DEVELOPING THE 21ST-CENTURY SOCIAL STUDIES SKILLS THROUGH TECHNOLOGY INTEGRATION

Dr. Mohammad Imam FARISI
Faculty of Education and Teachers' Training,
Department of Social Studies,
Universitas Terbuka,
Surabaya, INDONESIA

ABSTRACT

Recently, technology has become an educational necessity in global-digital era. Facing these phenomena, social studies (SS) should make innovations related to changes of 21st-century skills and learning paradigm, which is characterized by the principles of disclosure of information, computing, automation, and communication. Technology integration into SS learning is one of the learning innovations in the global-digital era, and powerfully supports the National Council for Social Studies (NCSS) as stated in their visions: meaningful, powerful, value-based, challenging, and active. It also strongly supports the development of three core skills of the 21st-century, including learning and innovation skills; information, media and technology skills; life and career skills that developed in partnership with the Partnership Forum for 21st-Century Skills (P21). This paper examines and describes academics evolution toward a commitment and further developments in research; 21st-century skills map for the SS; and the implications for developing teachers' competences and teachers' education curriculum.

Keywords: **Technology integration, social studies, 21st-century skills.**

INTRODUCTION

Technology developments, especially information and communication technology (ICT) and openness in its utilization are two important phenomena predicted will be the main characteristics and have implications for changing 21st century learning paradigm. It has also provided a social and human infrastructure for teachers and students to improve collaboration, interaction, and participation in their learning activities, and support them to create constructive learning environments (Chen, 2011). This is because it has advantages than a traditional learning mode in terms of: flexibility in the time and place; the coverage; computer requirements and operating systems; velocity in obtaining the necessary learning resources an in development; easily, equity, sustainability, and accessibility in updating content and archiving capabilities; effectiveness, efficiency in cost or funding; interactivity in learning process; user-familiarity in the use. So that, technology placed as the most creative and innovative work of 21st-century, and becomes a central issue and theme in many innovations and new vision of education, including Social Studies (SS) (Kerka, 1997; Tinio, 2007).

To maximize the impact of the role of technology in the 21st-century skills development, the Partnership Forum for 21st-Century Skills (P21) 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). This paper examines and describes academics evolution toward a commitment and further developments in research; 21st-century skills map for the SS; and the implications for teachers' competences and teachers' education curriculum.

ACADEMIC'S EVOLUTION TOWARDS A COMMITMENT

The initial ideas to explore the theoretical foundations of the use of technology in the SS have been emerged in the 1970s. Martorella is expert who most concerns on this matter. In his edited first book, "*Interactive Technologies on the Social Studies: Emerging Issues and Applications" (1977),* Martorella provides some original analysis of experts on how to expand and evolve the role of technology that can be used to enrich and enliven the SS curriculum and instruction for the 21st century. In 1997, he reiterated on the significance of technology in SS and attracts experts to discuss this issue further, when he wrote an influential metaphor in a brief article entitled "*Technology and the Social Studies—or: Which Way to the Sleeping Giant*?"

> **"Arguably, *technology is a sleeping giant in the social studies curriculum,…how little the social studies curriculum has been affected by the technology changes sweeping the nation…Technology and the SS have the power to become a dynamic and forceful agent for changing the SS curriculum" (p. 511).***

He also gives an outline how technology should be included in the K-12 social studies curriculum through five themes: "computer as alter ego, computer as citizenship educator, computer as workplace, computer as school, and computer as the data gatherer" (p. 513). In listing these themes, he besides portrays technology as both the content and conduit for SS learning, and emphasizes on the SS as democratic education. According to Manfra (2014), Since then, it has been cited by numerous SS researchers, because for them, it appeared as the social impact of the Internet was just beginning to be understood; and his metaphor of the sleeping giant "depicted what he saw as a widespread reluctance to leverage technology for educational change in social studies education" (p. 2).

