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**The relationship between technology integration and the development of  
global citizenship skills and attitudes in a Lebanese context**

**Samira Selwa Nicolas**

**Professional Doctorate in Education**

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## SUBMISSION OF THESIS FOR A RESEARCH DEGREE

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## Abstract

Information and communication technologies have seen exponential growth and development in the last few decades, therefore increasing the conditioning force they exert on power, knowledge, and creativity in the 21<sup>st</sup> century. This research aims to contribute to the discussion of 21<sup>st</sup> century globalization, from an educational perspective, and from the perspective of a developing country, Lebanon. Notable sociologist Manuel Castells's theory of the network society provides the conceptual framework within which this thesis is situated. This thesis explores the integration of technology into the teaching process, and further seeks to investigate the relationship between technology integration and the development of students' global citizenship skills and attitudes in a sample of Lebanese private high schools. Through a mixed methods approach to data gathering, data was gathered from 119 students and 41 teachers through the use of surveys, semi-structured interviews, and focus groups. The data was analyzed using descriptive statistics and inductive emergent theme strategies. Two participant populations (students and teachers) were included to provide a complete context within which to interpret the findings. This research displays originality by suggesting the existence of a relationship between technology use in school and the development in students of the skills and attitudes characteristic of a global citizen. The analysis revealed that most students exhibit the attitude of a global citizen regardless of how technology is being used in their classes. Therefore a strong relationship between technology integration in school and students' global citizenship attitudes was not apparent. However, a relationship did emerge between a particular technology attitude held by some participants and their global citizenship attitude, leading to a conclusion that increased exposure to technology in school, in various forms, can make students more aware of the importance of digital skills and consequently more globally conscious.

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# Chapter 1

## Introduction to the study

### 1.1 Introduction to the research rationale and context

This thesis explores a particular aspect of 21<sup>st</sup> century education, the integration of technology into the classroom, specifically in Lebanese private high schools. This aspect was explored through the analysis of student and teacher accounts collected through the use of surveys, semi-structured interviews, and focus groups. The research was carried out in the Middle Eastern country of Lebanon, with participants from nine private schools, which are referred to in this thesis as School A through School I. As there are several conceptions of what constitutes technology integration in education, as discussed below in section 1.3, Cuban et al.'s (2001) definition of technology integration as scenarios of 'high-level' use of technology has been adopted for this thesis. This research aimed to investigate the nature of the relationship between the use of technology integration in teaching and the development of students' global citizenship skills and attitudes.

The research site itself provides a strong rationale for this study. As a country, Lebanon has geographic and cultural characteristics that have contributed to a society that prides itself in its transnationalism and literacy. Located at the western edge of Asia, on the Mediterranean Sea, Lebanon has historically served as a crossroads of trade and travel over the course of history thus imbuing the country with diversity and adaptability to other cultures, languages, and tools. Traditionally, Lebanon boasts a robust education system described as diverse and flexible, and is home to a highly literate populace and has maintained this status despite its long, devastating

civil war (Segwick 2000). Although a very small country in land area and population, the Lebanese school system serves a wide range of students belonging to various socioeconomic classes including children of expatriates who have returned to Lebanon after living in countries such as the United States, Canada, and Australia. As Bahous and Nabhani (2008) state, “Lebanon is a pluralistic society.” From an economic and geographic standpoint, Lebanon is a part of the Arab world; however from a cultural standpoint, it possesses widespread multilingualism and multiculturalism (Jarrar et al. 1988). The three languages, Arabic, French, and English, are widely used across the country, and some combination of the three are taught in schools (Shaaban 1997). The native language of Arabic is taught as a language and is mainly used as the language of instruction for social studies, while either French or English are both taught as languages and are used as the language of instruction for all other subjects depending on the school (Bahous and Nabhani 2008). In general, private schools provide a higher standard of foreign language proficiency (Bahous and Nabhani 2008) than the public school system.

Lebanon boasts an adult literacy rate of over 89% and a youth (15-24) literacy rate for both males and females of over 98% (UNICEF 2013). Despite this promising characteristic, Lebanon is a developing country, still recovering from a 15 year civil war. Although the war officially ended in 1990, recovery was slow initially, and by virtue of its location Lebanon has suffered the effects of regional conflicts with neighbors to the south and east that, on a political level, do not have Lebanon’s best interests at the fore. Most recently, Lebanon has directly felt the effects of the war in Syria as the tiny nation has been flooded by the influx of refugees who now put an exceptional strain on the country’s resources and infrastructure that were already not at the level of those of a developed country. It is in this somewhat dichotomous context that the

participants of this research are situated; on the one hand, predisposed to have a global view based on Lebanon's history and the transnational nature of its population and diaspora, and on the other hand not having access to cutting-edge technologies and educational methods due to a weak and corrupt government and poor national infrastructure.

Lebanon is a popular research site for studies on language, culture, and identity, but until recently little to no research has been conducted on technology integration in private schools. That research which has been conducted regarding the use of technology in Lebanese schools is discussed in chapter two of this thesis. As far as the use of technology in schools, Lebanon is already behind developed countries, as evidenced by the simple fact that it is cited as having one of the slowest and most expensive Internet connections in the world (Johnson 2011), and can therefore benefit greatly from research that will contribute to knowledge building in the field of technology in education. Furthermore, the globalized mindset that is already anecdotally present within the Lebanese populace should continue to be nurtured in Lebanese educational institutions in ways that are in harmony with today's students' learning styles.

Lebanon provides a unique context in which to investigate how schools are addressing the need to nurture global citizens since, as Bahous, Nabhani, and Rabo (2013: 60) state, "Lebanon is interesting from a globalization point of view since many schools have strong transnational links and produce pupils for whom higher education and/or employment outside the country is both common and natural." The research for this thesis took place in private schools in which many of the students simultaneously follow two curricula; that prescribed by the Lebanese Ministry of Education, and a foreign influenced program such as the French or International



baccalaureate, or a US influenced high school program. Consequently, the teaching of history and civics in private schools where English is the medium of instruction, often place emphasis on other parts of the world leading to many Lebanese students being not as familiar with the history of their native country than they are with the history of the world. This can lead to the claim that Lebanese private schools are fostering globalized citizens (Bahous, Nabhani, and Rabo 2013). Lebanon can be said to possess a globalized education policy since the birth of modern education in the country in the 19<sup>th</sup> century by Christian organizations from Europe and the USA to present day when various foreign entities and interest groups continue to influence educational policy. Bahous et al. (2013) describe Lebanon's situation as "an extreme example of educational heterogeneity" due to the fact that the system is more influenced by global trends and foreign interests than by 'national' interests.

With Lebanon as the general research site for this study, the specific research context from which the data was collected is private, English medium high schools in Lebanon. Private schools were chosen as opposed to public schools because as a consequence of the wars and civil strife mentioned above, the public schools have a deteriorating infrastructure and cater to a poor population including Syrian refugees. The private schools, on the other hand, have flourished and all enjoy at least a basic level of infrastructure to support the use of digital tools in the curriculum. The language of instruction in all private schools in Lebanon is either English or French, with the other taught as a second language, and Arabic taught as a separate subject. Private schools are independently organized but are still subject to the authority of the Lebanese Ministry of Education (Skaff et al. 2008). Further rationale for conducting this study in private schools is the fact that approximately two thirds of Lebanese students attend private schools. The

participants of this study were students in their last two years of high school from different private schools across the country, as well as teachers of all subjects who taught the last two years of high school.

While Lebanese public schools are required to institute the national curriculum through the use of locally produced textbooks, private schools do not have to adhere to that requirement (Bahous and Nabhani 2008). This makes Lebanese private schools a particularly rich environment for research such as that being carried out for this thesis, as private schools are freer to experiment with new teaching strategies and are able to incorporate new and varied content and resources into their curricula. The schools that were targeted are located in the northwest part of the country, the area known as Mount Lebanon, and the capital city, Beirut. Schools in other areas such as the Bekaa Valley, the extreme north, and the extreme south could not be targeted due to political unrest in those areas. Public schools have much smaller budgets and cannot boast the same kinds of resources as private schools, particularly with regards to technology resources and use as it is known anecdotally that in general, there is very little technology use in most public schools, as well as a lack of training for teachers in the use of technology (Ghusayni 2001). Nasser (2008) found that private schools also provide more ICT artefacts for administrators than what is provided for them at public schools. A significant difference in Internet access was also recorded with close to 50% of private schools providing access to the Internet compared with only 5.7% of public schools reporting access to the Internet (Nasser 2008). Therefore, it was decided that to include public school students in the sample would introduce excessive variables to this focused study. Further justification for the selection of

private schools is the fact that the majority of Lebanese students are enrolled in private schools (approximately two thirds as mentioned above) (Nasser 2008).

In Lebanon, private schools tend to offer higher quality education than public schools, as evidenced by the high percentages of student success rates on national exams (NCERD 2000). Perhaps the biggest reason for the discrepancy in quality between public and private schools in Lebanon is that public schools, designated as schools serving the poor since the time of Ottoman rule, continue to cater to students of low socioeconomic status, while parents who are able to afford the high tuition opt to send their children to private schools (Inati 1999). Furthermore, the Lebanese Ministry of Education populates the public schools with teachers who are graduates of the national Lebanese University, whereas private school teachers are recruited from private universities which have much more rigorous education and teacher training programs than the Lebanese University (Jarrar et al. 1988). Another issue affecting the quality of education is the fact that private schools are equipped to offer much higher salaries to teachers than public schools (Jarrar et al. 1988). Finally, resource allocation from textbooks, labs, buildings, and technology, is of a much higher quality at private schools (Akkary and Greenfield 1998).

It was determined that schools, in their regarded capacity as the shapers of young people's attitudes in addition to their role in developing students' skills, have a calculated influence particularly on students' civic identity, especially in Lebanon. Therefore, the research focuses on the schools' strategies of integrating technology and not on students' use of technology outside of the school context. How students use technology and for what purposes outside of the educational environment would introduce many variables that would be difficult to

investigate in this research study; thus the decision to focus on technology integration in the classroom setting. This study provides an original perspective to this area of inquiry through its focus on the citizenship implications of technology integration in school rather than just the quantity/quality/ type of technology integration that other studies focus on.

In a few years, today's high school students will join the workforce and must be equipped to function in the knowledge economy Castells and others describe, which is characterized by the "strong penetration of information technologies" (Alavi and Leidner 2001). The knowledge economy and the altered state of the workforce necessitate a change in the field of education to allow it to adapt to how technology has changed "long accepted notions of time, space, and nationhood" (Weigel et al 2009: 6). Regrettably, "there is a paucity of...rigorous research to guide the development of technology mediated learning" (Alavi and Leidner 2001: 2). While the previous statement is meant to be general, it does apply particularly to Lebanon especially since it has only been relatively recently that Lebanese schools have begun integrating technology into their classrooms. In fact it has only been around 20 years since the first computers were introduced into Lebanese schools (Kibbi 1995).

Lebanon is classified as a post-conflict nation, having gone through a devastating 15 year civil war from 1975 to 1990 and frequent bouts of instability afterwards and as such can gain a lot from the reconstructive force of citizenship education (Davies 2004). Akar (2007: 15) has conducted research in Lebanon that investigated citizenship education's role in social cohesion and found that students wished for their learning to be linked more coherently with the concepts of active citizenship they were being taught through "more active approaches such as projects,

activities and in-class debates.” These can easily be achieved with the effective leveraging of technology through the use of collaborative and creative software.

The two key concepts of this study are technology integration in education and global citizenship. The broader concepts that frame this study are that of globalization, and the establishment of a new social structure, articulated by Manuel Castells as the network society; these two concepts provide the macro context for this study. This chapter will introduce each of these concepts, starting with presenting the global context of this study, followed by an introduction to Castells’s theory of the network society as the conceptual framework for this research, after which is a discussion of technology integration, and ending with an explanation of globalization’s impact on the field of education, specifically as it effects citizenship education, and the definition of a global citizen adopted for this thesis. The chapter concludes with a statement on the originality of this study and presents the outline for the rest of the thesis. Five research questions guided this study and they are stated below:

1. Does the way in which technology is used in the classroom and for school work result in students’ feelings of global consciousness and global self?
2. What type of technology use has had any perceived effect on developing students’ global competences, specifically collaboration, language, and digital skills?
3. What do teachers view as the biggest obstacles to integrating technology into their lessons while at the same time attempting to prepare their students to be productive global citizens?

4. Do students feel that their teachers integrate technology in ways that afford them an active role in the global sphere, allowing them to participate in discussions on a global level?
5. What relationship, if any, exists between students' technology attitudes and global citizenship attitudes?

### **1.1.1 The research's global context**

This section lays out the global context of this research and introduces and explains the theory that forms the conceptual framework for this study. Most of the discussion below focuses on the concept of globalization, a contested concept, as acknowledged by Ritzer (2007) and others such as Guillen (2001), Held and McGrew (1999), Giddens (2000), and Rizvi and Lingard (2000). As Ritzer (2007) observes, authors often tend to provide a definition of globalization before proceeding with their writing which could be seen as an indication that there is in fact a great lack of consensus when it comes to this concept. However, Ritzer (2007) further points out that among these definitions, a select number of terms are observed to be repeated, such as “speed”, “time”, “flows”, “integration”, and “interconnectivity”; all highlighting rapid developments in ever increasing spaces. Ritzer (2007:1) therefore provides this composite definition: “Globalization is an accelerating set of processes involving flows that encompass ever-greater numbers of the world's spaces and that lead to increasing integration and interconnectivity among those spaces.” In terms of the process of globalization, this thesis seeks to specifically highlight the second part of Ritzer's (2007) definition; the increased integration and interconnectivity of society's spaces.

Scholars view globalization across a spectrum, from those who raise the alarm as to the destructiveness of globalization (example Antonio 2007; McMichael 2007), to those who see globalization as desirable and beneficial (example Friedman 2005; Firebaugh and Goesling 2007), and there are also those who view globalization as a meager process that has not yet contested any of the basic features of contemporary society (example Wade 1996). As the scholarly literature on globalization is extensive and contradictory, even as to when it is agreed to have begun, an in-depth discussion and critique of its various features is not within the scope of this thesis. It is acknowledged in this thesis that globalization is a contested phenomenon; specifically regarding the consequences it has for society. Therefore, this thesis will briefly highlight a few different perspectives on the discourse of globalization and will specifically touch on the issue of inequality as this relates to matters conceptualized in Castells's theory of the network society which provides the conceptual framework of this thesis and is introduced in the next section.

One of the most significant debates to emerge within the discourse of globalization is whether or not it has contributed to increased inequality. When addressing the issue of inequality, there are two types that scholars examine; the inequality that exists between countries and the inequality that exists within countries. Evidence shows that the inequality that exists today between countries is higher than it was a few decades ago (Guillen 2001). The most significant indicator researchers use to measure this inequality is per capita income, and for most of the 20<sup>th</sup> century the gap in per capita income between developed and developing countries continued to increase exponentially (Guillen 2001; Korzeniewicz and Moran 1997). Since 1960 there have been only a handful of developing countries that have been able to decrease this gap

while most developing countries have been progressing at a much slower rate than their developed counterparts. As mentioned above, the research context of this thesis is the country of Lebanon, not only a developing country, but one that suffered a brutal fifteen year (1975-1990) civil war during a time when scholars observe that between country inequality continued to increase (Wade 2004; Korzeniewicz and Moran 1997).

Less clear is the effect the process of globalization has had on inequality within countries (Guillen 2001). Unequal access to resources and income inequality exist not only within developing countries such as Lebanon but also in advanced countries. Kapstein (2000) argues that globalization, as far as it impacts on trade processes, cannot be blamed for the increase in the polarized wage disparities observed between countries. The role technology has played in the development of globalization cannot be downplayed; “a technological revolution involving the creation of a computerized network of communication, transportation, and exchange is the presupposition of a globalized economy” (Kellner 2014). There are many globalization theorists who either disregard the significance of the technological revolution that produced new technologies which in turn helped to ignite globalization, or who view globalization from an extreme lens of technological determinism, completely discounting the economic dimensions of the process of globalization (Kellner 2014). It is this key feature, the technology revolution, which this thesis specifically focuses on, from an educational perspective, in its investigation of technology practices at Lebanese schools and how these practices relate to preparing students for a globalized world. The next section introduces Castells’s theory of the network society - a theory conceived within the backdrop of globalization, and in which the technology revolution



features prominently - and the major aspects of it which provide the conceptual framework for this thesis.

## **1.2 An introduction to the network society**

The process of globalization has contributed to a change in the structure of modern society (Davies et al. 2005; Isin and Wood 1999), and the factors which have led to its recent rapid development have worked together to contribute to the creation of a new social theory that defines a new societal structure (Castells 2010). The fact that digital and communication technologies have greatly proliferated in a relatively short period of time, insinuating themselves into multiple aspects of our lives, is what scholars point to as a major contributing factor in the process of globalization (Castells 2010; Cogan 1998). Consequently, this research seeks to understand the role technology can and does play in the development of global citizenship skills and attitudes. The attitudes of both the teachers and the students regarding the use of technology as an educational tool could contribute to the understanding of the role of technology in the conditioning of global citizens. Castells's theory of the network society provides an appropriate conceptual framework for this study given his acknowledgment of the profound role technology has had in contributing to the restructuring of society to the network society, as he has labeled it. Many scholars view Castells's work as one of "the most illuminating, imaginative and intellectually rigorous accounts of the major features and dynamics of the world today" (Webster 2002:97). Castells is a prolific sociological commentator and has been included in the 'sociological grand theory' tradition with Daniel Bell, Anthony Giddens, and Castells's mentor Alan Touraine (Stalder 1998); this inclusion is largely due to his production of his seminal work,

*The Information Age. The Information Age* evolved into a trilogy and was a response to Castell's frustration at the lack of any cogent theories to elucidate the emergence of what he saw as a new form of society. In his own words, "I grew increasingly dissatisfied with the interpretations and theories, certainly including my own, that the social sciences were using to make sense of this new world" (Castells 2002:125).

Castells (2010) asserts that it is within the last quarter of the twentieth century that the new structure of society has taken form, a society he labels the network society. A defining characteristic of the network society is a new economy based on knowledge and supported by technology and innovation (Castells and Cardoso 2005), in which there is "the need to use information technology for knowledge management, sharing and creation" (Collis 2005:215). Kelly (1998:2) describes the new structure of society as "rooted in ubiquitous electronic networks." Therefore as Szelenyi and Rhoads (2007) suggest, it is a responsibility of those within the field of education to adapt curricula and pedagogies to address the skills students need to operate within the interconnected, technology-infused knowledge economy, in addition to equipping students to be aware of and eventually help to address society's global challenges.

Castells (2004) argues that the network society has come to be as a consequence of the "accidental coincidence" of the occurrence and subsequent interaction of three independent processes that began in the 1970s. The first of these processes was the restructuring of the industrial age systems of production, statism, and capitalism. The second process was the cultural and social movements that began in the late 1960s and continued through the 1970s and were focused on freedom. The third process is the information and communication technology

revolution mentioned above. The three processes were born independently, however the inevitable interaction between them caused a new social organization to emerge.

The use of Castells's theory to provide the conceptual framework for this thesis is largely based on his incorporation of the role of technology in the explanation of his theory, thus providing an ideal lens through which to view the focus of this study. In addition, his argument that society has been restructured, with technology a significant contributing factor in this restructuring, provides support for the call for a re-evaluation of global citizenship and an investigation into the relationship between students' use of technology and their global citizenship attitudes. Many studies have focused on the quantity of technology use in the classroom and/or how students are manipulating different technologies rather than exploring the citizenship implications of technology use in an educational setting. Castells speaks of technology as "an element that is inseparable from social, economic, cultural and political trends" (Castells and Catterall 2001:3). Since it is all but inevitable that educational methods of the 21<sup>st</sup> century must incorporate technology in various ways, technology can therefore be described as inseparable from educational trends and from the nurturing of global citizens as well.

It has become more commonplace now for individuals in geographically disparate locations to interact through communication technologies, and many assert that the problems facing society have taken on a global dimension with issues spanning multiple national borders (Rizvi and Lingard 2000); "critical questions for humankind, such as environmental problems, public health, human rights, and emergency relief, are being treated internationally by a complex

web of ad hoc agreements and organizations” (Carnoy and Castells 2001: 13). In the network society, as contended by Castells (2001a), individuals’ social experiences are not as dependent on national governments as in the past; rather the positioning of individuals in constantly changing networks will define social experience. Similarly, from the perspective of the scholarly discourse on transnationalism, Levitt and Schiller (2004: 1007) contend that viewing society within the “container” of the nation-state “does not capture, adequately or automatically, the complex interconnectedness of contemporary reality.” The diffusion of information technologies has occurred at a much faster rate than the innovations spawned by the industrial revolutions, although there exists a great disparity in how different countries are absorbing and utilizing these technologies (Castells 1999b). Castells affirms however, that the structural transformation that is occurring within the framework of the technological revolution affects all countries and people, be it directly or indirectly. Therefore studies such as the one this thesis reports on, are essential to understanding how a developing country, in this case Lebanon, is positioned in the network society.

It is not a new perspective to look beyond national borders when discussing the concept of citizenship, however scholars acknowledge that globalization has made it necessary to do so when defining citizens’ rights and duties due to the fact that society’s economic, industrial and financial activities are occurring in an expanding global space (Szelenyi and Rhoads 2007). Because of the issues discussed above, the call for a re-evaluation of the concept of citizenship in addition to education for citizenship has been made by Osler (1994), Davies et al. (2005), and others. Given the major role technology has had in the acceleration of globalization, a

meaningful avenue of research is to investigate students' perceptions of its use in class and if its use contributes to the development of the skills and attitudes of global citizens.

As already stated, the research took place in Lebanon, in the Middle East, a country that although small in size, frequently finds itself the topic of discussion in international media. Many Lebanese youth opt to immigrate to Western countries to fulfill their potential to pursue college/graduate studies and secure good employment that many are not able to be awarded at home in Lebanon. These students, along with their peers who may remain in Lebanon, must be prepared for the globalized world that they inevitably will join. The most recent National Education Technology Plan released by the U.S.A. Department of Education in 2010 states that,

over the past 40 years, we have seen unprecedented advances in computing and communications that have led to powerful technology resources and tools for learning.

Today, low-cost Internet access devices, easy-to-use digital authoring tools, and the Web facilitate access to information and multimedia learning content, communication, and collaboration (Ertmer et al. 2012: 52).

The U.S. spends a significant amount of money, time, and resources to drive the process of education and research that informs the adoption of new educational practices. In contrast, Lebanon does not yet have an environment that supports extensive research, mainly as a consequence of "limited resources" (Hamze, Saade, and Fawaz 2016). While the various academic institutions of higher learning in Lebanon do have their own established guidelines for the ethical practice of research, it has taken until July 2016 for a national charter of ethics for scientific research in Lebanon to be published. However in such a context it is even more imperative to carry out research to generate knowledge that will help the education sector of

Lebanon to catch up with developed countries by appropriately integrating technology into the curriculum and in conjunction, prepare students, many of whom emigrate as mentioned above, to participate in the networks that make up the network society. To that end, with Castells's theory of the network society as its conceptual framework, the aim of this research is to investigate how technology is being integrated in Lebanese classrooms and if there is a relationship between that integration and the development of global citizenship skills and attitudes in general, and specifically collaboration, language, and digital skills.

The following sections of this chapter will explain what is meant by technology integration and the definition that this thesis adopts. They will explore the effect the process of globalization has had specifically on the field of education as well as the concept of citizenship, will put forth a definition of global citizen, and will conclude with a note on the originality of this research and an outline of the rest of the thesis.

### **1.3 Conceptualizing technology integration**

Despite the ubiquity of the phrase 'technology integration' in discussions of 21<sup>st</sup> century education, and its presence in countless articles and school plans, a standard definition of the phrase does not exist (Bebell, Russell, and O'Dwyer 2004). The International Society for Technology in Education (ISTE) defines technology integration as students' ability to select technology tools that will help them obtain, analyze, and synthesize information in a timely and professional manner (Overbaugh and Lu 2008). There are in fact various conceptualizations in the literature of what it means to integrate technology in an educational setting. This section will explore the notable ones, and will explain which definition will be adopted for this thesis.

Hooper and Rieber (1999) conceive of teachers' technology use as a series of five phases: familiarization, utilization, integration, reorientation, and evolution. They contend that most teachers do not advance past the utilization phase, because at that stage they achieve a premature satisfaction with what is only limited use of technology at that point. Hooper and Rieber (1999: 254) call the integration phase the "breakthrough phase" and that is where real change in teaching methods occurs. The integration phase marks a shift in a teacher's lesson planning in that she/he will design certain tasks somehow incorporating technology such that if the technology fails, the lesson would fail. This definition of technology integration has been described by Bauer and Kenton (2005) to signify a *reliance* on computer technology for the teaching of a particular lesson.

Cuban, Kirkpatrick, and Peck (2001) examine the meaning of technology integration according to teachers' types of classroom computer use; whether it is low-level use or high-level use. Using computers for Internet searches would be considered low-level use, whereas using various technology resources to create multimedia projects would be considered high-level use (Cuban, Kirkpatrick, and Peck 2001).

Another approach to the understanding of technology integration is to observe how teachers approach technology for the carrying out of 'familiar' tasks, with the aim of making them more reliable and productive (Hennessy, Ruthven, and Brindley 2005). Finally, there are others who view technology integration as the attempt by teachers to manipulate technology resources with the aim of developing the thinking skills of students (Lim et al. 2003). Although there is no distinct definition for technology integration in schools, there are elements that appear

in the various discussions, the most common of which is “the use of computing devices for instruction” (Hew and Brush 2006).

Cuban et al.’s (2001) definition of technology integration as instances of ‘high-level’ use appears intuitive, as low-level uses are instances in which technology is simply being ‘used’ for tasks that likely could have been carried out without technology, albeit with perhaps slightly less ease. As this thesis is concerned with investigating a relationship that may exist between the integration of technology in the classroom and global citizenship attitudes and skills, Cuban et al.’s (2001) definition of technology integration as a high-level use of technology has been adopted. In this way, the types of use revealed in this study can be differentiated and each can be observed to see if there is a difference in the type of use and its relative relationship with the development of global citizenship skills and attitudes. In the discussion of the findings, it will be addressed if Hooper and Rieber’s (1999) “breakthrough phase” is being reached in this study’s context as that would indicate the occurrence of changes in teaching methods.

It has been more than thirty years since the field of education introduced technology into the learning process; however the extent to which technology has actually been “integrated” into the teaching-learning process remains ambiguous (Liu and Velasquezbryant 2003). Liu and Velasquezbryant (2003) developed a conceptual framework that illustrates the characteristics of technology integration and in their discussion highlighted what they term the ‘missing link’ in the practice of integrating technology into teaching. Liu and Velasquezbryant (2003) conceived a three dimensional model, the ITD Integration System, comprised of Information, Technology, and Instructional Design, by which the interaction of all three dimensions is what leads to



effective learning incorporating technology integration. The Information (I) dimension represents the content to be taught, the Technology (T) dimension denotes the technological tools, hardware and software, to employ for the enhancement of teaching and learning, and the Instructional Design (D) dimension denotes the phases and rules for instructional development. “Technology-based learning only occurs as the result of the *integration* of all three components” (Liu and Velasquezbryant 2003:4). What is missing from many classroom practices and what therefore leads to the lack of technology integration is that despite schools having explored new technologies and their potential uses in teaching, the Instructional Design dimension is not incorporated resulting in situations “where technology was simply added to the learning processes without careful design of the instruction component” (Liu and Velasquezbryant 2003:9); and thus no attainment of Hooper and Rieber’s (1999) “breakthrough phase.”

Much of the time when it comes to conceptualizing technology integration, the focus is on the students and their proficiency in various technology tools, and not on how the students’ exposure to and manipulation of these tools directly affects or is somehow related to their citizenship; both in terms of skills and attitudes. The literature on technology integration also highlights the important role of the teacher; “educational change depends on what teachers do and think—it’s as simple and complex as that” (Fullan 1982:107). Two empirically discovered barriers to technology integration involve the teacher; the technology skills possessed by the teacher and the teacher’s particular attitude and belief regarding the use of technology (Hew and Brush 2007). Hennessey et al. (2005) discovered through interviewing teachers that there was a feeling among them that they were supposed to include technology in some way with no regard to whether or not the particular technology tool and its use provided any usefulness for the aspect

of the curriculum being taught; a situation mentioned above by Liu and Velasquezbryant (2003) in which the Instructional Design dimension of technology integration is not taken into account.

The culture of a particular subject can further contribute to a teacher's attitude or beliefs regarding technology, and can therefore contribute to whether or not technology integration occurs (Hew and Brush 2007). This study will show which subjects see more routine technology use in a Lebanese context. A subject's culture is the result of the influence of the culture of the institution (Hew and Brush 2007).

#### **1.4 Globalization and education**

This section discusses how the phenomenon of globalization has affected the landscape of society and consequently has led to calls within the field of education to adapt its methods to serve a student body that will need to develop the necessary skills to function in a globalized world. I focus specifically on adaptations that need to include technology use in the teaching learning process and on changing views of citizenship in a globalized world. This section also addresses the development of a definition and the characteristics of global citizenship and concludes with the definition of a global citizen that has been adopted for this thesis.

The coining of the term *globalization* is attributed to the economist Thomas Levitt who, in 1985, defined it as referring to the changes occurring in production, investment, and consumption happening on a global scale (Stromquist 2002). Soon after, any cultural or political change which affected great portions of the world's societies was said to be a part of 'globalization' (Spring 2008). The field of education has a responsibility to respond

appropriately to the changes brought on by globalization as “globalization is deterritorializing the skills and competencies it rewards, thereby generating powerful centripetal forces on what students the world over will need to know” (Suarez-Orozco et al. 2004: 6).

The dramatic changes that have occurred in just the last twenty years, specifically the growth of the knowledge economy and the widespread use of ICTs (Information and Communication Technologies), have seen economies able to adjust relatively rapidly, whereas societies have been less able to adjust as quickly (Hugonnier 2007). Hugonnier (2007) observes that this is particularly true of the field of education since as he notes, although it is an accepted fact that the global economy has shifted to a knowledge economy, curricula have not been adjusted to prepare students to be “knowledge workers instead of industrial workers.” He notes that the most important competencies are mainly ICT skills – using modern technology to manipulate information – however these skills are not being integrated into the curriculum in both developed and developing countries.

The challenges that globalization poses are the most important issue for education (Hugonnier 2007). Hugonnier (2007) identifies a number of challenges to education posed by globalization. The first challenge is the competition among countries that is occurring as a result of the rise in world economic interdependence, which places a responsibility on education to nurture students to be adaptable and flexible such that they are able to continually acquire and update their skills and knowledge (Hugonnier 2007). In fact, adaptability is mentioned below as a skill that is characteristic of a global citizen. Economic interdependence is linked to the second challenge identified by Hugonnier (2007) which is increased cultural interchange and cultural

heterogeneity necessitating that individuals know more about foreign cultures including learning foreign languages (Hugonnier 2007); this fact is again incorporated below into the definition of a global citizen. Another challenge is articulated thusly; “With globalization certain issues such as protection of the environment; poverty reduction; trafficking in drugs, arms, and human beings; and terrorism are becoming, and should be, the concern of every individual” (Hugonnier 2007: 138). Given the amount and scale of these global problems, it can be said that “we are no longer citizens of only one country but also citizens of the world” (Hugonnier 2007:139). In discussing immigration patterns and policies in an age of globalization, Hugonnier (2007) highlights the importance of respecting other cultures, and that attitudes of tolerance, cooperation, and solidarity are not intrinsic in individuals and therefore must be taught; another challenge to education in an era of globalization.

The discourse on technology in education often includes the discussion of ‘digital natives,’ a term coined by Prensky (2001). Prensky (2001) has observed how the digital age has affected education and he has concluded that those born after the start of the digital age possess a ‘fluency’ in the manipulation of technology that individuals who were born before the digital age, whom he refers to as digital immigrants, do not. He even posits that the learning processes of digital natives are different from those of digital immigrants – individuals born before 1980 – due to a transformation in the physical structure of their brains (Prensky 2001). Several other commentators have similarly written of a generation that has a unique relationship with digital and communication technologies and have given them labels such as “homo-zappiens” (Veen and Vrakking 2006), “net savvy” (Levin and Arafah 2002), and “New Millennium Learners” (Pedro 2007). In addition to the digital aspect by which this generation can be identified, they

have also been described as the “collaboration generation” (Tapscott and Williams 2008: 47). This “collaboration generation” enjoy sharing content and working together through “the power of mass collaboration” to achieve common goals (Leadbetter 2008: 36). This observation is a motivating factor for specifically exploring the skill of collaboration among Lebanese students.

Tapscott’s (1998) idea of the “net generation” has also found its way into contemporary sociology and education discourses, however there is a lack of substantial empirical research documenting the ways in which students access and manipulate technology and the effect it has on the learning process (Thinyane 2010). Specifically in developing countries is this type of research lacking, as the majority of research which has been conducted has taken place in the contexts of developed countries where students and teachers are much more likely to have greater access to and knowledge of technology (Thinyane 2010). The amount of research in this field in a Lebanese context is particularly small and is thus a motivating factor for this thesis since today’s Lebanese students are, according to the literature, digital natives.

As a consequence of the proliferation of communication technologies, individuals in the network society are experiencing altered employment patterns, financial markets, and concepts of governance as ICT allows individuals to bypass mass media and in essence escape the control of the government (Castells 2008). Castells and others have proposed the existence of a global civil society evidenced by emerging structures of global governance such as the International Criminal Court and the World Bank (Kaldor 2003). Castells explains that the social experience of individuals is less dependent on national governments and more so on how individuals operate and move within constantly changing networks (Castells 2011a). The concept of citizenship is

being challenged by this decreasing of the power of the nation state, countered by the rise of global governance, and an increase in diversity (Myers 2010; Castells 2007).

#### **1.4.1 Citizenship and education**

In the discourse of citizenship theory, two main concepts arise: citizenship as a characteristic of one's legal status within a particular community, and citizenship as activity enacted within the community (Kymlicka and Norman 1994). According to Kymlicka and Norman (1994), "most writers believe that an adequate theory of citizenship requires greater emphasis on responsibilities and virtues" (p.353). As such, that perspective will be the one taken in this thesis when discussing the concept of global citizenship *attitude* and is reflected in the definition of a global citizen adopted for this thesis and which is set out below at the end of this section. T.H. Marshall (1945, reprint 1965) is cited as producing the most influential account of the postwar notion of citizenship as a set of rights. Marshall (1965) states that fundamentally, citizenship is based on the assurance that every member of society is treated as a full and equal member. As society has now developed such that global interactions are the norm and a global civil society (Castells 2004) has emerged, the society of which Marshall spoke cannot only be conceived of as local communities, but the broader global community as well. There are those who have criticized the 'citizenship-as-rights' concept, arguing that it promotes laziness and dependence (Habermas 1992; Plant 1991), and the focus should be instead on the responsibilities of citizens. Those who share Marshall's perspective, acknowledge that both rights and responsibilities are important aspects of citizenship, albeit with rights preceding responsibilities (Kymlicka and Norman 1994).

It is accepted that a fundamental relationship exists between education and the common social good as it can be agreed that a society with an educated populace is inherently better than one with an uneducated populace (Tsolidis 2002). The common social good now has a global facet attached to it which consequently attaches a global aspect to the concept of citizenship (Tsolidis 2002). Several scholars agree that in today's "multicultural context...there is a need for a discourse of global as well as national citizenship" (Haydon 2006: 459). All discussions on globalization acknowledge the fact that it is a reality of the times that there is daily interaction among citizens of different nations through the use of ICTs, whether that interaction is for social or business purposes. Also present within all discussions of globalization is the growing amount of global issues that are not confined within national borders such as climate change and health epidemics (Oxfam 1997; Lynch 1992). Therefore, a call has been issued by various scholars that educational systems must adapt to prepare today's students for effective functioning in a global society that is faced with global challenges (Szelenyi and Rhoads 2007), and for "old barriers to be dismantled and debates to be developed further that may lead to a new form of education for global citizenship" (Davies et al. 2005: 67; de Andreotti 2014; Lapayese 2003).

Global citizenship is a broad concept, entailing various characteristics and subject to a variety of definitions. "What is clear is that citizenship does not equate with nationality" (Castells 2011a: 54). From a philosophical perspective, global citizenship implies a general awareness on the part of the individual of others living outside of one's own national borders, and that the actions and plights of different groups can influence and affect the interconnected global systems which make up the global society to which we all belong. This awareness characteristic of global citizens has been described as a "global consciousness", and its

achievement should be a goal of modern education (Mansilla and Gardner 2007). Weenink (2008) proposes a similar idea which he describes as “awareness of global connectedness”.

Although not the first time to see scholarly discourse on the concept of global citizenship, the period between 1991 and 2000 saw a 1055% increase in published references to global citizenship and its sister terms (such as international citizenship and world citizenship) (Schattle 2005). Today the discourse continues and contains various interpretations of the concept. Schattle (2005: 120) identifies two predominant discourses within the literature; one that stresses notions like “awareness, responsibility, participation and cross-cultural empathy” and one that stresses “international mobility and interdependence.” Schattle (2005) labels the first discourse as civic republican and has roots as far back as Aristotle and later Machiavelli. As society has transformed, civic republicanism has adapted, and now with citizenship still an institution more or less conceived within the borders of the state, the concept of political community is acknowledged to be in transition (Honohan 2002). As Honohan (2002: 284) states:

If republican politics is not tied to a nation, but can be constructed on local and European or other regional lines, it may also be possible to conceive of some development toward a cosmopolitan citizenship from the bottom up, through the development of increasing webs of relationships or ranges of overlapping economic, environmental and cultural interdependencies.

Through research conducted by Schattle (2005) in which he interviewed individuals about their understanding of and beliefs regarding global citizenship, he found that participants he labels as ‘transnational activists’ described developing their feelings of citizenship locally or nationally but then through their work ‘redeployed’ their citizenship internationally. This



illustrates the phenomenon that global citizenship may originate in a local setting before then cutting across national politics and entering an international, global setting. Schattle (2005) concluded from his findings that global citizenship is viewed as a struggle to produce an enduring global public space.

Sussmuth (2007) points out that today's digital media provide individuals with exposure to lifestyles and events that are exterior to their own familiar local contexts and cultural patterns, and echoes Mansilla and Gardner's (2007) call for a common consciousness. The capability to access and use modern technology has a direct influence on an individual's ability to learn and to pursue opportunities (Sussmuth 2007). Sussmuth (2007: 196) discusses in depth the global migration trend and how the process of globalization resulting in increased movement and immigration means that today's students "have more direct contact with persons from other cultures and countries than did their counterparts in past generations." She explains that this will happen either due to students themselves eventually moving abroad and having to adapt to a new culture, language, community, etc, or staying in their native community but still encountering an infusion of cultures, social perspectives, and foreign languages resulting from immigration by others.

It is a guarantee that many of today's Lebanese students will eventually immigrate to another country seeking better employment, as has been the tradition for decades. Today's Lebanese students are experiencing the effects globalization has had on movement, particularly through their exposure to the extremely high number of Syrian refugees who have entered Lebanon over the past few years, many of whom are now enrolled in schools in Lebanon.

Sussmuth (2007: 196) makes the profound statement that “virtually every single person on this earth is in contact, in one way or another, with someone who is a nonnative,” whether it be physically or through the avenue of communication technologies. It is imperative that every educational system create and adapt their curricula to nurture multiculturally sensitive individuals who are aware of the globalized context in which they live (Sussmuth 2007). As part of an education system that has adapted to globalization, Sussmuth (2007) argues that digital skills should be given high importance. With such an importance placed on digital skills, they will impact the educational outcomes of students and if citizenship, especially global citizenship, is an intended learning outcome of the educational system it becomes imperative to learn how or if the addition of digital tools has any influence on this intended learning outcome.

Marshall (2011) notes the recent trend in education discourse of highlighting education for global citizenship, or what others label cosmopolitanism. The renewed attention to educating for global citizenship is a consequence of the realization that educational institutions belong to the global networks of which Castells speaks, and are actors that contribute to people, goods, and information flows (Urry 2000). The term global citizenship education is often used interchangeably with that of cosmopolitan learning, both in theory and practice (Marshall 2011). Global Citizenship Education (GCE) is the more visible term in a variety of education fields while cosmopolitan learning appears in more theoretically framed academic writings as it is more philosophically-informed (Marshall 2011). With the contention among globalization studies, and conflicting perspectives on both what constitutes globalization and what the consequences of it are, Beck (2007) has argued that cosmopolitanism can provide a new paradigm within which the social studies can study globalization. Older paradigms look to the

nation state as the fundamental unit of analysis (Korzeniewicz and Moran 2007), whereas a paradigm based on cosmopolitanism would see the entire globe as the basic unit of analysis (Beck 2007). GCE literature also contains other terms such as international education, global education, and even education for global understanding (Marshall 2011). All of the given terms refer to the same broad concepts, with each offering its own specific perspective. Therefore, a unified definition of a global citizen has yet to be established. To illustrate, Urry (1998: 4) discusses the possibility of several global citizenships:

global capitalists ‘who seek to unify the world around global corporate interests which are increasingly “de-nationalised”’; global reformers, global environmental managers and earth citizens ‘who seek to take responsibility for the globe through a distinct and often highly localised ethics of care’; and global networkers ‘who set up and sustain work or leisure networks constituted across national boundaries’; ‘global cosmopolitans’ who develop ‘an ideology of openness towards “other” cultures, peoples and environments’ and who are concerned about developing an ‘orientation’ to other ‘citizens, societies and cultures across the globe.’

“Civil society needs to develop in more globalized ways, in response, strengthening citizens’ consciousness of themselves, and their capacities to act effectively, as global citizens” (Mayo et al. 2009: 165). A notable and relevant statistic that adds to the discourse on global citizenship is the fact that in 2005, 2.9% of the world’s population was residing in a country in which they were not citizens (IOM 2005: 379); a figure which 11 years later has no doubt increased as a consequence of devastating conflicts such as that in Syria, and scores of migrants making their way from north Africa to Europe.

After an extensive reading of the various definitions and discussions of global citizenship, and based on the discussion above, the definition adopted for this thesis has been synthesized to describe a global citizen as someone who:

- possesses global consciousness; Global consciousness encompasses three cognitive capacities: global sensitivity, global understanding, and global self. A global citizen is *globally sensitive* due to his/her awareness that what he/she experiences locally is a manifestation of global developments. A global citizen demonstrates *global understanding* such that he/she possesses thinking processes that are flexible and informed by worldwide events. A global citizen possesses *global self* because his/her actions and commitments are guided by his/her perception of himself/herself as a global actor who is a member of humanity. (Mansilla and Gardner 2007)
- demonstrates global knowledge; “an awareness of the current global socio-cultural condition” as well as recognizing “everyday global connectedness” (Weenink 2008: 1092). This is also referred to as global awareness. The Pew Research Center for the People and Press issued a report in 2003 that advocated the need to create learning environments that help to develop students’ global awareness thus preparing them to be effective citizens of the global society (Wang et al. 2008).
- exhibits global competences; Global competences can be conceptualized as a set of resources or skills that allow individuals to “make their way within other cultures” and afford them “a competitive edge in globalizing social arenas” (Weeninnk 2008:1092-1093). Furthermore, skills such as adaptability, the ability to communicate cross-culturally to build networks, working effectively in a group (Davies et al. 2005; Dower

2002; Isin and Wood 1999), and digital and social skills “that go beyond the local context” (Sussmuth 2007).

- is multilingual, or at least aspires to be; the study and learning of economically-useful languages is stated as a needed skill for operation within the global economy and as such is an often cited desire of parents for their children (Weenink 2008; DfES 2004,).
- respects and values diversity and is outraged by social injustice (Oxfam 1997)

“Revealing the global as part of everyday local life, whether in a small village or a large city” (Oxfam 1997) is an articulation of Castells’s contention that geographically disparate places and individuals are now interconnected through digital and communication technologies leading to the potential attachment of the characteristic of ‘global’ to almost any event regardless of its location. Therefore, the research undertaken for this thesis sought to explore students’ perceptions of the connection between themselves and the global community and what skills they are developing to maintain this connection. Even though “not everything or everyone is globalized” (Castells 2008: 81), all planetary actors are affected by the global networks of the network society (Castells 2008). It is therefore logical that the nurturing and development of productive citizens will require schools to adopt teaching methods that guide students in maintaining connections to their local/physical locations while at the same time developing the skills to operate within and the knowledge of global networks. Furthermore, the integration of technology should be a key aspect of these teaching methods to promote an interactive learning environment that resembles the interactive relationship existing between technology and society as discussed by Castells.

As a research site, Lebanon provides a context in which minimal research has been done regarding citizenship, when compared with other countries. In fact, Hahn (2010) contends that there is a lack of data from students and teachers across cultures when it comes to their understanding of concepts related to the field of citizenship. For recent research that explores citizenship in Lebanon from an educational perspective, collecting data from students and teachers, one looks to Akar (2014, 2012, 2007, 2006). Therefore, this thesis will not only contribute to the work begun by Akar, but will build on it as this research is investigating *global* citizenship in a Lebanese context, and from the unique perspective of its relationship with technology use in school.

## **1.5 Originality of the research**

This research seeks to understand Lebanon's position in the network society, from an educational perspective. Technology, as a common actor in both the network society and contemporary education, has been selected as a main concept to be investigated. While a select number of studies have explored students' access to technology resources in Lebanese schools, few studies that have taken place in Lebanon have investigated actual technology use in the classroom, and none have explored its use as it relates to the development of students' global citizenship skills and attitudes. Furthermore, none have explored the amount and type of technology use across all subjects, as this study has done. This study is pioneering in its investigation of the type of relationship that may exist between particular types of technology use in school and students' global citizenship attributes in the form of skills and attitudes.

The next chapter outlines and describes in detail the conceptual framework that supports this thesis and discusses the theories that provide this thesis's theoretical framework. It provides an extensive review of research literature which focuses on technology use in education as well as the status of GCE.

## Chapter 2

### Literature Review and Conceptual Framework

#### 2.1 Introduction

This chapter presents a review of the literature within which is situated the main lines of inquiry of this thesis. This chapter also provides the macro context for my thesis and describes the framework from which the research questions of my study emerged. The binding thread of this chapter, and indeed this study, is Castell's theory of the network society, as it links together the main dimensions of my thesis; namely technology and globalization. This study's prime line of inquiry is technology in education and how its use (frequency, methods, etc...) is related to the development of students' global citizenship skills and attitudes. As discussed in chapter 1, global citizen is a broad term, as are the 'skills' attributed to a global citizen. Therefore, chapter 1 proposed the definition of a global citizen that has been adopted for this thesis, and while the skills of a global citizen will be discussed in general, I focus specifically on collaboration, language, and digital skills as they are the skills cited in research question 2.

Castells's development of the theory of the network society traces the global changes stimulated by the information technology revolution resulting in the restructuring of society into a form resembling a constantly expanding and changing digital network. The backbone of the network society is digital and communication technology, and the manipulation of that technology to propagate information. Castells warns that being 'disconnected' from the global flows that are transferred among networks results in isolation. It is clear, therefore, that



collaboration, language (and more broadly communication), and technology/digital skills are necessary skills for establishing oneself within a network, which is why those are the skills highlighted in this thesis.

