Using Technology to Support Authentic Learning Approach in Social Studies Education: A Learning Design for a Social Studies Subject

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DOI: 10.32629/jher.v3i1.642

Abstract: In recent years, countries around the world have set off a trend of developing students' core competencies for the 21st century. Educators realized that traditional teaching method may no longer meet the needs for changing working and learning environment. Authentic learning provides a new platform for cultivating talents and developing core competencies. However, empirical research on authentic learning has not reached a consensus on the understanding of authenticity learning which creates challenges for educators to implement authentic learning in their teaching practices. From different scholars' understanding of authenticity learning, the common questions are around: how "real" is authenticity learning before it can be called authentic learning? What are the characteristics of authentic learning? Can technology be effectively implemented in the classroom to assist authentic learning? This paper discusses the implications of "authenticity" and "authenticity learning", summarizes the characteristics of authentic learning from the aspects of the composition of learning activities, and explores a TPACK model that can apply the theory of authentic learning from a learning design in Business Studies as an example. Through the exploration of these theories and practices, this paper is expected to provide valuable reference for schools and teachers to implement the concept of authenticity learning, so that the theory of authentic learning can give full play to the maximum efficiency in teaching and learning practice.
***Keywords*:** authentic learning, TPACK, technology, authenticity, 21st century competencies

1. Introduction

Social studies education is a study of how humans interact with the world, how society operates and changes over time (Martorella, 1996). Through social studies education, students develop their skills to participate as informed citizens actively and responsibly in the contemporary world (Russell & William, 2010). With the development of the information age, the emergence of technology has brought about great changes in the field of education. The passive learning approach has been unable to meet the changing needs of authentic learning outcomes, and educators have constantly begun to reflect the fundamental question of " what kind of skills should students equip in order to adapt to the changing world outside the classroom?", "What should we do to support them to achieve their learning outcomes?" With these questions in mind, a large number of educators, policy makers, institutions and organisations began to reform the current teaching and learning approach. For example, the Organisation for Economic Co-operation and Development [OECD] (OECD, 2014) puts forward the framework of core competencies that summarise the important capabilities from three aspects: "delivery-related competencies such as analytical thinking; interpersonal competencies such as client focus; and strategic competencies such as strategic thinking". Moreover, the European Union (EU) proposes eight key competences for lifelong learning in the European schools, including literacy, multilingual, mathematical, digital, social, civic, entrepreneurship and cultural awareness competencies (Office of the Secretary-General & of the European Schools, 2018). In the case of the United States, 4C's learning framework, namely, critical thinking, communication, collaboration and creativity (Nganga, 2019). Australian also put efforts in linking current curriculum to the 21st learning skills (Department of Education, Skills and Employment, 2022).

In the case of Australia, the current social studies curriculum in secondary education focuses on the following subjects: History, Geography, Business and Economics, as well as Society and Cultural Studies (NSW Education Standards Authority, 2022). These subjects are characterised by the changing information. The term ‘Social Studies' came into use in the late 18th and early 19th century to describe these interdisciplinary perspectives to diverse disciplines (Saxe, 2004). The inventors of this phrase envisioned classrooms creating students who could understand and propose relevant solutions to the current issues in contemporary society. This change later on presents the challenge of teaching and learning social studies subjects, which is reflected in the design of 21st century curriculum and core competencies discussed in many countries. These skills such as critical thinking, technology literacy, collaboration, creativity and communication, are not only important for students to

achieve their educational outcomes, but also vital to their future career (Rotherham & Willingham, 2010; Bellanca, 2010). It is found that the core competencies summarised by various countries are all aimed at helping students better adapt to the changing environment, and how they could use those skills to solve real-world issues. Thus, the underlying principle of developing key skills ultimately points to the idea of authentic learning.

Authentic learning in Social Studies education is designed to offer students various opportunities to develop their cultivated 21st century skills such as higher order thinking and substantial communication (Lombardi & Oblinger 2007; Bell, 2010). Authentic learning refers to a range of flexible teaching and learning strategies to engage a diverse group of learners. One of the most practical and effective approaches is to involve using innovative approaches to ensure that students are engaged active learners (Herrington, 2006; Shin, Sutherland, Norris & Soloway, 2012; Tschida, 2020). The main goal of authentic learning is to use ICT to transform students from being passive learners, users of technology into activer creators (Pahomov, 2014).