Martorella's metaphor about "*the sleeping giant"* seems not fully impact on the creation of a change in the SS practice. As Doolittle and Hicks (2003) wryly note, "The sleeping giant has been having quite a long nap" (p. 74). At least until the end of the 20th century, it is still controversies among experts. On one side, experts believe it is a paradoxical force for democracy if the use not provide students with experiences for the study of the ideals, principles, and practices in a democratic republic; and is not be addressed in the continuum for developing meanings of conformity, information, reason, and self (Diem, 1983; Ehman & Glen, 1991); and will be a dangerous, destructive or uncontrollable force (Manfra, 2014). On the other side, they believe it 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 SS curricular, which cannot be provided in a traditional curriculum (Braun & Risinger, 1999). It can also to create new places of assembly that will generate of meaningful opportunities for people's participation in political and democratic processes (Smith & Kollock. 1999); to educate, promote democracy, and save lives (Gore, 1994).

However, since that time, need for integrating technology into learning SS has become a major interest in the world community of SS. Even, some experts (Fairey, Lee, & Bennett, 2000; Doolittle & Hicks, 2003; Ayas, 2006; Acikalin & Duru, 2005) have also widely used the Martorella's metaphor as the "*touchstone*" in a number of academic discussions to find the

pedagogical foundations, conceptual models, and empirical supports for integrating technology into SS learning.

A professional commitment for integrating technology into SS occurred in 2006, when NCSS—the US community of social studies and one of the world's center of excellence in developing SS—agreed for integrating technology into SS. It is preceded by a Whitworth and Berson's (2003) research on the NCSS's publication on the results of an intensive study of technology infusion into the SS in period 1996-2001. Their studies conclude that technology integration into the SS has a strong influence for the students' daily life and for the SS learning. As stated by NCSS in the document of "*A Position Statement of the National Council for the Social Studies*" (2006, 2013), they suggest 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. Social studies' integrative nature, its exploration of the human experience across time and place, and its commitment to readying youth for life in a democratic society within a global context means the field is well suited to enabling youth to learn with and about technology for several reasons: (1) the democratization of knowledge; (2) the impact of technology in all areas of life; (3) the creation of multiple blended and online settings within a global context; (4) needs nurturing of students' rich array of digital democratic experiences; (5) and a rich tradition of innovative use of technology in the teaching and learning of social studies.

In a document "*A Vision of Powerful Teaching and Learning in the SS: Building Social Understanding and Civic Efficacy,*" NCSS (2008) reiterating that the SS would be "powerful" if the students can (1) acquire "*meaningful*" skills through the use of the 21st century technology wisely, which help them to grow and thrive in the world evolving constantly and changing rapidly; and (2) gain an "*integrative*" SS subject matter using technology effectively (p. 511).

The NCSS' commitments are an evidence that "the giant is indeed waking" (Bolick, 2004:130); It might be "*a Trojan horse of school reform*" (Bolick, 2008:186); it become "*the agentic power*" which can revitalize the traditional concepts as citizenship education (Mason, Berson, Diem, Hicks, Lee, & Dralle, 2000); and provide 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). Even, in 2012 or 15 years after Martorella states 'sleeping giant metaphor', it becomes a year of special themed issues discussed in a symposium of The College and University Faculty Assembly of the National Council for the Social Studies Anniversary, which have published in the journal of Contemporary Issues in Technology and Teacher Education, volume 14, issue 1, 2014 (ie. Manfra, 2014; Friedman, 2014; Hofer & Swan, 2014; Hartnett, George, & Dron, 2014; Kang, 2014).

Technology integration into the SS has to become a shared commitment within the worldwide community of SS, and become the touchstone in a number of research based on various theoretical perspective and methodologies with results that indicate the significance to create learning processes and environments more enjoyable, accessible, meaningful, and authentic that are impossible in the traditional classroom (Alexiou-Ray, Wilson, Wright, & Peirano, 2003; Hollenbeck, J. & Hollenbeck, D., 2009); and to empower students successful in gaining 21st-century skills within core subjects of SS (e.g. Cogan & Grossman, 2000; Whitworth & Berson, 2003; Acikalin & Duru, 2005; Tally & Goldenberg, 2005; Swan & Hicks, 2007; VanFossen & Berson, 2008; Berson & vanFossen, 2008; Crawford & Kirby, 2008; Zimmerman, 2010).

