Internalization of Digital Citizenship for the Future of All Levels of Education

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Abstract

In the digital age, the re-construction of knowledge can be enriched through technology enhanced learning environments. The question arise on whether learners, teachers are capable to use technology in a right and productive way to support learning. In this respect, this research study aimed to examine the awareness of learners and the teachers in internalization of digital literacy skill within the framework of digital citizenship as regards the right behaviours while using technology in the life. Further to this, study aimed to develop their awareness of digital literacy based on an action research learning cycle. In this respect, research stands on activity theory as a theoretical framework. Qualitative research was employed and case study approach was implemented to enrich the awareness of learners and teachers about digital citizenship based on a sense of action learning. Data analysis was done based on thematic analysis for reflective reports. Research findings indicated that learners and teachers developed their awareness of digital citizenship upon this research process; however it is crucial to integrate digital literacy and digital citizenship into curriculum and course designs for the future in all levels of education in order to make global citizen. This research study gives an insight on being readiness to adapt global citizen through internalizing digital literacy and citizenship. Further to this, exploring digital literacy skill needs to be considered from the pre-school education levels.

Introduction

The quality in all levels of education is enriched through support of digital infrastructure, culture and learning environment. The transformation in education proposes to question the quality of education and the properties of global citizen in digital age. With the transformative function of the information and communication technologies in education, values, abilities and characteristics of generations are changing. Within a frame of transformation in education, capturing sense of digital society, merging different generations; technology plays significant role to foster and support to make global citizens (Edwards, 2015; Missingham, 2009; Simkins & Lumby, 2002). The term digital age refers to digitizing roles, the status of human beings and digitalizing of information in our modern

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society. Multiculturalism becomes a response to global changes that integrates different values, cultural worldviews through technological innovations (Watson, 2010). Transformation becomes potential need in education system which question abilities, values of being global citizens in order to adapt new world dynamism. As digital inclusion is the fundamental development of the societal life, technology is the path of improving the quality of social lives (Pashby, 2015). Furthermore, it supports learning that empowers the social values within the adaptation process of being global citizens (Watling, 2012). Therefore, transformation and leading multiculturalism for global citizens become academic debate in education system of developing countries which literature pays attention on transformation and multiculturalism framework for the future (Couldry et al., 2014; Simkins & Lumby, 2002; Zhenzhou & Postiglione, 2008).

The visibility of intellectual life and the questioning social values and abilities of global citizens have been discussed by the transformation in education with the impact of technology and globalization (Edwards, 2015; Simkins & Lumby, 2002). In this respect, there is potential social impact of integrating information communication technologies into human being's lives. Literature supports (Meyers, Erikson, & Small, 2013; Missingham, 2009) that individuals have started to shape their life activities and roles as part of the digital society. As even life activities and roles of Y generation are changing upon digital society, technology becomes transformative for the new generation attitudes and roles while they are learning and gaining abilities and values. As this new Z generation are known as digital citizens in digital society, this increases the significance of digital learning environments and the right behaviours of productive use of technology in digital age for their personal and professional development (Jones, 2010; Meyers et al., 2013). For the new generation, digital learning environments have also impact on social values and re-construction of knowledge as part of transformation in education as a result of ICT transformation not a revolution (Edwards, 2015; Selwyn, 2012; Simkins & Lumby, 2002).

In addition, the study of Selwyn (2007) found that digital learning is not a neutral but at the same time, term can be underlined as culturally created, negotiated within the transformation on learning, skills and values within the context. In this respect, digital learning becomes a path to reflect transformation, development and enrichment in all types of education for global citizens who can be capable to cope with global and the digital world for the future.

In fact, re-construction of knowledge based on constructed values, experiences can be enriched through technology enhanced learning environments in digital age (Postholm, 2008). The use of digital technologies makes an impact on learning and on the societal values of learners where new generations look for new colours in learning process that technology and digital learning environments become medium to foster learning process (Couldry et al., 2014; Jimoyiannis & Komis, 2007). In all levels of education, education system need to be incorporated with framework of global citizenship abilities and values that digital learning environments also support individual development besides learning (Granberg, 2009; Seale, Draffan, & Wald, 2010).