This chapter will begin with an introduction to Castells's theory of the network society and how it relates to globalization, as the theory of the network society provides the conceptual framework for my research and the process of globalization provides the backdrop for the research context. To provide further context, a more in depth discussion of the Information Age and the societal changes it has led to will follow. The chapter will move on to discuss education literature as it pertains to how the field of education is viewed in an era of globalization, specifically the role of technology in education. Literature from different countries, in addition to Lebanon, will be discussed to provide an understanding of how Lebanon fits within the international setting. As one of the research questions for my thesis are concerned with teachers' perspectives, the education literature discussed here will also include literature that focuses on teachers' use(s) of technology and pedagogy of using technology. The research aim is to observe the relationship between technology in education and the development of global citizenship skills (namely collaboration, language, and digital skills) and attitudes. It is supposed that technology will play a role in the development of these skills as it [technology] "can be harnessed to enhance the widely desired goals of increased student engagement" (Bowen 2012). Therefore, throughout this chapter, the concept of global citizenship will be addressed as it relates to each of the topics discussed.

## **2.2 The network society, globalization, and the Information Age**

Acknowledging that he is building on a tradition of studying social networks, Castells (2000a: 696) argues that “twenty-first century sociology will have to expand the network-based perspective to the analysis of the entire social structure.” Castells (2010) asserts the necessity of developing a new social theory to explain the new structure of society and contends that this new society, the network society, developed in the last quarter of the twentieth century due to the coinciding of the interaction among several independent processes; most importantly, the information technology revolution, and the emergence of a new economy based on the transfer of knowledge and information; the knowledge economy.

The catalyst for the development of Castells’s theory of the network society is the new knowledge economy which he describes as global, informational, and networked; a new form of capitalism that is more flexible. A comprehensive discussion of the knowledge economy is not within the scope of this thesis, as there are various debates and lines of thought regarding this concept such as whether certain industries are particularly knowledge-intensive and how new modes of work are related to the knowledge economy (Powell and Snellman 2004). What is common among the various discussions is that knowledge as a ‘product’ is now more important than it used to be, and that innovation in technology has relieved constraints on the production and propagation of information (Smith 2002). Castells explains that the economy has become IT (information technology) fueled and has therefore affected and transformed work and employment patterns such that flexible work has become the predominant form. Knowledge has overtaken labor as the basis for work.

Castells (2010: xxxi) states that “all major social changes are ultimately characterized by **a transformation of space and time in the human experience.**” The last several decades have seen exponential development in the innovation of digital communication technologies, both in their production and use in various aspects of society, therefore transforming our experience of space and time and leading to the coalescence of the network society. Entities - individuals or organizations - connected to the Internet become linked to each other through an interactive electronic hypertext, defined by Castells (2000a: 694) to be the ‘backbone’ of a new culture. This new culture is characterized by “mass self-communication, based on horizontal networks of interactive, multidirectional communication” (Castells 2012: 220). The network society and its new culture and economy have developed within the much discussed phenomenon of globalization. It is during the last 25 years of the 20<sup>th</sup> century that Castells (2010) observes the emergence of the new economy which he labels informational, global, and networked.

The central aspect of what has been discussed so far, and the factor that led to the development of the theory of the network society, is the new age in societal evolution that we are experiencing which has been labeled The Information Age. Castells (2010) coined the label ‘Information Age’ to designate a new “period in which the movement of information through networks would overtake the circulation of goods as the primary source of value in society” (Beetham and Sharpe 2013:4). In contrast to the industrial age, typified by energy production and distribution, the activities of the Information Age are performed within a technological paradigm marked by microelectronics based, digital communication (Castells 2000b). Since it can be argued that all societies depend on knowledge and information for wealth and power, Castells explains the label of Information Age by stating that “our society is characterized by the power

embedded in IT, at the heart of an entirely new technological paradigm, which I called informationalism” (Castells 2004: 7). It stands to reason therefore that the changing structure of society, operating within a new technological paradigm, will necessitate changes to the educational paradigm.

Castells is the first theorist to comprehensively investigate and observe the social implications of communication technologies, and to emphasize technology’s role in social transformation. “Castells is particularly attentive to how [such] technology might be harnessed to create a more autonomous society” (Elliott and Lemert 2014: 425). In addition, Castells observes that the Internet is an interactive network in which various modes of communication are integrated (Castells 2010). This is significant because “for the first time in history...written, oral, and audiovisual modalities of human communication” are integrated into the same system (Castells 2010: 356). The interaction along a global network of the integration of different media “fundamentally changes the character of communication,” (Castells 2010: 356) which in turn shapes culture. Castells does not present a postmodern, fatalistic view of the destruction of space and the “dictatorship of speed” (Virilio 1995) by computer networks. Instead, the Information Age has allowed for time-sharing within a new framework organized through flows. The space of flows conceived by Castells, although not equivalent to physical space, is still connected to it in a nonlinear manner. A context for real-time dealings is established by the space of flows, which is independent of the respective physical locations of the participating actors (Castells 2010). The network society is formed around flows which Castells (2010: 442) describes as

purposeful, repetitive, programmable sequences of exchange and interaction between physically disjointed positions held by social actors in the economic, political, and symbolic structures of society.

The space of flows is being discussed briefly here insofar as it relates to the concept of global citizenship; a main line of inquiry of this research. To be a global citizen requires the manipulation of and interaction with the global flows discussed by Castells. The concept of the space of flows is Castells's attempt to conceptualize the spatial transformation that communication technologies have created such that there exists an interaction between the traditional 'space of places' and the space of flows that allows for informationalism's new spatial structure that is characterized by the connection of places in the structure of networks that process information and communication flows (Castells 2004). As Mitchell (2003: 144) explains wireless connections and portable access devices create continuous fields of presence that may extend throughout buildings, outdoors, and into public space as well as private. This has profound implications for the locations and spatial distributions of all human activities that depend, in some way, upon access to information.

Electronic communication infrastructures provide the most important component to the space of flows as these infrastructures provide the means for real-time, global interaction as well as facilitate the movement of goods and people. This infrastructure also includes high-speed land, water, and air transport. The ability to link to this communication and transportation infrastructure is necessary to be able to enter the space of flows (Castells 2000a/b,2010); and likewise to be considered a global citizen. The space of flows and its supporting rapid and high-

volume infrastructure spans the globe, but there are certain concentrations of flows in various places which represent those places' capability to propel the program of a particular network. These places would therefore represent what Castells labels as the *programmers* and *switchers* of the network society. In addressing the issue of power in the network society, Castells defines the mechanism as switching power and explains the concept of programmers and switchers (Castells 2012).

“Programmers and switchers are those actors and networks of actors who, because of their position in the social structure, hold network-making power—the paramount form of power in the network society” (Castells 2011b: 777). The concept of power in the network society is discussed extensively by Castells, and he identifies four main forms of power; networking power, network power, networked power, and network-making power which is mentioned in the quote above. Castells identifies network-making power as the most crucial power form of the network society (Castells 2011b). In order to exert power in a society structured as networks, the ability to establish a network(s) and subsequently ‘program’ that network to embody a set of goals, as well as having the capability to interface and cooperate with different networks, describes the highest form of power in the network society. Castells (2011b: 776) suggests that “in many instances the power holders are networks themselves.” He explains that the power holders cannot be individual actors since the process of exercising power in the network society constitutes a collaboration of various types of action which ends up producing a new subject type, a “networked subject” (Castells 2011b).

Networks are flexible, adaptable, and have the ability to reconfigure themselves, however they become less efficient than a hierarchical structure “under the conditions of pre-electronic communication technology” (Mokyr 1990 in Castells 2004: 5). Therefore, what distinguishes the current status of our world, and the emergence of the network society, is “the extension and augmentation of the body and mind of human subjects in networks of interaction powered by microelectronics-based, software-operated, communication technologies” and the increasing miniaturization of technology allowing it to be easily diffused across the various arenas of society (Castells 2004: 7).

A social structure that is based on an infrastructure of digital networks must be described as global since digital networks are global due to their lack of boundaries as far as their potential to reconfigure themselves (Castells 2004). Castells (2004, 2010) explains that a majority of the global society is not included in the networks of the network society; however the processes that take place in the global networks affect everyone. This characteristic of the network society is what has motivated me to explore global citizenship in a Lebanese context, and how it relates to the digital technologies of our time. Everyone, including the participants of this research, is affected by the global processes because human life everywhere on the planet is shaped by the activities that are organized within the global networks of: financial markets, management and distribution of goods and services, communication media, religion, culture, management of the global economy, intergovernmental relations, and transnational NGOs (Castells 2000a, b; Held and McGrew 1999).

Castells (2010, 2004) speaks of the ‘program’ of a network as the defining characteristic of any particular network as it is the program that articulates the goals of the network as well as its procedures. The program is comprised of codes that signify the criteria for valuation, success, and failure of the network (Castells 2004). Therefore the installation of a new set of codes in the network will change the network’s outcomes. As in computer networks which operate on a binary logic, so does the network society function based on inclusion/exclusion with changing boundaries resulting from modifications to the network’s programs. This double logic of the inclusion of some and the exclusion of others in the global networks of the network society is what leads to the situation in which many individuals cannot be said to be connected to a network. This is a consequence of the fact that “the social structure is global, but most human experience is local, both in territorial and cultural terms” (Borja and Castells 1997 in Castells 2004: 22). Social actors from a range of contexts have the ability to act on the networks’ programs such as “media moguls introduced in the political class, financial elites bankrolling political elites, political elites bailing out financial institutions, academic institutions financed by big business...” (Castells 2012: 9); these are the switchers.

The theory of the space of flows was proposed by Castells in the 1980s, at a time when only certain ‘elites’ had access to the global communication infrastructure. With the development of the Internet and increasing innovation in the field of digital communication technology, the number of people who now have access to this infrastructure has grown exponentially. Therefore, the space of flows is woven into our lives, “not just influencing the lives of billions of people, but also providing resources which an ever growing number of people can draw upon creatively” (Ampuja 2012: 151). The drawing upon of those resources and the



effective interaction with this global infrastructure are examples of what is meant by the three cognitive capacities of global consciousness discussed in chapter 1: global sensitivity, global understanding, and global self. This reality places a responsibility on education policy makers to acknowledge the space of flows and incorporate appropriate skills and content into curriculum to prepare students to operate in a society that is structured around this new material base.

### **2.3 Education in the network society of the Information Age**

This section begins with a discussion about the status of education in the Information Age and how it has evolved from that of the industrial age; specifically highlighting the status of technology in education. Throughout the section, a link will be addressed between contemporary education and its responsibility toward educating global citizens. The section concludes with a review of the literature on the integration of technology in education.

The complexity and multidimensional nature of globalization means its effects can be observed in a variety of arenas, not least of which in the field of education. The founding in 2003 of the journal *Globalisation, Societies and Education* is an indicator of the emergence of new discussions concerning globalization and education, since as the first issue states, “formal education is the most commonly found institution and most commonly shared experience of all in the contemporary world” (Dale and Robertson 2003:7). The journal provides discourse on the global processes that affect education in an era of globalization, one of which is information and communication technology (Spring 2008). The journal seeks to analyze the global processes through a framework of societies rather than nation-states, allowing the discussion to revolve

around a global society/societies which encompasses a broader view than that of the nation-state (Dale and Robertson 2003). The nation-state does not become non-existent, but rather is treated as a subset of a larger society (Spring 2008). The term society identifies “groups of people sharing similar characteristics who see themselves as connected across the boundaries of nation-states” (Spring 2008: 332).

Society’s structural change, aided by the processes of globalization, is impacting the concept of citizenship in the network society, as nation borders have become fluid, work patterns have significantly changed, and cultural exchange is fluid and common. “Today’s information revolution is ending hierarchical bureaucracies and leading to a new electronic feudalism with overlapping communities and jurisdictions laying claim to multiple layers of citizens’ identities and loyalties” (Keohane and Nye 1998: 81). A few years later, Rosenau (2002) also observes the shift of power away from nation states and toward transnational institutions. There is agreement among many scholars that the conception of citizenship in the 21<sup>st</sup> century lies in an understanding of the balance between the national and global, and how the two interact (Mayo et al. 2009; Scholte 2002).

Watson (1998) notes that the arrival of the Information Age cast computers and digital technologies in a positive light, representing renewal and positive change. Compared to other industries however, education has not felt a major impact from computers and their related technologies (Albirini 2007). Bennet (1999: 46) agrees and states, “The only important field that computers have failed to change significantly is education.” Enthusiasm as to how educational technology can impact the field of education has led to large expenditure for research and

experimentation; however substantial benefits have failed to be observed (Salomon 2002; Bennet 1999; Gentry and Csete 1995). This has generated controversy within educational circles regarding the role of technology in education and how feasible it is to incorporate it into the existing educational system (Salomon 2002; Clark 1994).

Albirini (2007) suggests that the causes of the failure of technology to infiltrate itself effectively into the education system are theoretical and paradigmatic in nature. The 'identity' of educational technology must be explored, therefore it is helpful to understand the differences between the educational system of the industrial age and that of the information age in order to gain perspective before addressing what the causes and possible solutions of the disconnect between education and technology may be (Albirini 2007). The industrial age saw the development and definition of modern institutional education and led to the streamlining and regulating of people "according to the ideals of the industrial society" which were that more education meant attainment of a higher social class which led to more goods, well-being, and health (Albirini 2007). The purposes of industrial society were served by this form of mass produced education until the first half of the 20<sup>th</sup> century when the information revolution had gotten underway (Albirini 2007; Toffler 1980). The rise of the information revolution coincided with demand for educational reform (Besser 1993).

In contrast to the industrial system, the mode of production of the Information Age saw the development of technology as a stand-alone tool not conceived to correspond with an existing institution or knowledge paradigm (Albirini 2007). The 'crisis' of educational technology can be traced to this absence of a paradigmatic grounding and is therefore responsible

for the lack of success of its integration into the educational paradigm of the industrial age, as electronic technology was simply “mapped onto education” (Albirini 2007).

The disparity between the characteristics of electronic technology and those of education are the main impediment to its effective integration. Electronic technologies have demonstrated their ability to provide increased access to multiple sources of information, to disable communication hierarchies, to heighten and enrich collaboration, and to decentralize and democratize learning and instruction, leading to the elimination of the classroom’s stringent structure (Warschauer and Healey 1998; Poole 1995). In contrast, the educational system is founded on conventions that at times seem completely contradictory to the assumptions of electronic technologies, including “top-down management, teacher control, textbook authority, structured classroom, lecturing, uniformity, and face-to-face interactivity” (Jones and Maloy 1996 in Albirini 2007: 231; Welker 1991). Unfortunately in re-directing educational technology to fit the already existing educational system, the assumptions on which the technology revolution was based were relinquished, a situation which Salomon (2002) refers to as the Technological Paradox. The Technological Paradox results from:

the consistent tendency of the education system to preserve itself and its practices by the assimilation of new technologies into existing instructional practices. Technology becomes “domesticated”...it is allowed to do precisely that which fits into the prevailing educational philosophy of cultural transmission and training for the world of yesterday” (Salomon 2002: 71-72).

Therefore, despite the expectation that technology could and would revolutionize systems of education, it has in fact provided reinforcement to already established educational practices.

A conceptual transition is necessary to shift the emphasis from the obstacles to the implementation of educational technology, to theoretical issues that address educational technology's identity and its conflict with education at the paradigm level (Albirini 2007). Paul and Ward (1995) explain that in order to shift paradigms, social institutions and structures must be reconsidered from a new perspective, which is what Castells (2010) has done in his elaboration on the network society and why his theory has been selected to inform my research for this thesis.

The different kinds of networks of the network society, as described by Castells, possess different logics which determine what is of value to a given network. There are a number of potential bases for networks' domination such as capital accumulation, military power, and the media (Castells 2004). Besides capital accumulation within the financial markets and military power, Castells (2004) acknowledges that the transformation of people's minds can be considered to be the greatest influence in the modern world. Therefore, the key networks are the distributive networks formed by the media as they are the principal source of news, messages, images, and information that arrive to people's minds (Castells 2010, 2004). Over a decade ago, Mitchell (2003) stated that in comparison to elements such as the accumulation of capital and military power, human thought is the most quickly developing element, evolving within the unique conditions of global/local and interactive communication. Consequently, "ideas, or specific sets of ideas, could assert themselves as the truly supreme value (such as preserving our planet, our species) as a precondition for everything else" (Castells 2004: 46). The example Castells cites, placing value on the preservation of our planet and species, is a core aspect of the

attitude of a global citizen and therefore another illustration of the appropriateness of Castells's theory as a conceptual framework for my research.

### **2.3.1 Technology in education**

In a world that is becoming increasingly networked and 'flat' (Friedman 2007), conventional educational practices are not adequate for preparing today's students for the future work force (Haste 2009). Haste (2009) argues that not only will students need to be trained in basic technical skills, but the very way in which students approach different experiences and problems must be guided to fit within a 21<sup>st</sup> century setting. Collaboration will be a key skill needed for students entering the workforce as work patterns bridge borders and cultures (Dede 2007), and is a skill explored in this thesis. Outside of an educational setting, today's youth, particularly in developed countries, are already very adept at interacting with and manipulating technologies from smartphone applications, to social networking platforms and all types of Web 2.0 technologies like wikis and blogs (Haste 2009; Buckingham 2007). Haste (2009) observes that these technological skills are being incorporated into both informal and formal arenas of youth civic participation, through for example video games that aim to develop moral awareness, implying the potential for technology's broader use in GCE. However, "the full potential of youth's expertise, and more important, the full implications of these new practices for how we think about education, has not yet been realized" (Dede 2007, 2009); thus encouraging the need for research into the potential role technology will play in GCE.

The tendency of education to move slowly to adapt and incorporate IT into teaching and learning practices is due to the mindset that what youth does with technology is simply for 'leisure' purposes, in addition to the larger issue of access which is discussed further below. Even in developed countries, there is disparity between schools in terms of the amount and quality of technology resources provided, with more affluent schools able to provide more up-to-date technology than poorer schools thus affecting the level of innovation teachers can employ in their classrooms (Kahne and Middaugh 2008; Reich 2008); not to mention in a developing country such as Lebanon where there exists only a limited number of schools that are able to provide up-to-date technology.

According to Castells, a defining characteristic of the network society is virtual communication, therefore individuals must be equipped to discover and maintain community links (Haste 2009). Despite the fear that technology would become morally destructive and reduce communities' cohesion, studies have shown that "when face to face communities also connect via technological links their communication and mutual support is strengthened" (Haste 2009: 218; Vandenburg and Peter 2009; Hampton 2004). Within the new structure of society that is built around networks, Castells argues that technology is simply speeding up and making more explicit the reciprocal communication that has always been part of any community (Castells 2004). Therefore, Haste's (2009: 218) call for making effective use of communication technologies to enhance students' "capacity to maintain electronic links with a series of overlapping networks in work, social and leisure domains" in order to develop civic awareness can be viewed as a call for adapting education to mold future global citizens who possess appropriate digital skills. Similarly, Davies et al. (2012) explore the potential to leverage social

media in an educational setting to develop students' civic engagement. Davies et al. (2012) conclude that a connection between social media, civic engagement, and learning does exist and they advocate further research which can elucidate for education professionals recommendations for the enhancement of civic engagement education by means of social media. The study conducted for this thesis contributes to the discourse in which Davies et al. (2012) and others such as Haste (2009) participate. Although this study does not focus solely on social media, it does explore social media as an aspect, one of many, of technology integration being investigated in this research; and as such, explores its relationship with the development of global citizenship skills and attitudes.

The digital age has provided society with a myriad of information and communication technologies that can be leveraged by educators to adapt their pedagogical practices to the “liquid information culture of the 21<sup>st</sup> century” (Area and Pessoa 2012). The landscape of education is changing, and the field has responded in varying degrees. Although still a new and continuously transforming field, there has been bountiful research in the area of technology in education, however most research into the effects of technology integration and student/teacher attitudes and perceptions of technology in the classroom, have been conducted in only a handful of countries, and more so in developed countries. Lebanon, with its multilingual context and cultural attributes, provides a rich opportunity for education research, specifically concerning the use of technology in education as it is in the early stages of use relative to many developed countries. The following review of the literature on the integration of technology in education first cites research undertaken in countries other than Lebanon in order to position Lebanon within the global context, and then discusses research conducted in a Lebanese context.



There is a difference between learning “from” computers and learning “with” computers (Reeves 1998). When learning is described as learning “from” computers, the role of the tutor is simply being replaced by the computer; the technology functions to grow basic skills and knowledge of the student. In scenarios of learning “with” computers/technology, the technology’s role transforms from that of a simple instructional delivery system to a tool for developing the critical thinking, creativity, and other cognitive skills of students (Ringstaff and Kelley 2002). More advanced technology is necessary for learning “with” scenarios. Results from early studies in the field of technology in education could not be easily generalized because they concentrated on specific software packages and programs instead of encompassing learning “with” situations (Ringstaff and Kelley 2002). Furthermore, these studies treated technology “as a discrete and isolated input” (Honey Culp and Carrigg 1999), neglecting to consider contextual factors like the particular school, classroom, or district (Heinecke et al. 1999). This thesis will “take into account these larger issues of the learning context and educational benefits that are harder to quantify than basic skills” (Ringstaff and Kelley 2002).

Much of the research on the impact of technology on student learning has revealed a positive impact experienced by learners. Over five hundred research studies of teaching using computer-based methods were aggregated and analyzed by Kulik (1994) using meta-analysis to investigate the effect computer-based instruction has on student learning. The research studies spanned the years 1981 to 1991. It was concluded from the study that students scoring in higher percentiles were those who had participated in computer-based instruction (Kulik 1994). Additional conclusions are that it took less time for learning to occur when computer-based instruction was employed, and students in classes which included computer-based instruction

demonstrated more positive attitudes (Kulik 1994). A few years after Kulik's study, Kachala and Bialo (1998) conducted a review of 219 studies spanning eight years (1990 to 1997) and all subject areas in order to study technology's impact on learning. It should be remarked that in Kachala and Bialo (1998), the terminology has changed from the term computer in Kulik (1994), to the general term technology. The findings of Kachala and Bialo(1998) however, are similar to those of Kulik (1994). After analysis of the 219 studies, it was found that 'technology rich environments' positively influenced student achievement in all class levels and all subject areas (Kachala and Bialo 1998). In addition, an improvement in student attitude toward learning was noted in classrooms that employed technology (Kachala and Bialo 1998), corresponding with Kulik's (1994) findings on student attitude. Kachala and Bialo (1998) inconclusively states that "the level of effectiveness of educational technology is influenced by the specific student population, the software design, the educator's role, and the level of student access to technology" (Schacter 1999: 6). Each one of the variables stated is a characteristic of the research context and will be addressed in this doctoral research.

Oliveira, Camacho and Gisbert (2013) investigated the perceptions of a primary class and their teacher regarding the use of e-textbooks. The researchers observed a class of 10 and 11 year olds in a primary school in Spain. Through the data gathering methods of video recordings and focus group interviews, the researchers attempted to determine if the students had negative, favorable, or mixed perceptions of e-textbook use, and if a shared perception on the use of e-textbooks existed between the teacher and his students. The data gathered showed that the teacher and students possessed different perceptions toward the e-textbook; all students liked and even preferred the e-textbook to traditional textbooks, whereas the teacher felt that the

information provided by the e-textbook was not sufficient. Of note in the results is that students offered that they could supplement the material provided by the e-textbook by using Google or Wikipedia, demonstrating that they “did not seem to draw a definite line distinguishing the e-textbook from other digital resources” (Oliveira, Camacho and Gisbert 2013: 92).

Using systems design theory as a conceptual framework, Li (2007) critically examined secondary teachers’ and students’ views of technology integration specifically in science and mathematics classes in four secondary schools in Canada. A mixed methods approach, similar to the one used for this thesis, was employed, in which the teacher data was gathered through semi-structured individual and focus group interviews and the student data was gathered through a survey. 87.3% of the surveyed students reported liking to use technology and believing in its effectiveness in the learning process. The ability to access information quickly was mentioned by 73% of the students surveyed as a reason for why they liked the integration of technology in their classes. Students remarked that the technology used in their classes was not as advanced as what they use at home and expressed a hope that its use would become more frequent at school (Li 2007). In addition, students demonstrated recognition that the workplace they will eventually join will require mastery of certain technological skills, another reason, according to them, for its integration in their learning. As mentioned in chapter 1 of this thesis, digital skills is one of the global competencies being explored in my research.

Technology has allowed for the establishment of several new pedagogical models. In recent years, one such model, called flipped or inverted learning, has emerged as an alternative to traditional, lecture-based classroom teaching (Bergmann and Sams 2012). Flipped learning is a

pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter (Flipped Learning Network 2014).

Active learning pedagogies are leveraged in a flipped classroom scenario and are facilitated by modern technologies and students' familiarity with these technologies. Zayapragassarazan and Kumar (2012) list several activities such as collaborative writing, cooperative learning, simulation, project-based learning, and peer teaching which are appropriate for an active learning classroom; all of which can be performed and enhanced through the manipulation of different technology tools. A flipped classroom, or flipped lesson, means that the content that would have originally been disseminated in class, most likely through a teacher driven lecture, is assigned to students as "homework". Class time is then utilized for fleshing out the content, working through any problems, providing opportunities for collaborative learning (Tucker 2012). It is clear that this has become a hot topic due to the availability of technology tools that can facilitate this process, both at home when students are preparing the content (through teacher prepared instructional videos for example), and then in class when applying the content (through simulation software, or collaborative software for example). Flipped classroom scenarios allow for the innovative use of technology which often results in more effective teaching and improved learning outcomes (Wishart and Bleases 1999) as well as the accommodation of students' various learning styles (Bryant and Hunton 2000).

At the core of the flipped classroom, as well as the other new pedagogical models, are student-centered learning theories supported largely by the works of Piaget (1967) and Vygotsky (1978), in addition to the employment of interactive activities that are largely group-based (Bishop and Verleger 2013). The theoretical framework that guides the development and implementation of flipped learning is based on educational theories that support reasons for not using class time for delivering content, i.e. the vast amount of literature on student-centered learning. Piaget's theory of cognitive conflict provided the catalyst for the theories of constructivism and collaborative learning (Bishop and Verleger 2013), both of which are put into practice when a flipped lesson/classroom is implemented. A key aspect of collaborative learning is the act of working in peer teams toward a common goal/product while acquiring knowledge and skills through the active support and help of each other (Topping and Ehly 1998; Foot and Howe 1998). The fact that the skill of collaboration is fostered in a flipped classroom further highlights the importance of this skill for today's students and demonstrates that technology is a very useful means for developing this skill.

The concept of "flipping" teaching/classrooms draws on today's students' access to and manipulation of technology outside of school hours. Through a survey administered by Kent and Facer (2004: 444), it was revealed that young people are exposed to various computer activities at school, however "the home tends to act as a site where more young people engage in regular use of the computer for most activities." It was also revealed that young people perceive home as a site that allows them access to technology without the time constraints that exist within a classroom setting (Kent and Facer 2004). This issue of time is one that emerged within this study as well and is discussed in chapter 4; specifically coming from the teacher participants who

expressed a “lack of sufficient time” as a barrier to integrating technology into their teaching. The home as a site for technology access is also viewed by young people as a site that allows them to be ‘connected’; connected not only to information, but linked to their peers and others outside of school through the instant communication provided by modern digital technology (Kent and Facer 2004). This mindset of connectivity only seems to have grown since 2004 and is evident in the participants of this study as well.

The desire and ability to maintain connectivity with others and instantaneously communicate with one’s peers, colleagues, family, and friends across the globe, is manifested in the proliferation and mass use of social media and social networking sites. As the prominent role social networking took in the lives of students of all ages became apparent, many educators became encouraged to find ways to leverage this phenomenon (Selwyn 2009a). Social networking applications allow the ‘traditional’ social context of the school to be simulated and permit peer feedback, thus giving this type of technology an educational quality (Mason 2006). Furthermore, the particular characteristics of social networking applications are such that they allow for conversation, collaboration, and the promotion of communal feelings thus mirroring “much of what we know to be good models of learning, in that they are collaborative and encourage active participatory roles for users” (Maloney 2007: 26). Supporting interaction among students allows social networking to provide a main educational use for learners further supported by enabling students to join various networks and participate in collaborative learning founded on interests that might not be supported in their traditional educational environment (Selwyn 2009a). The emergence of social networking applications, such as but not limited to Facebook, has brought to light the fact that students choose to invest their time in establishing

and maintaining relationships and participating in knowledge communities built around shared interests (Maloney 2007) thus prompting some in the field of education to investigate ways to leverage this phenomenon to aid ‘conventional’ student-teacher interaction (Selwyn 2009a). Some educators view social networking services as a means to provide a setting for simple and constructive networking with students (Lemeul 2006).

Davies and Sant (2014: 131) conducted research that investigated the ways in which social media is “effectively used in school-based citizenship education programmes to support active citizenship.” Through a mixed methods research design and a qualitative emphasis, much like the design and methodology of this thesis, Davies and Sant (2014) sought to understand teachers’ and students’ perceptions regarding social media and citizenship education. Their research revealed that social media is used less frequently by teachers than their students; however the teachers do view social media as having educative potential particularly for citizenship education. Based on their analysis, Davies and Sant (2014) suggest that citizenship education can be enhanced through the use of social media since social media facilitates participation. Furthermore, the characteristics of social media that allow for users to comment and discuss can be leveraged to promote knowledge about citizenship, and participants of social media develop a sense of belonging which can contribute to the identity aspect of citizenship (Davies and Sant 2014). Participants’ reservations about using social media for this purpose were noted, thus prompting Davies and Sant (2014: 132) to urgently call for more research that tackles “the development of high-quality educational programmes using the social web.”

Despite hoping that social networking/social media can facilitate formal educational objectives, educators acknowledge that the medium provides opportunities for informal learning as well (Selwyn 2009a). Bugeja (2006) suggests that social networking provides individuals with a chance to re-engage with learning through encouraging learners to think critically about their learning; a traditional educational objective. Others go so far as to state that social networking sites provide “the capacity to radically change the educational system...to better motivate students as engaged learners rather than learners who are primarily passive observers of the educational process” (Ziegler 2007: 69). Concerns regarding social networking’s effects on students’ learning experience have also been expressed. Social networking can lead to learners becoming disengaged and disconnected from education in addition to negatively affecting traditional skills (Brabazon 2007). Other critics believe that social networking applications are a distraction from learners’ studies (Cassidy 2006). Therefore the use of social networking as an educational tool remains controversial.

The attempt to integrate technology in the learning process faces a number of barriers that hinder its effectiveness. Hew and Brush (2006) examined a number of studies that took place between 1995 and 2006 and reported on the various barriers that affect the use of technology in schools. Six main categories of barriers were identified, with the category of ‘resources’ possessing the highest frequency within the examined studies (Hew and Brush 2006). Resources encompasses the ‘sub-resources’ of the actual type of technology that is available for use, the access to that technology, the appropriate amount of time to access and use technology, and the availability of technical support. A school may boast the availability of a variety of technology resources, but the simple availability does not equate to access which constitutes the provision of



the appropriate types and amount of technology in the appropriate locations for student and teacher use (Fabry and Higgs 1997). The location of computers in separate computer labs causes an access problem as it may lead to competition among teachers for lab time (Zhao, Pugh, Sheldon, and Byers 2002). After inappropriate resources, a lack of technological skills and knowledge was the second most frequently cited barrier to technology integration (Hew and Brush 2006). When teachers are asked why they do not use technology in their classes, the most common reason given is their deficiency in technology knowledge and skills (Williams et al. 2000). The most important factor that influences student learning is classroom management (Wang et al. 1993), therefore another barrier identified to hinder technology integration is the absence of classroom management related to technology (Hew and Brush 2006). “Although the rules and procedures established in a non-technology integrated classroom can apply in a technology-integrated one, there are additional rules and procedures to be established in the latter due to the inclusion of computers, printers, monitors, CD-ROMs, and other technology resources” (Lim et al. 2003, in Hew and Brush 2006).

#### *2.3.1.1 Research on technology use in Lebanese educational contexts*

Yaghi (1997) surveyed 358 schools during the 1994-1995 academic year with the aim to “quantify the status of computer education in” Lebanon. Lebanon began introducing computers into schools in the early 1990s, which was late compared to other countries, but the timing is a result of the 15 year war suffered by Lebanon which ended in 1990. A questionnaire was administered, containing 102 items concerning the type of hardware and software used and the way in which computers were leveraged, in addition to general questions about each of the schools. The questionnaires revealed that 57% of the 358 schools used computers (Yaghi 1997).

Yaghi (1997) was therefore able to estimate that there are approximately 660 schools in Lebanon that use computers which calculates to around 11,000 computers. When comparing students' access to computers in Lebanon, a developing country, to students' access in developed countries, there is a great difference (Yaghi 1997); nearly every student in the USA has potential access to a computer versus 67 for every computer in Lebanon – at the time of the study. Lebanese schools are multilingual, with many schools employing either English or French as the primary language of instruction, and in schools where this is not the case, the subjects of math and science are almost exclusively taught in either French or English. It is for this reason that Yaghi's questionnaire revealed that most of the software used in the surveyed schools was software that would also be used by students in North American and Europe.

Yaghi (1997) discovered that any educational activity involving computers was overseen by individuals who possessed technical qualifications but who most likely did not possess educational qualifications, with 81% of schools surveyed having on staff computer scientists or computer engineers who served the role of both lab supervisor and computer teacher. Teachers in 48% of the schools were unable to use computers (Yaghi 1997). Of the schools that reported using computers, most of them introduced their computer education programs at the elementary level, in the form of usually one period a week, and continued this program through to the senior level. The computer skills that were reported to be taught such as typing, word processing, spread-sheeting, and basic programming, were in line with the practices of schools in other parts of the world including the United States, albeit with a much lower frequency in Lebanon (Yaghi 1997). Yaghi's questionnaire also sought to determine if and to what degree computers were being used in other subjects outside of teaching the basic computer skills mentioned above. 31%

of the schools that used computers, stated that the computers were used in different subjects for drill and practice, the most frequent of which were in math and science classes (Yaghi 1997). Yaghi (1997) concluded that the way in which Lebanese schools were implementing the use of computers in education was somewhat chaotic with no common computer education program shared among schools.

Similar to Yaghi's (1997) study, Kibbi (1995) conducted a study to determine the implementation status of computers in Beirut area private schools. Twenty years ago is when some schools in Lebanon, primarily in Beirut, began to introduce computers into schools and update the curriculum to include their use. Kibbi's (1995) study set out to explore the degree of implementation of computers in the schools and the degree to which their use is meeting the goals which motivated their initial introduction. Data was collected in the summer and fall of 1994 from 206 Beirut area private schools through questionnaires, interviews, and school documents (Kibbi 1995). Twelve distinct findings were reported, one of which detailed the hindrances facing the implementation of computer use in the schools, among which was the complete lack of "qualified, adequately computer-trained classroom teachers and teachers-in-charge of computers" (Kibbi 1995). This is understandable given that the introduction of computers into schools was very recent; in 1994. However as the literature shows, while many of today's teachers claim to be comfortable using technology and computers, they still demonstrate a lack of skill when it comes to using those skills for educative purposes. 93.32% of the teachers who participated in Kibbi's study expressed the belief that it is more important for students' futures to be learning computer applications than it is to learn computer programming languages (Kibbi 1995). If it is found that this belief still holds among teachers in Lebanese schools, a

possible consequence could be that Lebanese students are not being adequately prepared for their future roles in global society.

The studies discussed above represent the very small amount of research into how Lebanese classrooms are using computers and technology. A large number of schools in Lebanon advertise the use of technology in teaching and profess to encourage its use, however there has yet to be significant recent research investigating the degree of technology use, the methodology being employed in its use, and the effects of its use on the education system in Lebanon. Nasser (2008) conducted an investigation to explore the effect ICT resources had on student achievement by exploring the differences in ICT resources available at public versus private schools in Lebanon and then examining the student success rate in the national baccalaureate exams. A simple inventory was performed, and it was discovered that private schools possessed more ‘artifacts’ – computers, UPSs, printers, LCDs, etc – than public schools. Although private schools possessed more artifacts, it was found that this did not have a significant effect on the percentage of students who passed the official exams (Nasser 2008). Nasser’s study has a number of limitations, acknowledged by the researcher, among which are teacher constraints, how the artifacts were used, and the particular student populations (Nasser 2008).

Another research study which took place in a Lebanese context and with an aim of investigating some form of technology in the learning process is Fidaoui, Bahous and Bacha (2010). Fidaoui, Bahous and Bacha (2010) investigated the use of computer assisted language learning (CALL) in a fourth grade English ESL (English as a second language) classroom to

determine the degree to which it motivates students to develop their writing skills. The authors state that they are not cognizant of other research investigating the use of CALL in a Lebanese context. The study participants were 48 fourth grade ESL students and four of their teachers. Data was collected through observations, focus group interviews with the students, interviews with the teachers, and questionnaires. The study revealed that most participants viewed computer assisted language learning positively, and the teacher participants perceived the use of the technology as valuable (Fidaoui, Bahous, and Bacha 2010). Student participants expressed pleasure in using CALL, specifically because they were able to share their published work and felt less frustration when using a computer to write than using pen and paper (Fidaoui, Bahous, and Bacha 2010). The study uncovered that students were hindered from producing “high quality written work” because their basic research and computer skills were relatively weak. The authors advise that

future research must explore whether or not students’ moderate achievement in computer-based writing is being affected by the IT teacher’s instructional strategies, lack of proper assistance in the computer room, students’ learning styles, or the quality of the available technological resources (Fidaoui, Bahous and Bacha 2010:165).

### **2.3.2 Teachers and technology**

Students are not the only population affected by the changing face of education brought about by the introduction of technology into the field of education. Teachers have views and opinions that affect the implementation and integration of technology into teaching. Therefore, a

review of the literature that addresses teacher attitudes toward technology in education was conducted and is discussed below.

Li's (2007) study, discussed earlier, investigated teachers' views of technology in addition to students'. While students overwhelmingly held positive views regarding the integration of technology, teachers had almost an opposite view. All teachers interviewed for the study realized that students 'like' technology, however most were reticent to integrate any advanced communication technology tools, such as videoconferencing, into their classes. Most of the teachers expressed the view that technology might overwhelm students and its use in the teaching learning process should be limited (Li 2007). It was noted by many of the teachers that particularly with weak students, technology integration would be a "waste of time". The study revealed that a teacher's willingness to integrate technology into their teaching was directly related to his/her level of comfort with the subject being taught.

Other studies have also shown that the beliefs and attitudes teachers hold toward technology is a barrier to its integration (Hermans et al. 2006). When discussing the attitude a teacher has toward technology, it is simply a measure of the level of like or dislike the teacher has regarding the use of technology (Hew and Brush 2006). An individual's attitude is determined by her/his beliefs (Bodur et al. 2000). Therefore, a teacher's like or dislike of technology will be determined by their personal beliefs about technology as well as their pedagogical beliefs (Ertmer 2005). Ertmer et al. (1999) investigated an elementary school in the United States to determine if and how teachers' beliefs influenced their technology use. The researchers found that many teachers believed computer work should only be used as a reward

once other tasks concerning content knowledge were completed. These teachers viewed working with technology as ‘busy work’ and not as important as content knowledge. Another study conducted in an Australian secondary school also revealed that teachers’ beliefs about technology in the classroom presented a barrier to its integration (Newhouse 2001). When asked about the use of laptops for learning, the teachers expressed that they did not believe that better or faster understanding could be achieved through their use (Newhouse 2001). Teachers in Cyprus were given the opportunity to participate in a program about the use of technology in schools, and while they acknowledged the benefits of computers in certain areas, they failed to be convinced that technology could be of use in education (Karagiorgi 2005).

The lack of professional development programs is often cited as the biggest reason why technology is not integrated in classrooms (Drexler et al. 2008), and is perhaps a contributing factor to how much a teacher may ‘like’ technology as discussed in the previous paragraph. However, this may be changing according to recent survey results such as the National Education Association survey (NEA 2008) which discovered that a majority of teachers in the USA felt sufficiently trained to “operate technology equipment (68.3%), search the Internet for information (71.1%), and use administrative software to take attendance or submit grades (68.3%)” (Ertmer et al. 2012: 425). The 2009 National Center for Education Statistics survey found that most teachers who received professional development related to technology before participating in the survey reported the training to be relevant, with 80% indicating that the training met his/her needs and applied to available technology at his/her school (Gray et al. 2010). There has not been research conducted into the availability, frequency, or quality of

technology-related professional development for K-12 teachers in Lebanon, therefore this thesis does seek to gather data on these parameters.

### *2.3.2.1 Pedagogy of using technology*

Similar to Albirini's (2007) call for the development of a new theory and paradigm for education in the Information Age, there are those who advocate the development of pedagogy that supports the integration of technology in teaching (Hughes 2005). As Laurillard (2013: xvii) states, "our digital native students may be able to use technologies, but that does not mean they can learn from them." Furthermore, specifically when mentioning new mobile and wireless technologies, Beetham and Sharpe (2013: 4) describe them as representing a "paradigm shift with specific and multiple impacts on the nature of knowledge in society, and therefore on the nature of learning." Hughes (2005) identifies three categories under which technology supported pedagogy can be classified; the categories are technology for replacement, technology for amplification, and technology for transformation.

When using technology under the category of replacement, the technology is meant to provide a different way to serve the same instructional goal (Hughes 2005). Projecting a lesson on powerpoint slides that the teacher would otherwise have written on the board, is an example of using technology as replacement. It is expected that it will be found that the majority of technology use in Lebanon falls under this category. The category of technology as amplification represents the use of technology to allow for tasks to be accomplished in a more efficient and effective way while leaving the task unaltered (Pea 1985). An example in which



technology is used for amplification is when a word processor or other editing software is used for peer editing; the essay or story does not need to be rewritten after each round of editing, therefore the task of revision is amplified. The final category, using technology as transformation, could potentially allow for new innovations in educational practices (Hughes 2005), by restructuring the cognitive processes of students and providing opportunities for problem solving (Pea 1985). Graphing software and databases can be used as tools for data analysis allowing students to organize their data and test hypotheses. Much of the professional development activities have neglected transformative technology supported pedagogy, instead focusing on the basic operation of the technology (Hew and Brush 2007). In a technology supported classroom, the pedagogic roles of teachers include “setting joint tasks, rotating roles, promoting student self-management, supporting metacognition, fostering multiple perspectives and scaffolding learning” (McLoughlin and Oliver 1999, in Webb and Cox 2004: 240).

## **2.4 Governance in the Information Age and the role of global citizenship**

In this section I return to the discussion of the broader social change and direct the discourse to how this change should drive GCE. Global institutions have great influence, be it directly or indirectly, on individuals’ lives thus necessitating an examination of education’s role in nurturing an awareness of this fact and developing the skills needed to function in such an environment. As already discussed, technology has played a significant part in the rapid progression of globalization and the emergence of the network society, and for this reason this thesis is exploring the role technology can play in nurturing students’ global citizenship skills.

Political representation and the concept of democracy are in a state of transition in Castells's depiction of the network society, leading to circumstances in which the nation state is losing power. Important decisions are progressively being made and implemented within a global scale of reference. Castells thoroughly discusses the restructuring of society into networks that are linked by physical electronic networks, which is why the label for the new society is the network society. This restructuring has also had an impact on the concept of governance due to its dependence on the communication that occurs among different decision making levels linked through information networks (Castells 2000a). The global status of the network society is a key feature that differentiates it from former societal structures.

As a part of the process of globalization, political institutions have undergone structural transformations as social movements and grassroots organizations are contributing to the development of a global civil society that is serving to manage the void of representation. There is significant empirical data that demonstrates a worldwide feeling of alienation toward political representatives and institutions (Castells 2005). Global interdependence is achieved through the global diffusion of communication and transportation technologies, the Internet and other computer networks, and wireless communication. People and governments are faced with critical issues that are greatly determined by globally interdependent processes that extend outside the defined borders of countries (Castells 2005). These issues are defined in a global space yet must still be managed within the borders of nation-states, which has led to several political crises affecting institutions of national governance. "...states operate, still exist, but operate as actors of a much more complex and interactive network," (Castells 2001); a part of which are the global economic processes occurring at an international level. Technology networks allow for the flows

of trade and information that constitute these global networks and have thus altered the role of the nation state such that the world has transformed from “a world based on sovereign nation states into a world of interdependence, of nation states sharing sovereignty” (Castells 2001). This has clear ramifications for the concept of citizenship.

As the power of the nation state continues to decrease, and global governance grows through collaboration among inter-border actors, global citizenship can be put forth as a response to the shifting power balance (Muetzelfeldt and Smith 2002). Banks (2008) agrees that due to society’s transformations, citizenship education should adapt and be restructured to answer to the changes. Investigating and developing critical GCE should be a goal of contemporary educational research according to de Andreotti (2014). Today’s students will need to be equipped with skills, knowledge, and values for the effective functioning within two separate levels of the public sphere – their cultural community and the global society.

#### **2.4.1 Global citizenship education**

In the Information Age, technology has infused the networks that form the network society, therefore research investigating technology’s role in GCE can be informed by Castells’s theory. It has been argued that global citizenship discussions do not acknowledge the existence of unequal power relations, therefore as technology has been demonstrated to mobilize and connect individuals, it can be used as a tool in GCE to help address the power discrepancies (Pashby 2011; Dobson 2006).

Dobson (2006) explains that the consequence of the power imbalances is that the most powerful countries promote their own local ideas as the ‘global’ ideas, and can therefore not truly be accepted as the universal interests. The response to this is the development of critical GCE mentioned above, of which the basis would be the examination of “a complex web of cultural and material local/global processes” (Andreotti 2014: 41). Banks (2008: 134) asserts that students should be encouraged to “critically examine their identifications and commitments and to understand the complex ways in which they are interrelated and constructed.” Through empirical research, Castells has noted the ability of marginalized groups and social movements to achieve power by networking their messages in the space of flows (Castells 2012). The success of a counter power network depends squarely on the entity’s manipulation of communication technologies such that they can enter the space of flows to create a zone that anchors “the new public space in the dynamic interaction between cyberspace and urban space” (Castells 2012: 60).

The tension between local and global activities and forces has stimulated renewed discourse of citizenship education whereby “education is called on to prepare young people for multiple and evolving forms of citizenship, exercised at different levels and across the different dimensions of their lives (ecological, economic, political, social, and cultural)” (Lynch 1992 in Lapayese 2003: 493). There is wide acknowledgment that the international discourse of citizenship has shifted in a way that recognizes the important role of education to promote and develop global citizenship (Osler and Vincent 2002; Scott and Lawson 2002; Schweisfurth, Davies and Harbor 2002). Lapayese (2003) argues for a ‘critical’ GCE in which students are encouraged to question the political, social, and economic patterns of a globalized world and in

which dominant ideologies and power hierarchies are challenged by both teachers and students. In a review of several books which discuss the increasing importance of citizenship education as a response to the challenges of globalization, Lapayese (2003: 499) laments the fact that the books “fail to touch upon the relationship between globalization, citizenship, and technology.” This relationship is what this thesis is investigating in a Lebanese context.

Promoting GCE is one of the three priorities for the insurance of the universal right to basic education presented in the UN Education First initiative in September 2012. The initiative acknowledges that many institutes of education are deficient in preparing world citizens for a society that requires the development of 21<sup>st</sup> century skills. Therefore, the field of education itself must be modified to make “content more relevant to contemporary life and global challenges, introducing innovative and participatory teaching and learning styles” (UN Education First: 22).

All definitions of the term citizen express the existence of a relationship between both the citizen and the state as well as between the citizen and fellow citizens. The most notable definition of a citizen comes from Marshall (1949) in which a key component is citizen activism. With the rise of globalization and the shift in citizenship discourse to include the concept of a global citizen, following Marshall’s definition of a citizen, the activism required of a global citizen can be viewed as activism on a global scale. Giroux (1980) notes that past citizenship education policy tended to ignore the role of schools as social and cultural agents of reproduction. In the network society, however, educational institutions are recognized as social actors contributing to technological and scientific change within society’s flows (Castells 2010).