Recently, integrating technology is connecting to democracy development. Experts call as a "*digital democracy for democratizing force*" (Montgomery, 2008); "*a positive force for democratization*" (Best & Wade, 2009); a "*communicating democracy and democratizing communication*" (Elmas & Kurban, 2011), or a "*digital democracy or citizenship,"* a "*digital citizenship*" (Simsek, E., & Simsek, A., 2013). It is a form of online participatory activity media that can give youth civic and political engagement a much-needed boost and vitally important (Kahne, Ullman, & Middaugh 2012); and a part of the redefining and broadening of existing boundaries of practice and our understanding of what citizenship learning means" (Ito *et al.* 2008, viii). It has also provided a new paradigm of democracy and citizenship education reflects a style of civic participation '*more self-actualizing* (AC)' so that participation makes a difference, than traditional paradigms of "*dutiful citizenship* (DC)" oriented to government through parties and voting (Bennett 2008; Freelon, Wells, Bennett 2013).

THE SOCIAL STUDIES 21ST-CENTURY SKILLS MAP

To maximize the impact of a pivotal role of technology for gaining the SS 21st-century skills, in 2008, NCSS in partnership with the P21 advocates to be integrated into K-12 education. The partnership has created "*the 21st-Century Social Studies Skills Maps*" that illustrate the intersection between 21st-century skills and the '*core academic subjects*' of the SS, including Social Studies, English, Mathematics, Science, and Geography. Through this map, students can advance their learning outcomes in the new global economy. This map is derived from a collective P21 vision on the "*21st-Century Skills Map*" that developed from the result of hundreds of hours of research, development and feedback from educators and business leaders across the nation.The following is the SS 21st-century skills map contains four essential outcome's elements that integrated into core subjects of SS and can be achieved by students in learning (P21, 2008a:1-18).

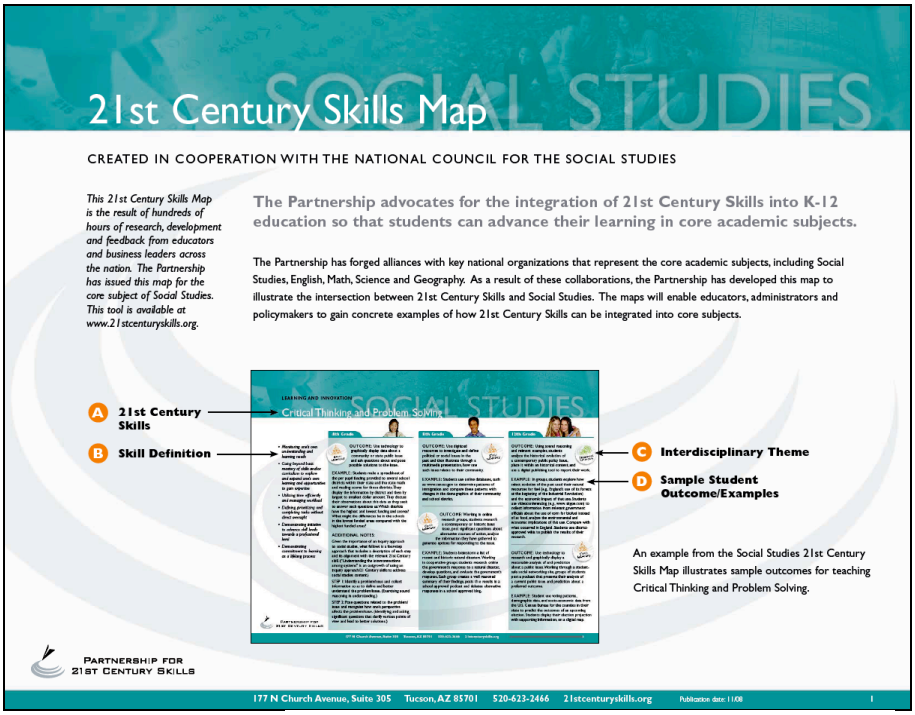

Figure 1. An Example from the SS 21st-Century Skills Maps (P21, 2008a)