In all levels of education of developing countries, digital learning environments and learning through the support of technology arises the question of the future of education and the quality. Technology enhanced learning environments brings the academic discussion on literature which have pros and cons within the applications for the outcome (Meyers et al., 2013). The digital learning highlights the importance of digital competence, digital literacy for educational practices in digital age. Although digital learning environments enrich the learning and also merge generations for the values and abilities, there is an intensified need to consider the focus of exploring awareness of digital society, productive use of technology and right behaviours within framework of digital literacy in becoming digital citizen (Edwards, 2015; Meyers et al., 2013). The global citizen needs to internalize the sense and ability of digital literacy for the future. Technology enhanced learning environments and digital learning environments are the transformative power of merging also the generations within the all levels of education for developing countries in order to cope with global standards in education and quality for the future. The sociological theory and the activity theory provide insights on understanding how technology can provide bridge between generation and how technology enhanced learning activities shape values and behaviours within the society in terms of digital citizenship (Edwards, 2015).

As activity theory refers engagement in social context for learning (Nardi, 1995), focusing comprehensive look into the social nature of digital technology in the education system and understanding the benefits of digital learning based on activity theory is a solving of the mystery of values, and roles in digital age. McCain and Jukes (2001) states that digital citizenship refers to the norms of behaviours with regard to technology use. It deals with internalizing norms of behaviours that supports teachers, technology leaders, and parents to understand how to use technology in a right way. It puts forward to be fully involved in technology in a coherent manner which society need for that for their future. In other words, it is about safe online behaviours in digital society (Meyers et al., 2013).

The features of digital citizenship listed in nine main categories are Digital Literacy, Digital Law, Rights and Responsibility, Digital Communication, Digital Security, Digital Commerce, Digital Access, Ethics, Digital Health (Oyedemi, 2015). The study of Ribble (2012) provides a rationale stance on the digital citizenship that these categories can be fostered through mobile learning technologies in educational setting. Digital citizenship is a socially constructed set of practices and the norms of behaviours where facilitates individual development and protects social values in digital society. The awareness of digital citizenship is needed at all level of education for the learners in order to safe the adaptation of society to the global world. Also, awareness and internalization of digital citizenship increase the empathy between the generations through interpreting common norms of behaviour while using technology in digital society (Burridge, 2010; Missingham, 2009). Many researches (Bitner & Bitner, 2002; Duhaney, 2001; Gorard & Selwyn, 2005; Johnson, 2010; Kim, Daim, & Anderson, 2010; Willis & Raines, 2001) stated the importance of technology and the use of technology, but many fail to address the importance and the practice of the digital citizenship and teaching the correct behaviours to use technology. Therefore, this research aims to reflect how sociological theory is integrated in practice to examine the awareness on digital citizenship of learners and teachers in high schools in order to highlight how all level of education need to integrate digital citizenship into practice for the values and future global standards. Further to this, the study puts insights on readiness of education system upon the framework of digital literacy and citizenship to make global citizen. In this respect, the following research questions were raised in this inductive research process.

- To what extend do learners and teachers have awareness on digital citizenship?
- What are learners' perceptions on digital citizenship?
- What are the teachers' perceptions on digital citizenship?

Method

The design of this research relies on a qualitative nature where case study approach was employed. As activity theory is the theoretical framework of this study; perceptions, experiences and socially constructed meanings become crucial to reveal the reality within the inductive process. In this respect, this research study stands on a qualitative design as regards to this process having an emic perspective and at the same time considers patterns of reality and co-construction of social meaning (Creswell, 2003). Further, case study approach through sense of action learning process was implemented to raise questions on the perceived problem, seek for solutions, and propose action for the development (Mills, 2003). As case study aims to examine and explore the existing situation, this research stands on case study through action learning as an evaluative tool to propose development where case study examines the situation. This study highlights how awareness of learners and teachers developed and digital citizenship was inspired in an efficient manner. This case study through sense of action learning process fosters to underline the importance of constructing knowledge and adaptation to new behaviours that supports learners and teachers to internalize digital literacy and digital citizenship.