Castells discusses education's role in the network society and sees universities specifically as "the source of cultural renewal and cultural innovation" (Castells 2009).

Young citizens, through their relationship with digital communication tools, may be the ones to create solutions for challenging global issues. As far as citizenship is concerned with an engagement in the political process of governments, today's generation of students, practically worldwide, perceive themselves to be disconnected from those processes (Bennet 2008). It has been observed however, that youth civic engagement in nongovernmental areas has increased. A large percentage of youths are becoming increasingly involved in community volunteer work as well as social, environmental, and economic causes in both local and global arenas. Bennett (2008) describes today's youth as a 'generation in change' and raises the question of how to cultivate their expressive actions while maintaining constructive engagement with government. No doubt technology must play a role in the answer to his question; the how will be answered through research.

Two characteristics of a global citizen found within the literature of GCE is the responsible interaction with others and being self-critical of her/his position in global society by maintaining open dialogues of understanding (Pasby 2011). Banks (2008) argues for the importance of encouraging students' development of an attachment to the global community which would contribute to their identity. The label of cosmopolitanism has been applied to refer to the identity with and attachment to a global community (Nussbaum 2002). Many of the issues facing society now are global, both in the way they manifest and in the way they need to be treated (Castells 2008; Jacquet et al. 2002); a situation that Beck (2006: 249) discusses as "...the

structure of opportunities for political action is no longer defined by the national/international dualism but is now located in the global arena...” There is no contradiction between possessing awareness and concern for global affairs and keeping an attachment to one’s local community (Nussbaum 2002, in Banks 2007). As Castells (2008: 81) explains, “not everything or everyone is globalized,” however the network society is formed by networks that span the globe and therefore affect everyone. Therefore citizens must maintain a connection to their physical locations while acquiring knowledge of how they are affected by and operate within the global networks.

It is incumbent upon institutes of education to guide students in the discovery of the global connections that are present in their day-to-day lives. Globalization has allowed production to be transnationalized, which consequently leads to the “destabilization of social, cultural, and natural capital that puts social cohesion and sustainable development at risk,” which is the central dilemma of globalization (Mansilla and Gardner 2007). As today’s students will be required to work and function within the new economy brought on by globalization, a key aspect of global citizenship, *global consciousness*, should be acknowledged and developed (Mansilla and Gardner 2007). Global consciousness is “the capacity and the inclination to place our self and the people, objects, and situations with which we come into contact within the broader matrix of our contemporary world” (Mansilla and Gardner 2007: 58). Global consciousness is exhibited by an individual who recognizes himself/herself as an actor in a global context who may act locally on global issues.

Mansilla and Gardner (2007) argue that it is necessary for education to go beyond simple acquisition of knowledge; rather students must learn about globalization in a way that allows them to gain an understanding of the global systems operating within society and the problems facing the planet. Mansilla and Gardner (2007) conducted an empirical study with the aim of investigating the problems educators face when trying to incorporate the teaching of globalization into their classrooms. Twelve teachers were selected to participate in the study, and through classroom observations, in-depth interviews, and examination of student work, the researchers attempted to illuminate the problems confronted by teachers when teaching globalization. The researchers found that by dividing the concept of globalization into the four core areas of economic integration, environmental stewardship, cultural encounters, and governance and citizenship, teachers were able to successfully build their lessons within one of the given areas. The researchers remarked on one unit in particular, noting “how effectively it raised students’ awareness of the global connections present in their daily lives” (Mansilla and Gardner 2007). The researchers conclude with a call for more study of global consciousness, and that its study must be cross-cultural, as individuals of different cultures may situate themselves differently depending on the degree to which they have been affected by globalization. This thesis will offer insight into the global consciousness of high school students in the Lebanese culture.

## **2.5 Conclusion**

The theory of the network society rejects the concept of technological determinism, asserting instead that technology and its use is a product of its social context. Castells (2004) explains that there are common and fundamental features of the network society in different



contexts, however the cultural and other characteristics of various environments will cause the network society to take different forms. Through the progression of technology, “home-grown network societies will emerge,” and while remaining attached to their specific identities, they will become able and willing to interact with social forms of other cultures (Castells 2004). Eventually, through the process of networking, a global network society emerges; a result of communication which “seems to be the historical horizon for societies in the information age” (Castells 2004).

## Chapter 3

### Methods and Methodology

#### 3.1 Research aim and design

The research aim of this study is to explore how technology is being used in some Lebanese schools and how this use may play a role in the development of students' global citizenship skills and attitudes. This chapter discusses the methodological framework that supports the analysis and interpretation of the study's findings, and the methods used to conduct the research and gather the data.

This study attempts to determine some of the different ways in which Lebanese schools/teachers are implementing technology in their lessons. The term 'technology' is a general term encompassing an array of applications and tools and a variety of methods for their use; therefore it is difficult to generalize the effectiveness of a particular technology (Kern 2006). As such, this research relies on the perceptions and attitudes of the participants as the primary source of data.

What follows first is a discussion of the methodological framework of this study. That discussion is followed by an explanation of the research context and participants and the development of the research questions. Finally, the data collection tools and analysis methods will be explained. The chapter concludes with a discussion on the steps taken to ensure ethical practice was adhered to at all stages of this study.

### 3.2 Methodological approach and research design

The epistemological grounding for this research is a qualitative paradigm. Within this framework, the study was conducted through a mixed methods research design, labeled as the “third wave” or “third paradigm” research movement (Denscombe 2008). The terms method and methodology denote different levels of analysis; method refers to the technique used for gathering data and methodology refers to the epistemological perspective (Bryman 1984). The decision of methodological approach is a challenging one (Creswell et al. 2003) that is arrived at after considering factors such as the researcher’s interests, the study’s audience, and what aspects of the study the researcher plans to emphasize (Creswell 2003). Contemporary research no longer entails the debate of years past of quantitative versus qualitative, but rather an understanding that most modern research exists in a continuum between the two (Newman and Benz 1998). Creswell (2003) concurs by asserting that any particular research study may be described simply as more qualitative or quantitative in *nature*.

Following Creswell’s (2003) statement above, this research, while employing mixed data collection and analysis methods, is overall qualitative in nature due to its interpretive perspective and that it emphasizes the discovery of unanticipated findings (Bryman 1984), since this is an exploratory study that is not testing a hypothesis. However, as Denzin and Lincoln (2005b: 7) state, qualitative research does not have a “distinct set of methods or practices that are entirely its own.” As the research design for this study is a mixed methods design, data was collected through quantitative and qualitative data gathering tools; surveys, semi-structured interviews,

and focus group interviews. As Creswell et al. (2006: 8) state, “it is possible to use an interpretive theoretical framework within a mixed methods study.”

The decision to conduct research within a qualitative methodology means the social world will be viewed from the perspective of those being studied (Bryman 1984). Contextual understanding in which particular behavior is linked to meaning systems developed in a certain context by a group is a main concern of a qualitative methodology (Mishler 1979). A qualitative theoretical research framework, also labeled interpretivism, asserts that research findings must be informed from the participants’ perspectives and the resulting understanding of the forces and structures being studied must be built on that perspective (Cohen et al. 2007).

There are several characteristics of research that is conducted within a qualitative paradigm, many of which are present in this study. A main characteristic of qualitative research is that it occurs within the natural setting which provides the source of data; “The researcher attempts to observe, describe and interpret settings as they are, maintaining what Patton (1990: 55) calls an “empathic neutrality”” (Hoepfl 1997: 2). The reporting of qualitative research involves descriptive and expressive language, and the “presence of voice in the text” (Eisner 1991: 36). Qualitative research is referred to as interpretive because a defining characteristic of it is to discover and then interpret the meaning certain events have for those who experience them (Hoepfl 1997).

The data for this research was gathered in two stages using a mixed methods approach; also referred to in research literature as multi-strategy (Bryman 2004), mixed methodology

(Tashakkori and Teddlie 1998), and multi-methods (Brannen 1992). In a mixed methods research design, the aim is to leverage the strengths of quantitative and qualitative methods so that the weaknesses can be compensated for (Johnson and Onwuegbuzie 2004). The contemporary world of research is becoming increasingly interdisciplinary which means it is growing more complex and dynamic which necessitates the use of both methods in a complementary way (Johnson and Onwuegbuzie 2004). It is logical to combine methods from the two different paradigms since “the objectives, scope, and nature of inquiry are consistent across methods and across paradigms” (Dzurec and Abraham 1993: 75).

Despite criticism from some that mixed methods research designs relegate qualitative methods to an “auxiliary role” (Howe 2004: 52) and the assertion that these designs discount interpretive frameworks (Denzin and Lincoln 2005a), mixed methods research designs have been shown to value interpretive frameworks (Oakley 2000) and can actually be “qualitatively-driven” (Mason 2006: 9). Mason (2002) explains that neither quantitative nor qualitative logic alone can define social life; therefore mixing the two types of methods can enrich and augment the rationale of qualitative explanations and interpretations of the social experience. There are a number of reasons that qualitative data will be given emphasis in a mixed methods research, and for my research the two main reasons are “explaining the results of quantitative surveys” and “giving voice to different perspectives” (Creswell et al. 2006: 3). It is common for interviews to complement surveys by providing explanations for underlying patterns discovered in the survey data (Maton and Bennett 2010; Kennedy et al. 2009; Salaway and Caruso 2007) such as the frequency of a particular technology use. A variety of authors who conduct research within a

qualitative/interpretive framework have conducted mixed methods designed research (Creswell et al. 2006) such as Maynard and Purvis (1994) and Skeggs (2001).

### **3.3 The research population and research questions**

The research participants of this study are comprised of private school students and teachers from 9 different private schools. The student participants are enrolled in grades 11 and 12 and the teacher participants are the teachers of all subjects for grades 11 and 12. Random sampling was used for the student and teacher participants. The latest statistics on student enrollment provided by the Lebanese Ministry of Education and Higher Education (MEHE) through the Center for Educational Research and Development (CERD) are for the academic year 2013-2014. The statistics that follow have been made available on the MEHE official website. The total number of students enrolled in school, public and private, for the academic year 2013-2014, was 1,005,044. 65.9% of those students were enrolled in private schools. 301,171 students were enrolled in private schools in which the medium of instruction is English, which represents 45.5% of students enrolled in private schools. The total number of students enrolled in grades 11 and 12, in private school, was 56,984. Therefore, although these numbers are from the 2013-2014 academic year, the population from which the student sample for this study was conducted can be estimated to be approximately 25,927 students (45.5% of 56,984) – grades 11 and 12 students enrolled in English medium private schools. The student sample size is 119 which is approximately 0.5% of that population.

The questions asked of the student participants in the process of gathering data for this study required them to be mature enough to possess the cognitive awareness of their role in a

larger context, as well as to accurately report certain academic activities. By grade 11, if not before, many students have begun to plot out the next steps they will take in their education to fulfill the career goals that they begin to contemplate at the end of secondary school. It is for these reasons that grades 11 and 12 were chosen as the population for this study, because it was reasoned that they would provide the most accurate data for answering the research questions.

The total number of teachers teaching in Lebanese schools is 96,905 (also from 2013-2014); of that total, 52,760 (or 54.4%) are private school teachers. The Lebanese MEHE does not provide information as to the grade assignments for the private school teachers. Therefore, the percentage of the total population that the teacher sample for this study represents cannot be calculated. The teacher participant sample size is 41.

The research questions guided the investigation with the ultimate aim of generating knowledge which will contribute to the building of theory regarding technology in education, and specifically the relationship that exists between technology integration and the development of global citizenship skills and attitudes in a Lebanese context. This study was guided by five research questions which were stated in chapter 1 (p.4).

Research studies which were directed by the investigation of specific uses of ICT provided the most vigorous evidence of how students' learning was enhanced (Cox and Abbott 2004). In studies that aimed to investigate the effects of ICT on learning but did not identify clearly the "range and type of ICT use", the findings were unclear and it was difficult to make conclusions about the specific impact of ICT on students' learning (Cox and Marshall 2007). Cox and Marshall (2007) advocate framing research aims and research questions in a way that

does not address ICT only broadly, but rather uses words such as “ways” and “types” which is reflected in research questions 1, 2, and 4. This is because “studies which only record students’ ICT use but which do not identify what specific uses occur, cannot subsequently claim any useful relationship between ICT use and learning outcome” (Cox and Marshall 2007: 67); the learning outcome in this case being “students’ feelings of global consciousness and global self” (research question 1), the global competences of “collaboration, language, and digital skills” (research question 2), and an active participatory role in the global sphere (research question 4). Further informing the construction of the research questions for this study is previous research which highlights the influential role of the teacher in the effect ICT has on learning since it is the teacher who decides which ICT resources to use, how they are used, and the level and type of interaction their students have with the chosen resources (Castillo 2006; Hennessy et al. 2005). Research question 3 was formulated to account for and address the teachers’ role in the context of this research.

### **3.4 Research design and data gathering instruments**

A mixed methods design was chosen for this research because it will permit the research questions to be answered from different perspectives since it is “an approach to knowledge (theory and practice) that attempts to consider multiple viewpoints, perspectives, positions, and standpoints (always including the standpoints of qualitative and quantitative research)” (Johnson et al. 2007: 113). Johnson and Turner (2003) discuss a *fundamental principle of mixed research* in which they assert that a variety of strategies, approaches, and methods should be used to collect multiple data resulting in a combination of methods with complementary strengths. Data collected in the first stage of this study was done through the quantitative tool of surveys. The



second stage of data collection employed two qualitative tools, semi-structured one-on-one interviews and focus group interviews. Cox and Marshall (2007: 66) explain that different methods need to be incorporated in a study such as this in order to “measure or compensate for the effects of teachers’ different pedagogies and of the ways in which the ICT activities are incorporated into the curriculum.” The teacher interviews of this study specifically seek to explore the different pedagogies teachers in Lebanon are employing.

There are a great number of mixed methods research designs, and Creswell et al. (2003) argue that labeling each type of mixed method research has advantages as the label highlights the particular aspects of the strategy such as the sequence of data collection, the priority of the qualitative and quantitative data, and the number of data strands (Bryman 2006). The research design of this study is the popular “mixed-methods sequential explanatory design” (Creswell 2005, 2003). The mixed-methods sequential explanatory design entails two consecutive phases of data collection; first, collection and analysis of quantitative data and second, collection and analysis of qualitative data (Ivankova et al. 2006). The purpose of collecting the qualitative data after the quantitative data is to help explain and elucidate the results of the first phase (Ivankova et al. 2006). A general grasp of the research problem is achieved from the quantitative data and its analysis, followed by a refinement and explanation of the statistical results by the qualitative data which allows for a more in-depth exploration of the participants’ views (Creswell 2003; Tashakkori and Teddlie 1998). Ivankova et al. (2006: 5) state that the major advantages of this research design are “straightforwardness and opportunities for the exploration of the quantitative results in more detail.”

### 3.4.1 Data collection stages

In the first stage of data collection, quantitative data was collected through the administration of two separate survey instruments, a student survey and a teacher survey. In the second stage, qualitative data was collected through semi-structured one-on-one interviews with teachers and focus group interviews with students. The table below illustrates the details of each stage of the research.

Table 3.1 Stages of the Research

<b>Stages of the Research</b>				
	<b>Stage 1</b>		<b>Stage 2</b>	
<b>When</b>	April 2015 – June 2015		November 2015 – December 2015	
<b>Participants</b>	<ul style="list-style-type: none"> <li>• 119 high school students (grades 11, 12, and terminal year)</li> <li>• 41 high school teachers</li> </ul>		<ul style="list-style-type: none"> <li>• 15 high school students</li> <li>• 7 high school teachers</li> </ul>	
<b>Data collection instrument(s)</b>	Survey 1 Student participants Survey 2 Teacher participants		7 Semi-structured interviews with the teacher participants 2 Focus group interviews with students	
<b>Participant characteristics</b>	<b>Students</b>	<b>Teachers</b>	<b>Students</b>	<b>Teachers</b>
	47 females 72 males	30 females 11 males	grade 11 – 8 students (5 females, 3 males) grade 12 – 7 students (3 females, 4 males)	7 females

As explained above, in the sequential explanatory design, there are two consecutive phases of data collection that occur over a period of time (Ivankova et al. 2006). Quantitative data is first collected and analyzed and then qualitative data is collected and analyzed with a connection between the two phases in the interim between them when the results of the first phase provide guidance for the data collection of the second phase (Hanson et al. 2005). The two

phases are typically connected by the researcher while the participants for the qualitative phase are being selected (Creswell et al. 2003) and the qualitative data collection instruments are being developed in a way to investigate more in depth the results generated from the quantitative phase (Ivankova et al. 2006).

#### ***3.4.1.1 The first stage of data collection***

The first stage of data collection consisted of two online surveys that I constructed, and took place from April 2015 to June 2015. Surveys are appropriate for gathering data from multiple sources as they allow for the maintenance of objectivity and for replication to be carried out (Bryman 1984). 119 students and 41 teachers participated in this stage of the study.

Although the student respondents were all between the ages of 16 and 18 and could therefore provide their own informed consent, before inviting the participants to take part in the research and fill out the survey, I secured consent from the school principals to invite the students and teachers to participate. In Lebanon the principal, as the head of the school administration, is viewed as the primary authority when it comes to their students' educational development and well-being while at school. Therefore, parents almost always defer to whatever decisions the principal/administration makes regarding anything they have their children participate in. So in a case such as this, in which a researcher is requesting access to a school to invite students to participate in a study, if the principal accepts the invitation and grants access to the school, parents will accept this action and allow their children to decide for themselves

whether or not to consent to participate. An invitation email (Appendix A) was sent to the principals of 15 different private schools across Lebanon.

Nine of the principals I approached responded affirmatively. Two principals requested that I be physically present at their school to personally invite the students and teachers to fill out the survey and to disseminate the links to the surveys at that time. Those schools informed me that school time would be provided for the students to fill out the survey. The remaining schools requested that the information sheets (Appendix C and Appendix D) and the links be sent electronically and the principals disseminated them to the participants. Following is a discussion of each survey instrument.

#### ***3.4.1.2 The second stage of data collection***

The second stage of data collection took place from November 2015 to December 2015. Seven one-on-one semi-structured interviews were conducted with teachers at two of the schools that participated in the first stage of data gathering, and two student focus group interviews in which 15 students participated were conducted at one of the schools. All schools that participated in the first stage of data collection were invited to participate in the second stage, however School D and School E were the only schools to accept the invitation.

The survey data of this research provided preliminary results for the answering of the research questions, and the data gathered from the teacher interviews and student focus group interviews provided a context for the survey data and allowed for an understanding of the themes from the perspective of the participants. As the role of the qualitative stage is to give insight into

the individuals and phenomena under study, a purposeful (non-random) sampling scheme is often used (Onwuegbuzie and Collins 2007). Hoepfl (1997) states that the prevailing sampling strategy of qualitative research is purposeful sampling, as its goal is to purposely acquire “information rich cases” that can be studied thoroughly and in depth (Patton 1990). The choice to select participants from private and not public schools for this particular study is an attempt to allow for such “information rich cases.”

A driving principle of research that is qualitative in nature is its emergent nature and the fact that the researcher’s aim is the observation and interpretation of contextual meanings. Therefore, depending on the design of the particular research, certain research strategies cannot be finalized before commencing data collection (Patton 1990). For this research, that was the case for the second stage of data collection. The complete interview protocol was not developed and finalized until after the first stage of data collection had been completed and preliminary analysis had begun.

#### ***3.4.1.3 The student survey***

Over a year before data collection took place with the target population for this study, the student survey (Appendix E) was constructed and piloted. The adequacy of research instruments can be tested effectively through a pilot study of a smaller sample than is planned for the target study, which can reveal any weaknesses or faults in their design (de Vaus 2002; van Teijlingen and Hundley 2001). The student survey was constructed with the goal to provide preliminary information about students’ technology and global citizenship attitudes. Upon analysis of their

perceptions and attitudes, the aim was to develop an understanding of the relationship between the two concepts, particularly in the context of Lebanon.

For the pilot study, the survey was administered at an English medium, private school in northern Lebanon. The school was chosen for the two reasons that it promotes a philosophy of technology integration and was easily accessible to the researcher. As in the target study, the respondents for the pilot study were students in the last two years of high school. The recommended sample size for a survey that is to be piloted is between 24 and 30 (Lancaster et al. 2004). The sample size for the pilot study was 33.

The student survey consists of seventeen questions: two Likert scale questions, one open-ended question, and fourteen forced-choice questions. The final question of the survey is the open-ended question and the data collected from that question did not yield usable data. Since the survey respondents are between 16 and 18 years of age, the researcher believed that forced-choice questions would allow for a higher response rate for most questions since there might be some teenagers who would find difficulty expressing their thoughts in writing or are unable to recall certain information at the time the survey is administered; forced-choice questions “do not discriminate against the less talkative and less articulate respondents” (de Vaus 2002: 100). Finally, in thinking ahead to the coding and analyzing stage, forced-choice questions provide for more facile coding in addition to the fact that the definite responses from this type of question would allow for coherent frequency tables to be generated.

One of the main types of data provided by surveys is the attitude of participants (Weisberg and Bowen 1977), and as such the opportunity to allow for self-reporting from respondents has made surveys the method of choice for social scientists to collect data that explains participants' attitudes (Schwarz et al. 1999). As mentioned above, two of the questions on the student survey are Likert scales. The Likert scales were constructed to provide a way to measure students' attitudes. As a multiple-item indicator, a Likert scale is the best way to create a reliable indicator of the aspect being investigated (de Vaus 2002). The first Likert scale is question 4 of the survey and was designed to measure the degree to which a respondent possesses global awareness and thus can be identified as a global citizen according to the definition adopted in chapter 1 of this thesis. The question 4 Likert scale consists of thirteen statements for each of which the respondent must indicate his/her level of agreement from among five choices. The five choice Likert scale (Strong No, Weak No, Not Sure, Weak Yes, Strong Yes) was chosen because of the flexibility it allows in providing a "measure of intensity, extremity, and direction" (de Vaus 2002: 107). If a respondent indicates agreement (Weak Yes or Strong Yes) with most or all of the statements, this indicates that the respondent possesses the attitude of a global citizen, as defined in chapter 1 of this thesis. Having a neutral category within the scale can also provide important data by signifying a lack of awareness or focus on a particular concept.

Question 16 is the second Likert scale of the student survey and it was designed to measure students' attitudes regarding technology and the degree to which they perceive its effectiveness in their education. As already discussed, the proliferation of digital and communication technologies is a phenomenon closely linked with the phenomenon of

globalization (Castells 2010), therefore it follows logically that the changes called for in education will include a role for technology especially for the promotion of global citizenship. One of the goals of GCE as identified by Ibrahim (2005: 179) is to develop “skills of enquiry, communication, participation and reflection” as well as to “provide an experience of being able to make a difference.” In addition, Oxfam (1997) identifies the need to ask questions and critical thinking as two important characteristics of global citizens. Therefore the statements for the question 16 Likert scale were designed to elicit participants’ perceptions of these skills and attributes such that a high scale score would indicate a respondent’s belief that educational success can be aided through using technology as a tool (Appendix E items a, b, c, d, e, g, h, j, k, l of Q16) as well as the respondent’s view of productive participation in society also through the use of technology (Appendix E items f and i of Q16). As for the question 4 Likert scale, a five point scale was chosen for question 16 for the same reasons mentioned above. Respondents indicated their level of agreement with each statement by selecting one of the five choices which ranged from ‘Strongly Disagree’ to ‘Strongly Agree’.

A key reason for piloting a survey is to assess its reliability and validity. The best way to form reliable indicators is through multiple item indicators (de Vaus 2002) which is why the student survey contains two Likert scale questions. A scale’s overall reliability can be measured by Cronbach’s alpha coefficient. As a measure of a scale’s reliability and internal consistency, the value of the Cronbach’s alpha coefficient indicates if the given scale reliably measures the construct it has been designed to measure. The two Likert scales of the student survey were constructed to measure respondents’ global citizenship attitudes (question 4’s thirteen statements) and technology attitudes (question 16’s twelve statements). To indicate that a scale is



reliable, the Cronbach's alpha coefficient should equate to at least 0.7 (de Vaus 2002). The Cronbach's alpha coefficient for the two Likert scales of the student survey were calculated to be 0.78 (Q4) and 0.72 (Q16) indicating reliable scales. To assess the validity of a survey, the main method is to acquire face validity, which was done for both the pilot study and the final version. Face validity was achieved for the pilot study through my supervisor, and for the target study was achieved through the participants of the pilot study and my supervisor once more.

Although the surveys were administered online for the target study, for the pilot study they were administered in hard copy form as advised by Van Teijlingen and Hundley (2001), to allow respondents the opportunity to request clarification if needed. In fact, only two of the 33 respondents asked for clarification of a question. The participants were encouraged to ask for clarification if needed and appeared very comfortable and enthusiastic about the process, therefore the lack of further questions was interpreted by the researcher that at a minimum the students believed they comprehended all the survey questions. Further advice from Van Teijlingen and Hundley (2001) to record the time taken to complete the survey was followed. The majority of students completed the survey within fifteen minutes and all of them had finished it within twenty minutes, which was deemed a reasonable amount of time. Therefore, the length of the survey did not need to be modified.

In the pilot version of the student survey, the question 4 Likert scale consisted of nine statements. After the pilot study, the survey was modified and this Likert scale was modified to contain thirteen statements as a result of the pilot study findings. The pilot study showed that four of the nine statements for the piloted survey question 4 Likert scale generated the same

answer for more than half of the sample. One of those four statements was “I am very skilled in using communication technologies.” Divergence of opinion still existed for that statement as not all respondents replied with the same answer; however the researcher decided the statement should be worded in a more specific way to make it as clear as possible. Therefore this statement was only slightly modified for the target study to include in parenthesis “programs and software that allow me to communicate with other people.” The second statement that generated the same answer for more than half of the respondents was “I appreciate cultural diversity”, which also resulted in a strong yes for 51.5%, with the remaining responses distributed more or less evenly. The high incidence of ‘strong yes’ responses to this statement was attributed to the possible perception of students that appreciating cultural diversity is a positive and therefore desirable quality, therefore they felt they should answer positively. Consequently, this statement was broken down into the following two statements for the final version of the survey: “I understand what cultural diversity means” and “I respect other cultures and their traditions.” Similarly, two other statements were broken down into clearer, more precise statements.

The second Likert scale of the student survey is question 16. It was originally comprised of 10 statements, but after the pilot study findings was modified to contain 12 statements. The pilot study revealed that there was sufficient variation in responses for all statements except for the statement “Technology provides ways for me to become involved in issues (like environmental and social issues) that matter to me.” The quality of the data provided by this statement was confusing, therefore for the final version of the student survey it was modified to “Through the Internet/technology, I have become involved in movements and organizations that I am interested in.” The question 16 Likert scale question was further modified for the final

version by adding two statements: “I understand what a programming language is” and “I think we should learn about programming languages in high school.” The decision to add these two statements is based on both past and recent research that shows that having skills in programming develops an individual’s problem solving and critical thinking skills (Kabatova et al. 2016; Ackerman 2012; Clements and Gullo 1984). In addition, many have made the call for including computer programming in school curriculum as it will contribute to the development of students’ digital skills which are necessary skills in the network society, as well as a characteristic of a global citizen as defined in chapter 1. Further review of the literature after the pilot study had been completed enlightened my thinking and informed this decision to add these two statements.

The remaining forced-choice questions were designed to gather quantitative data that would reveal general frequency of technology use, how many and specifically which teachers use technology, what kinds of technology tools are being used in class and for homework/assignments, and the frequency with which technology tools are used to facilitate collaborative projects. The data that was collected from the forced-choice questions of the final version of the student survey was used to inform the construction of the interview schedule for both the student and teacher participants.

#### ***3.4.1.4 The teacher survey***

It was not deemed necessary to perform a similarly extensive pilot test of the teacher survey for the reason that the pilot study of the student survey greatly helped to inform the construction of the teacher survey (Appendix F). Face validity for the teacher survey was

achieved both through my supervisor and a colleague of mine who is the holder of a doctorate in Education. The teacher survey was conceived as a means to investigate the degree to which students and teachers share perceptions and attitudes about technology and global citizenship, in addition to a way of corroborating what the students claim is happening in class versus what the teachers claim or vice versa. The teacher survey consists of 15 questions; 2 Likert scale questions, 1 open-ended question, and 12 forced choice questions. The Cronbach's alpha coefficient was also calculated for the 2 Likert scales of the teacher survey, questions 9 and 13, which measured respondents technology attitude and global citizenship views respectively. The Cronbach's alpha coefficients are 0.85 (Q9) and 0.7 (Q13) indicating reliable scales.

#### ***3.4.1.5 Teacher semi-structured interviews***

Each of the seven teachers who volunteered to take part in the second stage of data collection was interviewed individually. Six of them work at School E and one of them works at School D. Each interview lasted on average twenty minutes. What makes the individual interview the most widely employed data collection method in qualitative research is that it provides "an opportunity for detailed investigation of people's personal perspectives, for in-depth understanding of the personal context within which the research phenomena are located, and for very detailed subject coverage" (Ritchie and Lewis 2003: 36). Teachers were asked to talk about specific ways in which they integrate technology, their confidence in using technology, if they encourage collaboration and what role technology has in that, and what their role is in teaching citizenship skills, among other things (see Appendix N). The questions sought

to gather data about teachers' pedagogical choices, specifically those that incorporate technology in some way.

The interview protocol consisted of a brief introduction of myself and an explanation of what was about to take place, the interview itself which was recorded, and then concluding remarks in which I thanked each participant and confirmed that they had the appropriate contact information should they wish to get in touch with me for any reason. The school administration informed me that I would have 20 minutes for each teacher interview. Therefore, the questions were developed and shared with a colleague of mine to achieve face validity and to ensure that the data needed could be collected within the given time period. The interview time of 20 minutes does not include the introduction portion of the protocol in which I explained the ethical parameters of this study and invited the participants to read the interview information sheets, ask questions, and sign the consent forms (Appendices J, K, and L). The semi-structured format allowed for me to ask key, relevant questions while at the same time allowing the participants to expand on their answers. This format served to aid in the time management of the interview session. Furthermore, the interview stage of the research was conceived to provide supplementary data to the main data gathered through the surveys, and as so conceived, it was feasible to design questions that would provide the necessary data in the allotted amount of time.

#### ***3.4.1.6 Student focus group interviews***

As already discussed, the qualitative data gathering methods for this research study were designed to provide an in-depth follow-up to the data already gathered from the surveys; to place that data in its context. Morgan (1996: 130) defines a focus group as a “research technique that

collects data through group interaction on a topic determined by the researcher.” It was decided to interview the student participants in a focus group because focus groups have been shown to be a good elicitor of student opinion (Franklin and Knight 1995) and provide rich information regarding instructional effectiveness (Lederman 1990) which is a main line of inquiry in this research as regards to the instructional effectiveness of technology integration in developing global citizenship skills and attitudes. Further motivating the decision to interview students in a focus group is the fact that as Quible (1998) notes, participants will likely be stimulated to contribute to the discussion by comments provided by other focus group participants. This in turn allows for greater spontaneity than would occur in one-on-one interviews (Emerson and Maddox 1997) and is therefore ideal for student participants who might need some coaxing in order to share their thoughts. Furthermore, interviewing students in a focus group provides them with opportunities to reflect and refine their thoughts thus deepening their own insights into their attitudes (Ritchie and Lewis 2003). The allowance provided by the circumstances of a focus group to articulate attitudes (Ritchie and Lewis 2003) makes this method ideal for my particular research as a key aspect of the research aim is an exploration of respondents’ attitudes regarding both technology and global citizenship.

The first student focus group consisted of 8 (5 girls and 3 boys) grade 11 students and lasted for 25 minutes. The second student focus group consisted of 7 (3 girls and 4 boys) grade 12 students and also lasted for 25 minutes. The format was semi-structured in that I had prepared a set of questions before hand (Appendix M), and posed each of the questions to the group. Face validity of the questions was achieved from my supervisor and a colleague. The protocol began with an introduction of myself and a brief explanation of what was to come, including reminding

the participants that the session would be recorded. The participants were invited to sign consent forms before the commencement of the focus group (Appendices H and I). Following the advice of Jarrell (2000), I also explained to the participants that there are no right or wrong answers to my questions and requested that they speak one at a time.

Both focus groups witnessed many instances of spontaneity as mentioned above, when a student who initially did not appear ready to provide an answer, appeared prompted by something a peer said. Many of the questions allowed for a mini discussion to take place among the students with give-and-take from all participants. As this second stage of data collection was meant to provide context for the data collected in the first stage, the greatest advantage to collecting data from the student participants through a focus group is the characteristic of focus groups of providing the social context within which the phenomena being studied are experienced (Ritchie and Lewis 2003). The conversation that was generated among the student participants provided data that displayed “the way in which context can shape people’s views” (Ritchie and Lewis 2003: 37).

### **3.5 Data analysis**

When conducting research within a qualitative paradigm, quantitative data holds different meaning than it would within another research paradigm. It is recognized by a qualitative researcher that numbers represented by quantitative data do not have a standalone meaning; rather they are linked closely to the social and historical contexts from which they were generated (Biklen and Bogden 1992). The quantitative data that was gathered for this study has

not been used to generalize, but to help frame the specific phenomena that exist in the research context from the participants' point of view.

### **3.5.1 Analysis of the surveys**

The surveys were created using an online tool for survey development called kwiksurveys. The purpose of the surveys was to provide data about the frequency of technology use, the type of technology use, the subjects in which technology is used the most, and the global citizenship and technology attitudes of the student and teacher respondents. To that end, descriptive statistics were used to explain the patterns in the data. One-way tables were generated for any of the questions that collected data on the frequency of certain activities. Subsequently, as certain responses were examined in more depth, cross-tabulations were performed on filtered sets of the data to determine emerging patterns. The data collected was analyzed to determine whether findings and relationships established in the research literature appeared in the data collected for this study.

### **3.5.2 Analysis of the teacher interviews**

Due to the nature of qualitative research, there is not an established process of coding universally agreed on by qualitative methodology experts, and therefore no set procedures that can be replicated by researchers analyzing qualitative data (Coffey and Atkinson 1996). What is agreed upon by most qualitative researchers is that the development and use of a codebook is the initial and most crucial step in the analysis of interviews (Fereday and Muir-Cochrane 2006). Miles and Huberman (1994) assert that the process of coding is itself analysis as it “leads you



from the data to the idea, and from the idea to all the data pertaining to that idea” (Richards and Morse 2007: 137). Merriam (1998: 48) explains that “our analysis and interpretation will reflect the constructs, concepts, language, models, and theories that structured the study in the first place.” For this study, that includes theories of technology in education and global citizenship cited in chapter 2, all supported within the conceptual framework of this study, Castells’s theory of the network society. The themes that emerge from the coding and analysis of the data, and how the researcher is able to interrelate them is what leads to the development of theory (Corbin and Strauss 2008), aided by pre-established theories which can help to inform the preliminary coding process (Layder 1998).

Throughout the analysis of the teacher interviews, I followed the advice of Auerbach and Silverstein (2003) on how to focus the coding by keeping my research aim, theoretical framework, and research questions close at hand during the coding process. Since the practice of coding is “an idiosyncratic enterprise” (Glesne 2006: 153), there is no specific, appropriate method of data analysis (Coffey and Atkinson 1996) since “each qualitative study is context-specific” generating unique data to be analyzed by the unique creative abilities of the researcher (Saldana 2009: 30). Therefore the approach taken in this study was to combine different recommended methods while keeping in mind that the purpose of qualitative analysis is to discover the conventions, relationships, and categories that combine to develop the respondents’ general view of the world as well as of the particular topic of this research (McCracken, 1988).

Miles and Huberman (1994) explain two methods for creating codes; developing pre-codes, “a priori” codes, based on the theoretical framework and research questions, and

inductively determining codes that emerge through the examination of the data, which is the ‘grounded’ approach promoted by Glaser and Strauss (1967). There are limitations to the two methods. Fresh ideas can be inhibited from being formed and surprising connections may not be noticed when all codes are pre-determined based on theory (Charmaz 1990). Furthermore, examination of the data from a purely theoretical perspective could lead the researcher to find only what he/she is specifically looking for (Ryan and Bernard 2003). On the other hand, a pure inductive approach which avoids theory reference in code creation could lead to the inability to make connections between the research questions and the data (Ryan and Bernard 2003). It is for these reasons that the coding analysis for this study used a combination of a priori and emergent codes.

The ultimate goal of analyzing qualitative data is to generate themes to respond to the research aim and specific research questions. The actual interview questions provided the basis for the preliminary pass at generating the themes (Coffey and Atkinson 1996). A systematic and easy way to identify themes is to look for repetition (Ryan and Bernard 2003). “Topics that occur and reoccur” (Bogdan and Taylor 1975: 83) and observed “recurring regularities” (Guba 1978: 53) are clear signs of obvious themes in the data. There is no rule as to how many repetitions should exist to constitute a theme; therefore it is up to the researcher to decide (Ryan and Bernard 2003).

The audio recordings of the interviews were all transcribed and thus the analysis process began with a very thorough reading of all the interview transcripts. This first step is meant to provide insight into what topics are occurring and their overall relation to the research questions (Flick, von Kardorff, and Steinke 2004). Since the interview format was semi-structured, the

interviewees were directed to speak about an already determined set of topics. The questions had been designed to gather data about the two main topics of technology use in the classroom, and global citizenship skills and attitudes. More specifically, the questions focused on what type of technology is used and how it is integrated into teaching, the confidence level of the interviewee in the integration of technology, and what role technology plays in encouraging civically minded behavior. Therefore, it was known before analysis what the major topics to emerge from the interview data would be, however careful attention was also paid to which aspects respondents elaborated on, and which were treated less in-depth, and superficially. Flick, von Kardorff and Steinke (2004) remark that important and relevant passages are not necessarily found within the immediate response of a particular question, rather aspects that are introduced by the interviewer are often addressed more explicitly later on in the interview, and may appear within the context of a different question. This phenomenon did in fact occur in my study. During the initial reading of the transcripts, preliminary coding was performed. Analysis continued through an iterative process in which the transcripts were read and re-read, each time developing and applying codes as repetitions in the data across transcripts became clear.

As mentioned above, I began the analysis knowing what the main topics would be, and therefore conceptualized a few a priori codes to guide the initial coding. For the teacher interviews, the a priori codes were “technology as an aid”, “traditional method but using technology”, and “technology confidence”. These codes were conceptualized based on the literature about teachers and technology discussed in chapter 2. These codes helped to focus my reading, but eventually were modified into other codes. Through the iterative process of analysis, these a priori codes transformed into others as other meanings in the data became apparent.

The analysis of the interviews followed the constant comparison analysis strategy of beginning with open coding followed by the grouping of the codes into categories and ending with the development of themes that are an expression of the groups of codes (Glaser and Strauss 1967). In the next chapter, in which the data is discussed in detail, the frequency of each code is provided along with a description of each code, as advised by Onwuegbuzie et al. (2009).

### **3.5.3 Analysis of the student focus group interviews**

Constant comparison analysis was also employed for the student focus group interviews. As Onwuegbuzie et al. (2009) note, when more than one focus group is performed in the same study, this provides a means of ‘testing’ themes and allowing the emergent themes to become refined (Charmaz 2000). As in the analysis of the teacher interviews, the audio recordings of the focus groups were transcribed and thus began the iterative analysis process.

The analysis of the focus groups also included documenting the types of statements, substantive versus minor, expressed by each participant for each question. This in turn allowed for the calculation of code counts which can provide useful information (Morgan 1993) when contextualized, as opposed to relying on the pure qualitative data (Onwuegbuzie et al. 2009).

## **3.6 Research ethics**

Researchers should follow the ethical guidelines that are put forth in educational research literature, however individual researchers must make the ultimate judgments themselves (Sammons 1989). Commitment to honesty (Sammons 1989) and the maintenance of study

participants' dignity and privacy (Pring 2000) are the founding principles of ethical educational research. Guiding any research should be the awareness by the researcher that no harm should come to the study participants (Busher 2002). This research adhered to all of these principles.

Each stage of a research holds ethical implications of which the researcher must be aware, but the crucial stage is data collection (Cohen et al. 2007). Ethical codes must be adhered to in an equal manner for both qualitative and quantitative data gathering methods (Busher 2002). To fulfil the essential duty to cause no harm to the participants, the researcher must carefully consider what data needs to be collected so as to not gather unneeded data that may lead to participants' privacy being violated (Busher 2002). This research followed the highest ethical standards during both stages of data collection. The nature of this research and consequently the research questions do not require the participants to provide any data of a personal nature aside from gender and age. However, to assure that participants' privacy was not compromised at any point, anonymity was maintained for both stages of data collection; anonymous surveys and no mention of any school or participant names in the reporting of any of the results.

Before any research involving human participants begins, the participants must be invited to participate and subsequently be made aware of how data collected from them will be used, following which they must be given time to decide whether or not to provide their consent to participate (Cohen et al. 2007). Before I commenced my research for this thesis, the appropriate forms were submitted to the Keele Ethical Review Panel in which I explained in great deal the

research design and outlined how each stage would adhere to the appropriate ethical guidelines. Ethical approval to carry out this research was granted in March 2015 (Appendix O).

Before administering the student and teacher surveys, the potential participants were provided with information sheets (Appendices C and D) that detailed the purpose of the participation in the research, how data collected from them would be used, who would have access to that data, what they would be required to do should they decide to take part, how to take part, and whom to contact should they be bothered by any part of the process. This assured that full disclosure of the study procedure was provided to the participants and they were assured that their identities and data would remain anonymous. No participant in this research was under the age of 16, therefore as Morrow and Richards (1996) assert, direct parental consent was not required, although student participants did have the time and the option to consult with their parents before providing consent. Furthermore, the school administration was provided with an information sheet for parents (Appendix B) should the parents have requested further information than that provided by their children. Similarly for the second stage of data collection, participants were provided with information sheets (Appendices G and J) and the option to volunteer to participate in the interview stage. Furthermore, as mentioned above, all participants of the second stage of data collection signed consent forms before being interviewed (see Appendices I, J, K, and L).

## **Chapter 4**

### **Results and Analysis**

#### **4.1 Introduction**

As discussed in chapter 3 of this thesis, this research was conducted through a mixed methods sequential explanatory design within an overarching qualitative methodology. Data collection took place in two stages, using two different methods.

This chapter will provide an in-depth exploration of the data gathered from the surveys, teacher interviews, and student focus group interviews. As the surveys were administered before the interviews, the data collected from the surveys will be discussed first. Many of the interview questions were developed after an examination of the data provided by the surveys. Following an extensive discussion of the data provided by the surveys and the analysis performed is an equivalent discussion of the data provided by the interviews and focus groups.

#### **4.2 Results and analysis of the surveys**

There were a total of 119 student respondents from 9 different schools, and 41 teacher respondents from 7 of the 9 participating schools. The schools will be referred to as School A through School I. The information requested in the surveys and the resulting data provided data on students' and teachers' perceptions of and attitudes toward technology use in the classroom and global citizenship. The following charts show the number of respondents from each of the schools.

Figure 4.1 Student participants

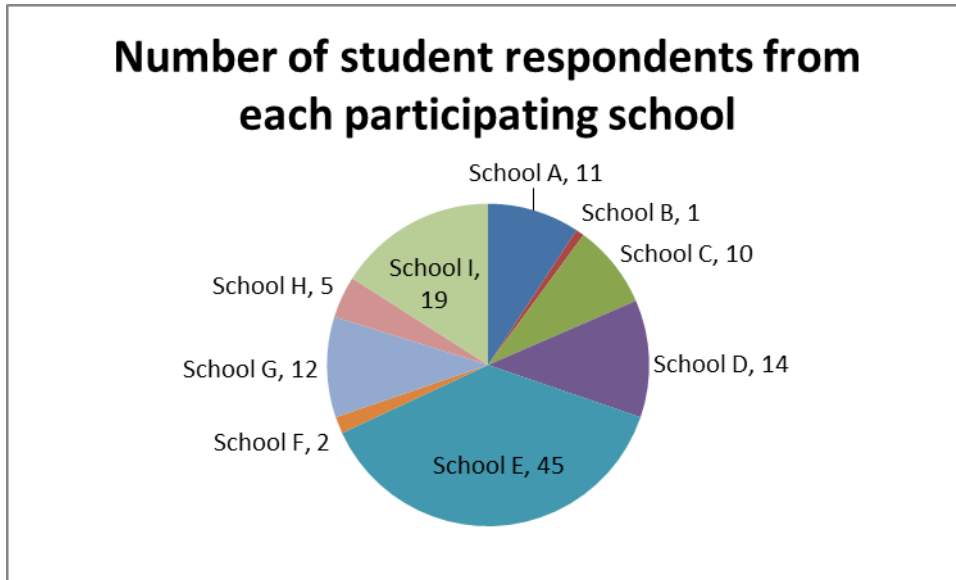
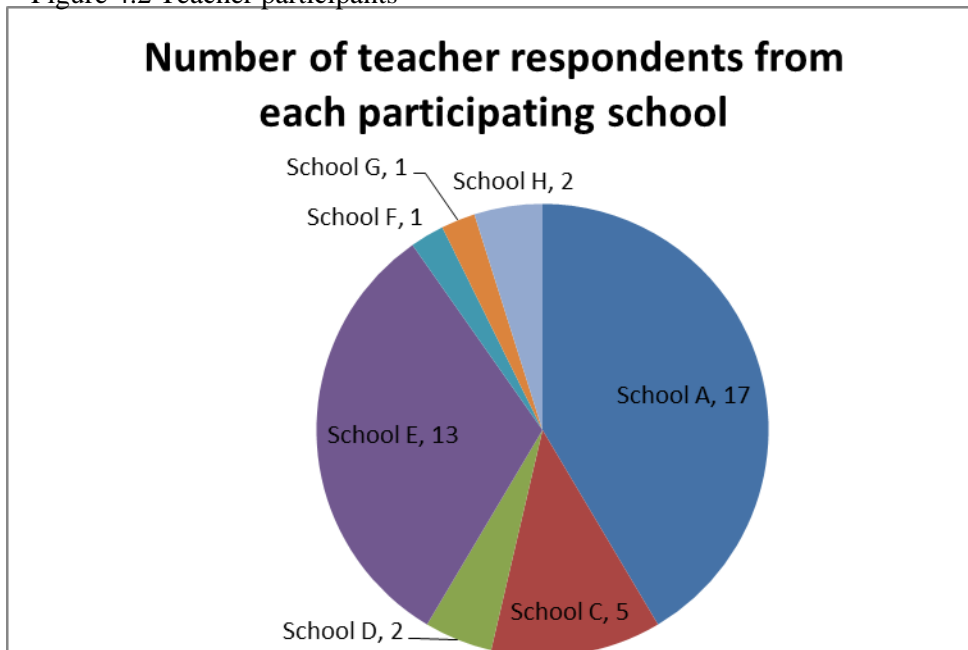


Figure 4.2 Teacher participants



The main aim of the surveys was to provide insight into the global citizenship attitudes and technology attitudes of respondents in addition to the quantity/frequency of technology use, as well as the form of the technology use, to provide a solid context from which to generate



interview questions for the second stage of data collection regarding the quality of the reported technology use and its relationship with the reported global citizenship attitudes.

Each item of the surveys was designed to provide data for different aspects of the five research questions and will be explained below. The first three questions of the student survey and the first four questions of the teacher survey are demographic questions that were used in cross-tabulation analysis to determine if for example a participant's gender, or age, is a factor in the way he/she answered a certain question.

