Integrating Internet Technology into Social Studies Education For Developing the 21st-Century Skills

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Abstract

Recently, information and communication technology, especially the Internet has become a necessity in education. Facing these phenomena social studies education (SSE) should be innovated based on the 21st-century skills and learning paradigm, which is characterized by the principles of disclosure of information, computing, automation, communication. Integrating Internet technology into learning of SSE is one form of innovation in the global-digital era, and powerfully supports the NCSS visions of SSE are meaningful, powerful, value-based, challenging, and active. Integrating Internet technology into learning SSE also strongly supports the development of three core skills of the 21st-century, namely learning and innovation, information, media and technology, life and career skills. This paper examines and describes theoretical and practical foundations of SSE, evolution and affirmation of academic positions of SSE community about the Integrating Internet technology into learning SSE; empirical study results of the integration into learning SSE in the 21st-century skills development; constraints and limitations, and its implications for teacher competences and teacher education design.

Keywords: Integration, Internet technology, Teaching social studies, Innovation, The 21st social studies skills.

Introduction

The progress of information and communication technology (ICT) and openness in its utilization are two important phenomena predicted will be the main characteristics and will have implications for learning paradigm shift of the 21st century. The Internet, as most creative and innovative work of the 21st century has become a key issue and a central theme in many innovations and new vision of education, including Social Studies Education (SSE). To maximize the impact of the role of technology in the context of education and the development of 21st-century skills, the Partnership for 21st (P21) Century Skills forum confirms, today "no organization can achieve results without incorporating technology into every aspect of its everyday practices. It's time for schools to maximize the impact of technology as well" (P21, 2008c:2).

In an educational context, the Internet has also provided a social and human infrastructure for teachers and students to improve collaboration, interaction, and participation in learning activities, and support the creation of a social constructivist learning activity (Chen, 2011). This is because it has advantages over other ICTs, such as audio / video tapes, radio, and television in terms of: (1) flexibility in the time and place; (2) the coverage; (3) computer requirements and operating systems; (4) velocity in development; (5) easily in updating content and archiving capabilities; and (6) funding (Kerka, 1997). In other words, effectiveness, cost, equity, sustainability, accessibility, interactivity, user-familiarity, and velocity in obtaining the necessary learning resources, are central issues addressed in the use of the Internet in education, including in SSE (Tinio, 2007).

In Indonesia, although the cost of Internet connection is the "highest" in the world, but the numbers of Internet users are the 3rd rank in the world, after China and India (UNDP-APDIP, 2011). A survey of Indonesian Internet Service Providers Association (APJII) in 2013 has revealed that the number of Internet users in Indonesia increased of 30% since 2012, and in a year 2015 predicted to reach 139 millions or 50% of the total population (Joseph, 2013); and 64% of them are young people aged 15-19 years (Manado-Micom, 2011). The social networking media is the most widely used as a predominant platform (89%), and is the 2nd rank in the world (Yono, 2011; Wahyudi, 2012). The above facts indicate that the use of the Internet in Indonesia is highly prospective for education, especially for the development of a creative and innovative learning of the SSE.
The Internet and Social Studies: An Evolution and Academics commitment

The initial idea to find the theoretical foundations of the use of innovative technology in the learning SSE began in the 1990s (Berson, 1996). Martorella (1997) is the first expert who writes a metaphor "Arguably; technology is a sleeping giant in the social studies curriculum,…Technology and the social studies have the power to become a dynamic and forceful agent for changing the social studies curriculum" (p. 511). Responding to the metaphor, Fairey, Lee, and Bennett (2000) suggest that the strength of the SSE will be realized if it enriched with a clear and comprehensive rationale for integration. As stated by NCSS (2008), "uses five principles of powerful teaching and learning in social studies, that is meaningful, integrative, value-based, challenging, and active" (p. 511).

