

21st-Century Geography Teaching and Learning: Issues and Challenges

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Abstract

In this era of globalization, education plays an important role in lives across all societal strata. Education helps to expand skills, knowledge, and values needed to achieve success in life. The Malaysian Ministry of Education curated a transformation via the Malaysian Education Blueprint 2013-2025 (PPPM) by enhancing various fields within education. The increase in the quality of teaching and learning is an initiative of the Malaysian Ministry of Education to anchor education's pivotal role in national development and enhancement of Malaysia's position in the global arena. This study discusses issues, challenges, and recommendations related to 21st-century education, particularly in the context of geography teaching and learning. The discussion in this study revolves around teachers' skills in 21st-century teaching and learning, and it explores past studies related to issues and challenges in 21st-century education. Not only that, but the researchers also propose several measures to further enhance the field of 21st-century education to help improve the quality of human resources, foster innovation, and enhance competitiveness in the global economy. Therefore, society needs to prioritize education and ensure equal access to quality education for every individual. This can contribute to the development of a more advanced, inclusive, and highly competitive society.

Keywords: 21st-century Teaching and Learning, 21st-Century Skills, Education in Geography, Information Technology

Introduction

A competitive society in terms of knowledge, skills, and innovation is crucial to confront the challenges in this century. The Malaysian Ministry of Education curated a transformation via the Malaysian Education Blueprint 2013-2025 (PPPM) whereby enhancing various sectors in education including preschool up to higher education (Malaysian Ministry of Education, 2013). Several initiatives implemented in the Malaysian Education Blueprint include the enhancement of teaching and learning quality, school infrastructure improvement, human capital development in the field of education, curriculum expansion, and increased access to education. This plan also focuses on human resource development to ensure the availability of qualified and competitive educators. Furthermore, the framework emphasizes skills development and employability to prepare graduates with the necessary skills and expertise demanded by the current and future job market (Nur Dini & Mohamad, 2022). Overall, the

Malaysian Education Development Plan is a steadfast effort to empower the field of education in the country.

The improvement of teaching and learning quality is one of the initiatives of the Malaysian Ministry of Education to ensure that education plays a crucial role in the country's development and strengthens Malaysia's position in the global arena. The skills of teachers in teaching and learning are essential for achieving effectiveness in education and cultivating a younger generation with a first-class mindset. In general, teachers serve as role models for students in the classroom, and every behavior exhibited by a teacher has an impact on students, be it positively and vice versa (Solahuddin & Nor, 2018). Furthermore, teachers act as agents who provide and deliver knowledge and information to students. Therefore, a teacher's instructional strategy is crucial, as students' interest in learning depends on how the teacher delivers instruction in the classroom, and teachers need the skills to plan and implement creative and meaningful teaching to motivate students (Amirul, 2020). Moreover, teachers should enhance their communication skills to interact better with students and possess the ability to create a creative and enjoyable learning environment to facilitate more effective student learning.

21st-century skills are crucial to be cultivated in the teaching and learning of geography. Teaching and learning in the 21st century refer to new approaches to learning that emphasize the development of communication, critical thinking, and other skills in line with the flow of the modern world, as well as utilizing student-centered learning methods. Among the essential 21st-century skills in the teaching and learning of geography is the need for teachers to foster critical thinking skills in students by focusing on the analysis and resolution of geographical problems. Students need to be trained to assess and solve geographical problems using provided information. Additionally, collaboration skills are crucial in the teaching and learning of geography, where students need to collaborate to achieve common goals. Teachers can implement collaborative group activities or projects to cultivate these skills. Furthermore, information and communication technology (ICT) skills are essential in the teaching and learning of geography (Nur et al., 2022). This is because teachers need to consider the use of technology in the teaching and learning of geography, such as digital maps, GIS (Geographic Information Systems), and teaching and learning software.