#### **4.2.1 Data related to research question #1**

Questions 4, 5, 7, 10, 11, 12, 13, and 15 of the student survey (Appendix E) provided preliminary data for research question 1. Question 4 is a five-choice Likert scale that measured respondents' global citizenship attitudes. To help answer research question 1, the data collected from the above questions was analyzed and cross-tabulation analysis of the questions mentioned above with question 4 was performed. The process of answering this research question is first to determine how frequently technology is being used in the classroom and what form this use is taking. Second, the Likert scale will be analyzed; its individual statements will be examined as well as the scale as a whole.

Questions 5 and 6 of the student survey gathered data on how often computers/tablets are used in the respondent's classes (Q5) and whether the computing devices are in the form of computer labs, personal laptops, personal tablets, computers in the classroom, or tablets provided

by the school (Q6). The charts below show the data collected from questions 5 and 6. In each chart the numbers indicate the number of respondents who indicated each of the given options.

Figure 4.3 Frequency of computer use in school

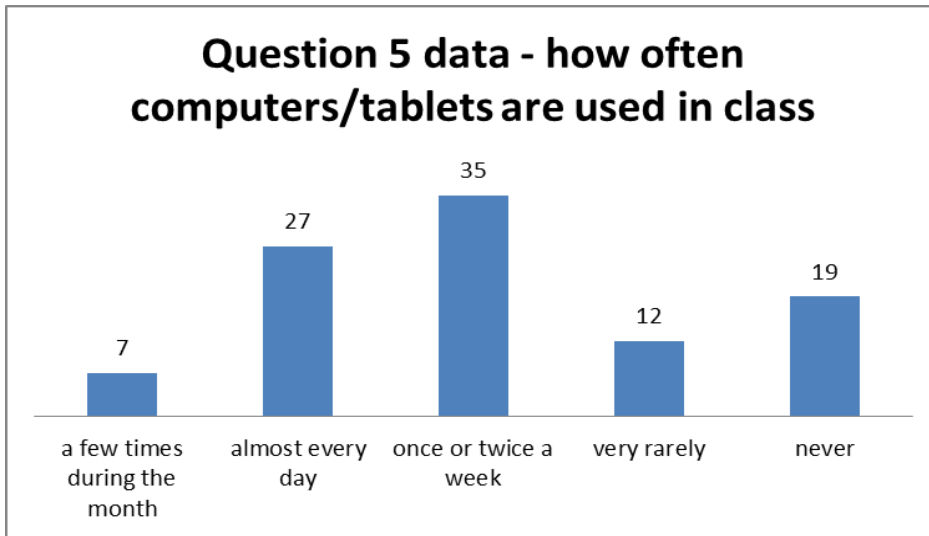
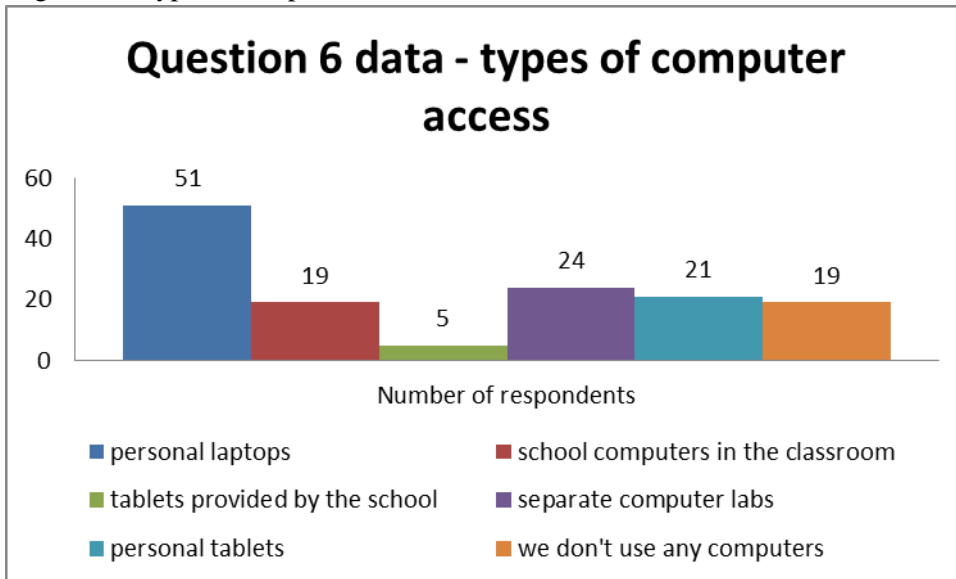


Figure 4.4 Type of computer access



As the chart above shows, most students indicated that computers/tablets are used in class once or twice a week (35%) and almost every day (27%). If the responses for the options of

‘very rarely’ and ‘never’ are combined, the data reveals that 31% of respondents report that technology is almost never used in class.

The question 4 Likert scale measured respondents’ global citizenship attitudes. The following table shows the data collected from question 4.

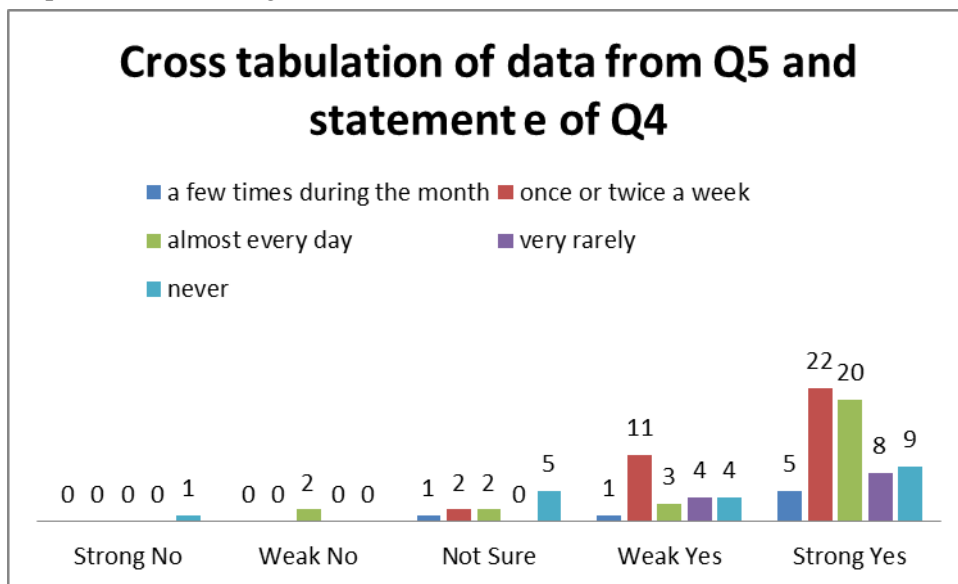
Table 4.1 Global citizenship attitude Likert scale

Statement	Strong No	Weak No	Not Sure	Weak Yes	Strong Yes
a. I am aware of political events that happen outside of my country.	4%	11%	19%	40%	26%
b. I am aware of environmental events that happen outside of my country.	7%	10%	20%	44%	20%
c. I participate in activities that involve students and people living in other countries.	25%	15%	20%	31%	9%
d. Traveling to other countries is an important part of my overall education.	12%	6%	9%	17%	56%
e. I am very skilled in using communication technologies (programs and software that allow me to communicate with other people).	1%	2%	10%	23%	64%
f. I understand the political processes of different countries.	10%	21%	16%	30%	24%
g. I am concerned about the environment.	5%	8%	11%	40%	36%
h. I understand what cultural diversity means.	7%	10%	22%	13%	49%
i. I respect other cultures and their traditions.	1%	0%	4%	17%	78%
j. I believe that individual people can make a difference when it comes to solving global issues.	5%	10%	17%	27%	41%
k. I am disturbed when I become aware of injustice anywhere in the world.	3%	7%	19%	14%	57%
l. Communication technologies make me feel more ‘connected’ to people and places outside of my home country.	1%	3%	10%	23%	63%
m. In today’s world, it is necessary to know at least one foreign language.	4%	2%	3%	9%	83%

The data provided by question 5 was looked at more in-depth. Those who answered ‘almost every day’ or ‘once or twice a week’ come from Schools A, D, E, and G. Two of those schools are located in a very urban environment, while the other two are located in a rural setting

suggesting that location does not necessarily play a significant role in frequency of computer use. The answers for question 5 were cross-tabulated with individual statements from the question 4 Likert scale to deduce if the frequency of computer use has any bearing on aspects of respondents' global citizenship attitudes. The following chart shows the cross tabulation between the data from questions 5 and statement e of question 4. The columns indicate the number of respondents.

Figure 4.5 Relationship between frequency of computer use and students' reported skill in using communication tech.



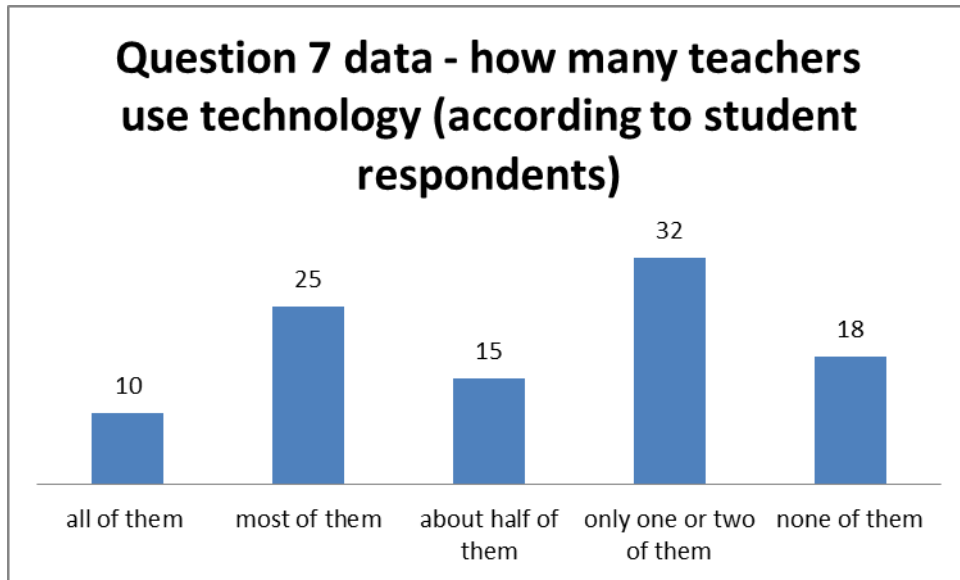
Regardless of the respondents' answer to question 5 (almost every day...never), as Figure 4.5 shows, the majority of students indicated that they consider themselves to be very skilled in using communication technologies (Q4.e); 64.08% answered 'Strong Yes' followed by 23.3% who answered 'Weak Yes'. However, when the data was filtered to show the responses for only those who indicated that computers are used almost every day, 22 of those respondents indicated 'Strong Yes' for Q4e which equates to 74.07% of those who answered that they use computers/tablets almost every day. In contrast, those who indicated that computers/tablets were

used rarely or never showed the following for Q4e: 66.67% (8 respondents) answered ‘Strong Yes’ (rarely) and 47.37% (9 respondents) answered ‘Strong Yes’ (never). This would suggest that, although overall a high percentage of students indicate they consider themselves to be skilled users of communication technologies, the use of computers/technology at school may provide students with even more confidence in their skill at using technology.

Also regardless of how often computers/tablets are used in class, the majority of respondents answered ‘Strong Yes’ to Q4.m – “In today’s world, it is necessary to know at least one foreign language”; the filtered groups for each response of Q5 are: almost every day (77.78%), once or twice a week (77.14%), very rarely (83.33%), never (89.47%). Finally, the frequency of computer use in the classroom also seems to have no bearing on the responses for statement l of question 4 (“Communication technologies make me feel more ‘connected’ to people and places outside of my home country.”); as the majority of students replied either ‘Strong Yes’ (63.11%) or ‘Weak Yes’ (23.3%).

Question 7 of the student survey asks respondents to approximate how many of their teachers use some form of technology when teaching. 32% of respondents answered that only one or two of their teachers use technology and 25% answered that most of their teachers use technology. This suggests that there is a difference among the schools surveyed in the practices of their teachers when it comes to using technology in class. The following chart shows the data gathered from Q7; it shows how many respondents indicated each of the given options.

Figure 4.6 How many teachers use technology in teaching



Questions 10 and 11 of the student survey ask respondents to indicate all software programs that they are required to use in class (Q10) and for homework assignments/projects (Q11). Respondents were instructed to check all that apply from a given set of choices for both questions 10 and 11. The following charts show the data gathered from questions 10 and 11.

Figure 4.7 Type of technology in class

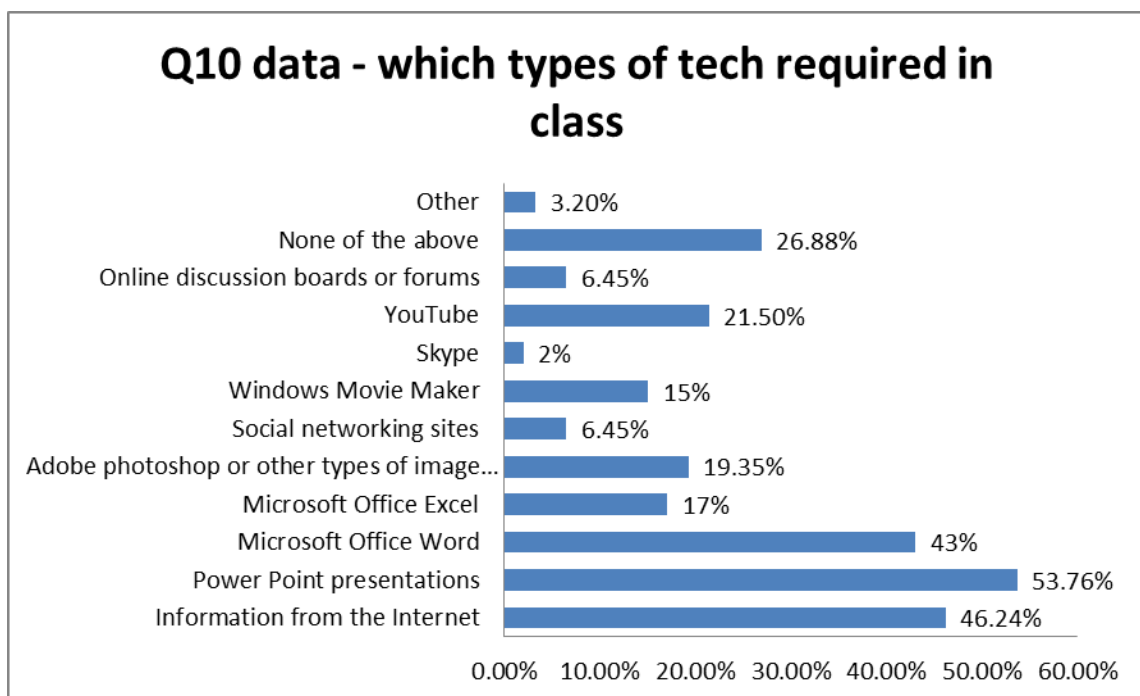
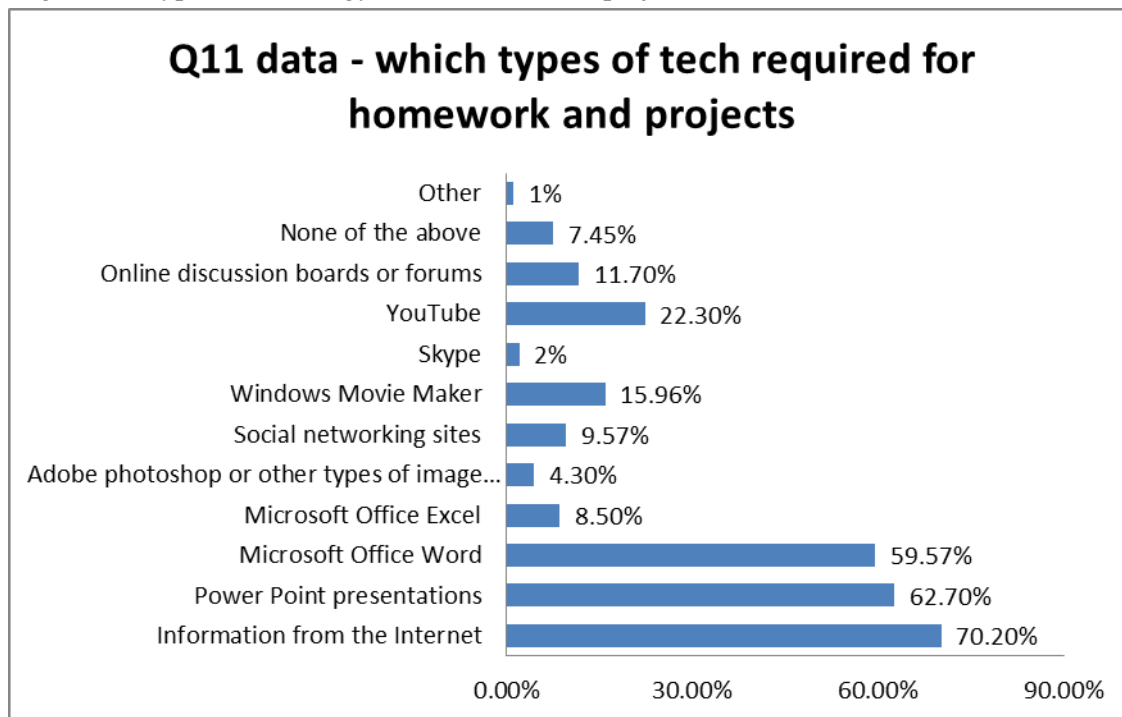


Figure 4.8 Type of technology for homework and projects



The three answers that received the highest number of responses by far for both questions are PowerPoint presentations (53.76% for Q10 and 62.77% for Q11), information from the Internet (46.24% for Q10 and 70.21% for Q11), and Microsoft Word (43.01% for Q10 and 59.57% for Q11). The research literature supports this finding as, aside from basic computer skills, the most common use of computers in teaching is word processing (Lawless and Pellegrino 2007). This finding would indicate that technology practices in Lebanese schools are not so different from those in other countries as surveys conducted by the British government reveal similar findings: the use of ICT by teachers is limited to only a few types such as whole class lectures delivered via an interactive whiteboard and the use of word-processing programs for different types of writing (DfES 2003). For working in class (Q10), 26.88% of respondents indicated that none of the software listed is used, which also included an ‘other’ field for

respondents to indicate if there is another program/software package not listed which they use in class. In contrast, and as already seen by the higher percentages for 'PowerPoint presentations', 'information from the Internet', and 'Microsoft Word' in question 11, only 7.45% of respondents indicated that they do not use any of the software listed for homework assignments/projects. Therefore it is clear that students are using technology outside of the classroom more than they are during class, even though that work may be for school.

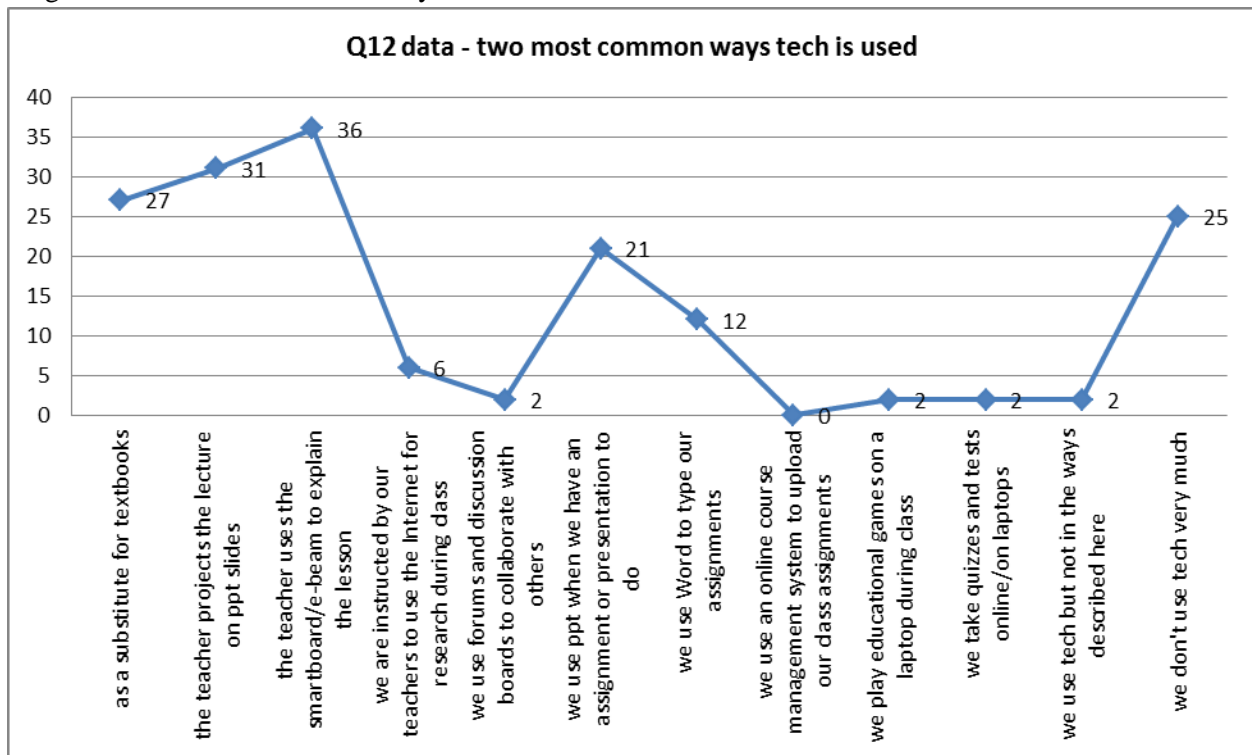
Research shows that the home computer is being chosen by young people to engage in more formal learning; "60% use the Internet to look up information for school at least weekly, 30% use the Internet to revise on a weekly basis and 29% report using 'educational software' on a weekly basis" (Kent and Facer 2004: 453). In the context of the research for this study, teachers may be requiring students to use technology for school work not done at school because they recognize its benefits as a tool and that students are competent in its use, but the teachers are unable to find ways to integrate it. Online discussion boards or forums were only indicated by 6.45% of respondents as something that is used in class. The percentage goes up slightly in question 11 to 11.7%, further indicating that teachers are requiring students to use technology at home more than they do in school, or perhaps that students are taking it upon themselves to supplement the learning done at school through engaging with technology at home for formal learning as cited above. In both cases, however, it is a very small percentage indicating the access of online discussion boards or forums and highlights the surveyed schools' deficiency in providing their students with opportunities for networking and collaboration, two important digital skills. As discussed in previous chapters, there is an existing and growing divide between individuals connected to the network society and individuals who are not, due to a lack of or



limited access to information technologies. Online forums provide access to networks and the opportunity to practice networking skills, therefore the deprivation of their use discounts the students' desire as digital natives to manipulate technology for social and collaborative purposes (Jones and Ramanau 2009), and their absence in students' education could be hindering the development of students' feelings of global consciousness which is what the first research question is concerned with.

While questions 10 and 11 of the student survey were concerned simply with the actual software students are using in class and at home for assignments, question 12 asks student respondents to select the two most common *ways* technology is used in their classes. The following chart shows the data gathered from question 12.

Figure 4.9 Two most common ways tech is used in school

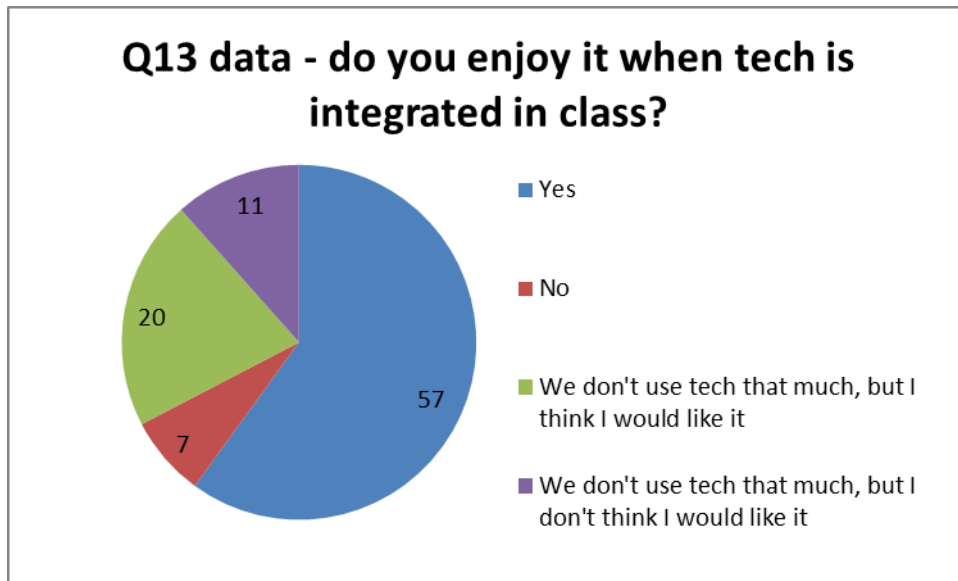


The most frequent responses to question 12 indicate that technology is being used in a teacher-centered way; 38.71% of respondents answered ‘the teacher uses the smartboard/eBeam to explain the lesson’ and 33.33% answered ‘the teacher projects his/her lecture on PowerPoint slides.’ The data from this question again demonstrates that technology ‘integration’ is not occurring in the way it has been defined in chapter 1 of this thesis. The third highest response is ‘as a substitute for textbooks’ (29.03%), illustrating that schools may be ‘using’ technology, but not integrating it, as the ways reported by the respondents indicate low level use of technology (Cuban et al. 2001). Using a smartboard to explain a lesson, projecting a lecture on PowerPoint slides, and using pdf versions of books are all examples of using technology for replacement (Hughes 2005) as discussed in chapter two of this thesis. It could be argued that manipulating a smartboard while explaining a lesson might fall under the category of using technology for amplification (Hughes 2005) depending on how the teacher interacts with and manipulates the smartboard. To qualify as amplification, the task of presenting the lesson would need to be made more efficient and effective through the use of the smartboard (Pea 1985), and not just using the smartboard as a glorified chalkboard/whiteboard. The activities indicated by the respondents as the one most frequently undertaken would fall under Cuban et al.’s (2001) definition of low-level technology use as discussed in chapter two and therefore would not constitute as technology integration. Furthermore, the data collected from question 12 reveals that the “breakthrough phase” as described by Hooper and Rieber (1999) is not being achieved, as the ways in which technology is being use do not indicate a change in teaching method.

Question 13 of the student survey seeks to gather data from respondents about whether or not they enjoy it when technology is integrated into their classes. In addition to the choices of

‘yes’ and ‘no’, respondents could answer ‘We don't use technology that much (or even at all), but I think I would like it’, or ‘We don't use technology that much (or even at all), but I don't think I would like it.’

Figure 4.10 Student respondents' enjoyment of technology in school



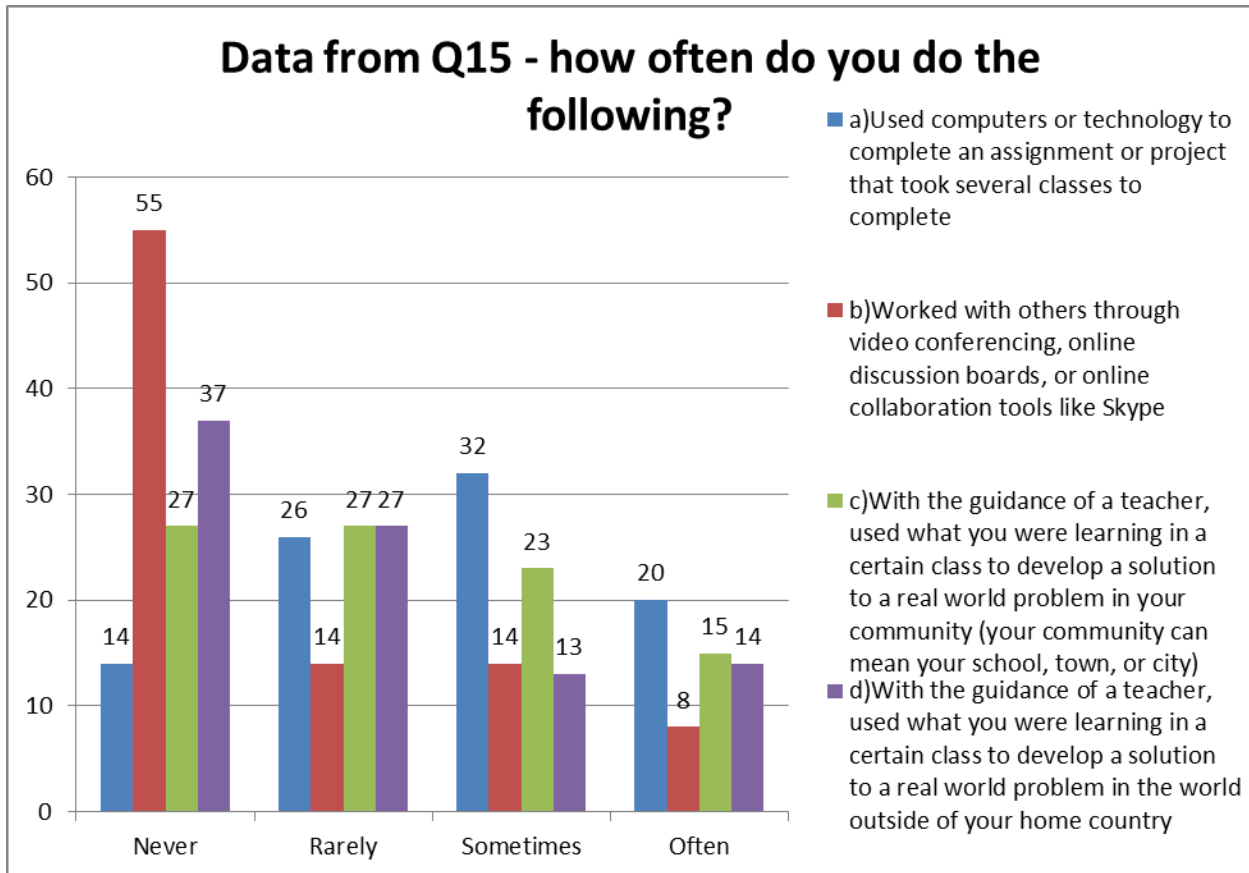
The two choices that received the most responses are ‘yes’ (57 which equates to 60% of respondents) and ‘We don't use technology that much (or even at all), but I think I would like it’ (20 which equates to 21% of respondents). Since this data is meant to inform the answer to research question 1, it is necessary to analyze if students’ technology attitudes play a role in their feelings of global consciousness. Therefore, a comparison was made between the answers given for the statements in the question 4 Likert scale by the respondents who answered ‘we don’t use technology that much (or even at all), but I think I would like it’ and the respondents who answered ‘we don’t use technology that much (or even at all), but I don’t think I would like it.’ Their answers were also compared with the answers of the entire sample to investigate if there is a relationship between what students think of technology in school and their overall global

citizenship attitudes; this is discussed in the next paragraph. Eleven students responded that technology is not used that much in school and they don't think they would like it. These students however still report being as confident as the rest of the sample at their skill in using communication technologies as eight of the eleven responded 'Strong Yes' to Q4e (the other three replied thusly: 2 'Weak Yes' and 1 'Not Sure').

The question 4 Likert scale is a 5 point Likert scale and has a total possible score of 65, as there are 13 statements, and none are worded in the negative. The score for the entire sample is 51.65 which indicates an attitude of global citizenship around the level of a 'Weak Yes' for the whole sample. For the respondents who answered that they don't use much technology in class but think they would like it (Q13), the Likert scale score is 51.15 which is almost the same as the score of the entire sample. For the respondents who answered that they don't use much technology in class but they don't think they would like it, the score for question 4 is 52.99. Although higher, it is not significantly so, which leads to the conclusion that a student's feelings about using technology in the classroom does not have any relationship with her/his global citizenship attitude. In addition, respondents who replied that they do not enjoy it when technology is integrated in their classes have a Likert scale score for Q4 of 53.85. This indicates that an attitude of 'enjoyment', or lack thereof, with regards to the use of technology in class does not have an effect on students' global citizenship attitude. These findings indicate that a relationship does not appear to exist between technology integration in school and students' global citizenship attitudes as the data shows that respondents all have comparable attitudes according to their Likert scale responses regardless of the frequency of technology integration in class and their feelings about that integration.

Question 15 of the student survey required respondents to indicate the frequency (often, sometimes, rarely, never) with which they perform the four given statements about certain class activities. The following chart shows the data generated by question 15.

Figure 4.11 Frequency of civic collaboration activities aided by technology



None of the statements of question 15 generated half or more responses for any of the four choices except for statement b, “Worked with others through video conferencing, online discussion boards, or online collaboration tools like Skype,” for which 55 respondents, or 60.44% of respondents, responded with ‘never’. The literature that discusses the learning preferences of digital natives highlights how they have a desire to interact with technology in a collaborative and social way, therefore not providing opportunities in class for students to leverage their networking and collaboration skills through tools such as online forums is

discounting their innate desire (Jones and Ramanau 2009). Dede (2007) argues that collaboration is a necessary skill to nurture in students given the changing patterns of work which now includes extensive cross-border and cross-cultural interactions. If the four choices (often, sometimes, rarely, never) are collapsed into two so that often and sometimes can be represented as ‘yes’ and rarely and never can be represented as ‘no’, the data shows that for three of the four statements (b, c, and d), the majority of responses are no. Only for statement *a*, “Used computers or technology to complete an assignment or project that took several classes to complete” are the majority of answers ‘sometimes’. This last finding corresponds with the discussion above about the data collected from question 11 in which respondents indicate that they use technology more for homework assignments than in class. Although not made explicit in the wording of statement *a* of question 15 whether the assignment or project that took several classes to complete included work done outside of class time, it is likely students interpreted it that way.

#### **4.2.2 Conclusion for results related to research question #1**

According to the data provided by the surveys, many students are using computers in class at least once a week, however an almost equal percentage report that computers are being used either very rarely or never. The amount of technology use in schools appears to have no bearing on students’ confidence in their skill at using communication technologies specifically, as those respondents who indicated low frequency of technology use in school still reported confidence in their own skill in manipulating such technologies. The frequency of technology use also seems to have no influence on students’ global citizenship attitudes (particularly their feelings of global consciousness). This is illustrated by the question 4 Likert scale scores that

were calculated for each filtered group of respondents for question 5 as shown in the table below. For example, those respondents who indicated that computers are used almost every day, responded to the statements of Q4 such that their Likert Scale score is 52.23; and so on for the four other responses for Q5.

Table 4.2 Global citizenship Likert scale scores according to frequency of computer use at school

Frequency of computer use (Q5)	Q4 Likert Scale Score
computers are used <b>almost every day</b>	52.23
computers are used <b>once/twice a week</b>	49.78
computers are used <b>a few times a month</b>	51.73
computers are used <b>very rarely</b>	54.68
computers are used <b>never</b>	51.51

Figures 4.7 and 4.8 show the software that is most used in class and/or for assignments, indicating that true integration of technology is not occurring, as this use can be classified as low-level use (Cuban et al. 2001). These results concur with data gathered in the US as a study of teachers' use of technology in schools revealed that word processing (96%) and accessing the Internet (94%) were the two most common ways technology is being used by teachers (Gray et al. 2010). While not high-level use of technology, teachers' apparent reliance on using PowerPoint specifically to disseminate their lectures is an example of the 'reliance on technology' definition of technology integration cited in chapter 1 (Bauer and Kenton 2005). However, as the data discussed above shows, students report that they possess the characteristics of global citizens, regardless of the fact that true technology integration does not appear to be occurring in most schools. Furthermore, there does not appear to be a strong relationship between the use of technology at school contributing to students' feelings of global citizenship (Table 4.2).

### 4.2.3 Data related to research question #2

The responses given to questions 8, 9, 10, 11, 12, 15, and statements b, d, e, f, g, i and j of question 16 of the student survey provided data that contributed to answering research question 2. Global competences were defined in chapter 1 as a set of skills that allow an individual to navigate through a work and social environment that spans cultures and countries, which includes language acquisition, adaptability, cross cultural communication skills, the ability to work in a group, and digital skills.

Questions 8 and 9 ask respondents to first indicate which subject classes computers/technology are used in (Q8) and then to make a choice as to which subject teacher they assess to be the highest technology ‘user’ (Q9).

Figure 4.12 Classes in which tech is used

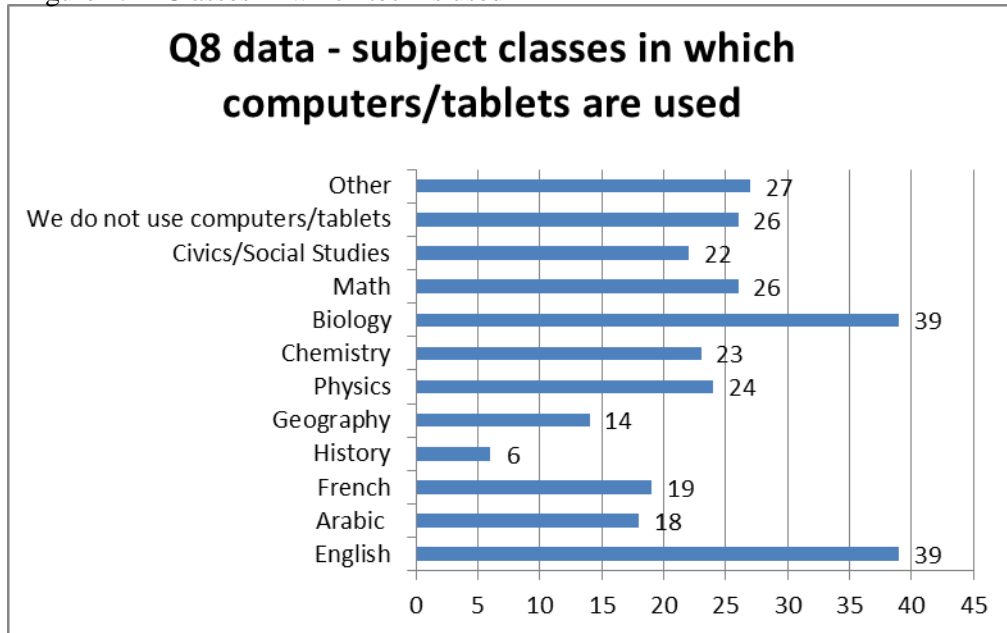
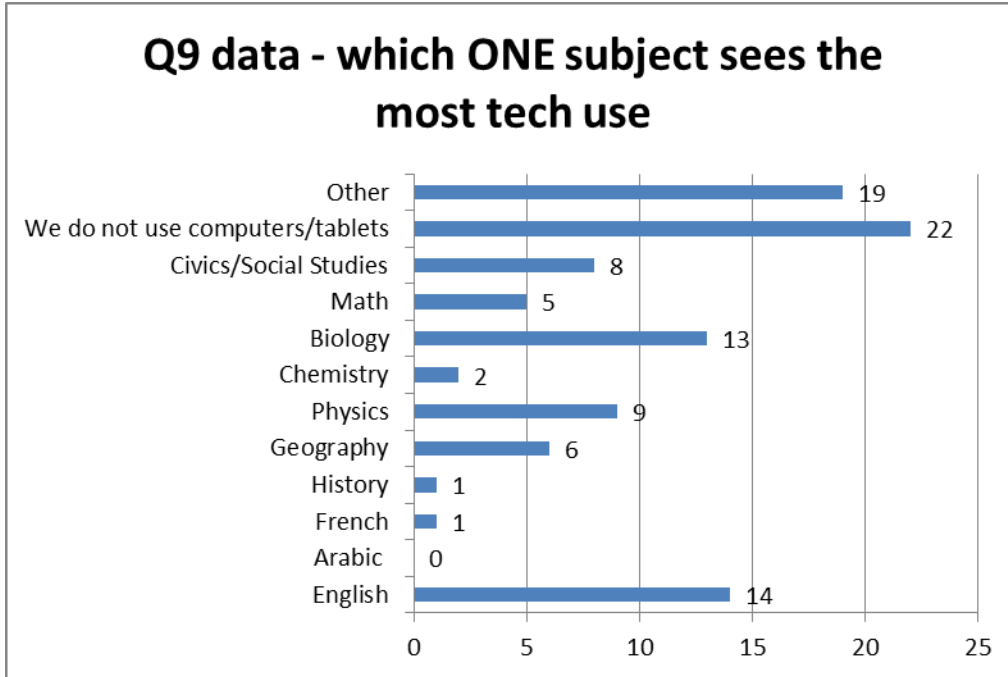




Figure 4.13 Subject in which tech is used the most

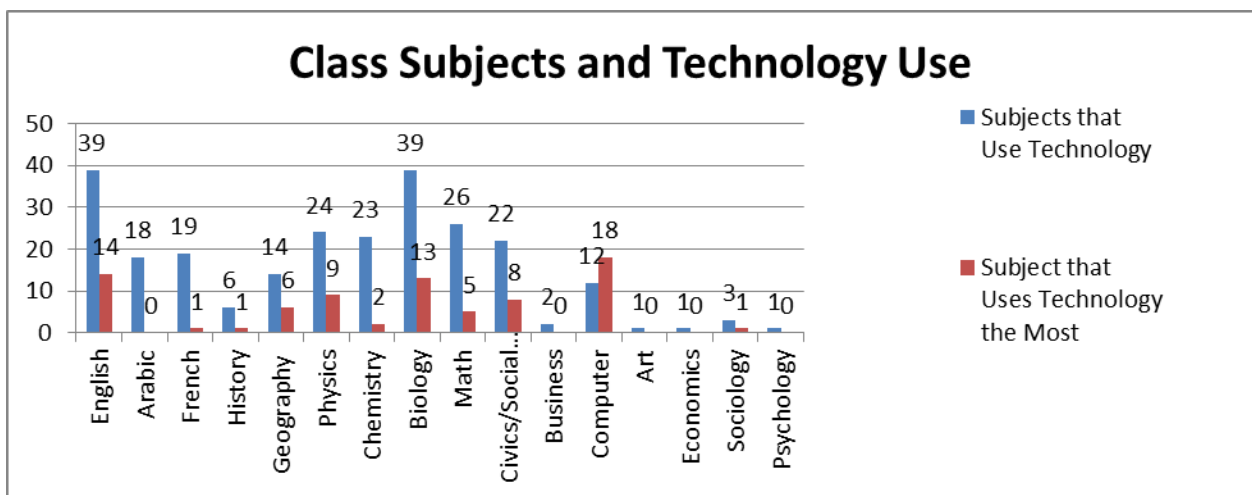


The data from question 8 indicates that technology is at least used to some degree in all classes at a number of schools in Lebanon, but not in all schools; 26 respondents (which equates to 26.8% of those who responded to this question) answered “we do not use computers/tablets.” The majority of respondents who indicated that they do not use computers/tablets are students at School I; the remaining respondents, which only number a handful, are from 5 of the schools. School I is a relatively new school, with up to date facilities, however it is a member of a larger network of schools that receive their curriculum and teaching materials from a corporate headquarters, therefore it would appear that this curriculum does not incorporate much technology.

Question 9 asks respondents to identify the subject in which technology is used the most. The responses reveal that of the participating schools, most do not use computers/tablets in the

classroom, with 22% of respondents replying with that answer. The next highest percentage for question 9 (19%) is for the answer ‘other’ which respondents specified as computer, IT, or computer science class. English and Biology received the next highest percentages, 14% and 13% respectively. The data from these two questions make it clear that technology is still being perceived as its own ‘subject’ and therefore only being ‘studied’ during a class dedicated to it; computer science or computer class. Technology is not being diffused into other subjects extensively, as indicated by the respondents’ answers and illustrated in the following figure which shows the number of responses to both questions 8 and 9.

Figure 4.14 All classes that use tech vs the class that uses tech the most



Questions 10, 11, 12, and 15 of the student survey were discussed above as they also provide data for research question 1. The data gathered from these questions reveals that the software most used both in class and for homework assignments are ‘Microsoft Word’, ‘information from the Internet’, and ‘Power Point presentations,’ and that students are using these tools outside of the classroom more than they are during class, even though that work is for school. The data gathered from question 12 (Figure 4.9) reveals that true integration of

technology is not occurring; technology is simply being used as a substitute for traditional methods of instruction, and within a teacher-centered paradigm. Question 15 required respondents to indicate the frequency (often, sometimes, rarely, never) with which they perform the four given statements. As mentioned above, 60.44% of respondents indicated that they never ‘worked with others through video conferencing, online discussion boards, or online collaboration tools like Skype.’ This statistic implies that, at a number of Lebanese schools, the skill of collaboration is not being nurtured and developed. It further indicates that the digital skills that will be required of future members of the workforce are also not being developed, as collaborative software tools are already used extensively in various fields of work.

Statements b, d, e, f, g, i and j of the question 16 Likert scale of the student survey provide data to answer the portion of research question 2 that is concerned with the development of digital skills, particularly students’ perceptions of their own digital skills. The following table shows the data gathered from all statements of question 16. It shows the number of responses for each level of agreement for each statement. The number of responses, and not percentages, are shown because 87 of the 119 participants responded to this question.

Table 4.3 Student Technology Attitude Likert scale

Statement	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. Computers and tech make schoolwork easier to do	4	4	15	34	30
b. I prefer to use computers to do schoolwork instead of pen and paper	12	16	14	30	14
c. Tech and computers help me to understand my classes better	4	15	26	32	10
d. I don't think having skills in using computers and tech had prepared me better for me future compared with others who do not have that skill	19	25	26	32	10

e. I like using tech to create content (movies, music, projects, poems, pictures, etc.)	2	8	17	30	30
f. I think tech allows me to be involved in discussions that I couldn't participate in without access to tech	2	3	13	43	26
g. I feel that my skills in tech allow me to easily learn and adapt to new software (new type of phone or new computer game for example)	3	3	10	35	36
h. I wish more of our class time was dedicated to learning about new tech tools and software that can help me learn certain concepts	3	7	28	26	23
i. Through the Internet/tech I have become involved in movements and organizations that I am interested in	8	7	27	27	17
j. I understand what a programming language is	8	16	17	29	18
k. I think we should learn about programming languages in high school	4	6	25	29	23
l. I feel my education has prepared me well for university	5	0	9	46	27

Thirty respondents (34.88% of those who responded to Q16) agree with statement b that states ‘I prefer to use computers to do schoolwork instead of pen and paper.’ This however is not an overwhelming majority, as the responses were distributed across all degrees of the Likert scale: an equal percentage of respondents strongly agree with this statement as do neither agree nor disagree (16.28% for both), and a combined percentage of 43.5% disagree and strongly disagree. Only 26.67% of the respondents who prefer using computers to do schoolwork are female, whereas of those who do not prefer to use computers for schoolwork, 43.75% are female. It might be expected that today’s students would prefer to use computers to perform their schoolwork, therefore the lack of a definitive agreement with this statement by Lebanese students perhaps highlights Lebanon’s position as a developing country and indicates a variety of cultural and environmental factors that lead to this finding. However, a recent study undertaken

by Osgerby (2013) did report a partiality on the part of students for more “traditional” teaching styles.

Statement d of question 16 speaks to the perception respondents have regarding the importance of possessing digital skills – ‘I don’t think having skills in using computers and technology has prepared me better for my future compared with others who do not have those skills.’ 30.59% of respondents answered neither agree nor disagree and therefore seem to be unsure about the relationship between having digital skills and being better prepared for the future. This could be due to the fact that since the statement requires a prediction on the part of the respondent, they are reluctant to commit to a more definitive answer. The data from this statement is not a reflection of the respondents’ perceptions of their own technology skills, particularly communication technologies, as 73% of the respondents who replied neither agree nor disagree for statement 16(d), answered ‘Strong Yes’ for Q4e – ‘I am very skilled in using communication technologies (programs and software that allow me to communicate with other people).’ Respondents’ neutrality for Q16d is also not because technology is rarely used in their classes, as 73% of those respondents indicated that computers/tablets are used in their classes either almost every day (26.92%) or once or twice a week (46.15%), and most of their teachers use some form of technology. This neutrality expressed by 30.59% of the respondents that their possession of digital skills prepares them better for their future suggests that there is not significant time spent at school to demonstrate to students the various ways technology is integrated in real-life situations. The feelings expressed by these respondents are likely a commentary on the ways in which technology is being used in their classes, which the findings discussed above show to be low-level use.