Data Collection and Analysis

With the nature of the study which aims to examine the situation in particular context, it reflects the case study. The meetings with teachers and headmaster of the school provided situation analysis on the issue. The reflective report provided also how learners and teachers developed the awareness of digital citizenship. The reflective report was designed by researchers, reviewed by two experts, and piloted (Denzin & Lincoln, 2003). A reflective report is documented perceptions, experience, and understanding about the issue. In this study, it was used to reveal the awareness of the learners and teachers towards digital citizenship and digital roles. Training was done to explore the awareness of towards the digital society, digital citizenship and digital roles. The results from reflective reports were analysed through thematic analysis that collaborative consensus of different researchers on data analysis provided a cross examination and verification of the findings.

In addition, this research study included the following research stages in order to reflect:

1. Purposively selected research participants. A group of learners and teachers create a sample of the research based on voluntarism.

2. Reflective report was conducted to understand awareness on digital citizenship.

3. Training was delivered for sixty minutes and included information about the use of technology, a digital society, the concept of a digital citizenship, aspects of social networking, and culture.

Site and Participants

In this research study, learners and teachers from one high school became research participants, Table 1 and Table 2 had demonstrated that they already had the ability to use technology and social networking sites for their social and academic life. Furthermore, although the school is in rural area, the school has potential infrastructure to use digital learning environments. However, participants did not aware of digital roles and behaviours as meetings and discussions with headmaster and teachers highlighted. The selection of the sample relies on purposive sampling which school culture is open to develop, involve in training, action learning process. 51 learners who are the last year students of the high school and 34 teachers become part of the action learning process upon voluntarism.

Table 1. Learners' Profile

Frequencies of Learners (N=)

Gender	Frequency	Percentage %
Male	20	39,21
Female	31	60,78
Total	51	100

Table 2. Teachers' Profile

Frequencies of Learners (N=)

Gender	Frequency	Percentage %
Male	7	20,58
Female	27	79,41
Total	34	100

Learners and teachers voluntarily participated to the research study. The reason behind this purposive sampling strategy was to identify individuals having basic knowledge on the use of technology, and the ability to use technology and social networking sites. The diversification of participants resulted in having dense data.

Research Process and Ethics

In order to evaluate the awareness of digital citizenship of learners and teachers, a reflective report was used to understand awareness surrounding digital citizenship. The qualitative data was gathered, and then analysed within a framework of thematic analysis. Further to this, training was done. Training became the critical step for highlighting concepts regarding digital society, digital citizenship, roles, and digital learning process. During the one hour course period of time, the nine sub-themes (Digital literacy, digital law, rights and responsibilities, digital communication, digital security, digital commerce, digital access, ethics, health) were presented. Further to this, using mobile learning technologies and its impact to learning context has been underlined. However, the data cannot be generalized for further practice and actions. During the inductive research process, ethics became also a critical element. Coding was used through giving numbers to the each participant which confidentiality and anonymity were ensured. The participation was on a voluntary base in every step of action (Denzin & Lincoln, 2003).

Findings

In the digital age, intellectual thinking, values and the norms of behaviours for the use of technology are the transformation outcome in education and the life (Couldry et al., 2014; Ribble, 2012). It is crucial to be adaptive in global world and to internalize digital literacy within the digital society for personal and professional development in all levels of education (Meyers et al, 2013; Oyedemi, 2015). Furthermore, internalization of digital literacy and digital citizenship enrich empathy among generations and cross cultures for the global citizens. In this study, developing awareness of digital society, digital citizenship and roles as regards the right behaviours while involving use of technology was studied through sense of action learning process to figure out best practice of internalization, highlight significance of this internalization for future and quality of all levels of education. In fact that, having technology content knowledge is fundamental to become part of transformation in education and gain global citizen properties in digital age.