Though authentic learning is most effective when learning and teaching practices carried out in real-life scenarios. It is now evident that the power of authentic learning is no longer constrained by physical locations and its outcomes can be achieved through a technological-based environment (Harper & Milman, 2016). Authentic learning can rely on education technology to develop specific case studies that learners could encounter in real-life settings along the learning process. This requires both educators and students to use technology interactively as an important learning and teaching practice in secondary education. Efforts to reform and redesign pedagogies have been focused for many regions and countries since early 2000 (OECD, 2019).

Authentic learning consists of different stages - from setting a learning context, re-defining the tasks, accomplishing the task and presenting the learning products. Specifically, the stage of accomplishing the task presents a students are required to reproduce knowledge they learned from the previous stage and transform it into a new product. In this stage, the ‘authentic' characteristic involves using technology to link learning activities to the real-world setting. This characteristic focuses on the extent to which technology is used to support learning and teaching practices (FitzGerald, Kucirkova, Jones, Cross, Ferguson, Herodotou, Hillarie & Scanlon, 2018).

The challenges of using technology in authentic learning approach is currently focus on:

To what extent do teachers should permit students in class to be creators using ICT rather than passive learners?

How can teachers cater for students who have diverse backgrounds and experiences into the teaching practices?

How could teachers find innovation in teaching and learning areas, and in what ways could they incorporate innovation into their teaching practices?

This paper focuses on the implication of technological tools in authentic learning and reports the outcomes of a design project carried out by the author to determine the applicability of authentic learning to the social studies subjects in secondary education. The project begins with a literature review on authentic learning, with the reference of current challenges facing by the social studies educators and curriculum designers. This enabled the author to disils the principles and characteristics for authentic learning, and apply them into the project design process. This learning design aims to demonstrate how teachers could use technology to assist the authentic instructions in their classroom into a meaningful context, increase its relevance to the learner and tap into students' intrinsic motivation.

2. Authentic learning in secondary education

Authentic learning refers to a learning process that enables students to investigate, discuss and create meaningful connections between theoretical concepts and ideas with the real-life situation (Newmann, Marks & Gamoran, 1995; Herrington, Parker & Boase-Jelinek, 2014). It is a way of learning that encourages students to actively create, collaborate and share. In authentic learning, educators put forward certain incentives and challenges, and provide students with scaffolded learning plans and resources to support students' success -- teachers become learning instructors or facilitators rather than "dictators" in the classroom (Herrington, Reeves & Oliver, 2013). Students utilize their abilities and potential to effectively organise, collaborate and share collected information to create meaningful, valuable, effective, and shareable learning outcomes to solve real-world problems (Laur, 2013).

The underlying principle is that students are more likely to be engaged in the learning process and motivated to acquire new concepts and skills which could help equip them with practical skills (Ingram & Jackson, 2004). Authentic learning will take a significantly different perspective from traditional teaching methods. In the traditional classroom, students often take a passive role in the learning process. In this view, knowledge is regarded as a collection of facts that are transmitted in a one-way communication from the teacher to students. Authentic learning tasks, on the other hand, are often tasks in real life or tasks simulating the real world, which provide opportunities for learners to directly connect with the real world (Means &

Stephens, 2021). It follows a constructivist perspective which allows students to develop their own set of knowledge along the learning process (Gatlin & Edwards, 2007). In this way, students are expecting to engage in self-directed research, critical thinking and reflections in real-world context. Furthermore, under the concept of authenticity study, learning is more student-cantered, which is influenced by the prior knowledge and experiences of students. Instead of memorising facts, students are now experiencing and applying information in meaningful ways with an authentic learning approach (Brookes, Ektina & Planinsic, 2020).

2.1 Deriving principles and characteristics for authentic learning

Learning always happens in certain scenarios, especially in real-life situations (Jonassen, 2011). In a real learning environment, students have the opportunity to solve complex problems in the real world through role play, such as problem-based teaching (PBL) and Case study teaching. Authentic learning activities enable students to participate in and experience learning activities and have an immersive feeling. In an authentic environment, students need to use different skills and knowledge of multiple disciplines, different viewpoints and perspectives, as well as different working styles and habits of thinking to solve practical problems (Lombardi, 2007). Authentic learning activities provide students with practical opportunities to explore real problems and apply knowledge, so as to improve their ability to solve practical problems. In education, it is important to include authentic learning activities or projects, especially in courses with higher-order learning objectives.