With the existence of 21st-century teaching and learning, students are trained to effectively convey their ideas both orally and in writing. Teachers can cultivate students' communication skills through project-based or activity-based learning that requires them to share their ideas with peers and teachers. 21st-century geography teaching and learning are crucial to capturing students' interest because some students find it challenging to grasp concepts in geography. Moreover, geography is often considered boring as it is deemed too abstract and involves skills in reading maps and understanding the relationships between various phenomena. Therefore, by fostering 21st-century skills in geography teaching and learning, students can develop essential skills for their future lives and careers.

Issues and Challenges

21st-century Teaching and Learning

21st-century teaching and learning is an educational approach that emphasizes the knowledge, skills, and character aspects needed to compete in an increasingly competitive and rapidly evolving global era. 21st-century education not only focuses on mastering the content of learning but also relates to the development of critical thinking, collaboration,

communication, and innovation skills. Teaching and learning, especially in the subject of Geography, can be conducted in various effective ways, such as implementing problem-based learning, project-based learning, and game-based learning to further enhance students' interest in learning Geography.

Quality of 21st-century Teachers

The quality of a teacher refers to the mastery of various skills, knowledge, and personality traits. Skills and strengths must exist in every teacher as an added value that is useful in the teaching and learning process. A quality teacher must have good teaching skills, profound knowledge of the subjects taught, and high interpersonal skills in building relationships with students and colleagues. According to Zahri (2017), to make changes in the field of education, teachers need to strive even harder. This statement is supported by a study conducted by Wan et al (2018), stating that teachers play a crucial role in shaping well-rounded students in terms of spiritual, intellectual, physical, and emotional aspects as outlined in the National Education Philosophy (FPK). Teachers also play a role in shaping students' characters so that the younger generation not only has a first-class way of thought but also possesses high ethical standards. The government has set important targets for the country's future in the National Key Result Areas (NKRA), especially in the field of education, by producing excellent teachers capable of educating the younger generation more effectively. According to Muhammad & Crow (2013), as stated in their writing, teachers need to focus on the fields they pursue and have quality in the delivery of knowledge, such as in the delivery of knowledge to students. Teachers can also cultivate qualities in good personality traits such as patience, empathy, dedication, integrity, and creativity. They have a high commitment to the field of education and always strive to help each student achieve their maximum potential and uncover hidden talents.

The quality of a teacher can be measured through effectiveness in improving students' academic achievement and aiding in the development of social, emotional, and cognitive skills. Competent teachers are capable of producing effective teaching and are knowledgeable about the content, as well as skilled in the delivery of instruction (Muhamed et al., 2019). In the Malaysian Education Blueprint 2013-2025, the ministry has strived to place mentors for teachers and principals (SISC+ and SIPartners+) in schools categorized as Band 5, 6, and 7. These schools are mostly located in rural areas where academic performance is notably weak. Geography education in Malaysia often changes line with current developments and national needs. This necessitates geography teachers to be aware of current issues and developments to provide more meaningful and effective teaching to students. Consequently, students will know of and be alert about current issues. Teachers can also mold individuals who are balanced in terms of knowledge, skills, and the practice of moral values in their lives within the geography subject (Hanifah et al., 2020). Furthermore, geography teachers must be proficient in explaining all matters using visuals such as pictures, maps, articles, journals, news, and media. This ensures that students can master each topic well and easily.

Mastery of 21st Century Pedagogy

Pedagogy is the method and teaching strategy used to educate students. There are various theories and practices related to teaching and learning, including instructional design, curriculum development, assessment, and classroom management. Effective pedagogy requires a teacher to understand individual learning styles and possess the ability to tailor

instructions according to the diverse needs of students. Thus, the emergence of 21st-century pedagogy prioritizes preparing students to face the challenges of a continuously evolving world. Characteristics that teachers need to master in the 21st century include communication skills, a high level of knowledge and depth in the subject they teach, the ability to understand student behavior, and proficiency in information technology to enable students to learn in line with modern trends. Teaching strategies also need to be diverse and adaptable as information technology advances rapidly. This allows teachers to provide visually and audibly comprehensible examples. Therefore, students can easily understand and effectively learn a subject. Conventional teaching methods such as chalk and talk need to be reduced due to their low effectiveness. Teachers must master various PAK21 activities such as musical chairs, charades and "i-think maps".