Through the case study with action learning process, increased awareness was determined based on the reflective report. Training helped increase the awareness who had very limited understanding before the training (Couldry et al., 2014; Mills, 2003). At the same time, training session enhance the organisational culture. Learners and teachers developed their awareness on digital citizenship and roles as the reflective report results confirmed the success of training. The results were highlighted upon the inductive research stages (Creswell, 2003).

Awareness of Participants on Digital Citizenship

How Learners and Teachers Define Digital Culture and Digital Citizenship

Learners reflected their awareness on digital culture through meetings upon focus groups. Almost all learners defined digital culture as: a group or community using the internet, a created society within the internet. Further, teachers defined digital culture as: group of people who need to advance norms, thoughts, their roles in the internet; attitudes of group and individuals toward the internet. According to the learners, it can be defined in many ways:

- Tendencies to use technology
- Using technology correctly and efficiently
- Having awareness of technology
- Cyber environment
- Knowing roles in the internet society

Significantly, teachers defined digital citizenship as: knowing ones roles on the internet. A few of them stated that they had no idea about digital citizenship. Almost all teachers defined digital citizenship in many ways:

- Use of technology
- Being follower of the innovation
- Economic and information retrieval
- Appropriate movement towards use of technology

Further, they also defined digital citizenship as knowing the roles within the internet. On the other hand, almost all learners defined digital citizenship as following:

- Use of internet
- Virtual environment
- The effective use of technology
- World of internet authority

Significantly, some of learners defined digital citizenship as knowing roles within the internet; a few of them stated that they have no idea about digital citizenship. The teachers defined digital citizenship as following:

- Electronic goods
- Utilization of the technology
- Effective use of the virtual world
- A person who follows the technology
- Development of society through technology

Finally, almost all learners defined digital citizenship as following:

- Be able to express ourselves better
- Social communication
- Habit of rules
- Adaptation
- Sharing

All learners highlighted on digital ethics as obeying rules and being proper citizens. In addition, most of them stated communication as sharing process and having right to refuse. Most of the learners put emphasis on that digital literacy means reaching out information and managing information in an efficient way. Some of them explained literacy as having appropriate behaviours and learning technology. Access is explained as rich library to reach out all around the world. Almost all learners stated commerce recommended in their culture. They stated responsibility as obeying rules. Security is perceived as threat of the digital world to be protected from unexpected attempts. Further to this, they stated privacy as respect, protection. In addition, almost all learners reported on rights as respect, duties (Goode, 2010; Ohler, 2011; Oyedemi, 2015).

According to responses of teachers, almost all teachers have some level of awareness on digital citizenship as the concrete definition on digital citizenship was 'knowing the roles within the internet'. In fact, almost all of the teachers had awareness that the digital world is related to technological development. Although they were aware of digital citizenship as technology embedded activities, they had a limited awareness of the digital roles and the right behaviours of using technology. In this respect, developing awareness on digital roles and how to use technology and digital environment in efficient ways need to be internalized through continuous training and courses (Couldry et al., 2014).

How Learners and Teachers Develop Awareness on Digital Citizenship

According to the research stages in the action learning process, training was done to the research sample which took sixty minutes for the presentation and discussion. Although the duration of training was limited to providing internalization of the digital roles and digital citizenship concepts, it helped enrich awareness as a solution for the diagnosed problem. The threats to and opportunities for being a digital citizen were explored in order to create a base for diffusing digital roles in our digital society. Further this, the future and the quality of education, empathy between generations with the support of technology are explored.

After implementing the training session, a reflective report was implemented to examine an increased awareness of digital citizenship and roles. The reflective report embraced basic themes which were: Digital Literacy, Digital Law, Rights and Responsibility, Digital Communication, Digital Security, Digital Commerce, Digital Access, Ethics, Digital Health.

According to the reflective reports, almost all participants (both learners and teachers) reported that training become helpful to understand the practice of each sub-themes about digital citizenship. Upon the training session as nature of awareness seminar, both learners and teachers reported on each subthemes. In following, the findings as regards the learners' experiences are indicated below. The Table 3 indicated response on themes of learners as regards the digital literacy.