The Martorella’s metaphor is widely used by SSE experts as the "touchstone" in a number of academic discussions to find the theoretical foundations and empirical supports for integrating the Internet in learning SSE (Doolittle & David, 2003; Ayas, 2006; Acikalin & Duru, 2005; Acikalin, 2010). They agreed that constructivism provides the theoretical, philosophical, and pedagogical foundations for that. It has been potential to inspire innovative ways of learning; and strengthen the creation of a constructivist classroom climate. Strommen & Lincoln (1992), the U.S. Department of Education (1993), and Burton (1999) have been stated that computer technology (ICT) is a tool for students to learning by doing, to involve actively with information and materials; to build their understanding; and to develop their critical thinking, problem solving, authentic learning experiences, knowledge of social negotiation, and cooperation in the SSE. Diem (1983), Ehman and Glen (1991), Braun and Risinger's (1999) studies found that the Internet use in the SSE provides a number unmatched, unlimited sources and repository of ideas for learners and teachers, and becomes an essential element of the repertoire of learning tools to engage learners in the SSE curricular, which cannot be provided in a traditional curriculum.

In 2006, Mishra and Koehler (AACTE, 2008) have developed a conceptual framework of TPCK (Technology, Pedagogy, and Content Knowledge) which emphasizes the interrelationship of three principal components of the learning environment: the content, pedagogy, and technology. According to Thornton (2001) and Keeler (2008), it provides a starting point to find a "conceptual home" of the technology in the SSE which able to build on the concepts of pedagogical knowledge as well as to facilitate the teacher's role as a "curriculum gatekeeper," and as a framework for teachers to discuss the intentions, actions, and outcomes in the context of technology-rich classroom, and is also suitable and applicable to the fields of study of SSE.

In line with the Internet revolution and civil-society life in recent years, the need for integrating the Internet into learning SSE has become a major interest in the SSE communities of the world. Whitworth and Berson’s (2003) study on the NCSS’s publication on the results of an intensive study of technology infusion into the SSE in 1996-2001 periods conclude that it has a strong influence for the students’ daily life and for learning SSE. Based on the research, NCSS (1992, 2008) suggests a ‘powerful’ vision in a document “A Vision of Powerful Teaching and Learning in the Social Studies: Building Social Understanding and Civic Efficacy.” In the document, NCSS states that the SSE would be "powerful" if the students can (1) acquire "meaningful" skills which help them to grow and thrive in the world evolving constantly and changing rapidly. One of them are skill in the use of the 21st century technology wisely; and (2) gain an "integrative" SSE subject matter using technology effectively.

In the “Standard Curriculum for Social Studies” document, NCSS (1994; 2010) also asserts "SSE programs should include experiences provide for the study of relationships between science, technology, and society” (STS) (p. 3). The students need to learn about the STS to understand how science and technology associated to the study of history, geography, economics, civics and government. Aikenhead (1992, 2003) and Rubba’s (1991) studies also conclude that the STS is the most popular model of technology integration, and represents a typology of Kuhn’s paradigm shift in terms of objectives, and learning process orientation (student-centered). This is reflected into the four curricular components of STS, namely: functions, contents, integrated structure, and sequences that illustrate the successful integration of various disciplines such as anthropology, history, political
science, sociology, science, and technology. Therefore, in “A Position Statement of the National Council for the Social Studies” document (2006), NCSS asserts that civil-society lives are supported by “technology-driven” and “technologically-oriented civic society” have a major influence on learners’ beliefs, knowledge, daily life; social and cultural changes; and on the ways of people interact with the world. The knowledge and awareness of the role and skills of technology; and of the complex relationship between science, technology, and society are desperately needed, so the principles and values of democracy as the ultimate goal of the SSE can be realized. For that, it is necessary to develop new models of learning in the SSE using Internet technology (U.S. Department of Education, 2004).

Social Studies and Developing the 21st-Century Skills

In 2008, the Partnership Forum for 21st-Century Skills (P21) in collaboration with NCSS advocates the need for integrating three 21st-century skills into learning SSE in K-12 to enhance their abilities to learn 'core academic subjects' of the SSE. The collaboration has created “the 21st-Century Skills Maps” that can be used by teachers as a concrete example of the integration of 21st-century skills into learning SSE. Such skills include: (1) learning and innovation skills consist of creativity and innovation, critical thinking, problem solving, communication, and collaboration; (2) information, media and technology skills consist of information literacy, media, and ICT; and (3) life and career skills consist of flexibility and adaptability; initiative and self-regulation; social skills and cross-cultural; productivity; and accountability; leadership and responsibility. Each of the types of skill includes operational definitions, interdisciplinary themes, and examples / outcomes of learners' performance. The 21st-century skills map is also equipped with a supporting structure contains the items suggested as an integrating tool(s) such as: access to the Web; interactive on-line sites; on-line authoring; communication tools, conferencing, and on-line collaboration; on-line resources; search engines, and online search strategies; social networking sites; software applications to create an information content, including Web authoring; Web publishing tools, and word processing (P21, 2008a).