According to the study by Badrul & Mohd (2016), it is explained that teachers' teaching and learning strategies in the classroom need to be enhanced to capture students' interest in learning. However, there are identified challenges in PAK21, such as less engaging and inappropriate teaching strategies, internet access limitations, incomplete infrastructure, and insufficient teaching aids (Husni et al., 2018). Differentiated pedagogy is a field of study that has its own strengths and weaknesses, depending on the context, learning objectives, and students' abilities. Many teachers integrate elements from various pedagogical approaches to achieve a balanced effectiveness in teaching and learning to meet the diversity of students' understanding levels in one class (Abd. Kahar et al., 2018). Geography teachers need to master this pedagogy because each student has different cognitive levels, such as visual, auditory, and kinesthetic in the learning process. If a teacher can identify a student's cognitive level, they can plan suitable teaching and learning processes based on that student's intelligence level. In general, students in the class have various abilities ranging from low to high, so a teacher needs to diversify teaching styles so that students can learn at their own pace (Eka et al., 2018). The goal of differentiated teaching is to capture students' interest, understand their mastery levels, provide opportunities for students to engage in learning activities in class, and improve student learning outcomes. The use of technology is crucial in this pedagogy to create a sustainable learning environment so that the learning is meaningful and enjoyable for students. Differentiated pedagogy is a new pedagogical technique that needs to be highlighted to meet the diverse learning needs of students based on their cognitive levels.

Furthermore, creative skills need to be instilled in students so that they can think creatively and develop critical and innovative thinking abilities. This can be achieved by assigning tasks that challenge students and require problem-solving. Cooperation and collaboration aspects should also be included. This can be achieved when students collaborate in a team to find solutions to solve problems. The role of the teacher is merely as a facilitator in identifying and seeking solutions to the problems. Therefore, students will think creatively in resolving them. Teachers also need to teach students to cultivate emotional intelligence and ensure that students always appreciate the opinions of others. These 21st-century pedagogical skills are crucial to helping students prepare themselves to face the challenges of a constantly evolving and changing world.

Mastery of 21st-Century Information Technology Skills for Teachers

With the advancement of time, technology has become crucial in human life, especially information technology. Information technology can be defined as a method used to store,

disseminate, and display information. Specifically, it involves the use of computers and software to store, protect, process, transfer, view, and access information regardless of time and place (Asiah et al., 2010). Progress in technology has had a significant impact, particularly in the field of work (Akmal, 2018).

Mastering technology skills can assist geography teachers in preparing themselves for the future, which is increasingly dependent on the use of technology. With proficient technology skills, teachers can be more productive and efficient in their work, diversifying engaging teaching and learning activities. Proficiency in information technology in the 21st century is essential as the digital era has transformed the way we live, work, learn, and communicate with others. This mastery includes an understanding of information and communication technology (ICT), including computer networks and the internet (Nur Amirah et al., 2022). Proficiency in information technology in the 21st century can help teachers in their daily tasks, such as data processing and communication.

Other than that, these skills can enhance the effectiveness of teaching and learning, helping teachers present information clearly and interestingly. Consequently, students will be interested in learning more about the provided information. There are specific information technology skills that geography teachers should master, including the use of digital mapping software (GIS). This proficiency is crucial as it is a tool in teaching geography. Teachers can analyze and visualize geographic data interactively using GIS software such as ArcGIS, QGIS, and Google Earth to integrate data, create maps, and explore the natural environment.

Additionally, according to Logambigai et al (2022), technological advancements have led to the global occurrence of the Fourth Industrial Revolution, creating innovations in Information and Communication Technology (ICT). This development provides a wealth of information that can be accessed by both students and teachers without limitations of boundaries and time. Information is readily explored and obtained at their fingertips. Through ICT, online learning can be facilitated by teachers using platforms like Google Meet, Google Classroom, and Zoom. This allows students to attend classes without being physically present at a specific location and can be done at any time. The Ministry of Education Malaysia has prioritized these skills among students and teachers during the COVID-19 pandemic. This approach has provided many opportunities for students to communicate with teachers outside of class hours and is not limited to specific times. The flexible teaching and learning process has positively impacted the national education system (Selma, 2022).