Authentic learning activities can be presented in various ways, such as action-based learning (ABL) and problem-based learning (PBL). Action-based learning (ABL) is defined as "all learning that the learner meticulously plans through an activity" (Naidu & Bedgood, 2012). Action-based learning in Business Studies, for example, often takes place in the excursion or apprenticeship, where students collaborate to investigate and solve real-world problems to deepen their understanding of business concepts and frameworks and develop relevant professional and critical thinking skills (Danford, 2006). All the terms emphasise on giving students the opportunity to actively participate in solving real-world problems and apply what they learn in the classroom to the workplace, and to make connections between theory and practice.

Action-based learning takes the form of project implementation and job participation (Stirling, Kerr, Banwell, MacPherson & Heron, 2016). During project implementation, students design, deliver, manage or evaluate specific projects as part of their work experience. In this process, students will develop their professional knowledge and critical thinking skills, and deepen their understanding of subject knowledge and learn humanitarian values (Helle, Tynjälä & Olkinuora, 2006). The goal of action-based learning is to enable students to achieve the desired learning outcomes, so the learning experience needs to be structured and designed to ensure that learning takes place.

If students are to achieve their learning goals through authentic learning activities, the key elements, processes and student support must be designed in place, otherwise students will not only fail to achieve their learning goals but also feel frustrated and complain about the course. In turn, if all the elements and support design are in place, students will achieve the intended learning outcomes and be intrinsically motivated with the learning experience. The following learning design will focus on how teachers could use educational technology to tailor their teaching programs or lessons to fulfil the key characteristics of authentic learning.

2.2 Application of design principles to a social science subject

As discussed before, authentic learning activities are a key component that links theory to practice. With the development of educational technology, many teachers are seeking more engaging and meaningful ways to use technology to provide an authentic learning environment. Portfolio can be considered an authentic environment which enables students to collect information, present the final product and reflect their learning process (Wenzel, Briggs & Puryear, 1998; Adeyemi, 2015). Electronic-Portfolio (e-portfolio) is a future scenario for technology-enhanced authentic learning in secondary education. It is a digital collection of a learner's work where students can collect, organize, reflect and present their learning achievement and growth over time (Paulson, Paulson & Meyer, 1991). The primary function of e-portfolio is to store various learning experiences and purposefully select works that demonstrate the achievement of predetermined learning outcomes and performance. It emphasizes reflection on learning, growth and development, as well as the presentation of students' efforts. It can also be applied to the evaluation of students' academic achievement (Hewitt, 1995).

Technological Pedagogical Content Knowledge (TPACK) is a framework that helps teachers consider how their knowledge domains intersect in order to effectively teach and engage students with technology. It is an approach which combines knowledge of content, pedagogy and the technology in order to better impact students' learning (Rosenberg & Koehler, 2015). The following learning design will unpack the theory of TPACK model and demonstrate how teachers could use e-portfolio in the case of Business Studies subject as an example:

2.2.1 T. (Technical focus)

Teaching with technology adds a whole new layer of knowledge and experience of e-portfolio assessment. It is essential for me to equip teachers and students with the technical skill about the tools, including how to select, use and integrate technology into the curriculum. There are a variety of Web 2.0 tools that can be used to construct an e-portfolio such as Wix, WordPress, Weebly, Mahara and Google Sites. In general, these platforms allow students to create a website that allows students to collect and manage different types of artifacts that demonstrate their achievement and competencies. In the early stage of the course, students are encouraged to create a shell of the e-portfolio and any technical concerns can be addressed. Providing a sample demonstration, any technology troubleshooting, or facilitation to the diverse learner to achieve the optimal results (Alajmi, 2019). Therefore, it can be described as a teacher-directed and authentic learning scenario. One of the advantages of using electronic platforms is that students have freedom to design and present their work in various ways such as blog posts, audiocast, and visual representations.