(1) *21st-century skills* are the essential SS 21st-century skills which should be diffused into educational system, including: 1) "*learning and innovation skills*" (critical thinking and problem solving, creativity and innovation, communication, and collaboration); 2) "*information, media and technology skills*" (information literacy, media literacy, and ICT literacy); and 3) "*life and career skills"* (flexibility and adaptability, initiative and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility);

(2) *Skill definitions* are operational definitions of each essential SS 21st-century skill as the results of learning, e.g. utilizing time efficiently and managing workload; demonstrating the ability to work effectively with diverse teams; or understand how media messages are constructed, for what purposes and using which tools, characteristics and conventions;

(3) *Interdisciplinary themes* are academic contents of highly-level thinking and integrated by weaving into core subjects of SS such as global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, health literacy, and environmental literacy; and

(4) *Sample student outcome/examples* are concrete sample of teaching and learning activities and outcomes that are fully interconnected into the SS essential skills, themes and core academic subjects of SS.

The skills map can be used by teachers as a framework and concrete examples of the integration of 21st-century skills in designing and developing the SS learning that integrated with technology so that students can advance their learning comprehensively, appropriately; and can support those to understand: (1) what they need to be learned / gained comprehensively core academic subjects and the 21st-century skills and themes in the SS learning; (2) how they learn supported by innovative learning climate, active-participatory, relevant, rigorous, and student-centered (P21, 2008c; 2008d).

In this context, the P21 also stresses, "It's time for schools to maximize the impact of technology as well" (P21, 2008b:2) to create an innovative learning climate, and a synergistic and integrated learning system to maximize the impact of the role of technology. This will students enable 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).

To support of acquiring the skills, the collaboration has also equipped with supporting structures contain the items are suggested as an integrating tool(s) including the technological tools, hardware/software is support teachers and students to search, access, interact, collaborate, promote or publish their ideas, products or resources; and develop their ongoing skills in the use of technology professionally (P21, 2008a).

SOME IMPLICATIONS AND RECOMMENDATIONS

As stated above, the use of technology will give a great impact on gaining the SS 21st-century skills in the future. However, because of the relationship between SS disciplines and technology is precarious and simultaneously contains potential advantages and critiques to its limitations in learning practice such as: (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; Wright & Wilson, 2005).
These factors, specially teacher and their education are part of support systems have important roles and responsibilities about how they can integrate technology into SS learning and create conducive learning environments; and how teacher education institutions prepare and develop their professionalism (Figure 2).

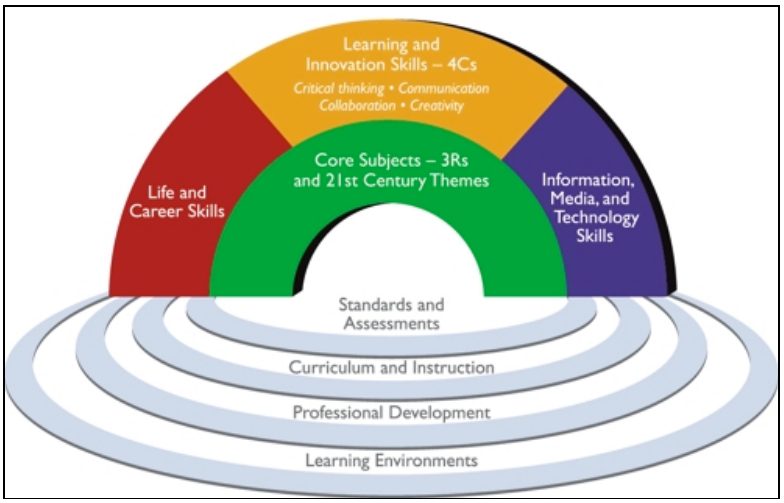

Figure 2. 21st-Century Student Outcomes and Support Systems (P21, 2008a)