The majority of respondents agree (either agree or strongly agree) with statements e, f, and g of question 16 – ‘I like using technology to create content (movies, music, projects, poems, pictures, etc...)’ (68.96%), ‘I think technology allows me to be involved in discussions that I couldn’t participate in without access to technology’ (79.32%), and ‘I feel that my skills in technology allow me to easily learn and adapt to new software (whether it’s a new type of phone, or new computer game for example)’ (81.61%). These high percentages illustrate a confidence on the part of the respondents in the manipulation of digital technologies, implying at least a perceived high level of digital skills. They also demonstrate recognition of the networking possibilities provided by technology, and confirmation that Lebanese teenagers possess the desire to be creators of content like their digital native counterparts in other countries. It has been observed that digital natives possess both the ability and the desire to be creators of content (Raine 2006; Prensky 2001). Tapscott and Williams (2008: 52) also adhere to the concept of a Net generation and say of them that they “are not content to be passive consumers, and increasingly satisfy their desire for choice, convenience, customization, and control by designing, producing, and distributing products themselves.”

While the data gathered from Q16f indicates that most respondents hold the belief that through technology, they can participate in discussions that they would otherwise not be able to; the data gathered from statement i reveals that this is most likely not happening in reality. Only 31.4% of respondents agree with statement i (‘Through the Internet/technology, I have become involved in movements and organizations that I am interested in.’) and an equal number neither agree nor disagree. This finding corresponds with what respondents indicated are the most common ways technology is used in class. Only 6 respondents indicated that forums and online

discussion boards, and social networking sites, are used in class; it would be through those tools that students would have the opportunity to become involved in movements and organizations through online groups and discussions.

A vital digital skill that educators advocate including in curricula is programming languages. Prensky (2005: 11) boldly states that “Programming is perhaps *the* key skill necessary for 21st century literacy.” In fact as far back as 1981, the practice of teaching programming was promoted by Seymour Papert, a student of Piaget, as he asserted that general thinking skills could be learned through the teaching of programming (Papert 1993, 1981). Perkins and Salomon (1989: 154) state that: “In general programming is a remarkably rich cognitive enterprise that might yield many different sorts of transfer effects.” Throughout the 1980’s and 1990’s, there was wide use of the logic based programming language LOGO in schools. Hughes (1990) evaluated that use and concluded that social interaction among peers was promoted through the interaction with LOGO. It would stand to reason that that would be the case as well today with the existence of much higher level programming languages. Statement j of the Q16 Likert scale states ‘I understand what a programming language is’ and although slightly more than half (53.4%) of respondents either agree or strongly agree with this statement, that means that almost half of respondents do not understand or are uncertain about what a programming language is.

#### **4.2.4 Conclusion for results related to research question #2**

The data shows that technology is still being perceived as its own ‘subject’ and therefore only being ‘studied’ during a class dedicated to it; computer science or computer class. This

would indicate that schools are recognizing the necessity of teaching digital skills, but not yet devising methodologies that integrate it into all subjects. Technology/Computer teachers were indicated as the most frequent users of technology in class, followed by English and Biology teachers. Students indicate high confidence in their technology skills and believe these skills make it easy for them to adapt to new software. A large percentage of respondents however do not think that these skills have necessarily prepared them better for their future compared to those who do not possess such skills. This could signify a lack of awareness of how the adaptability they perceive themselves to have will actually be a vital skill in their future jobs. The data reveals that there is a lack of use of collaborative software, although students seem to recognize that collaboration is easily facilitated through digital technologies. As cited in chapter 2, collaboration is noted as a key skill for those entering the workforce as they will have to navigate changing work patterns that bridge borders and cultures (Dede 2007).

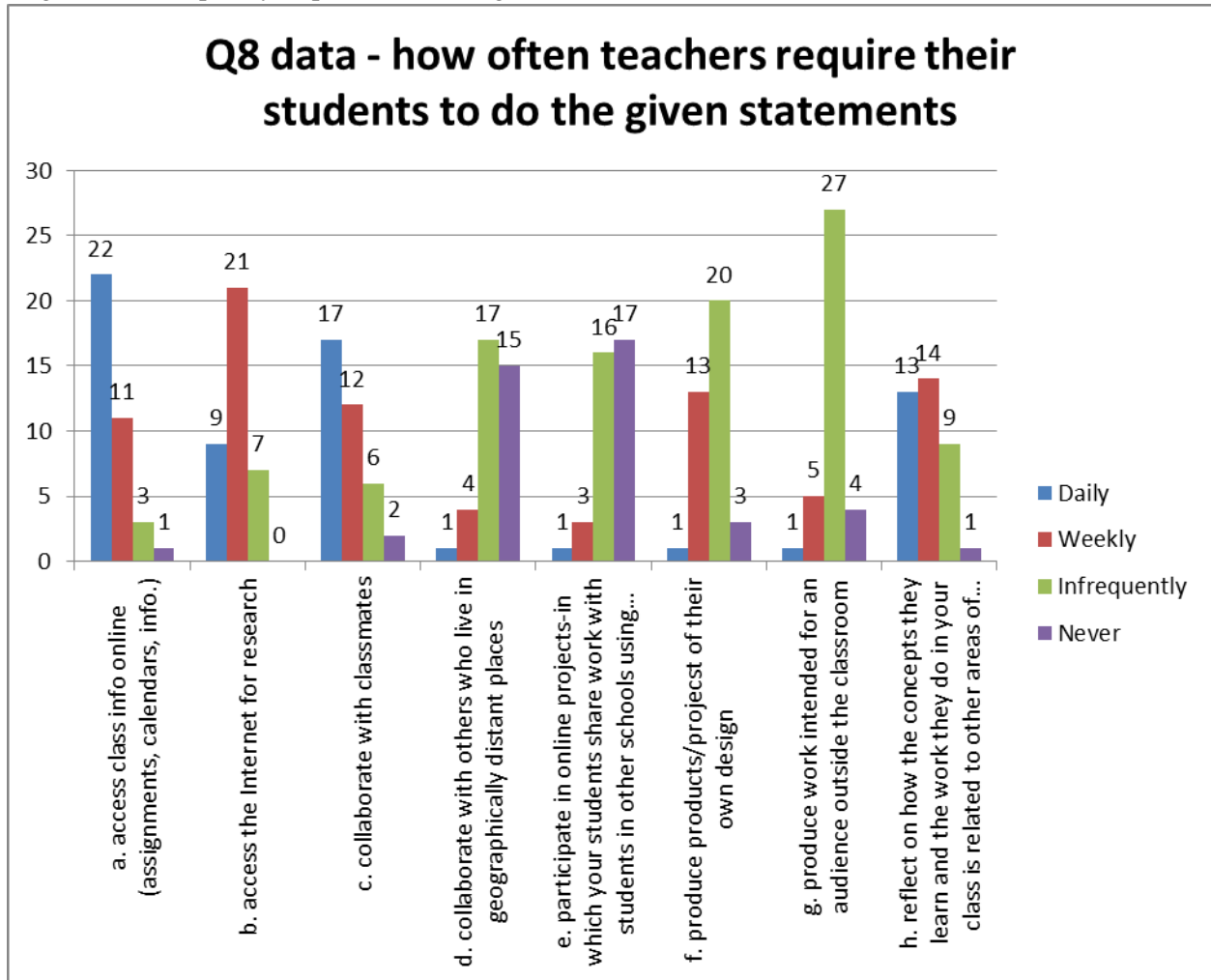
#### **4.2.5 Data related to research question #3**

The responses given to questions 8, 10, 11, 13, and 14 of the teacher survey (see Appendix F) provided data that helped to answer research question 3. Question 8 seeks to collect data on the frequency with which teachers require their students to perform a given list of activities. Question 10 provides data about the availability of resources at the respondent's school, question 11 provides data about the respondent's self-reported readiness to use a number of technology tools and software, and question 14 asks what the respondent views as the biggest obstacle to integrating technology in class. Question 13 is a Likert scale which contains statements pertaining to the global citizen characteristics of global consciousness and global



competences. Teacher respondents indicated their level of agreement with each of the seven statements and the resulting data helped to determine respondents' perspectives and understanding of global citizenship. The following chart shows the data gathered from question 8 of the teacher survey.

Figure 4.15 Frequency of performance of given activities

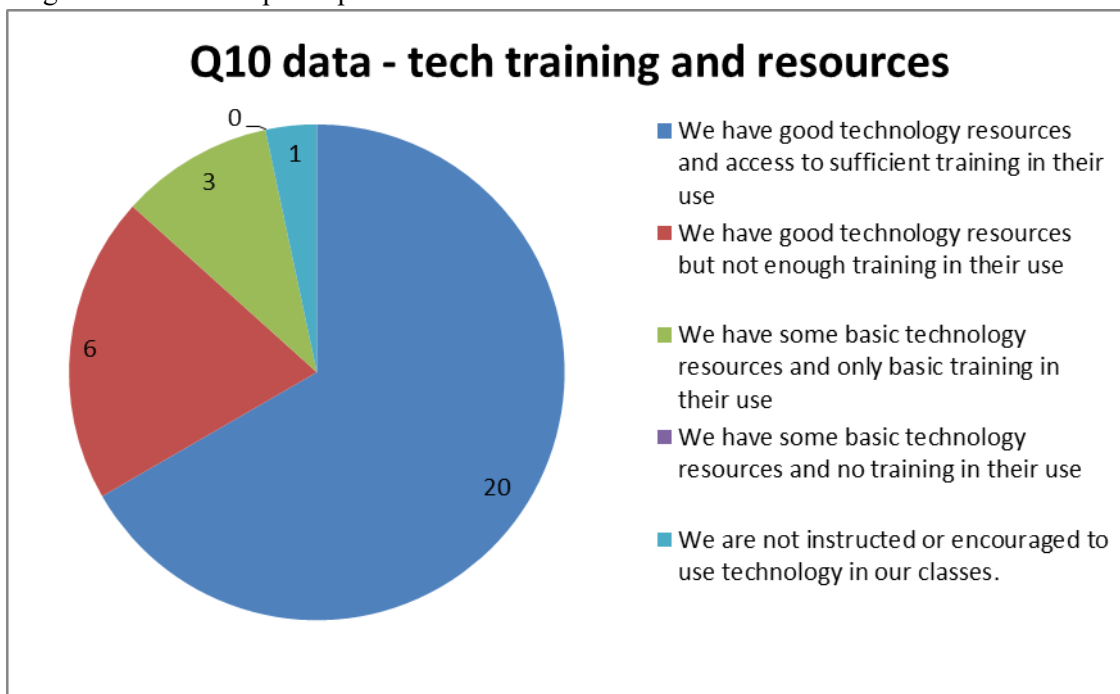


As the figure above shows, teacher respondents indicated that they either 'infrequently' or 'never': create opportunities for their students to collaborate with others who live in geographically distant places (Q8 statement d), participate in online projects-in which their

students share work over a certain period of time using online forums and online programs (Q8 statement e), produce products/projects of their (the students') own design (Q8 statement f), and produce work intended for an audience outside the classroom (Q8 statement g). All of these activities have inherent in them an element of collaboration, either with their peers in class or peers abroad, and a necessity to employ a high-level use of technology.

Teacher respondents were asked to indicate what level of technology resources and training is provided them by their school. This data was gathered through question 10 of the teacher survey and the following chart shows the data collected from this question.

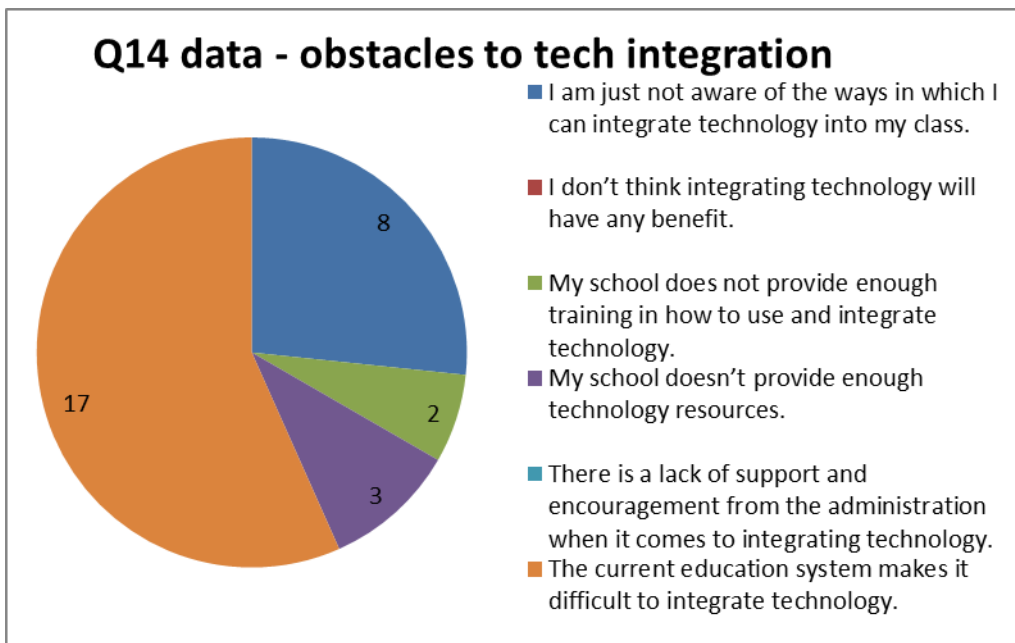
Figure 4.16 Teacher participants' views on school's tech resources



Most respondents (over 80% of those who responded to Q10) claim to have good technology resources available at their school; 66.67% believe that they have sufficient access to training in the use of those resources and 20% believe that although the resources are available,

they do not have enough training in their use. This implies that availability of resources is not a factor in hindering technology integration, however more details as to what specific types of technology tools are available was explored in the teacher interviews. The respondents in fact confirm this in question 14 which asks them to identify, in their opinion, the biggest obstacle to allowing them to integrate technology in their lessons; no respondents selected the answer ‘There is a lack of support and encouragement from the administration when it comes to integrating technology,’ which is an encouraging finding in a developing country such as Lebanon. The following chart displays the data collected from question 14 of the teacher survey.

Figure 4.17 Obstacles to tech integration according to teacher participants



As the chart above shows, the majority of respondents (56.67%) claim that the biggest obstacle to integrating technology in their classes is the structure of the education system (‘The current education system makes it difficult to integrate technology’). The survey did not allow for expansion on what the respondents interpreted ‘education system’ to mean; the Lebanese

education system, or more generally the state of contemporary education. This was explored more in depth in the teacher interviews discussed later. This particular finding is the same as what Clements and Meredith discovered in a 1992 study in which they concluded, “research shows that teachers find it extremely difficult to create a learning environment that fosters creativity within existing school and curricular structures” (Clements and Meredith 1992 in Cox and Marshall 2007: 64).

Following the difficulty inherent in the education system in integrating technology, the second highest number of responses (26.67%) to question 14 indicated that teachers are simply not aware of the ways in which they can integrate technology in their classes. Therefore, although a high number of respondents indicated that their school provides sufficient training in the use of technology, it can be remarked that much of the training likely does not include specific methodologies and concrete examples of integrating technology in lessons. Furthermore, it is not a requirement of teachers in Lebanon to necessarily have any kind of proficiency in certain technology skills, while over 32 states in the United States include within their teacher certification certain explicit technology requirements (Kent and McNergney 1999). However, as will be shown below, the teacher respondents of this survey report that they believe they are fully prepared to use a great number of technology tools. Demonstrated proficiency with certain technology tools is not enough for successful integration; educational technology standards have been modified so that there is more than just basic skills emphasis, but also a number of higher-order goals that are necessary for effective educational practices that incorporate technology (Koehler and Mishra 2005; Glenn 2002).

Question 11 of the teacher survey lists 14 technology tools and asks respondents to indicate whether they are fully prepared, somewhat prepared, or not prepared to use each. Following is a table that lists the tools and shows how the participants responded. Although the sample size for the teacher survey is 41, only 31 respondents answered question 11.

Table 4.4 Teacher participants' level of preparedness in using the given tech tools

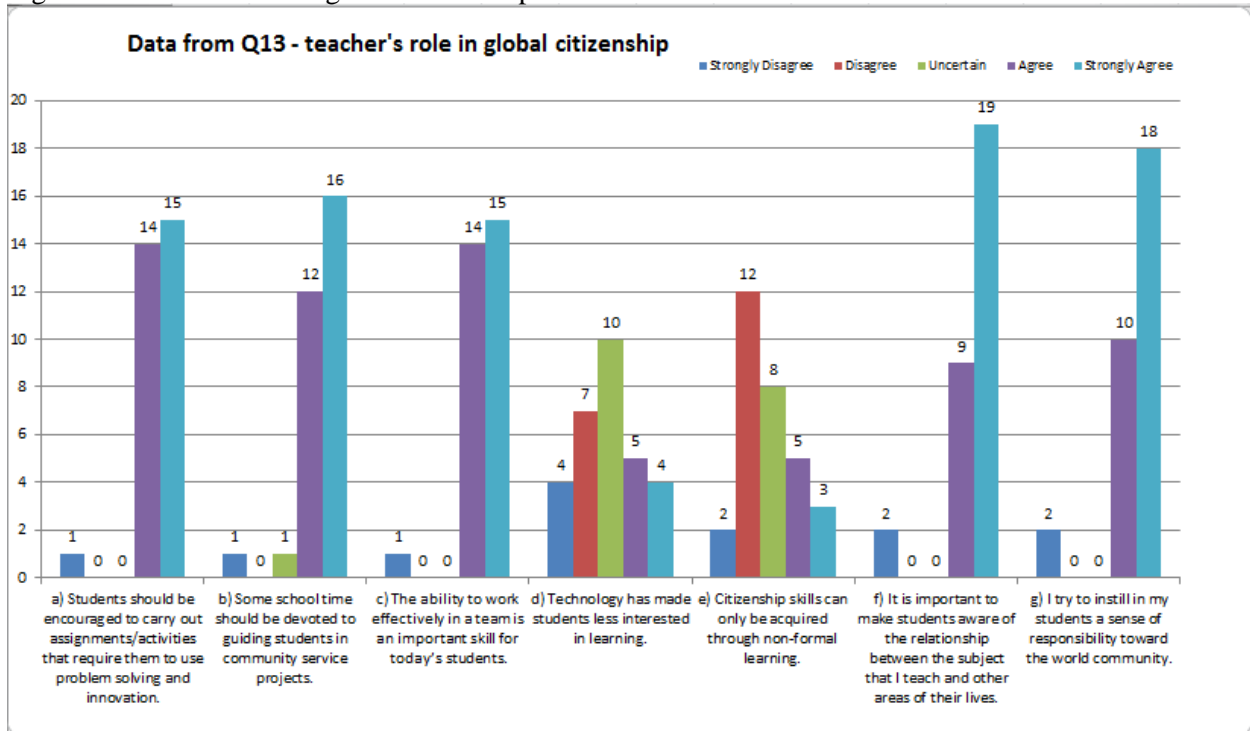
Q11 - Indicate to which degree you feel prepared to use the following tools:	Fully Prepared	Somewhat Prepared	Not Prepared
audio/video production editing software	<b>15</b> <b>(48.39%)</b>	13 (41.94%)	3 (9.68%)
content specific software applications	<b>16</b> <b>(51.61%)</b>	11 (35.48%)	4 (12.9%)
e-mail	<b>30</b> <b>(96.77%)</b>	1 (3.23%)	0 (0%)
image (photo) editing software	<b>17</b> <b>(54.84%)</b>	9 (29.03%)	5 (16.13%)
interactive whiteboard software	<b>25</b> <b>(80.65%)</b>	4 (12.9%)	2 (6.45%)
Spreadsheets	<b>21</b> <b>(67.74%)</b>	7 (22.58%)	3 (9.68%)
simulation software	12 (38.71%)	<b>14</b> <b>(45.16%)</b>	5 (16.13%)
word processing	<b>26</b> <b>(83.87%)</b>	5 (16.13%)	0 (0%)
presentation software (eg PowerPoint)	<b>24</b> <b>(77.42%)</b>	7 (22.58%)	0 (0%)
Videoconferencing	<b>16</b> <b>(51.61%)</b>	10 (32.26%)	5 (16.13%)
accessing or creating podcasts	11 (35.48%)	6 (19.35%)	<b>14</b> <b>(45.16%)</b>
Internet resources	<b>27 (87.1%)</b>	4 (12.9%)	0 (0%)
YouTube	<b>29</b> <b>(93.55%)</b>	1 (3.23%)	1 (3.23%)
a content management system like Moodle or Blackboard	<b>14</b> <b>(45.16%)</b>	6 (19.35%)	11 (35.48%)

As the table above shows, the majority of respondents indicated that they are fully prepared to use all the listed tools except for simulation software, which the majority are

somewhat prepared to use, and accessing or creating podcasts, which they are not prepared to use. Aside from e-mail, which 96.77% of respondents are fully prepared to use, the other tools that received significantly high percentages for being fully prepared to use are interactive whiteboard software (80.65%), word processing (83.87%), Internet resources (87.1%), and YouTube (93.5%). Since YouTube received such a high percentage of respondents who indicate they are fully prepared to use it, the interviews investigated how teachers are using it as a tool in their classes.

Question 13 provides data that illustrates to what degree respondents view their role in nurturing global citizens and particularly with statement d, if technology should have a place in the education of global citizens. The following chart shows the data gathered from question 13.

Figure 4.18 Education and global citizenship



The data provided by the respondents' answers to the statements of question 13 illustrate that most teachers are aware of the school's role in preparing students to be global citizens and what the main characteristics of global citizens are. Statement d ('Technology has made students less interested in learning.') and statement e ('Citizenship skills can only be acquired through non-formal learning.') produced the most variation in responses. The distribution in responses across the varying levels of agreement for those two statements indicates a lack of an overarching attitude toward technology's place in education and what exactly education's role is in teaching citizenship skills. The highest frequency for a response was for statement d ('Technology has made students less interested in learning.'), for which 33.33% of respondents replied 'uncertain' with the rest distributed across the 4 remaining levels of agreement. The statement is very broad and requires the respondent to reflect on personal experience to make an assessment as to whether students are less interested in learning with the introduction of technology. This statement is also dependent on the respondent's attitude toward and actual pedagogical use of technology as this will have an effect on her/his perception of students' interest regarding technology. A majority of respondents (40%) replied with 'disagree' for statement e implying that those teachers believe citizenship skills must be taught explicitly. The statements that received the strongest level of agreement from a majority of the respondents were statements f ('It is important to make students aware of the relationship between the subject that I teach and other areas of their lives.') and g ('I try to instill in my students a sense of responsibility toward the world community.'). Respondents clearly want to convey that anchoring their respective subjects to real life is an important aspect of their teaching as well as instilling in their students a sense of responsibility to the world community.

#### **4.2.6 Conclusion for results related to research question #3**

The teacher survey data reveals that in general, most teachers recognize collaboration, innovation, and technology skills as necessary aspects to be nurtured and developed in students, in addition to instilling a sense of responsibility to a world community. It is evident however from the data from both the student and teacher surveys that while technology is being 'used' at a number of schools and by a number of teachers, technology integration is not happening. Teacher respondents indicated that they either 'infrequently' or 'never': create opportunities for their students to collaborate with others who live in geographically distant places, participate in online projects-in which your students share work over a certain period of time using online forums and online programs, produce products/projects of their own design, and produce work intended for an audience outside the classroom. Technology would not only help achieve what is mentioned in the above statements, but is required for work that is to be done online in collaboration with other schools/students. The reason these activities and others are not occurring is because, according to the respondents, the current education system does not allow for the easy integration of technology, and on top of that many of the teacher respondents indicate that they are not aware of the ways in which they can integrate technology into their lessons.

#### **4.2.7 Data related to research question #4**

The student survey questions that provided data to answer research question 4 are the Q4 Likert scale (specifically statements c and l), Q15, and the Q16 Likert scale (specifically statements f and i). Q4c states, 'I participate in activities that involve students and people living in other countries,' and statement l is, 'Communication technologies make me feel more



‘connected’ to people and places outside of my home country.’ Question 15 was discussed above (see Figure 4.11), specifically statement b, and addresses the frequency of sustained collaborative work and the audience of that work. Question 16 (see Table 4.3) is the Likert scale that measured respondents’ technology attitude; statement f is ‘I think technology allows me to be involved in discussions that I couldn’t participate in without access to technology,’ and statement i is, ‘Through the Internet/technology, I have become involved in movements and organizations that I am interested in.’ These questions provide data on if and how frequently technology is being used to guide students in global interactions.

The results of Q4c show variation with no significant percentage of respondents replying to any particular level of agreement. Collapsing the ‘Strong No’ and ‘Weak No’ into No’s and similarly for the ‘Strong Yes’ and ‘Weak Yes’, reveals that an equal number of respondents indicated a level of agreement of No for this statement as did for Yes (39.7% each), and 20.3% were ‘Not sure’. In contrast, 86% of respondents said Yes (a combination of both Weak and Strong) to statement l, indicating a feeling of connectedness among the majority of respondents to the outside world, despite the fact that they may not be interacting with that world on a regular basis as statement c suggests.

Question 15 provides further support for the conclusion drawn from the data generated by Q4c which suggests students are not being guided in participating in global interactions. Figure 4.11 shows the data collected from question 15. For all statements except for statement a, respondents indicated that they perform the given activities rarely or never. The data shows that students are more likely to be guided in the development of a project that at the most may

lead to a solution to a real world problem in their immediate community. It is clear that students are not guided in communicating with others using Web 2.0 technologies.

The final question that provided data to answer research question 4 is Q16f ('I think technology allows me to be involved in discussions that I couldn't participate in without access to technology.'). 79% of respondents feel that technology allows them to be involved in discussions that they otherwise would not have been able to participate in without technology. This attitude exhibits awareness on the part of the respondents of the ability of communication technologies to connect people. Statement i of Q16 provides a kind of follow-up to statement f as it asks respondents to indicate their level of agreement with the statement, 'Through the Internet/technology, I have become involved in movements and organizations that I am interested in.' The data shows more variation in the response to this statement than to statement f. Only slightly over half of the respondents (51%) indicated a degree of agreement with statement i while 31% neither agreed nor disagreed. Clearly a majority of students are not manipulating technology in a way that would allow them to be active in various movements and organizations that they have a personal interest in. The attitude exhibited by the data collected from statement f of Q16 shows acknowledgement on the part of a majority of students that they have the potential to interact with others on a global level. This attitude should be harnessed by educators since the attitudes students possess toward technology are a key determining factor in the benefit achieved from educational learning experiences (Buzzetto-More 2008; Sanders and Morrison-Shetlar 2002).

#### **4.2.8 Conclusion for results related to research question #4**

The data shows that students are aware of the connecting powers of communication technologies, and possess, in fact, high confidence in their use (Q4e discussed above). Despite their awareness of the ability of technology to connect them with innumerable individuals in disparate locations, respondents indicated that they are not engaging in collaboration and interaction with such individuals.

#### **4.2.9 Data related to research question #5**

To answer this research question requires an examination of the two, 5-point, Likert scale questions on the student survey. Question 4, as mentioned above, measures respondents' global citizenship attitudes, and question 16 is a measure of respondents' attitudes regarding technology. As discussed above, the total scale score for the Q4 is 65, as there are 13 statements. The score for the entire respondent sample is 51.68 which indicates an attitude of global citizenship around the level of a 'weak yes'. The Q16 has 12 statements, one of which is worded in the negative, therefore the total scale score is 56 ( $5 \times 11 + 1$ ). The score for the entire respondent sample is 44.24 which also indicates an attitude about technology around the level of 'agree'.

Upon investigation of the data, it was discovered that students who replied 'Agree' to Q16k ('Agree' received the majority of responses) - 'I think we should learn about programming languages in high school' - tended to demonstrate the attitudes of global citizens as shown by their answers in the Likert scale of question 4. Their score for the question 4 Likert scale is 51.19

which is almost equal to that of the sample as a whole (51.68). It is interesting to note that the respondents who answered Q16k with ‘Agree’ have a Q4 Likert scale score between those of respondents who answered the same statement (16k) with neither agree nor disagree (50.89), and strongly agree (53.1), suggesting that as respondents became more definitive in their increasing level of agreement that knowledge of programming languages is an important digital skill, so too did their global citizenship attitudes become stronger. The table below illustrates this pattern, and in fact shows that this pattern holds as agreement decreased; the lower the level of agreement with statement k, the lower both the global citizenship attitude and the technology attitude of that subgroup of student respondents.

Table 4.5 Global citizenship and technology attitude Likert scores for each group of respondents of Q16k (student survey)

<b>Response to Q16k</b>	<b>Global Citizenship Attitude Score (Q4)</b>	<b>Technology Attitude Score (Q16)</b>
<i><b>ENTIRE SAMPLE</b></i>	<i><b>51.65</b></i>	<i><b>44.24</b></i>
Strongly Agree	53.1	48.87
Agree	51.19	44.99
Neither Agree nor Disagree	50.89	41.95
Disagree	48.32	41.19
Strongly Disagree	44	30.58

An important observation regarding the respondents who answered Q16k with strongly agree is that more of them indicated that they use computers/tablets in school almost every day (Q5) than was indicated by the entire sample; 52.17% for the subset versus 27% for the entire sample. This could be interpreted that increased exposure to technology, in various forms, makes

students more aware of the importance of digital skills and more globally conscious as demonstrated by the higher score for this particular group of respondents for question 4.

#### **4.2.10 Conclusion for results related to research question #5**

The two Likert scales, Q4 and Q16, measure the global citizenship and technology attitudes, respectively, of the student respondents. As a whole, the entire student sample has a global citizenship attitude of 51.65 and a technology attitude of 44.24, both of which indicate an attitude at the level of 'Weak Yes' and 'Agree'. Of all the statements that comprise the technology attitude Likert scale, statement k addresses an aspect of the attitude that speaks to future avenues of technology integration into high school curricula. By indicating any level of agreement with a statement that says 'I think we should learn about programming languages in high school,' a respondent exhibits acknowledgement of the importance of digital skills in today's changing workforce, and a desire to acquire high level digital skills. Therefore, the responses to this statement were filtered from the rest of the sample to determine the technology attitude and global citizenship attitude scores for each subset of respondents who indicated each of the five levels of agreement for statement k. The data revealed that as the degree of agreement decreased from 'Strongly Agree' to 'Strongly Disagree,' both the global citizenship attitude and technology attitude scores lowered as well such that respondents who indicated they strongly disagree with statement k, had much lower Q4 and Q16 scores than those respondents who strongly agree with statement k. This suggests a relationship between the two attitudes such that the stronger and more positive attitude students have regarding technology so too do they have strong global citizenship attitudes and vice versa.

While there appears to be a relationship between technology attitude and global citizenship attitude, there does not appear to be a strong relationship between technology use at school contributing to students feelings of global citizenship. Students who reported that technology is never used in school have a Q4 Likert scale score of 51.51 which is almost identical to that of the entire sample. Similarly, students who indicated that technology is very rarely used had an even higher global citizenship attitude score of 54.68. The key observation here is that those students who did express a desire to learn about programming languages in school did report the highest amount of technology use at school, indicating that technology exposure is necessary to develop an understanding of the necessity of digital skills which in turn appears to have an influence on stronger attitudes of global citizenship.

### **4.3 Further observations and discussion of findings of the surveys**

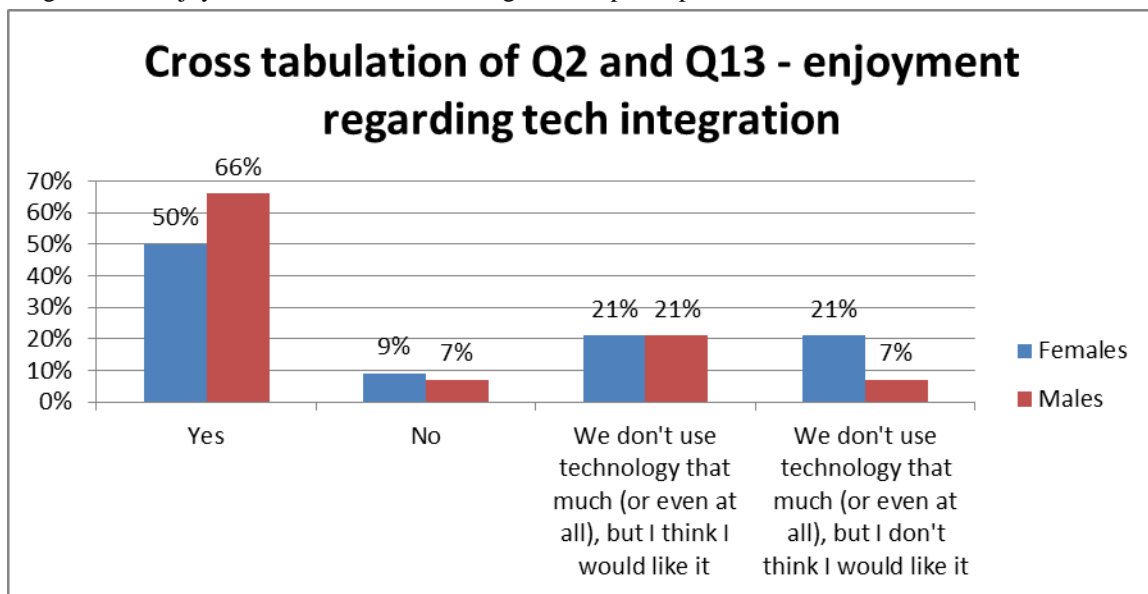
The following sections discuss further data that came from the student and teacher surveys. The demographic data collected from both surveys is discussed. The two Likert scale questions of the student survey are examined in more detail, and the data collected from the teacher survey regarding the respondents' preparedness for and use of certain technology tools is explored.

#### **4.3.1 Further observations of the student survey data**

Upon cross-tabulating the responses to all questions for both male and female respondents of the student survey, some differences in the way the two groups responded were observed. Although many previous studies have shown inconclusive results regarding any gender

difference in attitude towards technology (Wong and Fong 2014; Shaw and Marlow 1999), others have revealed a stronger willingness on the part of males to accept learning technology (Yau and Chang 2012; Kaino 2008; Vale and Leder 2004). Q13, which asks if the respondent enjoys it when technology is integrated into her/his class, does demonstrate a difference in female and male responses. The figure below shows how respondents answered to question 13 based on the gender of the respondent.

Figure 4.19 Enjoyment of tech in school and gender of participants

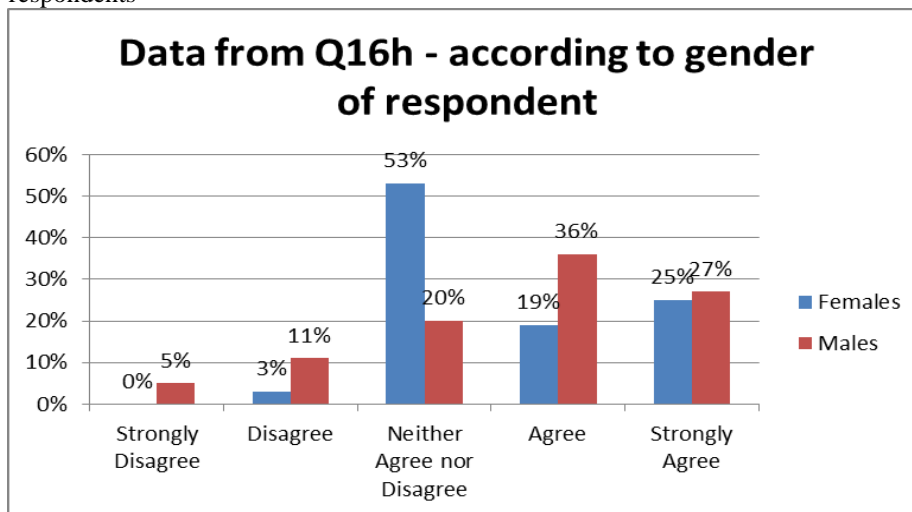


As the figure above shows, only 50% of the female respondents indicated they enjoy it when technology is integrated into their classes with 20.59% indicating that tech isn't used that much but they think they would like it if it was. A higher percentage of the male respondents (65.57%) indicated they enjoy tech integration with 21.31% indicating that even though tech isn't used much in their classes, they think they would like it. Further, 20.59% of female respondents replied that although tech isn't used that much they don't think they would like it, versus only 6.56% of male respondents who answered the same. As a developing country with a

patriarchal society, it may be that there are female students who view technology as something masculine, at least in an academic setting as a virtually equal percentage of male and female respondents (88.52% and 88.24%) indicated that they use technology more outside of school than they do in school or for school work. It is perhaps not just a consequence of living in a developing country that this difference in attitude toward technology exists; in a study of American middle school students, Dooling (2000) also found that although in general, students displayed confidence in their ability to use technology, she found evidence of gender differences in their beliefs.

This attitude, however, exhibited by the female respondents of not ‘enjoying’ technology in class as much as their male counterparts is further illustrated in their response to Q16h (‘I wish more of our class time was dedicated to learning about new technology tools and software that can help me learn certain concepts’). The following figure shows the data collected from Q16h based on the gender of the respondent.

Figure 4.20 Desire for learning about tech tools/software in class – male vs. female respondents





As the figure above shows, 53% of female respondents replied neither agree nor disagree, whereas 63% of male respondents answered either agree (36%) or strongly agree (27%). This difference in attitude based on gender reflects findings reported by Kent and Facer (2004) which showed that a higher number of boys than girls reported liking 'digital activities' outside of school, and boys reported more frequent use of computers than girls, specifically 'for fun'. The Likert scale scores for this study however, for both males and females, demonstrate that they have almost identical attitudes regarding technology, 43.64 for the female respondents and 43.06 for the male respondents.

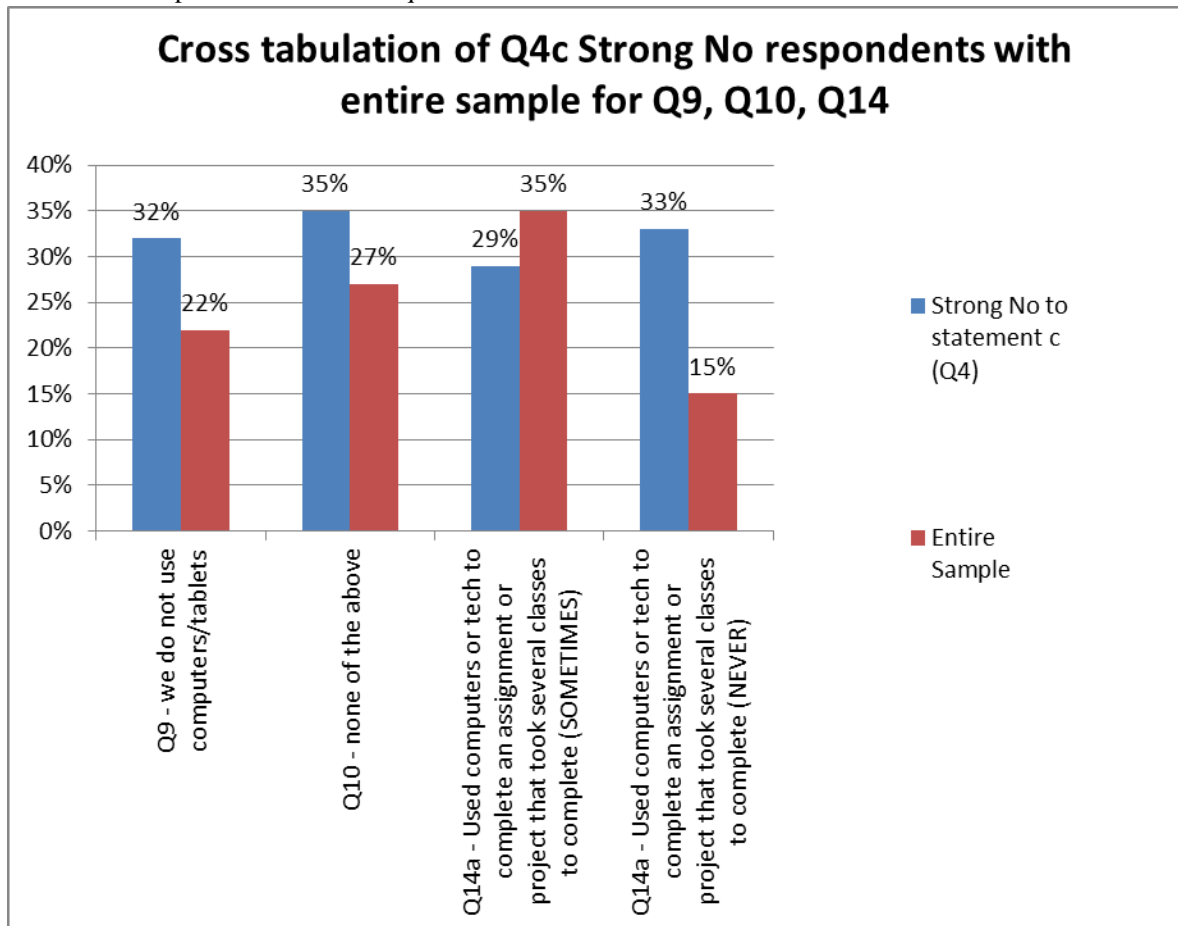
The data gathered from the Q4 provided much information, both through the examination of individual statements and the comparison of certain groups of respondents with the rest of the sample. In general, males and females answered similarly for each statement except for statement f ('I understand the political processes of different countries.'). 58% of males answered with a form of yes (35.38% weak yes and 23.08% strong yes), whereas females were split between weak no and strong yes (25% each).

Regardless of how often computers were reported to be used in class by respondents (Q5), the majority of students indicated that they consider themselves to be very skilled in using communication technologies (Q4e). Those who indicated that computers/tablets were used either almost every day or once or twice a week showed a higher percentage of agreement for Q4e (74.07% of the 'almost every day' group answered Strong Yes and 62.86% of the 'once or twice a week group' answered Strong Yes) than those who indicated that tech was used very rarely or never, who showed the following for Q4.e: 66.67% (very rarely) and 47.37% (never). As the

percentages do progressively decrease as each option for frequency of use progressively signifies less use, there would appear to be a relationship between the frequency of use of technology in class and students' perception of their own skills at manipulating it; the more frequently technology is reported to be used in class, the more likely students are to report having good skills in using communication technologies.

The only statement of Q4 to show a significant percentage of responses for two opposing levels of agreement is statement c ('I participate in activities that involve students and people living in other countries.') for which 31% of respondents responded weak yes and 25% answered strong no. Therefore, the survey responses for all questions were cross tabulated with those who answered strong no to statement c to determine what factors may have contributed to this answer. To reply with strong no to this statement would imply that technology is not being used to specifically promote collaboration, as technology is required to be able to participate in activities with students who live in other countries. The following figure shows the way respondents who answered 'Strong No' to Q4c compare with the entire sample for a select set of items on the student survey.

Figure 4.21 Students who do not participate in activities that involve others living abroad compared with entire sample for a selection of questions



The figure above shows that a higher percentage of the group of respondents who replied Strong No to Q4c, (32%) indicate that they do not use computers/tablets versus the 22% of the entire population. Question 10 asks respondents to indicate all software/technology tools in the given list which they use in class. While the filtered group indicated PowerPoint presentations, Microsoft word, and information from the Internet as what are used most in class, a higher percentage (34.78%) answered none of the above than did in the entire sample (26.88%). In addition, social networking sites, skype, and online discussion boards or forums received no responses, and YouTube received only 1. Most respondents claim they have ‘Used computers or technology to complete an assignment or project that took several classes to complete’ (Q14a)

sometimes (35%), whereas the filtered group are somewhat split between sometimes and never (29% and 33%).

The group of respondents who replied Strong No to statement c of question 4 have a Q16 Likert scale score of 37 versus the score of 46 for the entire sample. This implies that the technology attitude of the filtered group is around neither agree nor disagree which indicates some ambiguity about the place technology has in their life and education. This feeling is understandable given that they acknowledge that they interact with technology outside of school (91.67% answered yes to Q14 which asks if they use technology more outside of school), but are subjected to a technology 'lite' zone when in class. The following table shows the highest percentage of responses for the group of respondents that answered Strong No to statement c of question 4 and the highest percentage of responses for the entire sample for the given set of statements of question 16.

Table 4.6 Comparison of answers given by group of respondents who answered Strong No for Q4c and entire sample for select statements of Q16

Q16 statement	Strong No to Q4c respondents	Entire sample
Q16b. I prefer to use computers to do schoolwork instead of using pen and paper.	35% Disagree	35% Agree
Q16c. Tech and computers help me to understand my classes better.	38% Neither Agree nor Disagree	37% Agree
Q16j. I understand what a programming language is.	29% Strongly Disagree	33% Agree
Q16k. I think we should learn about computer programming languages in high school	38% Agree	33% Agree

Each statement of the Q16 Likert scale was looked at and the filtered group's responses were compared with the entire sample to determine how their general attitudes differ. As the table above shows, the highest number of responses for the entire sample for statement b was for agree (35%), whereas the highest number of responses for the filtered group was for disagree (35% and 25% for strongly disagree). This is logical given that that this group has indicated that

computers are very rarely or never used in class. Statement c of Q16 also shows a difference in responses between the entire sample and this filtered group. Most students in the filtered group answered either neither agree nor disagree, or disagree, whereas the majority of answers for the entire sample fell between agree and neither agree nor disagree. Most students in the filtered group answered strongly disagree or disagree to statement j, whereas the entire sample indicated mostly agree and strongly agree. This is also a consequence of not being required to interact with technology while at school and perhaps not even being taught a computer class. The students in the filtered group however must recognize the importance of learning about programming languages as the majority of them answered agree to Q16k, as did the entire sample. This subset of the sample therefore demonstrates that although a majority of them report that computers/tablets are used once or twice a week, but have a low Likert scale score for technology attitude (37 versus the 46 of the entire sample), the frequency of 'use' appears not to have bearing on respondents' technology attitude. This would imply the more influential factor is how the technology is being used by their teachers, as this filtered group still report to enjoy it when technology is used in class (54.17%) or anticipate they would like it even though it is not used much (25%).

#### **4.3.2 Further observations of the teacher survey data**

Almost 40% of teacher respondents teach either English or Math (20% each). The majority of respondents were female, 73%, which was to be expected as the teaching profession in Lebanon, at the high school level, attracts more females than males. Most of the male respondents for the teacher survey were between the ages of 31 and 40 (54.55%), while most of

the females were above 40 years old (40%). 87.5% of the English teacher respondents were female, and 50% of English teacher respondents were above 40 years old. 75% of the Math teachers were male, and 62.5% were between 31 and 40 years of age, the rest were 30 or younger. Except for one, all computer/computer science teachers were female.

As with the data from the student survey, the data from the teacher survey was analyzed to determine if there was any relationship between a respondent's gender and her/his response. Gender did not seem to have any bearing on respondents' perception of their technology skills, as the majority of female respondents as well as the majority of male respondents, believe their skills are very good, and they use a variety of technology tools for all aspects of their job. A difference in an answer according to gender can be seen for Q8h ('How often do you require students to – reflect on how the concepts they learn and the work they do in your class is related to other areas of their education.')