Quality of 21st Century Students

Student quality refers to the level of skills, knowledge, attitudes, and values possessed by students in a particular field or subject. This pertains to their ability to understand, apply, and analyze concepts and theories learned in lessons. Factors influencing student quality include genetic factors, family environment, school environment, social experiences, motivation, and interest levels; as well as other factors such as teaching quality and available learning resources. To enhance student quality, various parties must play crucial roles, including the individual, family, teachers, and the education system. Adequate support and motivation are necessary to cultivate individuals who are always eager to seek knowledge and learn new things. Therefore, the teacher's task is to provide quality teaching and ensure sufficient and easily accessible learning resources.

A conducive and safe learning environment plays a crucial role in students' comfort during the learning process. The creation of such an environment can be achieved in several

aspects, especially in terms of physical and psychological aspects. A comfortable and spacious classroom is essential for students' well-being; it can be achieved through providing adequate lighting as well as neat desk and chair arrangements that support movement and interaction between students and teachers. To add on, maintaining cleanliness and security by regularly cleaning the classroom is necessary to nurture good student quality. Additionally, a culture of mutual respect for the efforts made by students is needed to provide encouragement and motivation. As a result, students will always strive to contribute by providing input to solve various problems.

High-quality students are usually associated with high levels of intelligence, strong motivation, good family support, and a conducive learning environment. Therefore, it is important to provide equal opportunities to all students to achieve their maximum potential in learning. This is because every student possesses potential that needs to be discovered by teachers. According to Syahirah et al (2020), to produce students with good qualities, it is necessary to develop exemplary models that are all-rounded and developed in terms of spiritual, physical, emotional, intellectual, and social aspects. This not only produces excellent students academically but also fosters good character. The main foundation of the national education system is the National Education Philosophy (FPK) in producing balanced and holistic individuals. According to Saad & Rajamanickam (2021), they state that all education policies and implementations will align with the FPK.

Suggestions

Enhancing Teacher Professionalism

Teacher professionalism encompasses "voices of struggle and discursive practices amidst the chaos of past and present voices, life experiences, and existing practices" (Briztman, 2003). Teacher professionalism refers to the performance standards and ethics expected from an educator in carrying out their duties and responsibilities. A professional teacher is expected to have sufficient knowledge and skills in their field of expertise, effectively manage the classroom, understand student needs, and communicate well with parents and colleagues. Additionally, teacher professionalism includes integrity and ethics in teaching, such as not discriminating against students and colleagues, avoiding actions that harm students, and not taking actions that damage the school's reputation. A professional teacher is also expected to continue learning and developing in their field to provide the best for students and the school (OECD, 2016). In a broader context, teacher professionalism also involves involvement in professional teacher organizations and participation in professional development activities to enhance overall educational quality (Evans, 2008; Dalli & Urban, 2013).

Providing Teacher Training Courses

Enhancing teacher professionalism is crucial to ensuring good educational quality. One way to improve teacher professionalism is by providing training courses for teachers. This is because teachers need to enhance existing knowledge and further develop talents or skills in teaching to ensure that the quality of teaching follows the current educational trends, as recommended by the Malaysian Ministry of Education. A comprehensive analysis of teacher training needs involving stakeholders such as principals, teachers, parents, and students is essential. Focus on aspects that require improvement, such as teaching methods, classroom technology, and assessment is needed. Training courses for teachers are vital in improving the quality of education and teaching in schools (Sapie et al., 2021). These training courses

help teachers in their professional development. Through training, they can acquire new knowledge, sharpen skills, and understand the recently effective teaching methods. Additionally, training courses help teachers enhance the quality of their teaching by introducing new techniques, strategies, and approaches that are more effective and engaging for students.

