanen & Penttilä, 2013)**. Individual learning is more relevant when the sole purpose of learning is disseminating facts, information and concepts. Such learning experience takes place through listening, reading, taking notes, writing theses etc. When the nature of learning is multidisciplinary, then group-based learning is recommended as it takes the advantages of diversity of expertise. Such learning experience includes augmentative learning, reflection, debates, symposium etc. In professional education, networked learning is more appropriate as it takes into account the information, personal knowledge and communication technologies. The core idea in innovation pedagogy is to bridge the gap between the educational context and working life **(Kettunen, Kairisto-Mertanen & Penttilä, 2013)**.

Innovation Competences

Innovation pedagogy seeks to engage the learners in diverse learning situations so that the learners can use their acquired knowledge, skills and competences. To reach the goals of innovation pedagogy, learners must acquire the competences of their own study fields or disciplines and, in addition, the capability to work innovatively during working situations **(Konst & Kairisto-Mertanen, 2020)** as the learners are expected to become active contributors in the different innovation processes they will encounter when they enter working life.

The innovation competences acquired by the learners by engaging themselves in a number of varied and complex innovation processes can be grouped into three types as individual, interpersonal and networking competences, all of which are needed to produce innovative knowledge. **(Marin-Garcia et al., 2016; Kairisto-Mertanen, Penttilä & Nuotio, 2011; Keinänen et al., 2018)**. On the individual scale, the innovation competences include independent thinking, decision making, creative problem solving, devising self-learning methods and self-assessment etc. On the group or collaborative scale, the innovation competences include the ability to cooperate in a diversified group, the ability to take initiative, to share the work responsibility and social responsibility etc. Network scale innovation competences encompass the ability to work in networks, create and maintain working network, to cooperate and communicate in a multidisciplinary and multicultural environment. According to the latest research, innovation competences have five dimensions that focus on creativity, critical thinking, initiative, team working and networking **(Fincoda, 2017; Marin-Garcia et al., 2016)**.

At the teachers' level, the innovation can be adaptive (characterized by an unstable attitude of the teacher towards innovation under the pressure of the social environment), reproductive (characterized by a more stable attitude to pedagogical innovations), heuristic (characterized by a great sense of purpose,

stability, awareness of the ways and means of introducing innovations) or creative (distinguished by a high degree of effectiveness of innovative activity, high sensitivity to problems, and creative activity).

Challenging Interfaces

In recent times, as our life, needs and expectations has become more dynamic, innovation pedagogy has also restructured and reformulated itself by including recent research inventions and technological interventions in the teaching-learning process to meet the necessities of education in the hastily changing world. Therefore, as a learning approach, innovation pedagogy is constantly evolving. In the 21st century, the most common forms of innovation pedagogy can be found through –

- i. **Learning through social media:** Now-a-days, different social media platforms like twitter, facebook, instagram etc. are offering a range of learning opportunities where learners can share experiences, access expert opinions, make connections and gather knowledge.
- ii. **Productive failure:** Such type of pedagogy requires the learners to embrace the challenges and insecurity associated with it. Here, the students are given complex problems and they attempt to find out their own solutions. By struggling and sometimes failing to find a solution, the students gain a deeper understanding of the structure of the problem and its elements (**Sharples et al., 2016**).
- iii. **Teachback:** When a learner tries to explain a content or topic taught by either a teacher or expert to another learner, then it is called teachback. Teachback helps the learners to understand a topic or problem by reframing it in their own terms (**Sharples et al., 2016**).
- iv. **Design thinking:** Design thinking places learners in contexts that make them think like designers, creating innovative solutions that address people's necessities. It includes creative processes such as experimenting, creating and prototyping models, soliciting feedback, and redesigning.
- v. **Place-based learning:** It refers not only to the learning about physical localities, but also the social and cultural layers embedded within neighbourhoods and engaging with the communities and environments as well as observing them. These help students to connect abstract concepts from the classroom and textbooks with practical challenges encountered in their own localities.
- vi. **Learning from the crowd:** When general public discuss ideas, exchange opinions and experiences, solve problems and generate content, then it can be called crowdsourcing or learning from the crowd. A classic example of the crowdsourcing is Wikipedia, the online encyclopaedia which is continually updated by the public.
- vii. **Learning through video games:** Video games can make learning, stimulating, engrossing, interactive and fun. It helps in role playing and simulation learning which can add to social benefits.
- viii. **Learning with robots:** Constructivism always emphasizes on learners' active participation in the learning process. In different countries, robots are used in classrooms for students' active engagement in the learning process and to make them think and learn ICT together.
- ix. **Learning with drones:** Drone-based learning, a recent innovation, is being used to support fieldwork by enhancing students' capability to explore outdoor physical environments. When learners engage in outdoor learning experiences, reflect on those experiences, conceptualize their learning and experiment with new actions, they are engaging in experiential learning (**Kolb, 1984 as cited in Herodtoou et al., 2019**).
- x. **Formative analytics:** Formative analytics support learners to reflect on what they have learned, what can be improved, which goals can be achieved, and how they should move forward. Formative

analytics have the potential to empower each learner through timely, personalised, and automated feedback, including visualisations of potential learning paths.

- xi. **Translanguaging:** Translanguaging refers to moving flexibly and fluidly between languages. Translanguaging can expand and deepen learners' understanding and help them to gain broader perspectives. It can also enrich the cultural experience and world views of other learners.
- xii. **Blockchain for learning:** A blockchain stores digital events securely on every user's computer rather than in a central database. Blockchain technology allows any participant to add a new record such as an exam score to a single digital chain of events. A blockchain could be used as a permanent shared record of intellectual achievement. It enables anybody to store academic certificates, creative works such as poems or artworks, even original ideas.

Conclusions

It is evident that in the 21st century, the educational practices are undergoing massive changes to meet the needs and expectations of an ever-changing society. Innovations and improvements are constant practices to adapt with the transformative societal requirements and expectations. Educational institutions are the primary sources which introduce learners with the innovations and improvements and inspire them and prepare them for the future. Therefore, Constant research is obligatory in the educational sector to improve the conventional teaching methods, strategies, learning-teaching materials and overall classroom management. Innovation pedagogy is that continuous research process as it experiments with the conventional processes and includes modern technological advancements within the pedagogical practices to develop the required skills and competences for the future.

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