80% of males answered either weekly or infrequently (40% for each), whereas 41% of females answered daily. Could it be that females are more aware of the interdisciplinary nature of modern education? Hargreaves (2002: 6) speaks of the importance of interdisciplinary education as "interdisciplinary attention to global education is at the heart of cosmopolitan identity"; cosmopolitanism is a term often inter-changed with global citizenship and has been referenced in this thesis. The highest percentage of responses for the entire teacher sample for Q13d ('Technology has made students less interested in learning.')

was 33% for 'uncertain.' However, 55.56% of male respondents 'disagree' with this statement (0% were uncertain). Only 9.52% of females 'disagree' with this statement while 48% of female respondents are 'uncertain'. The males seem to possess more conviction that technology has not made students less interested in learning.

Questions 11 and 12 of the teacher survey attempt to gather data that will help to illustrate what types of technology tools teachers are using based on how well prepared they believe themselves to be in their use. The data gathered from question 11 was presented above in Table 4.4. The figures below show the data from question 12 of the teacher survey.

Figure 4.22 Teacher respondents' use of given tech tools – part 1

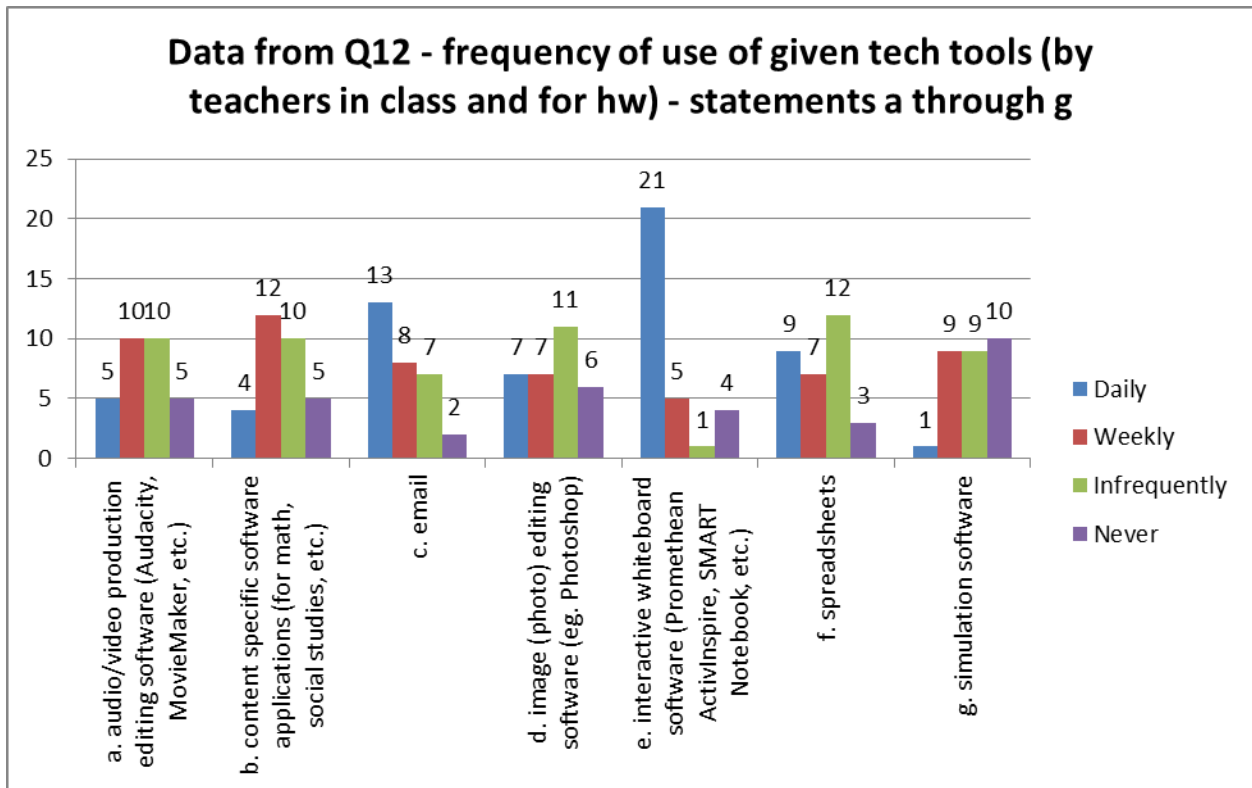
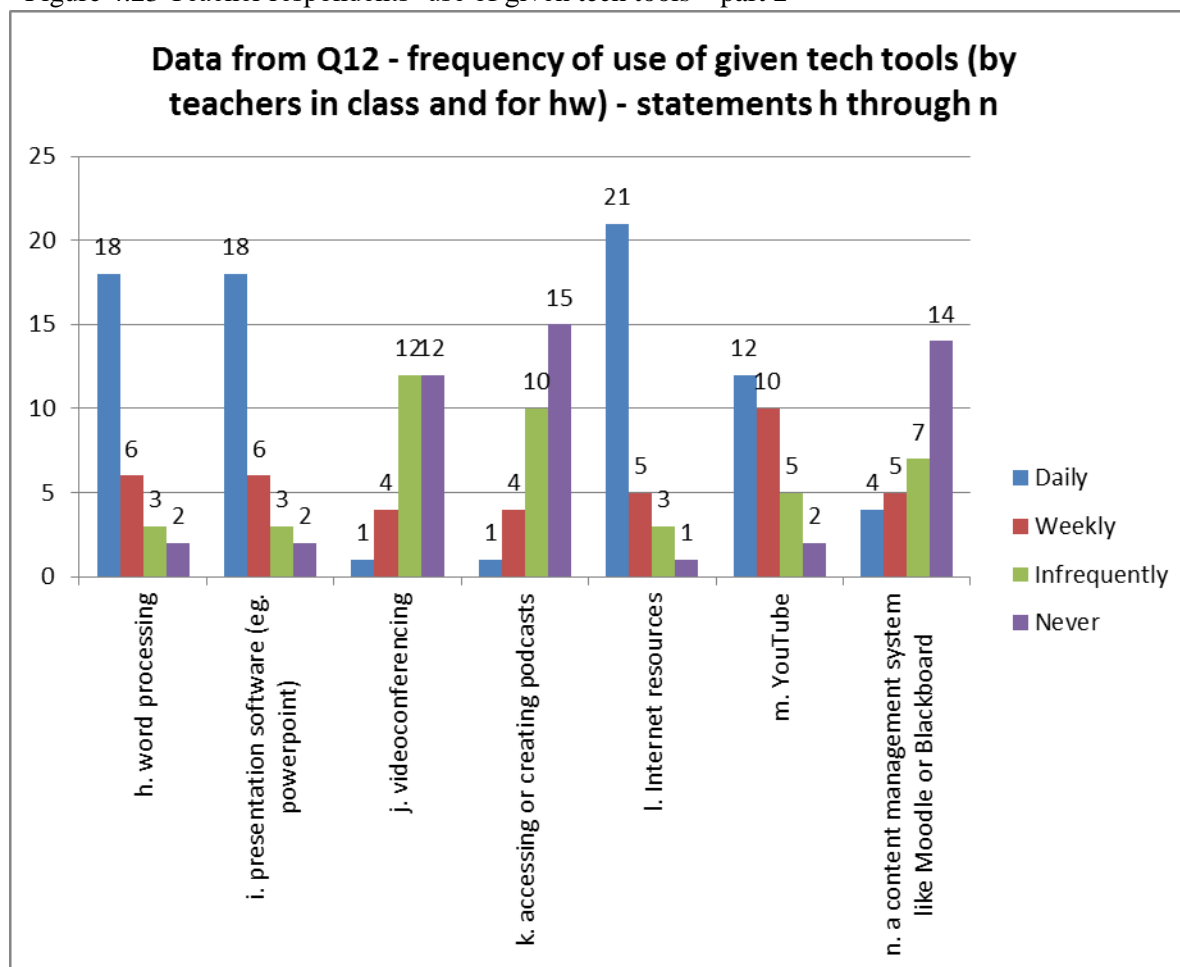




Figure 4.23 Teacher respondents' use of given tech tools – part 2



Simulation software and accessing and creating podcasts are the only two items for which a majority of respondents indicated that they were not fully prepared to use. 45% of respondents indicated they are only somewhat prepared to use simulation software, however 38.71% do feel fully prepared to use it. It is consequently, among the software tools that most respondents indicated are never used in class or for homework assignments. This is being noted here because simulation software is a way to provide authentic learning opportunities for students. The creation of authentic learning situations, particularly through the aid of technology which can

simulate real world situations, is advocated by many leading, modern education theories as a way for students to acquire skills and knowledge (Lombardi 2007; Newmann 1996).

The student survey indicates that technology is very rarely or never used in Arabic class which contradicts with the data provided by the Arabic teacher respondents on the teacher survey. This conflicting data suggests that even though the Arabic teacher respondents perceive themselves to be using technology, they are not doing so in a way that the students, as digital natives, find remarkable or relevant to report.

#### **4.4 Results and analysis of the teacher interviews and student focus group interviews**

A total of seven one-on-one, semi-structured teacher interviews (Appendix N) were conducted; six from School E and one from School D. In addition, two student focus group interviews (Appendix M) were conducted at School E; a grade 11 focus group and a grade 12 focus group. The interview questions were designed to allow for respondents to provide more details regarding the specific ways in which technology is integrated in the teaching learning process, and to elaborate on issues that would reveal their attitudes regarding both technology and global citizenship. The interview findings will be discussed first, followed by the focus group findings.

#### 4.4.1 Results of the analysis of the teacher interviews

Five categories, or themes, emerged from the 7 teacher interviews and are displayed in the table below. I have labeled the first three themes as major themes because they contain significantly more codes than the remaining two, minor themes. Since the data was gathered through semi-structured interviews, the questions were focused to collect information that would illuminate the main strands of inquiry of this study, namely technology use and global citizenship. When referring to the data in the discussion below, quotes will be referenced according to the transcript they come from (T1 through T7) to provide an audit trail (Miles and Huberman 1994).

Table 4.7 Teacher interview themes

<b>Teacher Interview Themes</b>
Benefits of Technology (major theme)
Technology Attitude (major theme)
Citizenship and Connectedness (major theme)
Uses of Technology (minor theme)
Collaboration (minor theme)

##### ***4.4.1.1 Theme: Benefits of Technology***

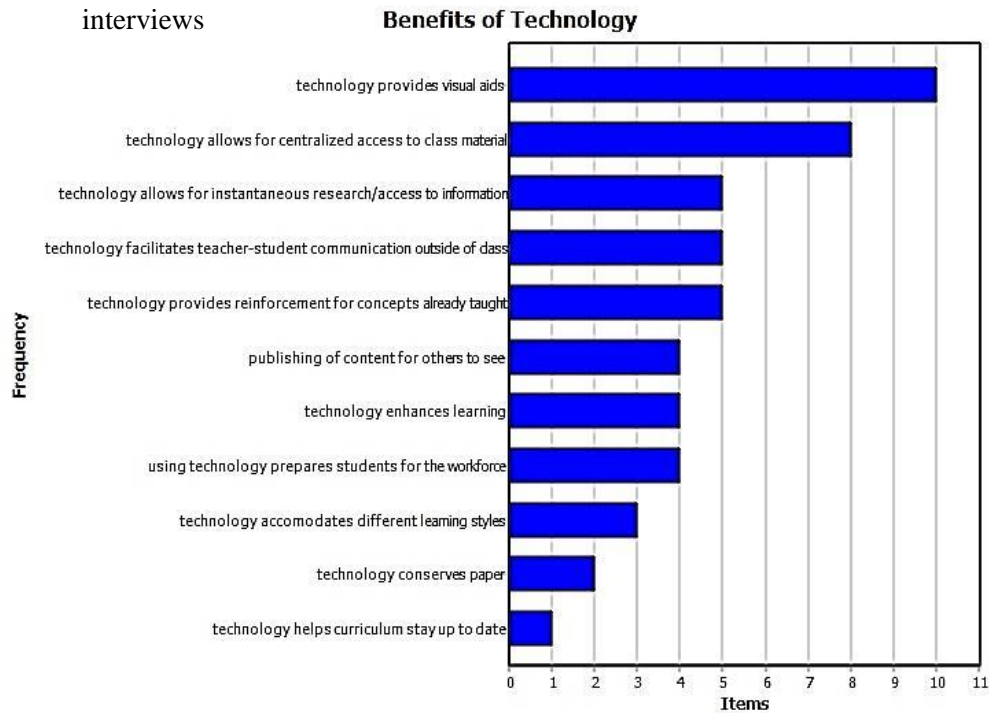
The theme of *Benefits of Technology* contains eleven distinct codes. Respondents were never directly asked to provide their opinion on the benefits of technology; however it became clear through the analysis that respondents viewed technology in a positive light in that it provides a number of benefits to the teaching process. It was evident that the ability of

technology to provide visual aids, be they in the form of maps for Geography class, graphs for Math class, or images of nerve cells for Biology class, was appreciated and exploited by the respondents. Any instance in which a respondent described using some form of technology to provide some sort of visualization for her/his students was coded as ‘technology provides visual aids’. For example, “technology is very important because it actually supports your teaching with visual aids” (T2). ‘Technology provides visual aids’ was the most frequently occurring code under this theme as well as the only code among all themes to appear in 100% of the cases. The fact that technology can offer visualization of often hard to grasp concepts, in the form of simulations, graphing software, and images of things or places that would otherwise be ‘faceless’, is an often cited benefit of technology. A study that investigated pre-service Math teachers’ use of technology in Australia, reported that the teachers found a key benefit of incorporating technology in their lessons was “its potential to engage students with varied visual representations and virtual manipulatives which can aid conceptual understanding” (Holmes 2009:351). This aspect of technology allows for authentic learning experiences to take place, an issue that was embraced by all respondents in this study as evidenced by the frequency of the code in both number and percent of cases.

The second most frequently occurring code under this theme was ‘technology allows for centralized access to course materials’. This code was applied to any instance which involved some type of course material (homework/project assignment, quiz, class notes, etc.) being uploaded to Edmodo (the learning management system used by the respondents’ school). The frequency of its application demonstrates that this benefit is frequently taken advantage of by the respondents. Some quotes that were coded with this code are: “Our communication goes usually

via Edmodo; all the homework and if they're going to submit PowerPoints or work, it goes on Edmodo” (T2), “We construct our writing on the Scrapbook and then students have access to it because I'll upload it on Edmodo” (T4) and “...most of the time I post the homework on Edmodo, they download it along with any notes...” (T6). The following figure shows how frequently all codes under this theme were applied to the data.

Figure 4.24 Frequency of codes of Benefits of Technology theme – teacher interviews



One of the major motivating factors for the integration of technology into education is that this integration will better prepare students for their future jobs in a globalized economy. Facer (2012) summarized several of the assumptions set out by the ‘Beyond Current Horizons’ program which aim to predict how society will change as technology changes over the next two decades. One of the predictions is that more tasks will become automated and “the decrease in size of powerful computing devices means that collaboration with digital technologies becomes

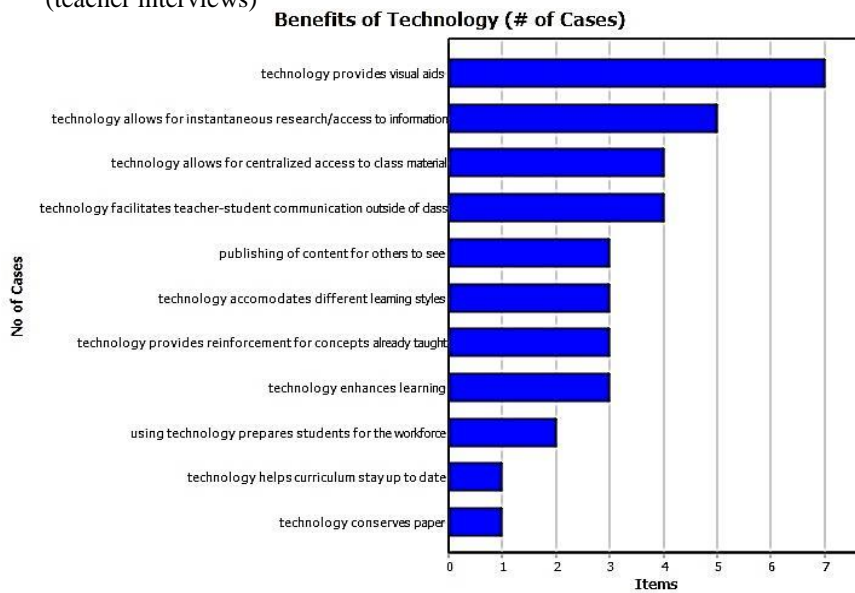
an increasingly familiar part of day to day activities” (Facer 2012: 99). Furthermore, remote working will become commonplace which means tomorrow’s workers must possess the skills needed to adapt to the technologies that will be employed for such work, and technological development will continue to be rapid therefore necessitating the continual development of new skills (Facer 2012).

Today’s students will need to develop skills such as how to effectively acquire, integrate, and analyze information, and share and manipulate that information through socially networked environments (Ananiadou and Claro 2009). These skills and others are not only supported by technology, but are also enhanced by technology. The data from the interviews revealed that using technology in class has the benefit of preparing students for their future jobs (represented by the code ‘using technology prepares students for the workforce’) as it was recognized that the effective manipulation of technology will be a given in almost all jobs of the future. This was not a sentiment however that appeared in all interview cases which is why it was decided to include this code under this theme rather than the *Technology Attitude* theme as it was not prevalent enough in the data, and across cases, to be interpreted as an aspect of the respondents’ attitude regarding technology.

Another frequently occurring code under this theme was ‘technology allows for instantaneous research/access to information,’ actually occurring in more cases (5 out of 7) than the second most frequent code (‘technology allows for centralized access to course material’). This can be observed in the figure below which shows the number of cases in which each code appears. Teachers appreciated the fact that, specifically with the Internet, they could instruct their

students to look up a term, or concept, in class, both in a spontaneous and a planned manner. As some respondents said, “Sometimes I start the class with a small question that they have to search” (T7), and “Sometimes when we are studying something, they might ask me about a certain term or not completely grasp it, so I tell them to look it up online” (T5). The following figure shows how many cases each of the codes for *Benefits of Technology* appeared in.

Figure 4.25 Number of cases each code appeared in – Benefits of Technology theme (teacher interviews)

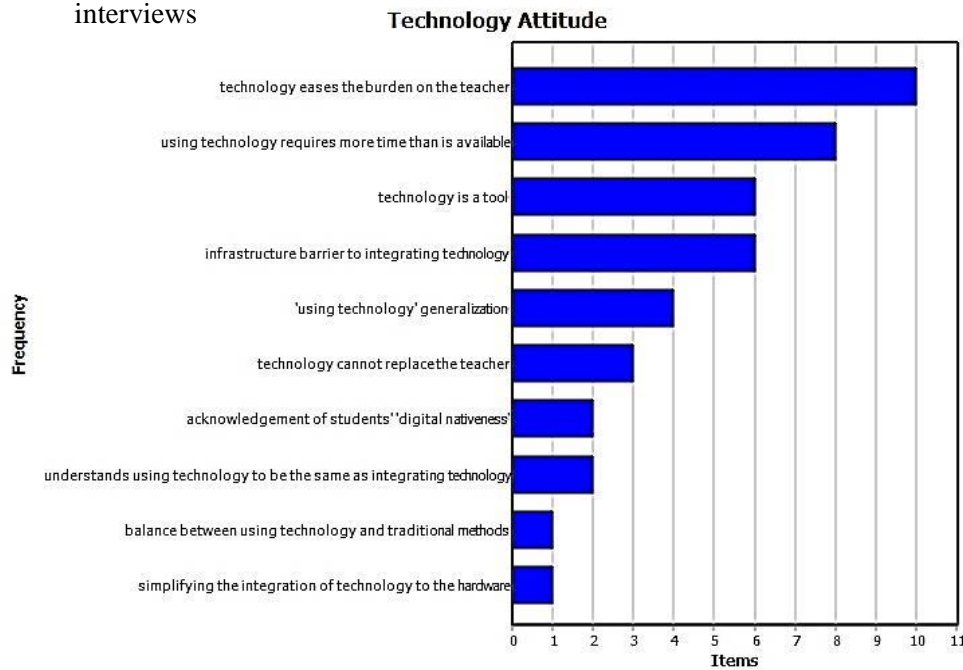


#### 4.4.1.2 Theme: Technology Attitude

There has been much research and investigation into how teachers view the use of technology in their teaching as individual teacher’s attitudes toward technology use is often cited as a barrier to its integration, as was cited in chapter 2 (Hermans et al. 2006). The analysis of the interviews revealed that respondents possessed clear attitudes about technology and its role in education. The *Technology Attitude* theme is comprised of ten codes. Respondents’ technology attitude demonstrates a contradiction between teachers feeling technology can relieve burdens

placed on them while at the same time expressing that the practice of integrating technology consumes too much time and therefore negatively impacts the set curriculum. Furthermore, it was made explicit by respondents that ‘technology is a tool.’ By labeling technology a tool, respondents make it clear that technology is something that is simply meant to supplement, and provide assistance to the teacher who maintains the ultimate control over the management of her class. This view of technology relates to another aspect of the respondents’ attitude which is that ‘technology cannot replace the teacher’. The following figure shows the codes under this theme and their respective frequencies within the data.

Figure 4.26 Frequency of codes of Technology Attitude theme – teacher interviews



The most frequently occurring code under this theme, as shown above, was ‘technology eases the burden on the teacher,’ and it is strongly linked to the top three benefits of technology expressed by the respondents and discussed above under the first theme. Providing visual aids, centralizing access to class materials and resources, and allowing for instantaneous access to



information remove many logistical burdens placed on teachers such as having to manually draw graphs and other images, having to photocopy and produce multiple copies of class materials, and having to be prepared for any question that may arise during a class session. Respondents articulated this aspect of their attitude toward technology in ways such as "...technology is very important because it actually supports your teaching..." (T2), "it's much more easier [sic] using technology" (T1) and "...especially whenever I want to show them the graph so I don't have to graph it, it's already in front of me" (T6).

The code 'using technology requires more time than is available' emerged largely as a result of what was articulated by respondents who taught students in the Lebanese curriculum track, in some cases in addition to teaching those not in that track and following the 'American' curriculum. Students who are enrolled in the Lebanese program must take official exams at the end of their 9<sup>th</sup> and 12<sup>th</sup> years of schooling. The curriculum completely centers on teaching to those two exams, and includes a large amount of content that must be covered throughout the year. Respondents expressed that the pressure to finish all the material does not allow for them to use technology while teaching the Lebanese program, therefore implying that introducing technology into a lesson must happen at the expense of some of the content as it 'takes time' to use technology. One respondent expressed it like this, "Maybe you can use it more often if you have more time, they can integrate it while they're working, but I cannot in my class. I'm limited" (T6). Another teacher said, "I do not believe in taking a lot of stuff from the curriculum so I can use technology 100%" (T2). The same respondent also stated "We need to prepare them and give them practice after practice for the official exams, so you tend to use less technology with them than with other classes" (T2).

It was therefore a clear aspect of their attitude toward technology that its use, although beneficial in its ability to ease the burden on the teacher, requires a certain time dedication that teachers regard as occurring in exchange for something else they may have planned to do. Although the blame seemed to be placed on the fact that using technology would take away from precious time needed to complete the curriculum before students sat for the official exams, these respondents are not the only ones to report that time is a barrier to their integration of technology. In Bauer and Kenton's (2005) research of the state of technology integration in a number of elementary, middle, and secondary schools in the US, the second most reported barrier by teachers to their integration of technology was time; as one of their study participants articulated, "It can be difficult to find a time to squeeze technology into the curriculum when there is so much, skill wise, to teach" (p.534). Similarly, Becker (2001) conducted a study of computer use in American K-12 schools and found that teachers who taught in a 'block-schedule,' which means longer class periods, assigned work that involved computers more frequently than those who taught within a more traditionally scheduled school day.

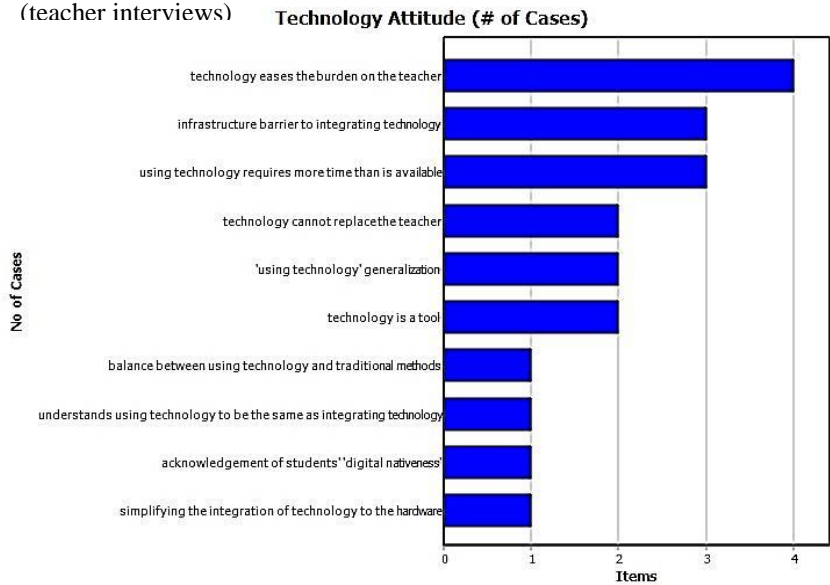
The third most frequently occurring code under this theme was 'technology is a tool.' In chapter 2 the difference between learning "from" computers and learning "with" computers was discussed; scenarios in which learning "with" computers occurs see the transformation of technology from an instructional delivery system to a tool that contributes to the development of students' cognitive skills (Ringstaff and Kelley 2002). It was noted however, that more advanced technology is required to achieve learning "with" scenarios. The 'tools' teacher respondents of this study are using, based on what both they and the student respondents reported, are not advanced technology. Respondents who exhibited this aspect of their technology attitude usually

did so explicitly such as one particular respondent who said, “Technology for me is just a tool for them to be exposed to...” (T4). Castells (1999) agrees with the concept of technology as a tool, as he states that “information and communication technology is the essential tool for economic development and material well-being in our age,” however he expands on this statement explaining that to conceive of technology as merely a tool does not attribute it its proper role in the network society. This concept is discussed in more detail in the discussion at the end of this chapter.

Equal in terms of overall frequency as the code ‘technology is a tool,’ but more frequent as far as the number of cases it appeared in (as shown in the figure below), is the code ‘infrastructure barrier to integrating technology.’ Respondents’ attitude toward technology is affected by what they view as hindrances to its effective use. Lebanon experiences electricity rationing which results in power cuts, sometimes scheduled and other times not, which obviously will create unwanted interruptions during class when hardware that requires electricity to function must restart as a result of the electricity being switched off. In addition to the electricity issue, as already mentioned in this thesis the Internet speed in Lebanon is among the slowest in the world, which means that streaming or downloading anything of a certain size will require a certain wait time. “It's not easy to practice collaboration with an Internet connection that's not so reliable, and same with the electricity” (T4). “You know in Lebanon the Internet is not as fast as possible, you cannot always depend on the technology, especially if you are using the Internet” (T6). The fact that these obstacles exist creates a kind of pessimistic feeling that colors the technology attitude of the respondents. The belief that implementing teaching methods that utilize technology requires time that often cannot be spared, within an environment that does not

always make this utilization easy and smooth, results in a technology attitude that will not encourage extensive integration of technology. The following figure shows the number of cases each code of the theme *Technology Attitude* appeared in.

Figure 4.27 Number of cases each code appeared in – Technology Attitude theme (teacher interviews)



All respondents were asked if they feel confident using technology in their teaching and all of them replied affirmatively, and in some cases very strongly. This aspect of their attitude toward technology disagrees with some of the literature referenced in chapter two that reveals that the most frequent reason given for not using technology is that teachers feel their technology skills and knowledge are deficient (Williams et al. 2000). What was observed in the interview data is that the respondents comprehend the phrases ‘using technology’ and ‘integrating technology’ to be equivalent. Two of the codes express this aspect of their technology attitude; ‘‘using technology’ generalization’ and ‘understands using technology to be the same as integrating technology.’ In chapter one, the definition of technology integration was discussed and it was stated that although there is no definitive or universal definition of what it means to

‘integrate’ technology, there are certain parameters that appear in the literature. The clearest way to differentiate between integration of technology into teaching and simply using technology in the classroom is if the technology tool is being employed for low-level use or high-level use. The data from the interviews reveals that much of the technology use that is occurring is low-level, mainly in the form of Internet searches, as will be discussed below in the theme Uses of Technology. The code ‘understands using technology to be the same as integrating technology’ emerged because respondents were asked specifically how they *integrate* technology into their teaching, however their responses to this question demonstrated that the activities that include a technology component are low-level activities, mainly searching the Internet and projecting PowerPoint presentations. This code is related to the code ‘using technology generalization,’ but warranted its own separate code because it was observed that there were several instances in which respondents were unable to be specific about the ways in which technology is employed in their classes and therefore simply said “using technology...” For example, “I give them the time to use technology to prepare what they know already” (T2) and “Everything is done using technology” (T1).

As cited in chapter 2, some studies have shown that teachers do not hold the same positive view of technology that is characteristic of most students today (Li 2007). This attitude however, was not discovered among the participants of my study. Furthermore, many of the teachers in Li’s (2007) study expressed that integrating technology is a “waste of time”. The teacher respondents in my study did not go so far as to express that technology integration is a waste of time, rather they expressed that it requires more time than they can spare given the rigor of the Lebanese program. Like in Li’s (2007) study though, in which teachers were reluctant to

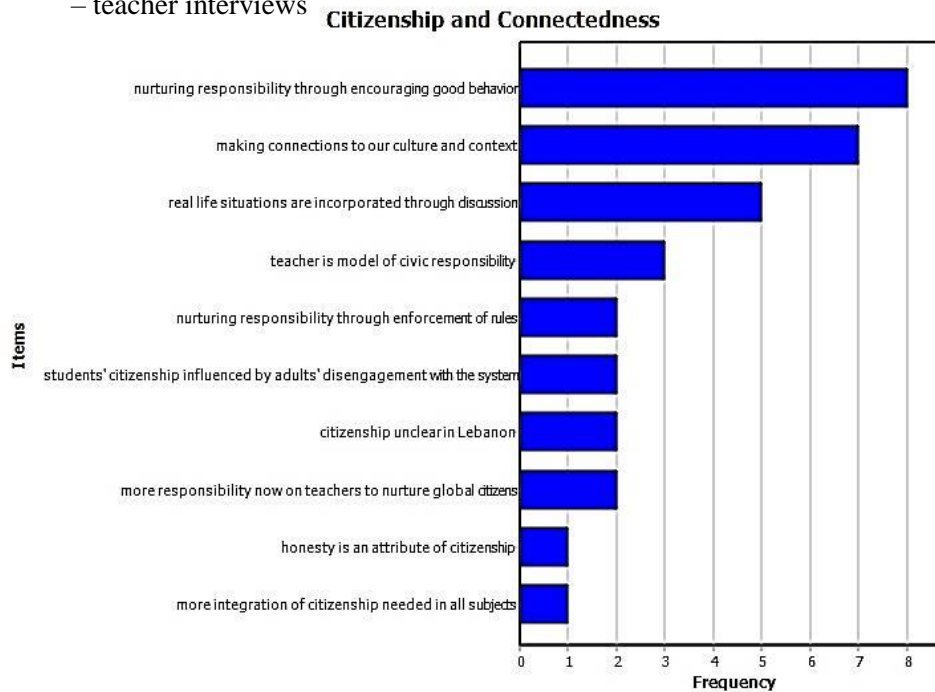
integrate advanced ICT into their teaching, teacher respondents in my study also indicated that they are not employing advanced technology tools such as videoconferencing. Teachers often cite their lack of technological skills and knowledge as an obstacle to integrating technology (Hew and Brush 2006). However, none of the teachers interviewed for my study expressed a lack of technological skills as a hindrance to its use. On the contrary, all expressed a high level of confidence in using technology. Their confidence may be due to the fact that the ways in which they are using technology is not in a sophisticated manner as discussed above and will be further discussed below.

#### ***4.4.1.3 Theme: Citizenship and Connectedness***

*Citizenship and Connectedness* is the third major theme and comprises 10 codes, shown in the figure below. The three most frequently occurring codes, and thus the codes that form the basis for this theme are ‘nurturing responsibility through encouraging good behavior,’ ‘making connections to our culture and context,’ and ‘real life situations are incorporated through discussion.’ Respondents were asked specifically both what they believe their role to be in developing citizenship skills, and how they incorporate real life situations into their teaching. It emerged that citizenship is treated informally and indirectly through the ‘lead by example’ approach, despite what was expressed by a couple respondents regarding a kind of crisis in citizenship occurring in Lebanon (expressed through the codes ‘students’ citizenship influenced by adults’ disengagement with the system’ and ‘citizenship unclear in Lebanon’).

‘Nurturing responsibility through encouraging good behavior’ was the most frequently occurring code and occurred in the most cases (5 out of 7). One respondent expressed this idea when describing a project she had assigned to her students which was connected to a component of their course. The project required that they observe the contrast in living conditions between different social groups within their own communities. The students documented their observations with pictures and quotes and combined them to produce a video set to the soundtrack of the popular song, “Where is the Love?” Their teacher said she assigned this project, “to show that it is actually us, as a community, that can make things better. Even if you're not, you should be opening your eyes and see it, don't ignore it. If you see something, do think about it; this is having global, or community, love in you” (T4). Another respondent expressed this aspect of the theme this way, “So simply teaching them to learn from their mistakes I guess plays a very important role. Telling them to think about the consequences of their actions before they act” (T7). This attitude that good behavior must be encouraged informally and not taught through ‘traditional’ methods of teaching is also reflected in the code ‘teacher is model of civic responsibility.’ Statements that were coded this way include, “I think how you treat them reveals citizenship. Whenever you respect them, they have to respect you back” (T6) and “...through my everyday interactions with them” (T2). Respondents also pointed to the fact that, as citizens we must abide by certain rules, therefore the enforcement of class and school rules is another way through which students’ citizenship is nurtured. The following figure shows the frequency of codes across cases under the theme *Citizenship and Connectedness*.

Figure 4.28 Frequency of codes of Citizenship and Connectedness theme – teacher interviews



As mentioned above, respondents were explicitly asked how much they incorporate real life situations into their teaching. This thesis is investigating the development of students as global citizens which was defined in chapter one to refer to several characteristics, among which are the possession of global consciousness, global knowledge, and global competences. Data collected from this question of real life incorporation would shed light on how these three aspects of students’ global citizenship are being developed. Respondents asserted that they incorporate real life situations into their teaching “all the time” and “a lot”. “Everything has to be connected to real life” (T4). It emerged that *how* this incorporation occurs is mainly through in-class discussions; “we have lots of discussions: are you with or against something? Abortion, for example” (T1), “I always keep up to date on what is happening so we do discussions about these things” (T2), “Even if we're stopping for 5 minutes to discuss how it's connected to our real life,



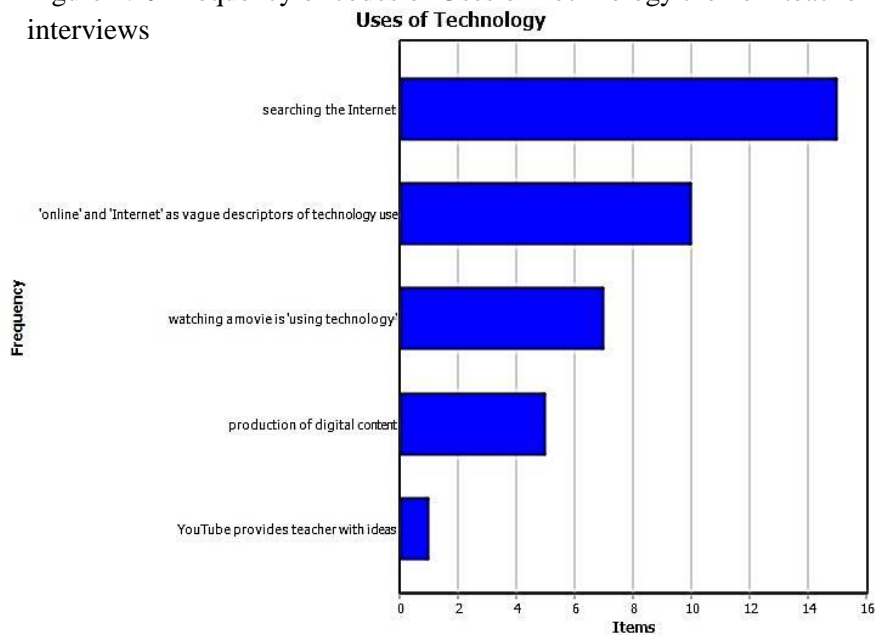
where we are living now, what's happening? How is it connected?" (T4). In stating that real life incorporation occurs through discussion, another code emerged, 'making connections to our culture and context.' Respondents expressed that not only is it important to integrate real life into their teaching, it is also necessary to make students aware of how they and their actions and events that occur in Lebanon are related to and connected to international events, both past and present. The History teacher gave specific examples of these types of connections; "In History as well I connect what we learn to current events. Events that happened in the past, the Sykes-Picot deal and the demarcation of borders, are connected to current events." She also spoke about how she connected the war in Syria to events in Lebanon, and how the students themselves are connected to these events, in this case as victims of an increase in national pollution resulting from the massive influx of Syrian refugees into Lebanon. The English teacher stated, "Any reading that we read about in any culture, we make sure we connect it to our own culture." After inquiring if real life situations are incorporated into their teaching, respondents were asked what type of role technology plays in this incorporation. Respondents again demonstrated that the role technology plays in these instances is also of a low-level, as most respondents reiterated that students are encouraged to perform online searches, or in some cases watch videos.

#### ***4.4.1.4 Theme: Uses of Technology***

*Uses of Technology* is one of the two minor themes to emerge from the data, and is comprised of five codes. How technology is being used/integrated in Lebanese schools is a major line of inquiry of this study and therefore was expected to be an emergent theme since many of the interview questions sought to collect data to answer this question. However, the ways in

which technology is being employed are few and of a low-level nature as already mentioned. Respondents often spoke of ‘using technology,’ as discussed above, but analysis of the data revealed that its use is rather limited and reveals that while technology is being used, it is not being integrated. The figure below displays the frequency of the codes under this theme, across all cases.

Figure 4.29 Frequency of codes of Uses of Technology theme – teacher interviews



By far, the way technology is used the most was found to be ‘searching the Internet.’ To gather data about how technology is used in teaching, respondents were asked how they specifically integrate technology in their teaching, what role technology plays in real life incorporation, and what role technology plays in any collaboration they may require of their students. The final question of the interview allowed respondents one more opportunity to talk about how they use technology, as it asked them to describe their idea of a successful, engaging activity that integrates technology. They were told it could be something they have done before

or hope to do. 'Searching the Internet' was the most frequently occurring code among all codes under all themes, appearing 15 times across 5 out of the 7 cases. It appears to be the go-to technology activity as it corresponds with the expressed benefit that technology allows for instantaneous access to information and the aspect of respondents' technology attitude that technology eases the burden on the teacher; students can now immediately look up terms, concepts, and events when the teacher's explanation is deemed to be insufficient. Bauer and Kenton (2012: 538) reported similar findings in their participants' view of the Internet; "the participant teachers were unanimous in their praise of the Internet, and recognized it as the great landmark in education it has been called." One participant of this study said that she instructs her students to search online about the concept they will study that day before she gives them her lesson. Another respondent said that while preparing her students for the SAT, she directs them to search online for reinforcement for concepts they have already been exposed to.

Complementing 'searching the Internet' is the code 'online' and 'Internet' as vague descriptors of technology use' which occurred less frequently but in an equal number of cases. This code can be seen as a reflection of the 'using technology' generalization' code under the *Technology Attitude* theme. Respondents demonstrated a technology attitude that believes to be 'using technology.' However, upon analysis, the uses described fall mainly under Internet searching and similarly vague statements to 'using technology' which see them using the words 'online' and 'Internet' to establish that they are 'using technology.' The fact that most respondents referred to 'using technology' through the vague descriptors of 'online' and 'Internet' instead of providing concrete articulations of ways in which they integrate technology, when given multiple opportunities to do so, suggests there is a belief among respondents that

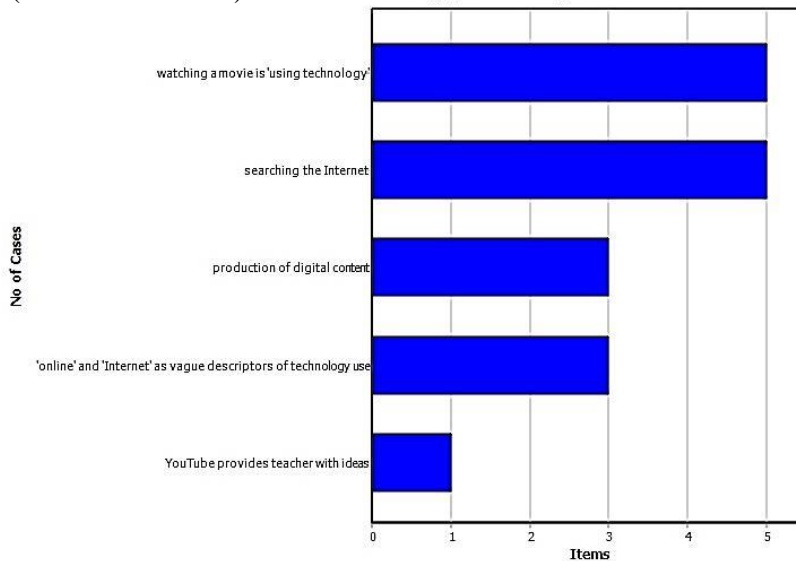
they are using technology at a level that is in reality actually not occurring. When asked how she integrates technology in her teaching, one respondent said, “they use some links, they go to...online” (T1) and another said, “I can't do anything without PowerPoint, without Internet in my class” (T7).

Aside from the computer teacher, the most concrete example respondents were able to give of how they use technology, was by showing videos to their students. The videos could be of experiments, as mentioned by the science teacher, or documentary type clips, as mentioned by the History and English teachers. “I will do a project soon; they [the students] will explain one concept using YouTube. And we will try to post it somewhere, on Edmodo” (T1). “...for each theme I will show a video related to it. I get the video either from TV, in the form of a documentary, or YouTube” (T5). “There was a video of the pendulum, and I showed how they are in phase together and different things. So some videos are really interesting” (T6).

Production of content is considered to be high-level use of technology and can therefore be considered technology integration. This was mentioned five times in the interview data, but only in three of the seven interview transcripts, as shown in the figure below. As discussed in chapter 2, when different technology resources are used to produce multimedia projects, this is considered high-level use of technology and therefore qualifies as technology integration (Cuban, Kirkpatrick, & Peck 2001). The type of digital content being produced, as described by the respondents, are in the form of either PowerPoint presentations, mostly done in groups, or short videos in which the students film themselves. Only the technology teacher described guiding students in multimedia projects that require more specialized digital skills than preparing

PowerPoint presentations and recording videos; “I help them for example to do websites, to make a webpage on the Internet, so everybody all over the world can see it. And I teach them the programming language that they use to make the websites, HTML” (T3). The technology teacher belongs to School D and the other respondents belong to School E. The technology teacher at School E was not interviewed. What is clear from the data provided by the teacher interviews, and corroborated by the student focus groups, is that students are being taught digital skills in computer class, but are not being called on to transfer and reinforce those skills in all subjects.

Figure 4.30 Number of cases each code appeared in – Uses of Technology theme (teacher interviews) **Uses of Technology (# of Cases)**



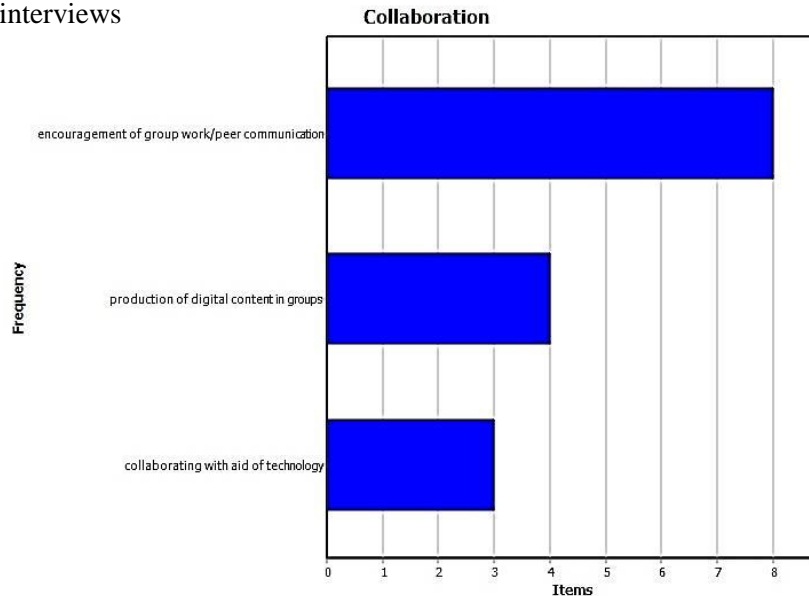
What can be observed in the data shows what Dede (2007b) discusses regarding how the education sector currently lags behind other sectors of society as far as its application of technology. Technology has been shown to improve the effectiveness of traditional teaching methods (Dede 2007b) such as whole class lectures that are now presented in junction with PowerPoint presentations, thus providing a more visual experience for learners. Dede (2007b) also cites the use of word processors as another way technology has enhanced productivity for

students and teachers. Web browsers have as well contributed to the increased effectiveness of traditional teaching approaches by allowing expanded access to information (Dede 2007b). These particular ‘enhancements’ cited by Dede (2007b) have all been found to be employed in the Lebanese schools that participated in this study, as shown in both the surveys and the interviews. In fact, as already presented, students and teachers indicated that the most common ways technology is used in school is through PowerPoint presentations, using Microsoft Word, and the Internet. These ways of using technology however, do not “draw on the full power of ICT for individual and collective expression, experience, and interpretation – human capabilities emerging as core work and life skills for the first part of the 21<sup>st</sup> century” (Dede 2007b: 6). It is this aspect of technology, its ability to allow for “collective expression, experience, and interpretation” that relates to global citizenship and its corresponding skills.

#### ***4.4.1.5 Theme: Collaboration***

The theme of *Collaboration* was an a priori theme, as it is a topic directly addressed by one of the research questions, and was therefore specifically asked about in the interviews. Although it was determined in advance that collaboration would be a theme that would be investigated, the codes were not developed until the analysis stage. This theme is made up of 3 codes, as can be seen in the figure below which shows the frequency of each code.