As time progresses, technology in education is continuously evolving. Teachers must stay updated on the latest developments in education and technology to ensure they are always up-to-date on the latest developments in the field of education. For example, the use of online learning software, mobile applications, and hardware such as interactive whiteboards and tablet computers. Therefore, such teacher training courses can help teachers integrate technology more efficiently into the teaching and learning process. Not only that, but the education curriculum often undergoes changes and adjustments. Training courses help teachers understand and adapt to changes in the curriculum so that they can teach better according to student needs. Moreover, training courses also help teachers develop interpersonal skills, such as communication, collaboration, and conflict management. These skills are essential in creating a conducive classroom environment that supports student learning. With such training, teachers can improve their motivation and confidence in teaching. With the new knowledge and skills acquired, they will feel more prepared and confident in facing challenges in the classroom, ultimately improving student learning outcomes. This is because with improved teaching quality and better support, students will have a greater chance of success in the learning process (Mazni et al., 2020). This will have a positive impact on their learning outcomes and achievements.

Providing Comprehensive Infrastructure

Complete infrastructure in schools is crucial to creating a conducive and effective learning environment for both students and teachers. Among the infrastructure aspects needed in schools are adequate classrooms, libraries, laboratories, sports and recreational facilities, common facilities and safety, information and communication technology, and special spaces for co-curricular activities. With sufficient infrastructure, it can help teachers improve the quality of teaching and student learning experiences. For example, ensuring access to technology and learning tools at an adequate level. This is because teachers must have access to sufficient technology and learning tools to help them teach and interact with students effectively (Akmal, 2018). For example, providing access to online learning resources can help teachers find the latest and best teaching materials for their students. This includes resources such as instructional videos, presentations, and interactive learning software. Also, providing adequate technological infrastructure, such as fast internet connectivity and regularly updated hardware, will help teachers seamlessly integrate technology into their teaching.

Not only that, but teachers should also have access to quality learning resources, such as textbooks, learning software, and online resources, as well as be provided with sufficient administrative support, such as financial support, administration, and human resources (Thulasimani, 2014). Lastly, providing a flexible and open learning environment can help teachers create innovative and engaging learning experiences for students. This includes flexible classrooms, facilities that support collaborative learning, and access to the right digital resources. Providing 21st-century teachers with adequate training and infrastructure is essential to ensure they can deliver effective and relevant teaching to students. Thus, teacher

teaching strategies can be improved, helping teachers to continuously innovate in their teaching and preparing students for a better future.

Conclusion

In conclusion, teaching and learning geography in the 21st century plays a crucial role in elevating geography as an important subject. In the era of globalization and information technology transformation, geography plays a significant role in helping students understand and address complex global challenges, such as climate change, urbanization, and economic globalization. In 21st-century geography teaching and learning, the approach used is more focused on active, creative, and technology-based learning. This is done to ensure that students are more engaged in the learning process and gain a deeper understanding of geographical concepts. Furthermore, 21st-century geography teaching and learning also emphasize 21st-century skills, such as critical, creative, and collaborative thinking, as well as problem-solving and effective communication abilities. This is important to equip students with the skills needed to address complex global challenges. In 21st-century geography teaching and learning, it is also essential to introduce new perspectives and views in understanding geography as a crucial science. This can be done by introducing critical thinking, innovative ideas, and interdisciplinary approaches in understanding geographical concepts. Therefore, 21st-century geography teaching and learning can make a significant contribution to elevating geography as a relevant subject to current global challenges.

This research provides implications for stakeholders to reassess students' accessibility towards attaining information, understanding global issues, and adopting disciplinary approaches that allow integration of knowledge across different fields as well as continuous exposure which aims to cultivate skills in utilizing technology for research, aligned with problem-based learning and student-centered teaching approaches. The proposed suggestions aspire to contribute to the development of a future generation aware of environmental issues such as climate change, biological diversity, natural resource sustainability, and human development's impact on the environment. This is because contextual learning enables students to comprehend and apply their knowledge in real-world situations, fostering better problem-solving in society. Overall, contextual learning significantly contributes to other researchers, society, and students by enabling the application of knowledge in real-world contexts, promoting critical thinking, and cultivating awareness of issues relevant to life generally and globally.

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