In the context of the 21st-century skills development, the P21 stresses, "It's time for schools to maximize the impact of technology as well” (P21, 2008b: 2) to create an innovative learning climate, a synergistic and integrated learning system to maximize the impact of the role of technology. This is will be able to: (1) create learning practices, human support and physical environments to support the 21st-century skills achievement; (2) support professional learning communities that enable teachers to collaborate, share best-practice experiences, and integrate 21st-century skills into classroom practice; (3) allow students to learn in accordance with the real-world 21st-century contexts (e.g., through project-based learning or the like); (4) allow the fairness access to learning tools, technology, and quality sources; (5) provide an architectural and interior design of the 21st-century for learning groups, teams, and individuals; and (6) support for building the wider community and international engagement in online and face-to-face learning (P21, 2008b). In this regard, the integration of technology needs to be comprehensive and appropriate to learning purposes, and support students to understand: (1) what they need to be learned / gained comprehensively core academic subjects and the 21st-century skills and themes; (2) how they learn supported by innovative learning climate, active-participatory, relevant, rigorous, and student-centered (P21, 2008c).

The empirical studies support the SSE innovative learning by integrating the Internet for the development of student’s competence in the context of 21st-century skills. Abreu’s (2010) study shows that the Internet is a very vital medium who able to empower students gaining success in the 21st century; to help them effectively gaining a broad and open access on the diversity and abundant resources; and to facilitate the development of their skills to take decisions / solve problems in the digital age (Berson, 1996; Acikalin & Duru, 2005; VanFossen & Berson, 2008; Acikalin, 2010). The Integrating Internet technology is also capable of create the diversity of personal and interactive learning; to facilitate cooperative thinking and practice; and to provide students’ opportunity to learn skills and content of the SSE in ways that are impossible in the traditional classroom (Mason et al., 2000).
Although there are disparities in perceptions of learners, parents, and school staff on integrating the Internet into the SSE, they all support its use, because it is deemed capable of changing learning SSE towards a more enjoyable climate, provide information access easier as well as new opportunities for learners to engage in new learning experiences (Zhao, 1991; Alexiou-Ray, et al., 2003). It is also deemed capable of enhancing creativity, innovative problem-solving skills, and communication between learners; to refine learning strategies and process, so more inclusive for all students’ learning styles are also beyond the boundaries of traditional learning. The Internet integration are also able to create a classroom learning activity that can encourage student’s self-confidence, and able to open up the student’s world and reach deep into their creativity and imagination (Hollenbeck & Hollenbeck, 2009).

The Crawford and Kirby (2008) and Whitworth and Berson (2003) studies also found the successful of the Internet integration into the meaningful and authentic learning experience. According to them, it was able to increase students’ understanding about global awareness, inter-relationships of the world population; prepare them to participate meaningfully as a global citizen; facilitate the development of students’ skills to take decisions, solve problems, process data, and communication. Students also skillful to access the knowledge linkages are widely; expand their horizons of the population and differences point of views; and enabling them to be active participants in an increasingly interactive globalized world. The use of primary sources of digital learning is also able to improve the students’ thinking and historical inquiry (Tally & Goldenberg, 2005; Swan & Hicks, 2007). Anderson’s (2012) experiment in the “Schoolwires Greenleaf program,” a virtual Chinese-Americans international class exchange program has been successful to improve their ability to develop problem-solving and work in cooperation online skills. Finally, the Zimmerman’s (2010) study based on the theory of constructivism also success demonstrates that the infusion of technology into the Internet-based learning SSE project has enabled to build students’ experience and skills they need in a global-digital era, such as competition, communication, problem solving, data analysis, making decisions quickly, work together, and using technology.