Figure 4.31 Frequency of codes of Collaboration theme – teacher interviews



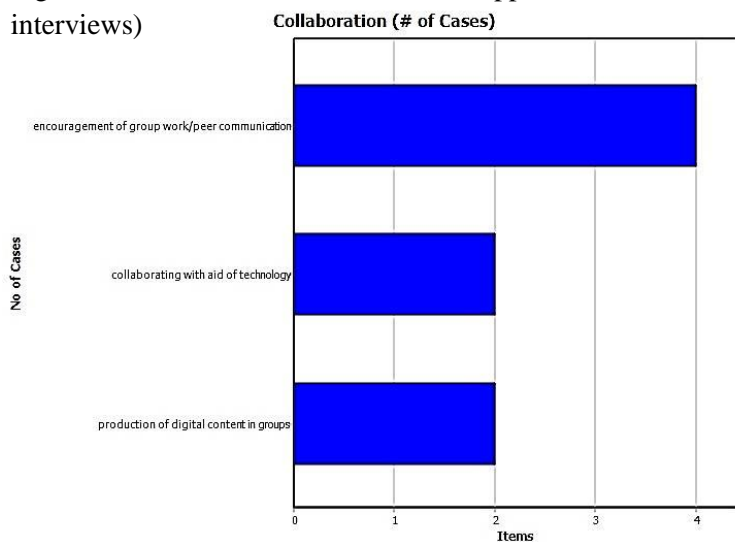
The interviews revealed that group work is encouraged and appears to take place often. The code ‘encouragement of group work/peer communication’ was applied to instances when respondents would mention or describe situations in which they would require students to work in groups to perform a particular task and when discussion among students was encouraged. This code relates to the code ‘real life situations are incorporated through discussion’ under the theme of *Citizenship and Connectedness* as respondents expressed the belief that students can learn from each other. One of the respondents expressed her belief that students can learn from each other and her pleasure at observing this in this way, “I hear them saying, “I don't know this one”, “It's not like this.” I circulate between the students and I hear them saying “Not this way, this way, the other way”. It's very nice to hear this as a teacher” (T3). Another respondent stated that all projects she assigns her students are done in groups, “All the projects that they do is group work. Even classwork, answering all the questions in their book is done through group work. They have to work in pairs or groups to discuss the information” (T1). These statements, and

others made by the rest of the respondents, reveal that communication, and collaboration, among students is encouraged.

The topic of group work was another area in which respondents were vague in their discussion of the subject. Respondents spoke in a general way of putting students into groups for projects, or for experiments in science class. The data did reveal that sometimes it is digital content that is being produced by student groups; thus the code ‘production of digital content in groups.’ This only appeared in two of the cases however, as shown in the figure below. Students today are creators of content, and therefore providing opportunities for students to produce content for educational purposes could further allow them to synthesize their digital skills while at the same time achieving learning outcomes. Tapscott and Williams (2008: 47) have used the term “collaboration generation” to describe today’s young people, as they exhibit eagerness to share content with each other and utilize “the power of mass collaboration” (Leadbetter 2008: 36). Livingstone (2009) asserts however that the engagement many young people actually have with technology, whether at home or school, is realistically more passive and solitary. The following figure shows how many cases the codes of this theme appeared in.



Figure 4.32 Number of cases each code appeared in – Collaboration theme (teacher interviews)



The data suggests that respondents are not exploiting the high level ability of technology to aid in collaboration. Only two respondents articulated ways in which technology facilitates the act of collaboration. The English teacher described using Google Docs for proofreading and editing, thus allowing the whole class to be involved in the process. The Math teacher remarked that technology, specifically Edmodo, allows for students to both pose and answer questions among each other, again facilitating the collaborative process. One participant however acknowledged that this is an area that could benefit from more development and expressed a desire for this to happen,

“I think that when the students are collaborating using technology as a tool, and still achieving the particular learning objective, that's success. That's where we need more work. It's not easy to practice collaboration with an Internet connection that's not so reliable, and same with the electricity. And then the lesson might not work, so we're still not as confident in this area” (T4).

#### 4.4.2 Results and analysis of the focus group interviews

As discussed in chapter 3, two student focus group interviews were conducted in School E; one with grade 11 students (5 girls and 3 boys) and the other with grade 12 students (3 girls and 4 boys) for a total of 15 participants (8 boys and 7 girls). The focus group was semi-structured with questions that sought to provide a context for and further information on students' relationship with technology, data on how students communicate, students' acquisition of global competences and digital skills, data on student collaboration, and students' global citizenship attitudes. Through constant comparison analysis, three themes emerged from the data, and are shown in the table below. When referring to the data in the discussion below, quotes will be referenced according to the focus group they came from (FG1 or FG2) and the participant who expressed them (G1, G2 etc. for female participants and B1, B2 etc. for male participants) to provide an audit trail (Miles and Huberman 1994).

Table 4.8 Student focus group themes

<b>Student Focus Group Themes</b>
Global Competences
Global Citizenship Attitude
Technology Attitude and Use

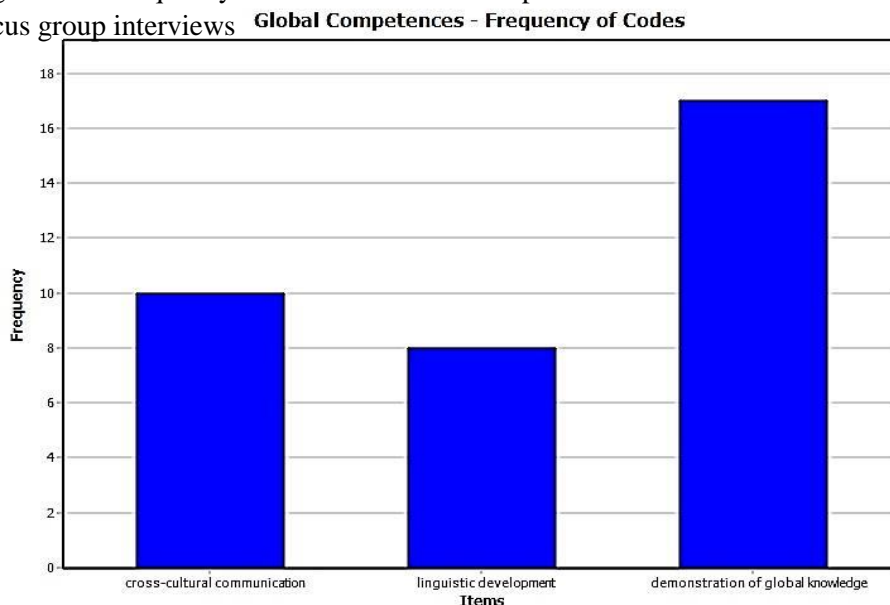
##### *4.4.2.1 Theme: Global Competences*

One of the characteristics of a global citizen, as stated in chapter 1, is being multilingual, or at least aspiring to be. All of the focus group participants are at a minimum bilingual, with most of them declaring themselves to be trilingual, speaking Arabic, English, and French. The

first question students were asked was if they feel their bilingualism/trilingualism is an advantage or disadvantage. All students, in both focus groups, expressed strongly that it is a great advantage to be able to communicate in more than one language.

In chapter 1, it was explained that a characteristic of a global citizen is the possession of global competences which are a set of skills that allow an individual to operate within different cultures. Cross-cultural communication, group work, and digital skills are considered global competences. This theme, *Global Competences*, emerged from the application of three codes: ‘cross-cultural communication’, ‘linguistic development’, and ‘demonstration of global knowledge.’ The demonstration of global knowledge was also discussed in chapter 1 as a characteristic of a global citizen and signifies an awareness of “everyday global connectedness” (Weenink 2008:1092). Multilingualism, or at least the aspiration to become so, is yet another characteristic of a global citizen. *Global Competences* therefore was selected as a general label for this theme as it can encompass these global citizenship characteristics. The following table shows the frequency of each of the three codes of this theme, across both focus groups.

Figure 4.33 Frequency of codes of Global Competences theme – student focus group interviews



The most frequently occurring code in this theme was ‘demonstration of global knowledge’. Participants exhibited their global knowledge 17 different times during the focus group interviews. Two different participants described themselves as being “part of the globe” (FG1-G1 and FG1-G3), another said “We live in a global village” (FG1-G4) and another expressed our connectedness in this way, “Every single one of us contributes to another thing, which leads to another thing” (FG1-B1). One participant demonstrated his global awareness by articulating that his multilingualism will afford him more job opportunities in the future. Participants exhibited their global awareness in multiple ways, specifically the understanding that even small actions by individuals can affect the global society: “If you do something by yourself and everyone else is just living with it, things aren't going to change, but one small change at a time can lead to a big change” (FG2-B1). When participants were asked the question about cultural diversity, one participant made the point that there are actually more Lebanese living outside of Lebanon than within its borders. This is accurate, as it is estimated that the Lebanese diaspora is estimated to number somewhere from 8 to 14 million, whereas the national population is 4 million (Kechichian 2015). The participant expressed that he thought this reality makes Lebanon culturally diverse because “when they come back they bring with them new stuff” (FG2-B1). It is clear that these participants possess awareness that there is a connection among individuals and events that occur across the globe, and that they themselves might be and have been affected by the global nature of society.

The ability to communicate across cultures with the aim of building networks is a skill of global citizens, and one that appears to be receiving nurturing in the participants of this study. By virtue of their linguistic abilities, these participants, like the majority of Lebanese students, have

the ability to practice cross-cultural communication, if not the desire to do so as well. The focus group participants expressed in several instances that they recognize the value of cross-cultural communication and aspire to practice it; thus the emergence of the code ‘cross-cultural communication’. “It’s better to talk with other people, not just those from your country, you learn about their conditions” (FG1-G5). Another participant expressed that it is an important way to experience a kind of belonging when she said, “you find people who you are connected to” (FG2-G2).

Facilitating cross-cultural communication is the ability to speak more than one language, a characteristic of a global citizen. All participants are at least bilingual, with many saying they are trilingual. All participants regard this skill as advantageous and expressed multiple times their desire to continue its development which led to the code ‘linguistic development.’ Participants provided several instances of technology aiding them in their linguistic development. YouTube is a common resource for their language development, as one student described,

“You can go to YouTube videos and see, am I pronouncing this right, or how can I be more fluent in this language. Like me, the way I’m speaking now is through the help of videos and teachers. I used to speak Arabic only, and pronounce English words in a funny way. Ms. \*teacher’s name\* helped me, she used to show me videos and tell me to imitate them” (FG2-B1).

Another participant said “I wanted to learn a new language, Greek. So I found lessons online and they told you the way to memorize words, easy tricks, and pronunciation. It really helped” (FG1-G3). Another participant expressed that he enhances his learning of French by turning to online

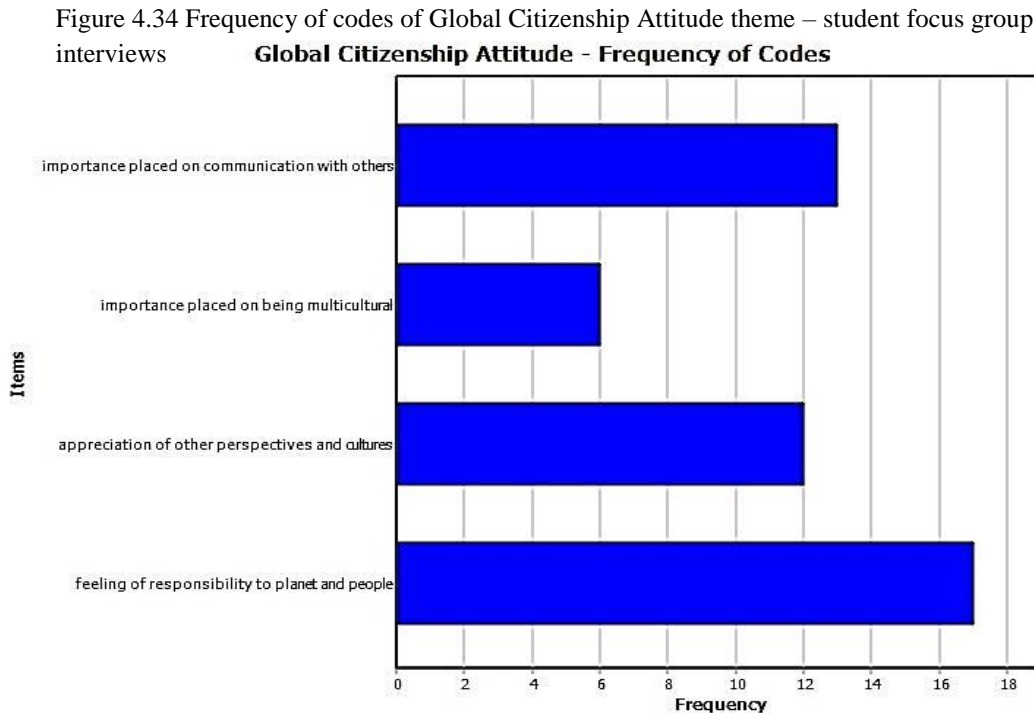
sites and CDs. The participants' pride in possessing foreign language skills was evident, and their avenue of choice for enhancing their language skills is technology.

I began the analysis with an a priori code, group interaction, knowing that during the focus group I specifically asked about collaboration and how much group work occurs in class. During the analysis, it became clear that group work was only discussed in the context of that question; it did not come up at any other point during the interview, unlike other concepts, and therefore 'group interaction' was discarded as a code.

#### ***4.4.2.2 Theme: Global Citizenship Attitude***

Much of the focus group was constructed to elicit data on the status and makeup of participants' global citizenship attitude, therefore the theme itself was conceived a priori, however the codes emerged through the analysis of the data. The codes that comprise this theme, *Global Citizenship Attitude*, are 'feeling of responsibility to planet and people', 'importance placed on communication with others', 'appreciation of other perspectives and cultures', and 'importance placed on being multicultural.' According to the definition put forth in chapter 1, a global citizen possesses global consciousness which itself incorporates the three cognitive capacities of global sensitivity, global understanding, and global self (Mansilla and Gardner 2007). The cognitive capacity of global self was well demonstrated by the participants who articulated that they perceive themselves to be "global actors" who are "members of humanity" (Mansilla and Gardner 2007). This is particularly reflected in the code 'feeling of responsibility to planet and people'; a code which appeared an equal number of times as the code

‘demonstration of global knowledge’ under the theme *Global Competences* discussed above. The table below shows the frequencies of each code under the *Global Citizenship Attitude* theme.



‘Feeling of responsibility to planet and people’ was exhibited by participants through statements like, “Everyone has a purpose in life to serve the planet” (FG1-G3), “Everyone is responsible for what’s going on” (FG1-G5), and “I feel a responsibility to the people” (FG2-G2). When discussing the problems facing society and facing the world, one participant expressed that discrimination is one of the biggest problems facing the world and said, “If you're put in a situation where you see discrimination, yeah, I would probably stand up for the person because I've been in the position...” (FG2-B1).

The data that was coded as ‘importance placed on communication with others’ is supported by the ‘linguistic development’ code in the *Global Competences* theme. ‘Importance

placed on communication' emerged through analysis as it became evident that the data shows that students not only aspire to develop their linguistic skills as discussed above, but also seek to have the opportunity to simply connect and communicate with others. In chapter 2 the importance of belonging to networks was discussed, and it was highlighted that among other things such as collaboration and digital skills, language and communication skills are necessary for the establishment of oneself within a network. As Castells explains, and as stated in chapter 2, the backbone of the network society is communication technology which has led to a transformation in the actual act of communication since “for the first time in history...written, oral, and audiovisual modalities of human communication” are integrated into the same system (Castells 2010: 356).

The participants of this study exhibited a very positive attitude toward the act of communicating with others and expressed so in various ways and during the discussion of different questions throughout the interview. For example, when asked about the benefits of collaboration, one student said, “communicating with each other” (FG1-G2), and another said, “listening to others and having the ability to communicate with them” (FG1-G3). When asked if they think being bilingual is an advantage, one respondent said, “We have more ways to communicate with everyone” (FG1-G1), and another articulated his answer the following way, “It is an advantage because the only way to be social is through communication. The more languages you have, the more you can communicate, and the more social you are” (FG1-B1). Finally, when asked if they think it is important to interact with people or other students who live outside of Lebanon, the desire for communication with others was also expressed; as one student said, “It's better to talk with other people” (FG1-G5). As cited in chapter 2, Banks (2008)



encourages this interaction with the global community as it helps to contribute to students' identities.

The final two codes within this category are 'appreciation of other perspectives and cultures', and 'importance placed on being multicultural.' The first was applied to any instance in which a participant expressed appreciation for or desire to encounter other peoples' points of view and cultures. The second was applied if a participant mentioned the word multicultural or spoke about wanting to personally enhance his/her culture through the learning of other cultures. Participants readily expressed that it is to their benefit to be exposed to and interact with individuals from different places as it will allow them to develop a multicultural mindset which they believe is important for them to function in society. The participants of this study, like their peers in other countries, will be entering a workforce characterized by the new culture of the network society which is a culture of "mass self-communication, based on horizontal networks of interactive, multidirectional communication" (Castells 2012:220). Castells (2010) explains that the character of communication has fundamentally changed which in turn has shaped the new culture, articulating a direct relationship between the two. This relationship is reflected in the data provided by the focus group participants which demonstrates a strong desire for communication which they believe will increase their exposure to other cultures thus allowing them to, in their words: "know a different way of thinking" (FG2-G3), "understand other people's point of view" (FG1-B3), and "teach you how to show other people your point of view" (FG1-B3). One participant expressed pride that he had been exposed to what he believes was an even more multicultural environment in Dubai before moving to Lebanon, and then experiencing admiration from his peers in Lebanon that he had had that opportunity;

“I lived in Dubai for four years. In school there we were not all Lebanese, there were Lebanese, Pakistani, Indian, Iranian, and more. I got a lot from different cultures, and then I came here and speak to Lebanese people about these cultures and they are like “Wow.” Because some people don't get the opportunity to go out of the country.” (FG2-B1)

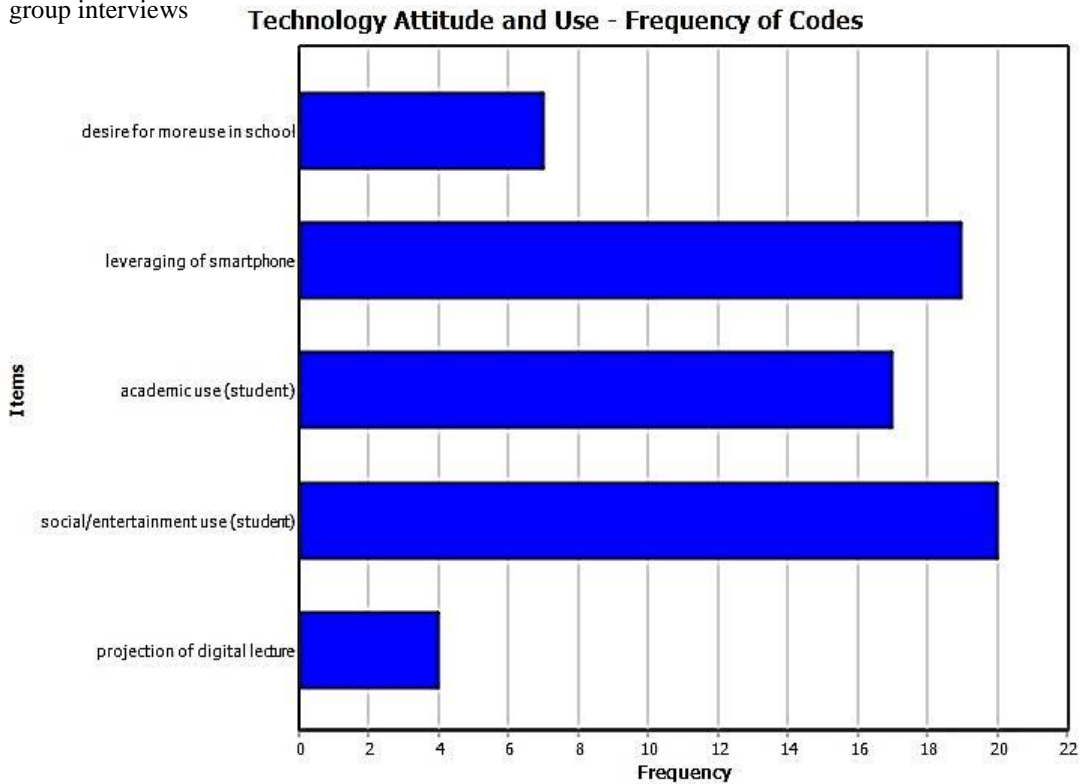
A necessary progression of contemporary education should be a transition from placing importance on simple acquisition of knowledge to guiding students in achieving understanding of the operation of global systems and problems facing the planet (Mansilla and Gardner 2007). The focus group participants were asked what they think are the biggest problems facing the world. The responses to that question were racism/discrimination, pollution, hunger, war, poverty, terrorism/ISIS, and the misuse of technology. The two problems that were mentioned in both focus groups were racism/discrimination and the misuse of technology.

#### ***4.4.2.3 Theme: Technology Attitude and Use***

This final theme contains 5 codes pertaining to how students view and use technology: ‘social/entertainment use (student),’ ‘leveraging of smartphone,’ ‘academic use (student),’ ‘desire for more use in school,’ and ‘projection of digital lecture.’ The emergent codes and their respective frequencies demonstrate that most technology use by students is for social and entertainment purposes and is performed with the use of their smartphones, which they all confirmed they are owners of. This is evidence that these Lebanese students appear to be at a par with their Western counterparts, as it has been reported that youth in developed countries are very adept at manipulating smartphone applications (Haste 2009; Buckingham 2007).

Participants did report technology is being used for academic purposes, both in school and outside of school. There were several instances where participants expressed a desire for more in-depth use of technology at school, as teachers use it mostly for projection of their class lectures. This theme contains the two most frequently occurring codes out of all themes: ‘social/entertainment use (student)’ (20 instances) and ‘leveraging of smartphone’ (19 instances). The table below shows the frequencies of each code of this theme.

Figure 4.35 Frequency of codes of Technology Attitude and Use theme – student focus group interviews



It became clear that students’ use of technology centers on its ability to provide entertainment and easy ways to be social. The most frequently occurring code among all categories was ‘social/entertainment use (student)’. Students discussed their ability to leverage different social networking applications to organize group activities and allow them to

communicate with multiple peers at once. Students also spoke about playing games on their phones and online, and also taking advantage of applications that allow them to read and listen to music. Various studies corroborate these findings which show that these types of activities, specifically communicating via the Internet and mobile technologies, are the types of activities that are most frequently undertaken by most respondents (Caruso and Salaway 2007; Bennett and Maton 2010). Other technology-based activities such as creation of different forms of content, although claimed to be practiced by “digital natives”, are performed with much lower frequency (Caruso and Salaway 2007; Kennedy et al. 2009; Jones et al. 2001). At the end of the focus group, the participants were asked if they use technology more outside of school than during school to which there was unanimous agreement that more use occurs outside of school. When prompted to describe that use, participants did not mention using technology to create content.

Participants did express that technology can help them with their academics and talked about certain instances in which they turn to technology to help them with something academic. As already discussed above, several participants mentioned turning to technology to help them with their language development, doing things like watching YouTube instructional videos to enhance their vocabulary and pronunciation, Internet sites for online language learning, and even taking advantage of apps on their phones that allow for translation or dictionary features when they are reading. YouTube was invoked by a couple participants who said they turn to it to reinforce concepts that they may not have fully grasped at school.

As mentioned above, several participants expressed their desire that more technology be used in school and in a more comprehensive way (represented by the code ‘desire for more use in school’). One participant said, “I wish we could use technology more widely, in a wider range, because we use it, but in a scattered manner. Sometimes we do, sometimes we don’t” (FG1-B1). When asked if there was any software/technology that the participants knew about and wished their teachers would integrate into their teaching, some mentioned Khan Academy, Prezi, and Movie Maker. Participants were also asked if their teachers all use technology in the same way. Participants answered that most of their teachers use technology to project their class lectures which are mostly in the form of PowerPoint presentations.

#### ***4.4.2.4 Conclusion of focus group findings***

When presenting the discussion of the focus groups’ emergent themes, Onwuegbuzie et al. (2009) advise including in the discussion the number of participants who were a part of the consensus that contributed to the theme. Similarly, participants who express dissenting views must be incorporated into the discussion. Therefore, a table was constructed for each focus group which illustrates the type of response given by each participant for each question. The nature of the questions posed to the participants allowed for simple yes and no answers in some cases, as well as the opportunity to elaborate in others. Therefore, the following key was developed to indicate the type of response for each question.

- A = Indicated agreement (i.e., verbal or nonverbal)
- D = Indicated dissent (i.e., verbal or nonverbal)
- SE = Provided significant statement or example suggesting agreement
- SD = Provided significant statement or example suggesting dissent
- NR = Did not indicate agreement or dissent (i.e., nonresponse)
- SS = Provided significant statement for non yes/no question
- MS = Provided short/minor statement for non yes/no question

After the development of this categorization of responses, they were used to contribute to the analysis of the focus group data and the discovery of the theme and categories through the development of the tables shown below. Whether a participant, or participants, provided significant statements versus minor statements (or simple agreement/disagreement), provided indication as to what topics were of more significance to the participants and thus drove the emergence of the themes. The tables are shown below.

Table 4.9 Classification of answers – Grade 11 focus group

Focus Group Question	G1	G2	G3	G4	G5	B1	B2	B3
Q1	SE	SE	SE	SE	A	SE	A	SE
Q1(a)	SE	NR	SE	SE	SE	SE	NR	SE
Q1(b)	SS	SS	MS	SS	MS	SS	SS	SS
Q2	NR	SS	SS	NR	MS	SS	NR	NR
Q2(a)	NR	SE	SE	NR	NR	SE	NR	SE
Q4	MS	SS	SS	NR	NR	MS	NR	SS
Q4(a)	A	SE	SE	A	A	A	A	SE
Q4(b)	SS	SS	SS	SS	NR	SS	MS	SS
Q4(c)	A	SE	SE	SE	SE	A	A	SE
Q4(d)	A	A	A	A	A	A	A	A
Q5	SE	A	SE	NR	SE	SE	NR	SE
Q6	MS	NR	SS	NR	NR	D	NR	SS
Q7	A	A	A	A	A	A	A	A
Q7(c)	SE	A	SE	A	A	NR	NR	SE
Q8	SS	MS	SS	SS	SS	SS	MS	SS
Q8(a)	SE	A	SE	SE	SE	SE	SD	SE
Q9	SS	SS	SS	SS	SS	MS	NR	SS
Q9(a)	A	NR	SE	NR	SD	NR	D	SD
Q9(b)	A	A	A	A	A	A	A	A
Q10	SS	SS	SS	SS	SS	SS	MS	SS

Table 4.10 Classification of answers – Grade 12 focus group

Focus Group Question	G1	G2	G3	B1	B2	B3	B4
Q1	A	SE	SE	SE	A	SE	SE
Q1(a)	NR	NR	SS	SS	NR	SS	NR
Q1(b)	MS	MS	SS	SS	MS	SS	MS
Q2	NR	SS	NR	SS	NR	NR	NR
Q2(a)	NR	A	SE	SE	A	NR	NR
Q4	NR	NR	NR	SS	NR	SS	SS
Q4(a)	A	SE	A	SE	A	SE	A
Q4(b)	SS	SS	SS	SS	MS	SS	SS
Q4(c)	A	SE	SE	SE	A	SE	SE
Q4(d)	A	A	A	SE	A	A	SE
Q5	NR	SE	NR	SE	NR	NR	NR
Q6	A	SE	A	SE	A	SE	A
Q7	A	A	A	A	A	A	A
Q7(c)	A	A	A	A	A	A	A
Q8	SS	SS	SS	SS	MS	SS	MS
Q8(a)	A	SE	SE	SE	SE	A	A
Q9	NR	SS	SS	SS	NR	SS	NR
Q9(a)	A	A	A	SE	A	A	A
Q9(b)	A	SE	A	SE	A	A	A
Q10	MS	SS	MS	SS	MS	SS	SS

The first thing that was noted was which questions generated the least amount of any type of statement; in other words NR's (no responses). The one question common to both groups in terms of the highest number of no responses is question 2 which asked the respondents what cultural diversity means to them. While some participants provided responses, several did not which suggests that it is not a concept that has been discussed with any significance within their orbit. The sub-question to question 2 asked if the respondents think Lebanon is culturally diverse and this generated some discussion. The general feeling among the participants was that Lebanon exhibits characteristics of cultural diversity as it is home to several different nationalities coexisting with Lebanese nationals. Several of the participants themselves explained that they

had lived abroad for some time and therefore themselves help contribute to the cultural diversity of Lebanon. To further that last point, one of the participants mentioned the fact that the Lebanese diaspora outnumbers the actual population of Lebanon and she expressed that this also adds to Lebanon's cultural diversity since those individuals sometimes repatriate or come to Lebanon for visits and bring with them aspects of the culture they have assimilated. Another participant compared his experience in Lebanon to his recent experience living in Abu Dhabi to illustrate that Lebanon may not be as culturally diverse as other countries; "In my old school in Abu Dhabi, there were people from 77 different countries. We don't have that here, we are mostly Lebanese and Syrian or Palestinian" (FG1-B3).

Questions that show several participants providing significant statements (SS) indicate particular interest of the participants in that area. Q1(b), Q4(b), Q8, Q9, and Q10 generated the most "significant statements" from the grade 11 focus group. The same questions generated the most significant statements from the grade 12 participants as well, but in smaller quantity. Aside from question 10, all of the questions that generated the most significant statements pertain to aspects of global citizenship; the communication of thoughts and feelings, collaboration and its benefits and disadvantages, identification as a Lebanese citizen or a global citizen, and the biggest problems facing the world.

#### **4.5 Synthesis of survey and interview data and discussion**

The following discussion is a result of triangulating the data collected from the various instruments used in this study. The following sections will be arranged under headings that identify the major concepts that were probed in the research questions. The learning that is



discussed in the following sections was arrived at through respondent triangulation, data triangulation and instrument/method triangulation (Miles and Huberman 1994).

#### **4.5.1 What the data reveals about collaboration**

Research question #2 asks about technology use and its relationship to the development of global competences, as an aspect of global citizenship, in Lebanese students. The data collected through all the instruments reveals that there is a difference in the perception between respondent populations of the quantity and quality of collaboration that is occurring; the student respondents indicated that opportunities for collaboration are sparse, whereas teacher respondents indicated that they hold collaboration to be important and thus contribute to it taking place often.

The majority of teacher survey respondents indicated that they either daily or weekly require their students to collaborate with their classmates during class (Q8c). On the other hand, the focus group interviews revealed that group work does not occur as frequently as is indicated by the teacher survey. When asked in the focus groups how often participants engage in group work, the answers were “rarely”, “less than usual, less than we used to”, “there are more days of not working in groups.” Furthermore, technology is not being leveraged to facilitate the collaboration that is taking place. Only 6.45% of student survey respondents indicated that online discussion boards or forums are tools that are used in class. Furthermore, 60% of student respondents indicated that they never use tools such as video conferencing, online discussion boards, and online collaboration tools like Skype to work with others. As mentioned above, one

of the teachers interviewed expressed that she believes the area of collaboration, specifically with the aid of technology, is an area that “needs more work”. This was corroborated by the teacher survey as the majority of teacher respondents indicated that they infrequently or never create opportunities for their students to collaborate with others who live in geographically distant places (Q8d), and infrequently or never require their students to participate in online projects that allow students to share work over a certain period of time using online forums and online programs (Q8e). Despite the fact that teachers are not providing their students opportunities to leverage technology to collaborate, 91% of teacher respondents believe that the integration of technology into teaching promotes student collaboration (Q9c). Students as well, realize the power of technology to allow them to connect with others as most student respondents either agree or strongly agree that technology allows them to be involved in discussions that they couldn’t participate in without access to technology (Q16f).

Collaboration has been regarded as a necessary skill to develop as the ability to work with others and in groups has always been desirable. However, it has been argued that the degree of importance placed on the skill of collaboration has increased in the current era, and is now included in discussions of 21<sup>st</sup> century skills (Dede 2007b). The context for which today’s students are being prepared for is characterized by more significant cooperative practices than those of the industrial era (Dede 2007b; Karoly and Panis 2004).

The findings of this study suggest that the two respondent populations (teachers and students) have different perspectives when it comes to learning through collaboration strategies. From the teachers point of view it could be surmised that they think that since they are using

collaborative strategies and certainly digital tools, more than was used when they were students that collaboration is strongly present in their classrooms. However, these students who are digital natives and used to using digital devices both autonomously and through collaborative games etc. find that what happens in the classroom versus on their own time is much less in terms of collaborating with their friends. The amount of collaboration in these schools does not seem to be meeting the needs of this student population or of 21<sup>st</sup> century education.

#### **4.5.2 What the data reveal about how students are using technology**

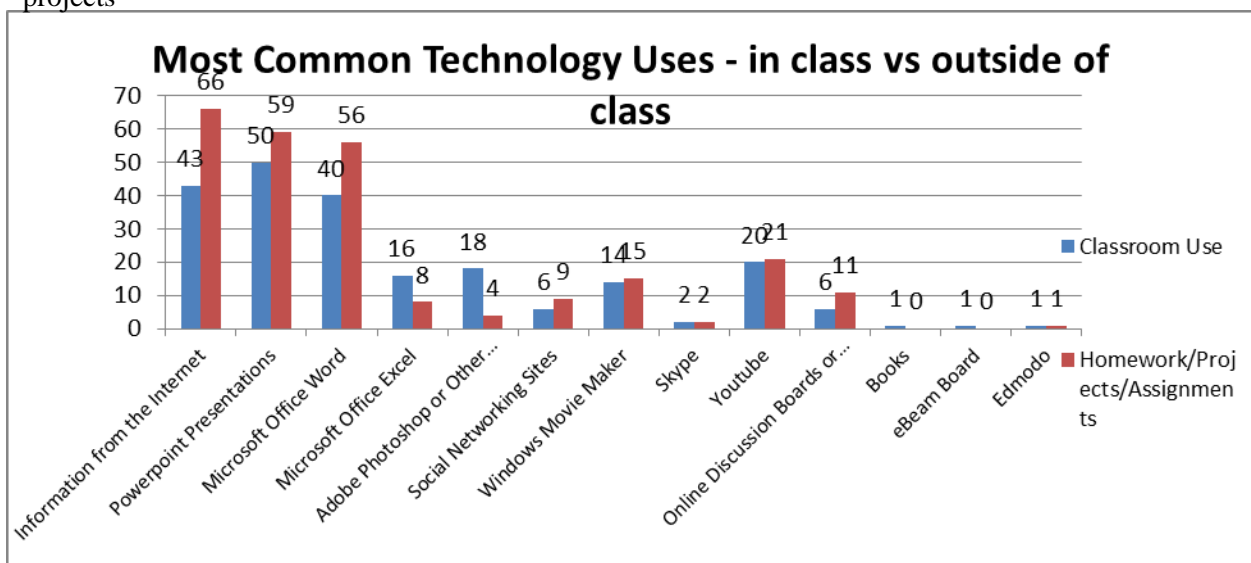
Central to the research aim and research questions is the issue of how students are using the technology and does that use nurture global citizenship attributes. As revealed above, it is clear that they are not using technology to collaborate for academic purposes. The data collected from all the data collection instruments revealed that the ways in which students use, or are instructed to use, technology in a classroom setting are low-level and is of less quantity than technology use outside of the classroom.

The data exposed that students wish more technology would be used in class and in a more in-depth manner. Li's (2007) study generated similar results in which students commented that they use more advanced technology at home than what they use in class and articulated hope for more frequent use in school. Chapter 2 of this thesis also cited Kent and Facer's (2004) finding that students engage more regularly with technology at home than at school. When the participants of this study were asked what specific kind of software they would like their teachers to integrate, students responded with Prezi, Movie Maker, and the website

FreeRice.com. FreeRice.com, they explained, is a site that donates rice to the UN World Food Program for each correct answer submitted by site visitors for a given set of questions. The students said that only one of their teachers had used the site in class and not often despite their enthusiasm. The students' positive reception of the integration of such a site into the teaching process highlights their desire to have technology incorporated into their learning in a way that allows them to practice global citizenship.

The surveys, teacher interviews, and student focus group interviews all provided data that illustrated clearly that the way technology is used the most is through “searching the Internet.” In addition, according to the student survey, this searching along with the other most common ways technology is used, PowerPoint presentations and Microsoft Word, all happen more away from the classroom. The following table illustrates this; it shows how many respondents indicated each of the given technology uses, either in class or for homework/projects.

Figure 4.36 Comparison of most common uses of tech in class vs. for homework/ assignments/ projects



‘Where’ students interact with technology is a finding of this study that is corroborated by other studies already discussed in this thesis. Students almost unanimously acknowledged that they use technology more outside of school than during school. Students recognize that technology provides tools and opportunities for them to enhance their academic skills, specifically language acquisition, but in general they still look to technology as a tool for entertainment and socializing. Students specifically talked about their use of social networking applications. Educators have recognized the prominent role social networking plays in learners’ lives and have therefore sought to explore ways to leverage this reality (Selwyn 2009a). This does not appear to be taking place in any significant way among the schools studied for this thesis. The school that participated in the interview stage, however, has implemented the use of Edmodo; educational software that has tweaked the general features of a social networking site and adapted them for educational purposes. All of the teachers interviewed from that school reported that they access Edmodo every day.

As Mason (2006) states, and as mentioned in chapter 2, social networking applications can take on an educational quality as they simulate the context of the school by allowing peer interaction and feedback, but in a space remote from the school site. There are many proponents of attempting to find ways to incorporate social networking into the teaching learning process (Ziegler 2007; Bugeja 2006). However, there are others who are not as optimistic about the educative potential of these applications (Brabazon 2007; Cassidy 2006). This study was focused on technology that is used in the classroom, therefore in-depth data regarding students’ use of social networking and teachers’ attitudes toward that particular technology was not investigated. It was simply revealed that, like their western counterparts, Lebanese students interact with

social networking applications on a daily basis to communicate with each other and organize group activities. Literature cited above supports this finding as various studies have found that communicating over the Internet and specifically with mobile technologies is one of the most frequently undertaken activities by young learners (Bennett and Maton 2010; Caruso and Salaway 2007).

It is clear from the data collected for this study that the social and entertainment aspect of technology forms a big part of Lebanese students' technology attitudes and use. Student participants in Li's (2007) study reported that the technology they use at home was more advanced than what was used in their classes. Student respondents in this study did not explicitly express that the technology they use at home is more advanced than what is used in class, but they did report using technology more outside of school and expressed a desire for more technology to be used in school. The data from the focus group interviews indicated that the most common technology use by students falls under the category of social or entertainment purposes, and this use occurs through the manipulation of their smartphones. In fact, the most frequently occurring code among all categories to emerge from the student focus group data was the code indicating an instance in which a participant articulated a social or entertainment use of technology.

Another global competence that is an aspect of global citizenship is linguistic skills and/or the desire to enhance those skills, as discussed in chapter 1. The survey revealed that most students believe it is necessary to know at least one foreign language; a view that was corroborated by the focus group participants who all stressed their bilingualism/trilingualism as

an advantage. Furthermore, technology plays a big role in the development of their linguistic skills. The focus group participants cited YouTube and free online courses as resources that they use to enhance their language skills; resources that they use on their own time and not during class. The survey data corroborates that any type of technology use aimed at language enhancement and acquisition, except for English, occurs outside of the classroom as indicated by how students reported technology is being used and in which classes. The survey data revealed that technology is rarely, if ever, used in Arabic and French classes.

#### **4.5.3 Technology attitudes of teachers and students**

Both student and teacher respondents in general have positive attitudes regarding technology having a role in education. The Likert scale of the teacher survey that measured respondents' technology attitude has a total score of 47 and the score of the sample is 43.08, indicating an affirmative attitude regarding the integration of technology into the educative process. In addition, most teacher respondents reported that their technology skills are very good and that they use a variety of technology tools. The teacher respondents, however, contradict themselves somewhat by reporting that they almost exclusively conduct their classes through whole group presentation style. Therefore, despite teachers' apparent positive outlook at integrating technology in their classes, in practice they appear to still be ramping up to it. Similar to the teacher respondents, the students' score for the Likert scale on their survey that measured technology attitude (Q16) is 44.24 (out of a possible 56); while not a strongly positive attitude, still an affirmative one.

The positive attitudes of both populations revealed in this study provide an excellent starting point for the development of technology use and the possibility of utilizing its potential in developing global citizens. Students in this study are very confident particularly in their ability to use communication technologies. The data shows that students who reported more frequent technology use in school reported in higher numbers their confidence in using communication technologies than students who reported less frequent technology use in school. This may signify a pattern that shows the more technology students use at school, the more their confidence in its use increases.

Teacher respondents in Li's (2007) study expressed reticence to integrate more advanced communication technologies such as videoconferencing into their classes. Advanced communication technologies were reported to be very rarely if ever used in the Lebanese schools that participated in this study. Teachers did not explicitly express an attitude of reticence toward their use; what could likely be a reason for the lack of any use of advanced communication technologies is infrastructure barriers that many teachers cited. Lebanon is a victim of slow Internet connections, low bandwidth, and frequent power cuts. This is a valid barrier, but likely not the deciding factor. Levin and Wadmany (2008) discuss the wide gap that exists between the desire teachers claim to have to integrating technology and the actual use on the ground. They say this gap is not due to a lack of access to resources, nor even software and hardware issues, rather an incompatibility exists between the big picture goals of education and the specific curriculum goals and materials (Voogt and Pelgrum 2005).



Scrimshaw (2004) highlights the fact that introducing technology into the classroom has not only been an innovation in terms of technology, but also from the perspective of teaching; teachers have to not only learn how to manipulate the technology but also change the way they teach in a fundamental way. As far as this study shows, teachers are very confident in their technology skills, therefore they at least think they have learned how to use technology, but they have not yet altered their teaching in a fundamental way as demonstrated by the particular technology tools they choose to use and the ways they are using them. As cited in chapter 2, the conceptual framework developed by Liu and Velasquezbryant (2003) for explaining the characteristics of technology integration provides insight into what is missing in the practice of integrating technology in Lebanese schools. The interaction of the three dimensions of Information, Technology, and Instructional Design is what eventually results in effective technology integration for learning (Liu and Velasquezbryant 2003). Despite the majority of student and teacher participants of this study reporting that technology is used quite frequently, the Instructional Design dimension of Liu and Velasquezbryant's (2003) model is neglected thus resulting in circumstances "where technology was simply added to the learning processes without careful design of the instruction component" (Liu and Velasquezbryant 2003: 9). The data shows that the tools that are used the most mainly serve the purpose of facilitating 'traditional' teaching methods.

Teachers in this study are well aware of the benefits integrating technology into their teaching can have on their students' engagement and learning. Furthermore, 91% of teacher respondents believe that integrating technology into teaching can promote student collaboration, yet in practice are not orchestrating opportunities for that to take place, as discussed above.

Student respondents also recognize the power of technology in connecting them with others and believe that technology can provide them with opportunities to participate in discussions that they otherwise wouldn't be able to participate in.

All of the teachers interviewed for this study view the ability of technology to provide advanced visual aids as one of the biggest advantages of its use. While this is admittedly a big plus for technology and its potential for use in teaching, this type of use falls under the Technological Paradox discussed in chapter 2, whereby the education system tends “to preserve itself and its practices by the assimilation of new technologies into existing instructional practices” (Saloman 2002: 71). Schools are still, by and large, operating within an industrial mode of education and not an information age mode (Albirini 2007).

#### **4.5.4 What the data reveals about global citizenship**

The student participants exhibited the cognitive capacity of global self by articulating that they possess a feeling of responsibility to the planet and to other people. Focus group participants spoke of sharing in responsibility for both causing and solving various global issues as well as contributing to the well-being of others when possible. Participants expressed a responsibility to serve the planet which is an attitude that corresponds with the data gathered from Q4g of the student survey (‘I am concerned about the environment’) that garnered agreement from most respondents. Furthermore, the data from both the surveys and the focus groups exposed students’ global sensitivity and global understanding, which along with global self, contribute to global

consciousness. Participants reported possessing awareness of global events and a recognition of their place in a global community.

Students were clear in their belief that cultural diversity and exposure to other cultures are important aspects of their overall education. Students expressed their respect and appreciation for other cultures, and a desire to cultivate their own multiculturalism. Therefore, as far as the concept of attitude, based on the data collected, the student participants exhibit the characteristics of a global citizenship attitude as defined in chapter 1. According to the data, this attitude is independent of the type and frequency of technology use in the various participating schools, indicating a lack of a strong relationship between technology integration and the development of students' global citizenship attitudes.

As far as global citizenship skills, the data reveals that the skills probed in this research, collaboration, language, and digital skills, are not being developed through a thoughtful integration of technology. The survey data revealed that students rarely, if ever, are guided in the manipulation of collaborative software tools for the purpose of working with their peers. This was corroborated by the data collected from the focus groups. In addition, the data shows that digital skills are not being developed as evidenced by the ways in which both teachers and students report that technology is being used in class.

The data collected from this study illustrate that while student participants possess the attitudes of global citizens, the particular global citizenship skills of collaboration, language, and digital skills are not being addressed through the integration of technology. This suggests that

technology in the classroom is not necessarily a requirement for the development of a global citizenship attitude. As cited in chapter 2, Lapayese (2003: 499) laments the fact that the discourse that puts forth citizenship education as a reaction to the challenges created by globalization fails “to touch upon the relationship between globalization, citizenship, and technology.”

#### **4.5.5 Conclusion of discussion**

It has only been slightly more than 20 years since computers were first introduced into Lebanese classrooms (Kibbi 1995), so for a majority of the students and teachers that participated in this study to report that computers/tablets are now used quite often, from once or twice a week to almost every day, is a commentary on the progress made in the education field in Lebanon. It has clearly become accepted by a number of private schools in Lebanon that computers are a necessary aspect of modern education. These schools, however, seem to have reached a plateau when it comes to technology’s role in the classroom. Teachers’ daily use of the Internet and PowerPoint signify a reliance on those tools to disseminate their content, thus falling under the ‘reliance on technology’ definition of technology use adapted by Bauer and Kenton (2005) from Hooper and Rieber’s (1999) five phases of technology use discussed in chapter 2 of this thesis. Both the surveys and teacher interviews made clear that teacher respondents depend on the Internet and PowerPoint as necessary tools for their teaching and that they view this as technology integration. One of the teacher interview participants said, “I can't do anything without PowerPoint, without Internet in my class.” Nowhere in the data was it apparent that

significant or frequent high-level use of technology is occurring that could be considered true technology integration (Cuban, Kirkpatrick, and Peck 2001).

At the time of Kibbi's study (1995), as cited in chapter 2, an overwhelming majority of the teacher participants (93.32%) articulated the belief that what was more important for student's futures was to learn computer applications and not computer programming languages. That statistic is understandable given the year in which the study was conducted, but twenty plus years on, it would be expected for that attitude to have changed. From Papert (1981) to Prensky (2005), programming languages have been promoted as a means of developing students' thinking skills to the argument that programming is the 'key skill' necessary for 21<sup>st</sup> century literacy. This study revealed however that half of the student respondents are unaware of what a programming language even is.

A pattern was observed in the data in relation to this issue of programming languages. It was observed that, as a group, students who reported a stronger level of agreement with the suggestion that they should learn about programming languages in school, also exhibited stronger global citizenship and technology attitudes than those who reported lower levels of agreement to the suggestion. Upon further investigation, those respondents who strongly agree with the suggestion that they should be learning programming languages in school reported that they use computers/tablet in school almost every day at a higher percentage than that reported by the entire sample; more than half (52.17%) of those respondents who feel strongly that they should be learning programming languages at school versus only 27% of the entire sample reporting almost every day computer use. It would appear that increased exposure to technology

could be making students aware of the importance of digital skills and also simultaneously be making them more globally conscious. Therefore, despite the fact discovered in this study that students possess the attitude of a global citizen regardless of the type and frequency of technology use at school, the data revealed this subset of students who exhibit a stronger global citizenship attitude than the rest of the sample. This stronger attitude appears to be related to the attitude they have about technology, in which they place importance on high level technology use, and this technology attitude appears to be a consequence of more frequent technology use at their respective schools than at other participating schools.