2.2.2 TP. (Digital pedagogy focus)

Technological pedagogical knowledge reflects the understanding of how to choose and manage technology for students. For instance, why and how can teachers use e-portfolio to enhance students' reflection and learning experience? Diagram 1 explicitly shows teachers need to carefully scaffold a networked learning approach while achieving a delicate balance between student autonomy and teachers' control. On the one hand, most educators consider learning-by-doing is one of the most effective ways to learn. However, 'relevant' authentic teaching and learning are difficult to implement. The benefits students received in e-portfolio are "REAL" – Reflection, Engagement, Assessment for Learning (Munns & Woodward, 2006). When used in secondary schools, the primary goal is to design a reflective e-portfolio which has the potential to support students' deep learning and ownership of the learning process. Hence, both educators and learners can get a richer picture of what students currently achieve, as well as autonomy and teacher control. The Networked Student Model provides a foundation for creating a personal learning environment which supports students exploring extensive digital learning materials, promoting an active approach to learning, and developing an option for lifelong learning journey (Drexler, 2010). Studies further support that students will gain greater access to knowledge and more learning control with the personal learning environment (Drexler, 2010). On the other hand, the purpose of constructing an e-portfolio is not only a checklist of students' achievements in meeting learning outcomes but also a storytelling of their own growth and learning journey. Barrett (2007) presents the theoretical background of how educators can advance our teaching and ultimately enhance students' learning, engagement and reflection through the development of e-portfolios. For students, e-portfolio is a mirror into students' personal learning and a map for their ongoing development (Gadbury-Amyotm Godley & Nelson, 2019; Smith, 2018). Teachers, in turn, could use e-portfolio as a form of formative or summative assessment. The difference from the traditional paper-and-pencil assessment is that the e-portfolio provides a convenient and open assessment space (Lombardi, 2008). It is based on subjective evaluation from teachers, peers or even students themselves. In this case, the evaluation could be based on a wider range of content such as the portfolio design, presentation of the work and ideas.

2.2.3 TPC. (Digital pedagogy focus in the specific discipline)

The intersection of all three knowledge domains is the core of the TPACK model. This centre area refers to teachers' understanding of how ICT tools can enhance their teaching and support learning more deeply and effectively. E-portfolios do not have specific discipline content focus. It applies to all subjects across the curriculum. For instance, students can be required to record their science experiments, processes and results. They can also collect relevant news articles for economics case study reports. Moreover, students can even upload images or video clips of their Arts or Music performance. As such, it provides an opportunity to review and reflect their current achievement. In this case, the use of technology can be a motivating factor which allows students to individualize their e-portfolio, through creative layout and multimedia artifacts (Theodosiadou & Konstantinidis, 2015).

In the example of Stage 6 Business Studies, students learned about the marketing conducted in particular business via excursions and field work. The syllabus breaks down the topic of marketing into four sections - Role of marketing, Influences of Marketing, Marketing process, and Marketing strategies. I've designed the e-portfolio as an inquiry-based learning project. After a few lessons focusing on crafting e-portfolio and content lessons, students are taken to the business site for field work. Prior to the field work, students are encouraged to develop their own questionnaires, and plan the information to be collected. During the excursion, students have an opportunity to link the learned theory in a less structured environment. This field work provides another authentic dimension to class based learning and helps reinforce what has been taught in the classroom. In terms of assessment design, e-portfolio can students are often being tested on textbook theories and lack real-world relevance. Furthermore, with the emergence of new ICTs, we can offer students an authentic learning experience which will enhance transversal skills such as digital literacy, reflection and communication skills, autonomous

learning, digital creativity and innovation (Barrett, 2018). My students are required to present their proposed marketing strategies in the form of e-portfolio. The use of e-portfolio is directly substituted for a traditional paper report, with a significant enhancement to students' learning experience. As such, it increases students' learning productivity and explores their potential by reflecting on themselves.

In the learning process, my students need to go beyond simply "knowing a piece of information" to "solving relevant problems" by applying what they have learned. The learning process includes "knowing" and "doing". Thus, a purposeful, project-based approach to learning can contribute to student participation. Learning activities are designed to support students as entrepreneurs, help build a more innovative and creative world, and solve contemporary business issues. In this process, students act as problem solvers, solution designers and implementers. As a result, this learning design is committed to engaging students in authentic, project-based entrepreneurial education experiences.

3. Conclusion and recommendations

Authentic learning advocates the application of integrated inquiry activities and the construction of problem-solving learning projects based on contemporary issues. It promotes students to gain personal growth in the learning process and reflect on their learning journey. From the perspective of learning resources, the study of subject-specific content is based on real problems, so that students can better understand the application of theory learned in the classroom. From the perspective of teaching pedagogy, authentic learning allows teachers to integrate interdisciplinary inquiry activities as well as individual experience to engage and cater different types of learners. Lastly, from the perspective of student development, the school encourages students to study cooperatively, but still has the autonomy to keep their individual participation in the process of collaboration. The proper use of technology not only engages students via the development of their interdependence, but also extends the learning resources to encourage deep learning (Barrett, 2005; Zimmermann, 2008). Further research in the field should focus on analysing students‟ progress after using ePortfolios and the evaluation on the effectiveness of e-portfolio in different subject areas.

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