Teachers' Competences

Teachers who will use technology selectively in learning SS and in developing the 21st-century skills must be based on the vision and goals of SS: meaningful, powerful, value-based, challenging, and active; and need to act as a "*multimedia creator*" so that able to create their own multi-media teaching materials (Rose & Fernlund, 1997; Shiveley & VanFossen, 2009). 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 related to the technological issue as "*ubiquitous computing*" and its implications for learning, which has become the subject of discussion at a meeting the number of teachers' education associations, and educational technology collaborated in the National Technology Leadership Retreat (NTLR) in 2002. The meeting concludes that ubiquitous computing will be a constructive and disruptive force in school for the future, and teachers should be taken their roles and responsibilities to anticipate of them (Bull & Garofalo, 2006; vanHover, Berson, Bolick, & Swan, 2006).

However, in relation to this issue, NCSS (2006) suggests, "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). Teacher should also enable to explore important issues and problems of the 21st-century in the Web 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 technology device, a number research recommends teachers to use two types of technological devices are suitable to develop the SS 21st-century skills and support the creation of constructivist learning class:

(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 SS instruction, they could just as likely be used for non-instructional 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, including email, WebCT/Blackboard, web-based discussion tools (Friedman, Bolick, Berson, & Porfeli, 2009); SMART Boards, clickers, on-line learning resources based on Web sites, Web Quests (Milson & Downey, 2001; Lee & Molebash, 2004a, 2004b; Oigara, 2009); Video iPods (Lennex, 2008); You Tube (Owens & Fralinger, 2009); Wikis, digital documentation, technology-based geographic information system, and a collection of structured sources (Manfra & Hammond, 2005);

(2) "*specialist technologies*" are composed of software that was not explicitly created in the SS environment, but have distinct applications for teaching and learning SS. They have unique characteristic, require a specific skill to use, and specially 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 (Friedman et al., 2009); on-line discussion forums (Niu & Aalst, 2009); and online games (Ray & Coulter, 2010).

However, anything devices are used, the most important to be aware of the SS teachers is that design a good and right program, model or strategies deemed capable to improve the learning quality. Some experts (Lee & Molebash, 2004a; 2004b; Salpeter, 2005; Dogan & Robin, 2008; Langran & Alibrandi, 2008; Lowenthal, 2009) recommend some learning strategies or models in using 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) suggest pedagogical principles teachers need in integrating technology into learning SS: (1) expand student learning goes beyond what can they be done without the support of technologies; (2) introduce students on 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 of the technology—SS relationship. Besides that, teachers also 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 (Rose & Fernlund, 1997; Bisland & Fraboni, 2007). Teachers should also anticipate student's anxiety phenomena wisely by encouraging them to remain actively involved in the discussions, partnerships, and collaboration electronically (Riley & Stern, 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).

Teachers` Education Curriculum

Associated with improving the teachers' competences in integrating technology into the SS learning, the roles of teacher education curriculum are crucial so that the SS 21st-century skills can be realized. The curriculum development needs to change drastically to comply with the competences needed for the 21st century in order to make room for 21st century competences. Essentially, the curriculum should synthesize studies on technology, philosophy, and pedagogy (Soon & Chee, 2012; Beaudin & Grigg, 2001). The synthesis is very important so that teachers be ready with the knowledge, skills, and experiences in integrating technology into learning; be skillful in cultivate a greater understanding of the emergence of stereotypes and prejudice during learning process; and be skillful in improve global literacy and cross-cultural awareness of the students (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). Following are models/approaches can be used to develop teachers' education curriculum, which is based on the principles of pedagogy, technology, and philosophy.