Table 3. Digital Literacy

Common Themes
Being digital literate
Having collaborative research in digital context
Disseminating and using knowledge in digital context.
Having ability to question and evaluate knowledge.

Although almost all learners (N:51) highlighted that digital citizenship has significant innovation in education for developing countries, learners (N:9) underlined that having collaborative research and ability to question and evaluate knowledge are difficult patterns of digital literacy. Further to this, Table 4 covers Digital Law components.

Table 4. Digital Law

Common Themes
Digital programmes and law
Spams, viruses threats digital context

All learners agree that digital law is the critical stage in digital age. They reported that they could not internalize digital law without any practice.

Table 5. Rights and Responsibilities

Common Themes
Disciplines and rules
Respecting others in social interaction
Threats in interrupting others in digital context

According to reflective reports of learners, they confirmed that knowing rights and responsibilities in digital context is very significant in digital age. Particularly, social interaction and using social media platform require knowing rights and responsibilities to become better digital citizens.

Further to this, Table 6 demonstrated digital communication which covers knowledge and social sharing in digital context. Almost all learners underlined that they agree on digital communication and social interaction in digital context can foster knowledge sharing and social development.

Table 6. Digital Communication

Common Themes
Communication within digital context
Knowledge sharing
Social interaction and development

Table 7 highlighted common themes and responses on digital security and digital commerce. Almost all learners highlighted that they don't feel secure in digital context and they prefer to use advanced security solutions. Further to this, learners pointed out that digital commerce could not fit the culture of the society and it is difficult to experience and propose.

Table 7. Digital Security and Commerce

Common Themes	
Digital Security	**Digital Commerce**
Feeling confidence or not	Digital buying and trade
Security preventions and strategies	

Table 8 considered digital access and digital ethics which are the subthemes of digital citizenship. According to responses on these components, almost all learners reported that they are aware on how to access and solve the digital problems. Further to this, they underlined that privacy and ethical rules are very significant for digital users.

Table 8. Digital Access and Ethics

Common Themes	
Digital Access	**Digital Ethics**
Digital access problems	Privacy
Access to the internet resources	Using information and sharing knowledge in an appropriate time and condition.

Table 9 demonstrated digital health which covers the side effects of using technology and digital resources in digital context. Almost all learners pointed out that digital context provides addiction and effects the psychology of learners. Significantly, they have a firm belief that digital context may foster learning and social interaction however it creates a dilemma on health.

Table 9. Digital Health

Common Themes
Addiction
Effects on psychology and loneliness

According to the qualitative findings on digital citizenship, only 2 learners reported that they do not use any tablets, laptop and mobiles for digital learning and social interaction. 38 learners indicated that they use tablets, laptops and mobile phones for their learning and social interaction. 9 learners highlighted that they use mobiles and laptops in their daily life and learning process. Only 2 learners underlined that they use mobiles and tablets in their learning process.

In addition, 9 learners out of 51 confirmed that doing collaborative research in digital context is very significant however digital literacy needs to be developed through trainings. Furthermore, 10 learners highlighted that digital communication and digital health need to be separately trained to enhance the digital citizenship. Although this study aims to increase the awareness of digital citizenship in high school, findings showed that there is necessity of conducting a research for each component in detail.

According to reflective report results from teachers' experiences and responses, almost all teachers (N:25) reported that they become aware of being digital citizens with the development of information communication technologies (Jimoyiannis & Komis, 2007). Only 9 teachers highlighted that it is difficult to internalise digital citizenship if the infrastructure and digital literacy cannot be developed. Significantly, teachers underlined that being digital literate is significant role as a teacher who also diffuse the use of technology in education system. 22 teachers reported that they use mobile learning, tablets and laptop in their daily life and learning teaching process. However, 12 teachers reported that they do not use tablets. According to responses of teachers about the subthemes of digital citizenship, the Table 10 shows the common themes in each category.