Internet technology, said Mason, et al. (2000) is "the agentic power" in the SSE, so it has been able to revitalize the traditional concepts as citizenship education. It has provided the tools, means, and opportunities for students to practice freedom of speech, to protect their rights, to facilitate their actions as part of the meaning of democracy, to participate as citizens in the global community, and to become agents for social change (Waring, 2006). Therefore, adaptation and implementation of the Internet are a basic framework of our knowledge on the effective learning SSE to produce young people with a disposition and functional skills such as technology literate citizens, participatory; and to contribute constructively to our ways for "being" and "learning" with digital mediation (Berson & vanForsen, 2008). Integrating the Internet into learning SSE is like a "veil" that can provide cross-cultural experiences to students in developing knowledge, skills, and global awareness dispositions (Merryfield, 2003); in encouraging learners actively engage in a discipline-inquiry, perspective-taking, making meaning; and in helping them to learn, behave, and act as a citizen (Cogan, et al., 2000).

**Implications for Teachers and Teacher Education**

The SSE experts acknowledge that the use of the Internet will give a great impact on the future of SSE in the digital society era (Shaver, 2010). They also acknowledge that the relationship between SSE disciplines and technology is “precarious,” that simultaneously contains potential advantages and critiques to its limitations in learning practice (Berson & Balyta, 2004). A number of limitations and constrain factors of the integration of technology into learning SSE are: (1) education, teacher training, and sources—software and funds—have not been adequate; (2) teachers’ awareness and self-confidence are limited; (4) content coverage is limited; and (5) time for preparation is longer (Beaudin & Grigg, 2001; Butler & Sellborn, 2002; Whitworth & Berson, 2003; Hooft, 2005; Wright & Wilson, 2005; Shaver, 2010).

The constraints and limitations have important implications on how teachers and teacher education institutions prepare for it. For teachers, the use of Internet technology selectively in learning SSE and the 21st-century skills development must be based on the SSE vision and goals: meaningful, powerful, value-based, challenging, and active (Rose & Fernlund, 1997; Shiveley & VanFossen, 2009). Teachers
also need to act as a "multimedia creator" who able to create their own multi-media teaching materials (Rose & Fernlund, 1997). Even, Parr & Ward (2011) strongly suggest teachers to have a "personal laptop" as "activity centers" for him/her to use a variety of digital technologies. It is important to be attention for the teachers related to the Internet technology is the issue of "ubiquitous computing" and its implications for the school. This issue is the subject of discussion at a meeting the number of teacher education associations and educational technology collaborated in the National Technology Leadership Retreat (NTLR) in 2002. Discussion has produced seven conclusions related to the ubiquitous computing issues: (1) it will be a major force in school; (2) it will be a highly disruptive force potential culture gave birth to goodness or badness; (3) the teacher responsible for articulating a constructive vision to it; (4) teacher must be prepared to use it to improve learning; (5) teacher should be working with the developers to build the educational technology and evaluate it before it is used widely in schools; (6) teachers’ small-scale initiatives are needed to demonstrate immediately its visibility before implemented broadly; and (7) evaluate the initiative to ensure its impact on learning, and to be used as a teachers’ guide for the future (Bull & Garofalo, 2006; van Hover et al., 2006). To this conclusion, Van Hover comments that it is a better for teachers to understand and accept the SSE goals unique, and focus on developing the students’ skills, knowledge, and participation as good citizens in a democratic society. Teachers should also be encouraged to examine the relationship between technology and SSE continually. "We need to capitalize on many students' ubiquitous, yet social, use of such technology and demonstrate the technology's power as a tool for learning” (NCSS, 2006:3).

The other important issues and problems of the 21st-century that can be explored by teachers for integrating the Internet into learning SSE such as multicultural education; academic freedom; democracy; nuclear controversy; globalization; war, peace, hope; and HIV-AIDS hazard (Singer, 2002). Corresponding to the types of the Internet technology device used in the school, Friedman et al. (2009) classify into two types of the device: (1) “generalist technologies” are composed of software that is more ubiquitous within the public domain, and generally speaking, although they can be used to enhance social studies instruction, they could just as likely be used for noninstructional activities. They are relatively more ubiquitous, does not require a special skill to use, and commonly used in situations or non-instructional activities. This type is such as the SSE software, email, WebCT / Blackboard, and web-based discussion tools. (2) “specialist technologies” are composed of software that was not explicitly created for the social studies environment, but have distinct applications for teaching and learning SSE. They have unique characteristic, require a special skill to use, and specifically developed for learning purpose. This type is such as videoconferencing, webpages for learning, lesson plans using spreadsheets / databases, digital media, presentation hardware, software and games. According to Friedman, et al., the second type is the most effective use for learning SSE, and supports the creation of constructivist learning classes.