***First*, Technological Pedagogical Content Knowledge (TPCK) model is developed by Mishra and Koehler (2006). This model can be used as a starting point to find a "*conceptual home*" of the technology in the SS 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 SS. Theoretically, it emphasizes the interrelationship of three principal components of the learning environment: the content, pedagogy, and technology (Thornton, 2001; Keeler, 2008; AACT, 2008).**
***Second*, synthesis curriculum approaches proposed by Voogt and Roblin (2012: 310) which are emphasize integrating 21st century competences into the curriculum. Three approaches/models of the competences' synthesis as follows: (1) be added to the already existing curriculum as new subjects or as new content within traditional subjects; (2) be integrated as cross-curricular competences that both underpin school subjects and place emphasis on the acquisition of wider key competences, or (2) be part of a new curriculum in which the traditional structure of school subjects is transformed and schools are regarded as learning organizations. According to them, although different three approaches are acknowledged, most frameworks recommend integrating 21st century competences across the curriculum due to its complex and cross-disciplinary nature.**

***Third*, Science, Technology, and Society (STS) model are proposed by Rubba (1991), and Aikenhead (1992, 2003; 2005). This model is the most popular model of technology integration. According to them, it represents a typology of Kuhn's paradigm shift in terms of objectives, and learning process orientation (student-centered) as reflected into the four curricular components, 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. This model recommended by NCSS to be used in developing SS curriculum. As stated by NCSS in a document of "*Standard Curriculum for Social Studies"* (2010), "Social Studies programs should include experiences provide for the study of relationships between science, technology, and society" (STS), so the students understand how science and technology associated with the study of history, geography, economics, civics and government (p. 3).**

Finally, more importantly is the curriculum needs to teach 21st-century skills discretely in the context of core subjects and 21st-century interdisciplinary themes; focus on providing opportunities for applying 21st-century skills across content areas and for a competency-based approach to learning; enable innovative learning methods that integrate the use of

supportive technologies, inquiry- and problem-based approaches and higher-order thinking skills; and to encourage the integration of community resources beyond school walls (P21, 2008e:8). The curriculum also needs 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, Cogan, Grossman, Liu, & Pitiyanuwat, 2002).

CONCLUSIONS

Integrating technology in SS learning is an important innovation of educational paradigm for developing 21st-century SS skills. It has solid philosophical and pedagogical foundations in the theory of constructivism. It has also become an academic and professional commitment among the world community of SS, because it deemed capable as a vehicle for achieving the NCSS' visions: meaningful, powerful, value-based, challenging, and active. Various studies are also provide empirical supports for developing 21st-century skills through technology integration.

However, some implications for further implementations in the classroom, a number of technical constraints, competences, and infrastructure supports should be attention of the teacher. They need to have sufficient knowledge, attitudes, and skills for the use effectively. Teachers' competencies and education curriculum are also expected to provide a stock of knowledge, attitudes, and skills of technology by designing an adequate curriculum based on the principles of pedagogy, technology, and philosophy integratively.

Finally, future research is needed to explore how the elements are the critical systems such as standards, assessments and professional communities' partnership provide tools and resources that help facilitate and drive it, and must be aligned to produce a support system that produces 21st SS outcomes for today's students. Research on technological devices and integrating models that compatible to K-12 for gaining skills needed are also important, because the 21st SS skills map for them are different in terms of contents, levels, and activities of skill are developed. Bridging gaps in access to benefits of technology especially for the Asia-African students who are socioeconomically disadvantaged are also a challenging study for future. Moreover, the current studies that provided are very limited.

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BIODATA and CONTACT ADDRESSES of the AUTHOR

Dr. Mohammad Imam FARISI **is currently a Senior Lecturer at the Department of Social Studies, Faculty of Education and Teachers' Training, Universitas Terbuka Indonesia (Indonesia Open University). He completed his Doctor (Dr) in Social Studies from Indonesia University of Education by scholarships from Directorate General of Higher Education, National Education Department. He has published articles at the National and International Journals; presented papers at National and International Conferences/Seminars on education and distance education; and trained the teachers and tutors.**

Dr. Mohammad Imam FARISI
Faculty of Education and Teachers' Training, Department of Social Studies
Universitas Terbuka - Surabaya Regional Office, Indonesia
Adress: Kampus C Unair Mulyorejo, Surabaya 60115, Indonesia
Phone: +62-315961861; +62315961862
Fax: +62-315961860
email: imamfarisi@ut.ac.id

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