


## Chapter 54

# Pedagogical Orientation in the Fourth Industrial Revolution: Flipped Classroom Model

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### ABSTRACT

*Redesigning higher education is one of the most widely discussed topics among educators, parents, and other community stakeholders. This is due to the current developments in digital technologies and onset of the fourth industrial revolution which is set to alter the way people live and work. This chapter suggests the implementation of the flipped classroom model as an appropriate approach for equipping students with creative abilities, problem solving skills, thinking skills, and lifelong learning skills. Eight in-service teachers pursuing a postgraduate course on a part-time basis participated in a qualitative study. The study was conducted using asynchronous virtual focus group dialogue sessions. The study addressed three main questions: 1) why they adopted a flipped classroom model, 2) how they implemented it, and 3) what fourth industrial revolution skills were developed using this model. On the whole, this approach created an active and collaborative environment which enabled students to demonstrate their creativity and problem solving skills needed for future careers.*

### INTRODUCTION

Redesigning higher education has been identified as one of the important elements for preparing teachers for their career success in the fourth industrial revolution. Therefore, higher education and teacher education in particular have entered a critical phase of transformation (Marks, 2015). Rani (2018) emphasized that the process of teaching and learning needed to be transformed to suit current student needs and their

DOI: 10.4018/978-1-7998-3022-1.ch054

learning environment. Teaching strategies are one main concern and need to be examined and probably transformed. Despite the current demands for the 21<sup>st</sup>-century skills and approaching fourth industrial revolution, teaching approaches have not changed in light of the new educational challenges. Although the learning and teaching landscape is changing, the lecture method remains a common way of delivering instruction to learners (Cashin, 1995) and a preferred approach in many countries around the world (Saavedra & Opfer, 2012). Yet, many resources widely available online have become a main source of reference for students. Besides, borderless communication has made peer interaction and peer-to-peer learning possible. As for lecturers, their new role as a facilitator in student learning process will require a new teaching approach different from that of the main provider of knowledge. Included among the important elements to be prioritised in the teaching process in the fourth industrial revolution are learning spaces, pedagogies, the curriculum, and teaching technologies (Rani, 2018).

Therefore, teacher educators not only face the challenge of preparing teachers for new ways of teaching but also must embrace and model best practices for the new ideas (Marks, 2015). However, educators have always looked for alternative ways of engaging their students in the classroom (Bacsich et al. 2013). For some teacher educators, the flipped classroom model is considered a better approach because the focus of higher education is in a transition from teaching to learning (Marks, 2015). This means that students are indirectly being prepared for the fourth industrial revolution for which they will need to engage in learning to acquire skills for jobs that do not exist and that may continue for the rest of their lives (Study Malaysia, 2018). Thus the flipped classroom strategy not only prepares students for lifelong learning (Bland, 2006), but also responds to the teaching and learning challenges of the present time.

Teacher educators have considered the extensive research dedicated to understanding how people really learn and the best possible approaches for teaching them to think creatively (Ambrose et al., 2010). This is very important to understand because students from different cultures and from different backgrounds as well as age groups learn in different ways (Choy et al., 2015).

As we have entered the fourth industrial revolution (4IR), teacher educators will need to impart knowledge in ways that will nurture the current skill sets that are in demand such as problem solving, critical thinking and creativity. That only happens when teacher educators realize that they must train students to possess adaptive and flexible minds. This would equip students with the cognitive agility required for the fast-paced knowledge and digital challenges of future learning environments (Gleason et al., 2011). As such, a need exists for pedagogical transformation from the lecture format with a professor transferring knowledge to large number of students to a different approach. This is because this approach to student learning is outdated and does not deliver the skills required in the era of the fourth industrial revolution (4IR). As such, teacher educators need to employ some new pedagogical approaches.

This chapter focuses on the aspects of redesigning pedagogies and their likely effects on student acquisition of skills, especially higher-order thinking skills (HOTS), which are relevant for the fourth industrial revolution. The skills required include: discussion, analysis, evaluation, creativity and authentic application of course learning objectives (Marks, 2015). Some of the current pedagogies for honing student skills include: heutagogy (self-determined learning), paragogy (peer-oriented learning), and cybergogy (virtual-based learning). There are many educators who have valued traditional pedagogical approaches in imparting knowledge to their learners. However, time has come to make some tough decisions based on new developments in the teaching profession. As Marks (2015) stated, “Changing times mean that teacher educators need to examine teaching from new perspectives and make pedagogical choices based on pre-service teachers’ needs and those needs of the profession” (p. 241).

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