

UNIVERSITI TEKNOLOGI MARA

**21ST CENTURY TECHNOLOGICAL
PEDAGOGICAL CONTENT
KNOWLEDGE (TPACK) IN
TEACHING 21ST CENTURY SKILLS
AMONG MALAYSIAN ENGLISH
LANGUAGE TEACHERS**

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ABSTRACT

Technology plays an important role in education today, as the new generation of students have different learning needs than students of the previous generation. Hence, teachers in the 21st century need to integrate technology in their teaching in order to cater to these students. Other than teaching core subject matters, teachers also need to teach 21st century skills (i.e. critical thinking, creative thinking, communication, collaboration, and values and ethics – as proposed by Ministry of Education, Malaysia) to the students, which poses double challenges to them. To accomplish this, teachers need to possess strong 21st century TPACK - a combination of content, pedagogical, and technological knowledge, adapted to the teaching and learning of 21st century skills in order to integrate technology effectively in teaching. Due to the importance of technology and 21st century skills in education today, this study argues that there might be an association between these two aspects. Therefore, this study aimed to investigate the relationship between the 21st century TPACK level and the teaching of 21st century skills among public secondary school English language teachers in Selangor, Malaysia. This study was conducted quantitatively involving 255 respondents from secondary schools under Petaling Perdana district, Selangor. The respondents participated by answering a questionnaire distributed online. Based on the findings, this study proved that there was a significant positive relationship between 21st century TPACK level and the teaching of 21st century skills. The analysis of multivariate linear regression further showed that there were two dimensions of 21st century TPACK - technological knowledge (TK21) and pedagogical content knowledge (PCK21) that could predict the teaching of two 21st century skills (collaboration and creative thinking skills). The results of this study contributed to some implications. Theoretically, this study proved that there is a connection between 21st century TPACK level and the teaching of 21st century skills, which contributes to the current body of literature. This theoretical knowledge could be included in the new education plan in Malaysia, where more focus should be given to develop English language teachers' TK21 and PCK21 to increase the teaching of collaboration and creative thinking skills in the classroom. To achieve this, the stakeholders of education in Malaysia need to work together to provide more training and professional development courses involving these two dimensions for both in-service and pre-service teachers, so they would be more capable to teach English language and 21st century skills to students whenever they are integrating technology in their classroom. This study also developed an inventory of teaching 21st century skills (namely Teach21cS inventory), that could be incorporated into the English language syllabus in Malaysia, to further assist teachers to teach and train 21st century skills to students in the English language classrooms using technology.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The world in the 21st century is progressing very rapidly due to the development of Information and Communication Technology (ICT) and the advancement of technology in the Industrial Revolution (IR). The future is changing rapidly, as the Future Job Report from the World Economic Forum (2023) stated that the future of business is digital, whereby a staggering 85% of organizations will be embracing new and cutting-edge technologies, along with expanding digital reach and will be the engine of their transformation in the coming years. The development of technology in the IR showed how mechanical and industrial technology progressed into digital technology in the latest IR, the Fifth Industrial Revolution (IR 5.0) (Amirkhizi et al., 2025; Rejeb et al., 2025; Humayun, 2021).

Previously, the 4IR involved highly disruptive technologies (such as artificial intelligence, Internet of things, robotics and virtual reality) that changed the economic, social, and political systems of the world, and it puts such a huge pressure on the leaders and policymakers of a country to respond to these changes (World Economic Forum, 2017). Due to the advancement of technology and its abilities, technology has managed to replace humans in the workplace, which becomes a concerning matter to many people since job opportunities are becoming lesser. This further creates a need to ensure that humans are not easily replaceable by technology in the work industry, which brings a new focus in the 5IR. Currently, the 5IR focuses on the connection between humans and technology (Humayun, 2021), as the world is trying to find the balance between humans' intelligence and skills, and technology in daily lives and operations. Ensuring human roles are still relevant in the world is crucial by elevating the knowledge and skills from young, so they will have the necessary skills that are not easily replaced by technology. To achieve this, teaching and learning through the education system needs to be enhanced and improved to meet the evolving demands of the 21st century.

In the context of education, the technology usage in 4IR previously focused on the use of learning platforms, utilising the technology created in 3IR (Ojetunde &