Table 10. Digital Citizenship Themes

Common Themes	
Digital Literacy	Being digital literate
	Conducting research in digital context
	Having ability with self-confidence
Digital Law	Rules and restrictions
Rights and Responsibilities	Personal rights
	Personal responsibilities
Digital Communication	Social relations and interaction
	Knowledge and information sharing
Digital Security	Feeling confidence
	Securing username and password
Digital Commerce	Involving digital trade and online shopping
Digital Access	Access to the digital resources
	Solving problems in digital access
Digital Ethics	Respecting to privacy
Digital Health	Addiction
	Effects on psychology

Technology driven life makes effects on the roles of human being. In this respect, reconsideration of systematization of knowledge of the social world is essential. Therefore, engagement of social content and the role of technology become the focus of researches that sociological and technological impacts shape the future expected human knowledge, skills and competence. Especially, digital learning rooted by digital culture makes individuals to focus on changed roles as being digital citizenship in digital age within transformation (Selwyn, 2007). It is significant to know how to use technology in right way and efficient way with digital roles. In this respect, education programme and courses need to expand scope and diffuse ways to use technology in efficient manner through technology content knowledge within the courses. Mobile learning technologies could be the better solution to foster learning and teaching context.

Discussion and Conclusion

This research study has shown that participants developed their awareness and knowledge on digital citizenship, digital roles (Oyedemi, 2015). Training through action learning supports gaining awareness on digital learning; digital culture and citizenship as internalizing digital citizenship, expanding knowledge on mobile learning for the future of all levels of education (Goode, 2010). In addition, this study highlighted that technology enhanced content knowledge and pedagogical knowledge need to be considered together for the teachers (Jimoyiannis & Komis, 2007). Further to this, diffusion of digital literacy for both learners and teachers is very crucial within the education system (Meyers et al., 2013). Although this research remarked a way of looking of change and develops on awareness through integrating digital citizenship, culture and roles, it is limited to do generalization. As the digital technologies are crucial to highlight transformative social engagement in better learning, technological content knowledge becomes significant in all levels of education. Therefore, digital technologies are key instrument to enrich pedagogical knowledge of teachers as knowledge; skill and competence need to be interconnected (Missingham, 2009). As the nature of knowledge transferred as socially constructed and knowledgeable with the support of digital technologies, where and how knowledge is created, digitally enhanced society is the demanding issue in research agenda (Gilbert, 2005; Starkey, 2010). Understanding roles of digital citizenship and focusing on networked learning environment for the construction of knowledge and establishment of digitally enhanced society between the generations upon empathy, this study is significant to create a discussion on the necessity of diffusion digital citizenship with trainings and courses for digital society for the future and quality in all levels of education (Goode, 2010; Ohler, 2011).

As case study through the sense of action learning process emerged in this research study, diagnosing problem and seeking solutions through every stages of the research have been implemented (Kuter, Altınay Gazi, Altınay Aksal, 2012; Mills, 2003). Training becomes a key tool as success factor of research as it aims developing awareness of learners and teachers about digital citizenship. Learners and teachers showed enthusiasm to be part of this inductive process and develop awareness of digital citizenship and digital roles as respect, empathy, reliability, readability, responsibility, personal rights, ethical consideration, attitudes, obeying rules in digital age.

Significantly, this study remarked that internalization of digital roles relies on learning from experience within the culture (Goodee, 2010; Oyedemi, 2015; Yamazak & Kayes, 2004). As this research study sheds alight to importance of internalization of digital citizenship and digital roles for right technological, digital behaviours, the longitudinal research can be done. Further to this, comparative case study can be conducted cross nations to evaluate the cultural impact of approaching, internalizing digital citizenship for the future of education in developing countries. Further to this, internalization of digital citizenship and courses needs to be considered from pre-school education up to higher education practices. Further to this, mobile learning and digital learning environments become path to create empathy and understanding between generations and enrich global perspective on values, abilities of global citizens within the society (Andreotti & Pashy, 2013; Ohler, 2011).

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