Besides that, the review of a number of studies found devices on the Internet is suitable to be used by teachers in learning for the development of 21st-century skills of the SSE such as SMART Boards, clickers, on-line learning resources based on Web sites, Web Quests (Milson & Downey, 2001; Lee & Molebash, 2004; Oigara, 2009); Video iPods (Lennex, 2008); You Tube (Owens & Fralinger, 2009); Wikis, digital documentation, Internet-based geographic information system, and a collection of structured sources (Hammond & Manfra, 2009); on-line discussion forums (Niu & Aalst, 2009); and online games (Ray & Coulter, 2010). However, whatever the device to be used, the most important is the teacher needs to design a good and right program and model, so it’s deemed capable to improve the learning quality (Crowe, 2004; Crowe & Hooft, 2006). Some experts (Lee & Molebash, 2004a; 2004b; Salpeter, 2005; Dogan & Robin, 2008; Langran & Alibrandi, 2008; Lowenthal, 2009) also found some learning strategies or models using the Internet technology, such as: scaffolding strategy focused on the use of online digital resources such as cross-cultural digital storytelling, or digital documentation of the student's creation. In addition, Mason et al. (2000) have been suggested a number of pedagogical principles teachers need in integrating Internet technology into learning SSE: (1) expand student learning goes beyond what can they be done without the support of technologies; (2) introduce the students about the context of its use; (3) provide opportunities for students to learn the relationship between science, technology, and society; (4) encourage the development of students’ skills,
knowledge, and participation as a good citizen in a democratic society; and (5) facilitate the students to contribute actively in research and evaluation on the technology—SSE relationship.

Rose and Fernlund (1997), Bisland and Fraboni (2007) suggest that teachers must provide clear guidelines and parameters related to the ways of determining the accuracy of the information, detection bias, the validity of the claims, etc. This is very important as a filter to ensure students that the information obtained really good quality and accurate. Emergence of student’s anxiety also needs to be addressed teachers wisely by encouraging them to remain actively involved in the discussions, partnerships, and collaboration electronically (Riley & Stern, 2004); as well as generate their interest, excitement, and provide positive motivation for them (Phalen, 2004). Various on-line social, ethical, and legal behaviors, as part of the process of safeguarding children’s on-line experiences related to the issue of personal rights in the digital age is also the fundamental aspects that need to be delivered to students (Berson & Berson, 2006:144). In this regard, Lee and Hicks (2006) propose several Internet technology discourses that need further study for possible use in SSE, including open educational resources (OERs), and open community forums (OCFs) as an Internet-based collaborative environment.

Associated with improving the teacher competences in integrating Internet technology in learning SSE, is the role of teacher education institutions. The development of the teacher education curriculum synthesizes the study on technology; philosophy and pedagogy are a necessity (Soon & Chee, 2012; Beaudin & Grigg, 2001). The curricular synthesis is very important to the teacher candidates, so they be ready with the knowledge, skills, experience in integrating technology into learning; be skillful to cultivate a greater understanding of the emergence of stereotypes and prejudice during learning process; and be skillful to improve students’ global and cultural literacy (Carano, 2009). The synthesis curricular activities are also expected to train teacher candidates to find creative ideas to overcome obstacles or limitations in integrating technology into the classroom (Wright & Wilson, 2005; Lambert, 2004). Finally, preparing the future teachers also need to focus on the development of cooperative behavior, critical thinking skills, global perspective; to increase the use of technology in learning, critical to media and mass communication; to develop a cross-cultural understanding and tolerance, and respect for human rights (Karsten et al., 2002).

Conclusions

Integrating Internet technology in learning SSE is an important innovation in of the of 21st-century education paradigm for development the 21st-century SSE skills. It has a solid philosophical and pedagogical foundation in the theory of constructivism. It has also become an academic and professional commitment among the world community of SSE, because it deemed capable as a vehicle for achieving the NCSS visions: meaningful, powerful, value-based, challenging, and active. Various studies also provide empirical supports for the development of 21st-century skills. However, the implementation in the classroom, a number of technical constraints, competence, and support infrastructure should be attention for the teacher. Therefore, teachers need to have sufficient knowledge, attitudes, and skills for the use effectively. Teacher education institutions are also expected to provide a stock of knowledge, attitudes, and skills of technology through an adequate curriculum design synthesizes the study on technology, philosophy and pedagogy.

References