Chapter 2 highlighted a new educational model called the flipped classroom which seeks to utilize digital and communication technologies and their potential educational efficacy. Particularly supported by flipping the classroom are collaborative learning opportunities and interactive activities that are largely group-based (Bishop and Verleger 2013). This study, like in many others, found that “the home tends to act as a site where more young people engage in regular use of the computer for most activities” (Kent and Facer 2004:444). Teacher participants of this study cited the structure of the education system as the main hindrance they face in integrating technology as it results in insufficient time for them to do so. However, as the data shows, there has not been a shift to a new mode of teaching that integrates technology in ways other than simply facilitating traditional teaching styles and methodologies.

#### **4.6 The findings as they relate to the study’s conceptual framework**

As already discussed, technology has played and continues to play a significant role in the development of the network society as perceived by Castells. However, his stance on whether

technology is deterministic or not is quite clear; he does not view technology as a determining factor of social movements or social behavior (Castells 2012). He does, however, grant technology a status higher than that of “simple tools,” and describes them as “organizational forms, cultural expressions and specific platforms for political autonomy” (Castells 2012: 103). The findings of this study show that teachers possess a well-defined, positive technology attitude, and a significant aspect of that attitude is their perception of technology as a “tool”. The teachers of this study don’t assign it the importance and power that Castells, and others such as Howard (2011) and Hussein and Howard (2012) do. If those in the field of education fail to comprehend on a conceptual level the power that digital technologies possess for individuals to leverage, this will be a detriment to the development of local communities in that it could very likely limit their ability to operate within global networks. This concept is what this thesis has attempted to associate with what it means to be a global citizen, both in terms of skills and attitude.

The network society has seen the emergence of a new type of social movement. Around the same time, in the year 2011, groups of people across the world, from Tunisia and the rest of the Arab World, to Spain’s indignadas, to the United States with the Occupy Wall Street movement, expressed their feelings of disgust and disenfranchisement with their governments. In each case, the individual movements erupted as a result of some intolerable event, and picked up steam through the anger people felt toward the political and financial elites they viewed as complicit in creating the problems suffered by the people (Castells 2012). Had it not been for the capacity of digital technologies to provide a space for individuals and groups to express their discontent and intentions, they would not have achieved the feeling of empowerment that

allowed them to carry through with their protests. These social movements were “made possible by overcoming fear through togetherness built in the networks of cyberspace and in the communities of urban space” (Castells 2012:21). The outcome of each of these social movements differed in each country, but the means and processes that gave birth to them and sustained them were extremely similar. While regrettably in some instances, these movements were met with violence and more oppression, most notably in Syria, there were cases that saw positive results thus demonstrating the existence of avenues for balancing out and ameliorating the negative aspects of globalization.

The student participants of this study are entering young adulthood as citizens of a network society characterized by a “new form of networked social movement” (Castells 2012: 29). This new form of social movement coalesced in the Arab world; the region in which they currently live and study. Social uprisings are not a novel characteristic of society, but what is novel is that for the first time, individuals were able to connect the social networks already a part of their lives with social networks on the Internet (Castells 2012). Thus, Castells (2012) notes the presence of an Internet culture is what provided the precondition for the uprisings. The so called Arab Spring began in Tunisia, and this is most likely due to the fact that Internet and mobile phone penetration rates in Tunisia are among the highest in the Arab region. This very clear link between technology and the resulting efficacy and depth of the uprisings is a demonstrable manifestation of the concepts this thesis has sought to explore. Lotan et al. (2011: 1389) studied the various Arab revolutions, and specifically the information flows within them and noted “bloggers played an important role in surfacing and disseminating news from Tunisia, as they had a substantially higher likelihood to engage their audience to participate, compared with any



other actor type.” These Tunisian bloggers and activists, and their subsequent counterparts in the other countries that experienced these new social movements first hand, can be described as possessing the skills and attitudes of a global citizen as the term was defined in chapter one of this thesis. They succeeded in enhancing the social networks they already belonged to by clever manipulation of communication technologies, thus exhibiting their possession of global knowledge and global competences, as discussed in chapter one of this thesis.

It has already been noted in this thesis that Lebanon does not boast particularly high and reliable Internet connections. This does not mean, however, that young people do not have access to digital and communication technologies, as was made clear through this research. All the student participants claim to be proficient in the use of communication technologies. Therefore, Lebanon’s classification as a developing country does not disqualify its citizens from becoming engaged members of the network society. The new technological framework of the network society has led to changes in traditional power relations as a consequence of the altered relationship between technology and communication (Castells 2007). Lebanon again, as a developing country with a less than smoothly functioning political system, highlights a defining social context that characterizes this transformation between communication and power. As Castells notes, and as discussed previously in this thesis, the power of the state has been challenged globally due to limitations put on its decision making as a result of globalization. The state has further been challenged as individuals have questioned and rebuked its political legitimacy thus weakening the state’s influence over its citizens (Castells 2007). This predicament is evident in Lebanon which is home to a corrupt government and consequently a disillusioned populace, particularly among its youth. Globalization and technology have allowed

Lebanon's youth to have access to the world outside of Lebanon; this capability, coupled with a general feeling of apathy toward Lebanon's political and social systems, opens the door for students to explore global citizenship skills and mindsets.

Although small in size, the limited participant sample of this study illustrates how the concepts of global citizenship and the network society are linked. As discussed above in the presentation of the findings of this study, in general the student participants possess an attitude of global citizenship and demonstrate that they possess global consciousness, global knowledge, global competences, and multilingualism. This attitude appears to go hand in hand with the attitude and perceptions they have about technology and its place in their lives and their education. Students who in particular expressed an awareness of more high level technology and uses of technology, were found to possess stronger feelings of global citizenship. Herein lies the link between global citizenship and Castells's network society. The network society has several defining features, however a key feature, and that which is relevant to and has been discussed extensively in this thesis, is the technological paradigm through which it operates and which has led to what Castells (2007) describes as the rise of "mass self-communication." Before the emergence of the information society, communication was controlled by the mass media which constructed a one way message in a one to many configuration.

In contrast, the network society has seen a restructuring of communication by which the diffusion of the Internet, social software, and other digital media has resulted in a "global web of horizontal communication networks that include the multimodal exchange of interactive messages from many to many both synchronous and asynchronous" (Castells 2007:246). Mass

self-communication has emerged as a result of the development of technologies that allow individuals to create content and then distribute it over peer-to-peer networks and file sharing software where it is re-circulated and in many cases reformatted (Castells 2007). In this way, the content created has the potential to reach a global audience, and thus is “mass” communication. It is “self”-communication because the content is generated by the individual, its release is directed by the individual, and the selection of which content to interact with is made by the individual; this process results in many to many communication (Castells 2007). This revolutionary new medium of communication, the pillar of which is computer networks manipulated by globally interactive senders, allows communication flows to be independent of origin and boundlessly diverse as they propagate rapidly both locally and globally. A characteristic of global citizenship, as defined in chapter one, is the possession of global competences, one of which is digital and social skills “that go beyond the local context” (Sussmuth 2007). This skill is a clear response to the new patterns of communication in the network society.

The next and final chapter will discuss how the research questions have been answered based on the findings discussed in this chapter.

## **Chapter 5**

### **Conclusion**

#### **5.1 Introduction**

This thesis investigated technology use in Lebanese private high schools and if that use has any relationship with the development of students' global citizenship skills and attitudes. One of the original aspects of this thesis is that the research was designed within two frameworks; a broad conceptual premise framed by Castells's theory of the network society, in addition to another level of theory that informs two different concepts: theories that look at technology in the educational process and theories of global citizenship.

Globalization constitutes a main theme of this thesis, as it provides a context within which to discuss the proliferation of digital technologies as well as changing attitudes regarding citizenship. It was acknowledged that globalization is a contested concept; however this thesis views globalization from the perspective of those scholars who argue that it is a key characteristic of modern society. The use of technology as it relates to the participation of individuals and groups in the global networks resulting from globalization, and global views of citizenship within a globalized society, was discussed. Chapter 2 constructed a theoretical framework pulling together literature that reports on the use of technology in education from a variety of contexts including the Lebanese context which is the context this study was conducted in.

Chapter 2 also presented the case for a call put forth by many to re-examine the concept of citizenship as the influence of nation states diminishes and the relationships societies maintain among themselves continue to transform (de Andreotti 2014; Banks 2008; Muetzelfeldt and Smith 2002). Furthermore it was acknowledged that education must play a prominent role in promoting and developing global citizenship (Osler and Vincent 2002; Scott and Lawson 2002; Schweisfurth, Davies and Harbor 2002). It was also highlighted that Lebanon provides a unique context for studying and developing attitudes of global citizenship since many schools have transnational links as it is extremely common for students in Lebanon to pursue higher education and/or employment outside of Lebanon's borders (Bahous, Nabhani, and Rabo 2013).

As highlighted in chapter 2, it is necessary to make effective use of communication technologies to enhance students' "capacity to maintain electronic links with a series of overlapping networks in work, social and leisure domains" (Haste 2009: 218) in order to develop civic awareness. This is clearly a call for adapting education to mold future global citizens who possess appropriate digital skills. The research conducted for this study illuminates a context in which students are aware of the globalized nature of the world and society, and acknowledge the intricate role technology plays in their lives, despite the fact that high-level use of technology and true technology integration is not yet taking place in any significant way in the Lebanese schools studied.

This study explored technology's relationship with global citizenship specifically, because it has become clear that the nature of citizenship itself has come into question in the context of a globalized world, and it is a responsibility of education to address this change

(Davies et al. 2005). Davies et al. (2005: 73) argue that supplementing existing citizenship curricula with “international content” or “global education activities” is not sufficient, which is why this thesis has pursued a deeper line of inquiry that is concerned with the development of a specific set of skills, as defined in chapter 1, that can be labeled as skills that should be possessed by global citizens.

It has been acknowledged throughout this thesis that this study seeks to explore if any type of relationship exists between the integration of technology in school and the development of students’ global citizenship skills and attitudes. Through the extensive discussion in this thesis of the role technology has played in the restructuring of society resulting in the network society and the flushing out of the concept of global citizenship in the 21st century, an argument was presented for the potential presence of a relationship between these two major concepts with the institution of education as the linking factor. However, although this thesis suggests an implicit anticipation of a link between the integration of technology in the teaching learning process at school and students’ development of global citizenship skills and attitudes, it has also been acknowledged that this study is not an attempt to “prove” that such a link exists. Rather the study was designed to probe these two major foci and investigate whether or not and what type of relationship may exist between them within the context of the traditional educational setting of the school.

Based on the results of this study, a conclusion has been drawn that students possess an attitude characteristic of the definition of global citizen put forth in this thesis. This attitude exists in a school environment that this study has shown does not exhibit the practices of technology integration as defined by the theories highlighted in this thesis. There is plenty of

low-level technology use occurring, according to the results of this study. Therefore no strong link can be said to exist between the use of technology in what has been defined as low-level and the development of students' global citizenship skills and attitudes as participants' attitudes were recorded to reflect that of a global citizen and did not vary according to the frequency of technology use at the various participating schools. Since it was discovered that the actual application of technology in the participating high schools lacks the characteristics of what has been defined as technology integration, the results of this study leave open the inquiry into the relationship that may or may not exist between true technology integration and the development of global citizenship skills and attitudes. Upon analysis of participants' attitudes regarding technology, a relationship did emerge from the data that indicates a link between the attitude a student has regarding technology and his/her respective global citizenship attitude. This was discussed in the previous chapter and is highlighted below in the discussion of research question 5.

This chapter will discuss how each of the research questions have been answered, followed by a discussion of the study's limitations, and will conclude with recommendations for future research and implications for my professional practice.

## **5.2 Answering the research questions**

### **5.2.1 Research question #1: Does the way in which technology is used in the classroom and for school work result in students' feelings of global consciousness and global self?**

Based on this study, the answer to this research question is that the ways in which technology is used in the classroom and for school work does not result in students' feelings of global consciousness and global self.

According to the findings of this study, students use technology more outside of the classroom than during class. There does however, appear to be a relationship between the frequency of technology use in class and students' perception of their own skills at manipulating it, as students who reported more frequent use in school indicated that they believe themselves to be very skilled in using communication technologies more so than those who reported less use in school. This study discovered that there does not appear to be a relationship between technology use at school contributing to students' global citizenship attitudes. Students who reported that technology is never used, or rarely used, in school have the same level of global citizenship attitude as the rest of the sample.

Teachers and students reported that the ways in which technology is used in class is mainly through full class lecturing by means of projected PowerPoint presentations, Microsoft Word for assignments, and searching the Internet for information. Technology that enhances and facilitates collaboration is rarely or never used. Consequently, the nurturing of students' global consciousness and global self appears to take place mostly through in-class discussions guided by the teacher, therefore not allowing for opportunities to leverage 21<sup>st</sup> century technologies in a way that would contribute to the development of 21<sup>st</sup> century skills characteristic of global citizens. As discussed in chapter 2, there have been moves to capitalize on new technologies to encourage and develop students' civic participation (Haste 2009). Various communication technologies, such as blogging, have already been leveraged to develop the global perspectives of young people (Haste 2009; Dede 2007a), and research has revealed a correlation between playing video games that incorporate civic issues and players' civic participation (Kahne et al. 2009).



### **5.2.2 Research question #2: What type of technology use has had any perceived effect on developing students' global competences, specifically collaboration, language, and digital skills?**

Collaboration is an activity about which there was contradiction between student and teacher participants regarding its frequency. The data revealed that technology tools, such as online discussion boards and forums, are very rarely used in class. Yet, students overwhelmingly acknowledged that technology can provide them with opportunities to become involved in movements, organizations, and discussions that they otherwise would not be able to participate in. This study has revealed, however, that in fact many students are not being given the opportunity in class to take advantage of technology that facilitates collaboration. Teachers claim to require their students to collaborate with each other weekly, if not daily in many cases; however they infrequently or never require their students to collaborate with others who live in geographically distant places. The collaboration required of the students in class is in the form of group work and would appear not to involve technology. Students, on the other hand, reported that even the group work that the teachers report takes place frequently in class, is not happening that often.

Although most students expressed the belief that their possession of digital skills prepares them better for their futures versus students who may not possess such skills, a large number of respondents expressed a neutral attitude about the advantageousness of their digital skills. This neutrality suggests that neither appropriate time is being dedicated, nor relevant methods employed, at school to demonstrate to students the various ways technology is integrated into real-life situations. Students who expressed this neutrality actually reported that most of their teachers use technology and that technology is used once or twice a week if not more, therefore

further demonstrating that frequency of use is not an issue; it is the type of use that will transmit the importance of digital skills.

It is clear from the data that technology, and digital skills, are perceived as a separate subject. As such, there is a separate computer, or computer science class, during which these skills are taught. This indicates an attitude within the schools that digital skills are necessary; however, methodologies have not yet been developed for their integration into all subjects. Students are taught in school, within the context of a computer class, several software packages, such as Word, PowerPoint, Photoshop, Movie Maker, and in some cases more advanced computer science topics. Although they do learn a variety of software programs, the only programs they use with any frequency in classes other than computer class are Word and PowerPoint.

Regarding language skills, the student participants overwhelmingly view their ability to speak two, and in many cases more, languages as a great asset. Furthermore, students expressed a willingness to continually enhance their language skills through the aid of technology such as YouTube and other smartphone apps. English teachers were reported by the students to be one of the teachers who use technology the most. This would suggest that technology use at school does play a role in students' language development, however the strength of that role cannot be measured at this time and is an avenue for further research as will be suggested below under recommendations for further research. Students' multilingual ability is a global competence, and its valuation by the students as something positive is a marker of their global consciousness and global self.

The data therefore allows for this question to be answered by concluding that, at this time, there is not sufficient technology use in these schools that is contributing to the development of students' collaboration skills. In addition, students are encouraged to apply their word processing skills and to prepare digital presentations through PowerPoint, but that appears to be the extent of the nurturing of their digital skills outside of a computer class. The only aspect of students' global competences that might be affected by this type of technology use is their language, specifically their English language skills, as most students reported that they use the most technology in English class.

### **5.2.3 Research question #3: What do teachers view as the biggest obstacles to integrating technology into their lessons while at the same time attempting to prepare their students to be productive global citizens?**

While in general the teacher respondents expressed a positive attitude regarding technology and that it has a place in education, there was variation in whether or not they think technology has made students more or less interested in learning. This ambiguity in the teachers' opinion about students' interest in learning when technology is involved is a reflection of the ambiguity that exists within the domain of technology integration in education in Lebanese high schools. Their ambiguity further suggests a lack of concrete methodologies for integrating technology into all subjects which itself is an obstacle to its integration, although it was not explicitly articulated as an obstacle by the participants. As far as producing global citizens, most of the teacher participants were either uncertain or did not believe that citizenship skills can only be acquired through non-formal learning, however this contradicts with the interview sample who expressed non-formal ways when asked how they believe citizenship skills are nurtured in their students. This finding could mean that the teacher survey respondents did not understand

what was meant by non-formal learning but when expressing their thoughts during the interview were able to clarify their perspective.

A common barrier to technology integration cited in several studies is a lack of technology resources available at school. However, this does not appear to be the case with this study's population. Over 80% of the teachers surveyed and later interviewed reported that they have good technology resources available to them at school, and a large number also reported that they have access to sufficient training in their use. Given what has already been discussed so far in terms of the ways in which technology is being used, the fact that teachers report they receive sufficient training further highlights the fact that they are unaware of teaching methodologies that integrate technology in a high-level way.

The analysis revealed that the biggest obstacle to integrating technology into class is the rigid nature of the rigorous Lebanese Baccalaureate curriculum. This corresponds with research literature that shows that "teachers find it extremely difficult to create a learning environment that fosters creativity within existing school and curricular structures" (Clements and Meredith 1992 in Cox and Marshall 2007:64). The interview data revealed that respondents feel this is the biggest obstacle because they cannot sacrifice the time that is required, they think, to integrate technology. This is one more instance that reinforces the conclusion that teachers are not receiving the right kind of training in teaching methods for the integration of technology, as it should not be regarded as an add-on or something that requires extra time that cannot be spared. Traditional types of workshops and training methods are insufficient for developing in teachers the deep understanding required of them to become proficient, pedagogical users of technology

(Brand 1997; Milken Exchange on Education Technology 1999). There were respondents who indicated that they realize they may not be aware of the different ways in which they can integrate technology, and therefore recognize this as a barrier. Therefore, although the majority of the teacher participants view the Lebanese curriculum to be the biggest obstacle, this actually speaks to the true obstacle which is the lack of awareness and training in methodologies that support high-level use of technology.

#### **5.2.4 Research question #4: Do students feel that their teachers integrate technology in ways that afford them an active role in the global sphere, allowing them to participate in discussions on a global level?**

Despite being encouraged and required to use technology when creating projects and working on assignments, students are not given frequent opportunities to leverage collaboration and communication technologies to become involved in the global sphere. Students believe that they can use technology to participate in global discussions, but they reported that this is not occurring very often.

It is clear that the state of education, particularly in Lebanon, is in the process of a transition as schools and teachers accept and in many cases are eager to introduce 21st century technologies into the classroom, however are manipulating them to fit a 20<sup>th</sup>, or even 19<sup>th</sup>, century model of teaching. Livingstone (2012) proposes that the education system should leverage the fact that students enthusiastically engage with technology outside of school by allowing for a more flexible and student-centered atmosphere in school which incorporates technology such as “instant messaging, online gaming, and social networking to foster constructive learning practices, peer collaboration and learner motivation”; skills that are

necessary in a globalized world operating in an information economy (p.17). As reported by the teachers in this study, and corroborated by the students, the main method of information delivery is full class lecturing, in which the role of technology simply replaces older tools but has not resulted in a change of teaching style and therefore a change in the teaching learning environment.

### **5.2.5 Research question #5: What relationship, if any, exists between students' technology attitudes and global citizenship attitudes?**

The data gathered from the participants of this study shows that whether a student reported that he/she enjoys it when technology is integrated into his/her classes or not, does not have an effect on the student's global citizenship attitude. Therefore, an attitude of 'enjoyment', or lack thereof, towards the use of technology in class, does not relate to students' global citizenship attitudes, which remained high regardless of their reported enjoyment of technology use. However, the data shows that the type of technology attitude that shows a relationship to global citizenship attitude is one that exhibits an understanding and acknowledgement of the important role technology plays and will play in the students' futures.

An interesting pattern to emerge from the data is the apparent tendency for students who recognize the importance of acquiring the digital skill of programming languages to have higher global citizenship and technology attitudes, as evidenced by their Likert scale scores. This speaks to an awareness on the part of these students of the importance of acquiring digital skills for the future workforce which in turn perhaps signifies more global awareness on their part. See Table 4.5 in the previous chapter.

A further interesting observation to emerge regarding this particular subset of the student sample is that respondents who strongly agree with the suggestion that they should learn about programming languages in school, indicated in a higher percentage than the sample as a whole, that they use computers/tablets in school almost every day. This could be interpreted that increased exposure to technology, in various forms, makes students more aware of the importance of digital skills and more globally conscious.

### **5.3 Limitations of the study**

This research faced two key methodological limitations. The methodological limitations were sample size as a result of access limitations and self-reported data.

The sample size for both groups of participants but specifically for the teacher survey population, was smaller than desired. Less than 100 teachers participated in the survey which means the sample may not be accurately representative of the entire population. The student sample was much larger, but still not as large as desired. Over 15 schools were invited to participate in the study, but only 9 accepted the invitation, and the response rate from several of the 9 schools was not very high. Small sample sizes prevent generalizations to be transferred to the general population; however since the methodological framework for this study is qualitative, and the nature of the research was exploratory, the learning that has been generated has elucidated interesting trends and patterns that warrant attention and further investigation.

Related to the limitation of sample size is an access limitation; access to students and teachers of some schools was not easy to obtain. A few schools responded that they did not wish to participate in the research for reasons such as already committing to participate in other research and not wanting to sacrifice school time. Other schools simply did not respond to the invitation. The heavy curriculum cited by the teacher participants could be a reason why schools were not inclined to participate.

The second methodological limitation is that the data on which this study is based is self-reported data. The data that participants provided through the surveys, interviews, and focus groups is self-reported data and must be taken at face value. Self-reported data runs the risk of containing bias due to selective memory and exaggeration. The research strived to neutralize this limitation through incorporating several triangulation methods. Respondent triangulation and instrument triangulation were employed. Furthermore, as this is a qualitative study, it is the perceptions and attitudes of the study participants that are given importance.

While it is often cited that a lack of contextual research in a certain field is a methodological limitation for studies that seek to build on what has been done before, the lack of existing research in Lebanon on the focus of this particular study bolsters this study's originality and highlights its necessity. This study is built on a theoretical foundation created from research that has mostly taken place outside of Lebanon. A handful of studies that researched specific technology use in Lebanese schools, mostly in a higher education context, do exist and were utilized when building the foundation for this study. Research into traditional notions of citizenship in a Lebanese context has taken place as well, however the notion of global



citizenship in a Lebanese context has not been thoroughly explored. Furthermore, the unique perspective of this thesis which explored the implications that technology integration in school has for the development of global citizenship skills and attitudes had not been investigated until this study.

#### **5.4 Recommendations for further research**

This research has laid the groundwork for many more potential avenues of research that will contribute to the knowledge and theory building of technology integration in education and its relationship to the development of global citizenship skills and attitudes, particularly in Lebanon. Much was learned about the state of technology use in a number of Lebanese private schools, and the attitudes students possess regarding that technology use. It was discovered that technology use in school does not necessarily influence a student's global citizenship attitude, but when students display a desire to acquire high-level technology skills, their global citizenship attitude becomes stronger. The findings of this research can stimulate more research based on the following suggestions.

Language was cited in research question 2 as a global competence and data was sought to determine what type of technology use contributes to the development of students' language skills among other global competences. As the data collected did not elucidate the actual strategies and methodologies teachers use, particularly for developing language, it is recommended that further research be conducted that investigates explicit uses of technology that contribute to the English and French language development of native Arabic speakers. It was also revealed that very little to no technology is being used by Arabic language teachers. Future

studies can investigate if this finding holds in other schools throughout the country and can investigate why this discrepancy in technology use exists between Arabic class and English and French classes.

As regards another global competence examined in this study, collaboration, there is the possibility for future illuminating research to be carried out. Much of the literature on digital natives highlights an almost innate desire of theirs to manipulate technology specifically for purposes of collaboration (Jones and Ramanau 2009). However, as this study shows, there is still much to be done in adapting curricula and teaching methodologies to incorporate technology for collaborative purposes, despite the fact that, again as this study shows, students interact with technology in a social way more than any other way and appreciate cross-cultural communication. Therefore, research which is designed in a way that allows for collaborative activities to be implemented with the use of technology and then observed and studied, will contribute greatly to the knowledge building of technology use and its effect on collaboration in a Lebanese context. It can also provide data to stimulate the first steps in reforming and adapting the national curriculum in a way that responds to the changes in education discussed in this thesis.

Finally, as the participants of this research were from English private schools, future studies should explore the concepts addressed here in the context of French private schools and public schools in Lebanon.

## **5.5 Implications for my professional practice**

The research I have conducted for this thesis lays the foundation for the career path I have commenced and intend to continue on. It is clear that the field of education is experiencing a transition as the introduction of technology will necessitate the modification, and perhaps even a complete transformation, of teaching paradigms. Lebanon, as a developing country, is already behind in implementing opportunities and strategies for technology integration. With the knowledge I have gained through conducting this research, I hope to achieve a post that will allow me to build on this research and contribute to the building of theory regarding technology's role in education, specifically in Lebanese schools. The ultimate aim should be to develop teaching methods that prepare Lebanese students to join and function effectively within the global networks that comprise the network society. It is for that reason that this thesis explored if there is a specific link between technology use/attitude and global citizenship skills and attitude.

Although not glaring in the research conducted for this thesis, there was a suggestion that there may be slight gender differences in technology attitudes. Therefore, as a female academic in a Lebanese context, I recognize the responsibility I hold in supporting and nurturing female students during this educational transition.

This research has highlighted the fact that both students and teachers are eager to see more technology use introduced into the classroom. In my role as a professional academic, I plan to build on that enthusiasm and investigate ways to effectively leverage technology in a way that

addresses 21<sup>st</sup> century learning outcomes. Possible avenues of work for me include designing new methodologies for the effective integration of technology, participating in curriculum reform that addresses 21<sup>st</sup> century learning objectives that take into account global citizenship and technology skills, and developing teacher training and professional development programs that seek to prepare teachers to incorporate the new methodologies in their teaching practice.

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## Appendices

**Appendix A: Principal invitation e-mail**

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## **Appendix A – Principal invitation email**

Dear Ms./Mr. \_\_\_\_\_,

My name is Samira Nicolas and I am a doctoral education student at Keele University in England. As fulfillment of my doctorate degree, I must carry out an original research study. I would like to investigate how technology is being integrated at a number of schools in Lebanon, and specifically how and if this technology use is related to the development of global citizenship skills and attitudes.

In order to answer my research questions, I need to gather data from students in the last two years of high school as well as their teachers. I will administer two online surveys - a student survey and a teacher survey. Participants can voluntarily access a link I provide them to fill out the survey at their convenience. There is also the possibility that your school might be selected for a second stage of data collection which involves a small number of interviews.

I am writing to you at this time because I would like to invite your school to participate in my study. The surveys are anonymous and when I report my research findings in my thesis, I will not mention the names of any of the participating schools.

I am happy to discuss this further as I understand you are likely to have questions. However, at this stage I require ethics approval from my university before I can proceed any further with my study. In order to receive approval, the ethics committee asks that you provide a brief email reply in which you indicate that, in principle, you are receptive to a study of this nature taking place in your school, if that is the case.

I appreciate your time and consideration and look forward to hearing from you.

Kind regards,

Samira Nicolas

## Appendix B: Parent information sheet



# Information Sheet for Parents

Your son/daughter, along with his/her classmates, has been invited to take part in a research study titled, “The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context”. This study is being undertaken by Samira Nicolas, a doctoral research student at Keele University (England), in fulfilment of her doctoral thesis.

Your son/daughter has been provided with an information sheet that explains what the research is about and what he/she will be asked to do if he/she agrees to participate. He/she has also had the opportunity to ask the researcher questions. Participation is completely voluntary and your child has been encouraged to discuss it with you before agreeing to participate. If, for any reason, you have any concerns, you may communicate these to the researcher at [s.s.nicolas@keele.ac.uk](mailto:s.s.nicolas@keele.ac.uk) or if you prefer, to Mr./Mrs. *\*school principal name\**. Following is an explanation of the research study and what your child’s participation would entail.

### **Aims of the Research**

Many discussions about education in the last several years have included the term technology and have focused on how teachers can effectively integrate technology into their classrooms. Although technology in education is an important topic to be explored, there has not been much research conducted in Lebanon about the role technology plays in education here. This study is particularly interested in discovering if classrooms and teachers that integrate technology into their instruction are cultivating the skills and attitudes of what has been defined as global citizenship.

### **Why has your child been invited and what will happen if he/she takes part?**

Your child has been chosen because the researcher is interested in the feelings and perceptions of students in their last two years of high school regarding how technology integrated into classes and lessons is preparing them for their futures. To take part in this study, your child will be asked to spend approximately 15-20 minutes to fill out a survey that contains questions about the different technology use in his/her various classes and about his/her understanding of global citizenship. The survey is online, so the researcher will provide your child with the link to the survey which he/she can fill out at his/her convenience. ***Your child is not required to identify himself/herself in any way on the survey, therefore his/her answers will remain anonymous.***

*Should your child not wish to participate, no one needs to be notified and nothing need be done, he/she simply does not have to fill out the survey.*

This study includes a second stage of data collection. In the second stage, the researcher will interview a group of 5 to 8 students. It is possible that your child may be selected for this stage. Participation in this stage, like in the survey stage, is voluntary. If your child is selected, he/she will be given an information sheet explaining what it will mean to participate in the group interview and a consent form to sign if he/she agrees to participate. Your child will take the information sheet and consent form home in order to have the opportunity to discuss it with you, and he/she will have one week to make a decision.

Thank you for taking the time to read this information sheet.

## Appendix C: Survey information sheet for students



### Survey Information Sheet for Students

**Study Title:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

#### Invitation

You are being invited to take part in the research study, “The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context”. This project is being undertaken by Samira Nicolas, a doctoral research student at Keele University (England), in fulfilment of her doctoral thesis.

Before you decide whether or not you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully and discuss it with friends and relatives if you wish. You may ask me if there is anything that is unclear or if you would like more information.

#### Aims of the Research

Many discussions about education in the last several years have included the term technology and have focused on how teachers can effectively integrate technology into their classrooms. Although technology in education is an important topic to be explored, there has not been much research conducted in Lebanon about the role technology plays in education here. This study is particularly interested in discovering if classrooms and teachers that integrate technology into their instruction are cultivating the skills and attitudes of what has been defined as global citizenship.

#### Following are the answers to some questions you may have:

##### Why have I been chosen?

You have been chosen because the researcher is interested in the feelings and perceptions of students in their last two years of high school regarding how technology integrated into classes and lessons is preparing them for their futures.

### **Do I have to take part?**

You are free to decide whether you wish to take part or not. If you do decide to take part you will be given a link to an online survey to fill out. You are free to withdraw from this study at any time and without giving reasons.

### **What will happen if I take part?**

To take part in this study, you will be asked to spend approximately 15-20 minutes to fill out a survey that contains questions about the different technology use in your various classes and about your understanding of global citizenship. The survey is online at the following link:

<https://kwiksurveys.com/s/7ogniwj8mfrag51487971> You may access the link and fill out the survey at your convenience. You are not required to identify yourself in any way on the survey; your answers will remain anonymous. The survey will be available online for you to fill out for three weeks starting from today's date. After three weeks, the survey will be taken down.

### **What are the benefits (if any) of taking part?**

There are no tangible benefits for you if you take part in this study. You will however be contributing positively to the knowledge generation process which can eventually have an impact on future generations of students and the education sector in Lebanon.

### **What are the risks (if any) of taking part?**

There are no risks of taking part in this study.

### **How will information about me be used?**

All surveys are anonymous. You are not requested to provide your name or any other personal information, so no one, including the researcher, will know who filled out the survey. The answers you and your peers provide will be analyzed to produce statistics that will help to answer the research questions of this study.

### **Who will have access to information about me?**

The only person who will have access to the filled out surveys will be the researcher. *As the surveys are anonymous and do not contain any personally identifiable information, there is no concern that anyone will have access to information about you.* The completed surveys will be stored on a password protected laptop (accessible only by the researcher), and will be kept for the duration of the study, after which they will be deleted from the hard drive of the laptop. The surveys will also be backed up on a password protected external hard drive, accessible only to the researcher, and will also be deleted upon the completion of the study. The researcher's supervisor may be shown some of the survey data, but as explained above, there is no way for your identity to be known.

### **Who is funding and organising the research?**

Since this is a doctoral research, I, the researcher, am funding and organising the research.

**What if there is a problem?**

If you have a concern about any aspect of this study, you may wish to speak to the researcher who will do her best to answer your questions. You should contact Samira Nicolas at [s.s.nicolas@keele.ac.uk](mailto:s.s.nicolas@keele.ac.uk). Alternatively, if you do not wish to contact the researcher you may contact her supervisor, Professor Farzana Shain at [f.shain@keele.ac.uk](mailto:f.shain@keele.ac.uk).

If you remain unhappy about the research and/or wish to raise a complaint about any aspect of the way that you have been approached or treated during the course of the study please write to Nicola Leighton who is the University's contact for complaints regarding research at the following address:-

Nicola Leighton

Research Governance Officer

Research & Enterprise Services

Dorothy Hodgkin Building

Keele University

ST5 5BG

E-mail: [n.leighton@uso.keele.ac.uk](mailto:n.leighton@uso.keele.ac.uk)

Tel: 01782 733306

## Appendix D: Survey information sheet for teachers



### Survey Information Sheet for Teachers

**Study Title:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

#### Invitation

You are being invited to take part in the research study, “The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context”. This project is being undertaken by Samira Nicolas, a doctoral research student at Keele University (England), in fulfilment of her doctoral thesis.

Before you decide whether or not you wish to take part, it is important for you to understand why this research is being done and what it will involve. Please take time to read this information carefully. You may ask me if there is anything that is unclear or if you would like more information.

#### Aims of the Research

Many discussions about education in the last several years have included the term technology and have focused on how teachers can effectively integrate technology into their classrooms. Although technology in education is an important topic to be explored, there has not been much research conducted in Lebanon about the role technology plays in education here. This study is particularly interested in discovering if classrooms and teachers that integrate technology into their instruction are cultivating the skills and attitudes of what has been defined as global citizenship.

#### Following are the answers to some questions you may have:

##### Why have I been chosen?

You have been chosen because the researcher is interested in the feelings and perceptions of teachers regarding integrating technology into classes and how they feel and observe that it is preparing students for their futures as global citizens who must function within a global workforce.

##### Do I have to take part?

You are free to decide whether you wish to take part or not. If you do decide to take part you will be given a link to an online survey to fill out. You are free to withdraw from this study at any time and without giving reasons.



### **What will happen if I take part?**

To take part in this study, you will be asked to spend approximately 15-20 minutes to fill out a survey that contains questions about the different technology use in your various classes. The survey is online at the following link: <https://kwiksurveys.com/s/y2bssyotvu5cfmg488539> You may access the link and fill out the survey at your convenience. You are not required to identify yourself in any way on the survey; your answers will remain anonymous. The survey will be available online for you to fill out for three weeks starting from today's date. After three weeks, the survey will be taken down.

### **What are the benefits (if any) of taking part?**

There are no tangible benefits for you if you take part in this study. You will however be contributing positively to the knowledge generation process which can eventually have an impact on future generations of students and the education sector in Lebanon.

### **What are the risks (if any) of taking part?**

There are no risks of taking part in this study.

### **How will information about me be used?**

All surveys are anonymous. You are not requested to provide your name or any other personal information. The answers you and your colleagues provide will be analyzed to produce statistics that will help to answer the research questions of this study.

### **Who will have access to information about me?**

The only person who will have access to the filled out surveys will be the researcher. *As the surveys are anonymous and do not contain any personally identifiable information, there is no concern that anyone will have access to information about you.* The completed surveys will be stored on a password protected laptop (accessible only by the researcher), and will be kept for the duration of the study, after which they will be deleted from the hard drive of the laptop. The surveys will also be backed up on a password protected external hard drive, accessible only to the researcher, and will also be deleted upon the completion of the study. The researcher's supervisor may be shown some of the survey data, but as explained above, there is no way for your identity to be known.

### **Who is funding and organising the research?**

Since this is a doctoral research, I, the researcher, am funding and organising the research.

### **What if there is a problem?**

If you have a concern about any aspect of this study, you may wish to speak to the researcher who will do her best to answer your questions. You should contact Samira Nicolas at [s.s.nicolas@keele.ac.uk](mailto:s.s.nicolas@keele.ac.uk) Alternatively, if you do not wish to contact the researcher you may contact her supervisor, Professor Farzana Shain at [f.shain@keele.ac.uk](mailto:f.shain@keele.ac.uk)

If you remain unhappy about the research and/or wish to raise a complaint about any aspect of the way that you have been approached or treated during the course of the study please write to Nicola Leighton who is the University's contact for complaints regarding research at the following address:-

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Research & Enterprise Services

Dorothy Hodgkin Building

Keele University

ST5 5BG

E-mail: [n.leighton@uso.keele.ac.uk](mailto:n.leighton@uso.keele.ac.uk)

Tel: 01782 733306

## Appendix E: Student survey



### Page 1

Please answer all the questions as fully as you are able to. This survey should take you approximately 15 minutes to complete. Your participation is entirely voluntary and all responses will be anonymous. By filling out this survey, you consent to participating in this research.

1) Please indicate the school you go to:	
Adma International School	
Beshmezzine High School	
City International School	
Eastwood College	
International School of ChouEIFat-Koura	
Lady of Balamand High School	
Sagesse High School	
Universal School of Lebanon	
Other (Please Specify)	

2) Please indicate your gender:	
Female	
Male	

3) Please indicate your grade level:	
Grade 11	
Grade 12	
Lebanese BaccaLaureate/Terminal	



4) Check the response that most accurately describes your level of agreement with each of the following statements:

	Strong No	Weak No	Not Sure	Weak Yes	Strong Yes
a. I am aware of political events that happen outside of my country.					
b. I am aware of environmental events that happen outside of my country.					
c. I participate in activities that involve students and people living in other countries.					
d. Traveling to other countries is an important part of my overall education.					
e. I am very skilled in using communication technologies (programs and software that allow me to communicate with other people).					
f. I understand the political processes of different countries.					
g. I am concerned about the environment.					
h. I understand what cultural diversity means.					
i. I respect other cultures and their traditions.					
j. I believe that individual people can make a difference when it comes to solving global issues.					
k. I am disturbed when I become aware of injustice anywhere in the world.					
l. Communication technologies make me feel more 'connected' to people and places outside of my home country.					
m. In today's world, it is necessary to know at least one foreign language.					



5) How often do you use computers/tablets in your classes?	
almost every day	
once or twice a week	
a few times during the month	
very rarely	
Never	

6) If you do use computers/tablets in your classes, which of the following applies to your school? (You may check more than one.)	
personal laptops	
school computers in the classroom	
tablets provided by school	
separate computer labs	
personal tablets	
we don't use any computers	

7) Approximately how many of your teachers use some form of technology when teaching?	
all of them	
most of them	
about half of them	
only one or two of them	
none of them	

8) Indicate the subject classes in which you use computers/tablets. (Check all that apply.)	
English	
Arabic	
French	
History	
Geography	

Physics	
Chemistry	
Biology	
Math	
Civics/Social Studies	
We do not use computers/tablets	
Other (Please Specify)	

9) In which subject is technology used the most in the classroom? (Check only the **ONE** subject in which technology is used the most.)

English	
Arabic	
French	
History	
Geography	
Physics	
Chemistry	
Biology	
Math	
Civics/Social Studies	
We do not use computers/tablets	
Other (Please Specify)	

10) Which of the following do your teachers require you to use when working <b>IN CLASS</b> ? (Please check all that apply.)	
Information from the Internet	
Power Point presentations	
Microsoft Office Word	
Microsoft Office Excel	
Adobe Photoshop or other types of image editing software	
Social Networking sites	
Windows Movie Maker	
Skype	
YouTube	
Online discussion boards or forums	
None of the above	
Other (Please Specify)	

11) Which of the following do your teachers require you to use <b>for HOMEWORK or PROJECTS/ASSIGNMENTS</b> ? (Please check all that apply.)	
Information from the Internet	
Power Point presentations	
Microsoft Office Word	
Microsoft Office Excel	
Adobe Photoshop or other types of image editing software	
Social Networking sites	
Windows Movie Maker	
Skype	
YouTube	
Online discussion boards or forums	

None of the above	
Other (Please Specify)	

12) Select the TWO most common ways technology is used in your classes:	
as a substitute for textbooks (we use pdf versions of textbooks)	
the teacher projects her/his lecture on powerpoint slides	
the teacher uses the smartboard/e-beam to explain the lesson	
we are instructed by our teachers to use the Internet for research during class	
we use forums and discussion boards to collaborate with other students	
we use powerpoint when we have an assignment or presentation to do	
we use Word to type our assignments	
we use an online course management system to upload our class assignments	
we play educational games on a laptop/tablet during class time	
we take quizzes and tests online/or on laptops/tablets	
we use technology, but not in the ways described here	
we don't use technology very much	

13) Do you enjoy it when technology is integrated into your classes?	
Yes	
No	
We don't use technology that much (or even at all), but I think I would like it	
We don't use technology that much (or even at all), but I don't think I would like it	

14) Do you use technology more outside of school (not for homework or school purposes) than you do in the classroom?	
Yes	
No	
I'm not sure	





15) Think about all of the classes you are taking this year. Please indicate if you have done each of the following in <b>any one</b> of your classes 'often', 'sometimes', 'rarely', or 'never':				
	Often	Sometimes	Rarely	Never
a)Used computers or technology to complete an assignment or project that took several classes to complete				
b)Worked with others through video conferencing, online discussion boards, or online collaboration tools like Skype				
c)With the guidance of a teacher, used what you were learning in a certain class to develop a solution to a real world problem in your community (your community can mean your school, town, or city)				
d)With the guidance of a teacher, used what you were learning in a certain class to develop a solution to a real world problem in the world outside of your home country				



16) Select the response that most accurately describes your level of agreement with each of the following statements.					
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
a. Computers and technology make schoolwork easier to do.					
b. I prefer to use computers to do schoolwork instead of using pen and paper.					
c. Technology and computers help me to understand my classes better.					
d. I don't think having skills in using computers and technology has prepared me better for my future compared with others who do not have those skills.					

e. I like using technology to create content (movies, music, projects, poems, pictures, etc...)					
f. I think technology allows me to be involved in discussions that I couldn't participate in without access to technology.					
g. I feel that my skills in technology allow me to easily learn and adapt to new software (whether it's a new type of phone, or new computer game for example).					
h. I wish more of our class time was dedicated to learning about new technology tools and software that can help me learn certain concepts.					
i. Through the Internet/technology, I have become involved in movements and organizations that I am interested in.					
j. I understand what a programming language is.					
k. I think we should learn about computer programming languages in high school.					
l. I feel my education has prepared me well for university.					

17) How would you define the term "global citizen"? Please type your thoughts in the box below. They can be in point form.

## Appendix F: Teacher survey



### Page 1

Please answer all the questions as fully as you are able to.  
This survey should take you approximately 15 minutes to complete. Your participation is entirely voluntary and all responses will be anonymous. By filling out this survey, you consent to participating in this research.

1) Please indicate the school at which you teach:	
Adma International School	
Beshmezzine High School	
City International School	
Eastwood College	
International School of Choueifat-Koura	
Lady of Balamand High School	
Sagess High School	
Universal School of Lebanon	
Other (Please Specify)	

2) Please indicate your gender:	
Female	
Male	

3) Please indicate your age:	
30 years or younger	
31 – 40 years	
above 40 years	

4) Please indicate the grade levels you teach (check all that apply):	
Grade 11	
Grade 12	

Lebanese Baccaalaureate/Terminal	
----------------------------------	--

5) Please indicate the subject(s) you teach (check all that apply):	
English	
Arabic	
French	
History	
Geography	
Physics	
Chemistry	
Biology	
Math	
Civics/Social Studies	
Other (Please Specify)	

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6) Choose the ONE statement that you feel best describes the level of your technology skills.	
I do not consider myself a technology user. I get someone else to do technology-based tasks for me.	
I consider myself a novice technology user. I can do some tasks, but I am more efficient when I don't use technology to do a job.	
I consider myself an average technology user. I have enough skills to complete the management and communication tasks expected of me and occasionally will choose to use technology to accomplish something I choose.	
My skills are very good. I use a variety of technology tools and I use them efficiently for all aspects of my job.	
I am a technology leader. I use technology efficiently, effectively and in creative ways to accomplish my job. I often teach others to use technology resources.	

7) What best describes your current practice of using technology in instruction (please select only ONE):	
I rarely use technology to deliver instruction.	
I almost exclusively use whole group presentation style either using an interactive whiteboard, PowerPoint or other instructional software to explain or demonstrate concepts or instructions.	
I often use whole group presentation style, but sometimes facilitate students in their use of different technologies to perform hands-on activities.	
I almost exclusively facilitate student learning by encouraging students to use information technology resources and hands-on activities.	
I don't use much technology in the classroom but I expect and require my students to use some technology for their homework/projects/assignments.	

8) How often do you require students in your class to:				
	Daily	Weekly	Infrequently	Never
a) access class information online (assignments, calendars, information)				
b) access the Internet for research				
c) collaborate with classmates				
d) collaborate with others who live in geographically distant places				
e) participate in online projects-in which your students share work with students in other schools using online forums and online programs				
f) produce products/projects of their own design				
g) produce work intended for an audience outside the classroom				
h) reflect on how the concepts they learn and the work they do in your class is related to other areas of their education				

9) Rate the degree to which you agree or disagree with the following statements:					
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
a) I believe the integration of technology into teaching can increase students' academic achievement.					
b) I believe the integration of technology into teaching can promote better understanding of concepts.					
c) I believe the integration of technology into teaching promotes student collaboration.					
d) I believe the integration of technology into teaching promotes the development of students' communication skills (e.g. writing and presentation skills).					
e) I believe the integration of technology into teaching is a valuable instructional tool.					
f) I believe the integration of technology into teaching makes me become less useful as an educator because computers can provide most things students need.					
g) I believe the integration of technology into teaching eases the pressure on me as a teacher.					
h) I believe the integration of technology into teaching can provide me with easy access to instructional materials.					
i) I believe the integration of technology into teaching is useful for improving student learning of critical concepts and ideas.					
j) I believe the integration of technology into teaching is difficult because some students know more about computers than I do.					
k) I believe the integration of technology into teaching is necessary since technology is an intricate part of our lives.					



10) Which of the following statements best reflects your views about the technology resources that you have available to you <b>at school</b> ?	
We have good technology resources and access to sufficient training in their use	
We have good technology resources but not enough training in their use	
We have some basic technology resources and only basic training in their use	
We have some basic technology resources and no training in their use	
We are not instructed or encouraged to use technology in our classes.	

11) Indicate to which degree you feel prepared to use the following tools:			
	Fully Prepared	Somewhat Prepared	Not Prepared
a) audio/video production editing software (Audacity, MovieMaker etc.)			
b) content specific software applications (for math, social studies, etc.)			
c) e-mail			
d) image (photo) editing software (eg photoshop)			
e) interactive whiteboard software (Promethean ActivInspire, eBeam, SMART Notebook, etc.)			
f) spreadsheets			
g) simulation software			
h) word processing			
i) presentation software (eg powerpoint)			
j) videoconferencing			
k) accessing or creating podcasts			
l) Internet resources			
m) YouTube			
n) a content management system like Moodle or Blackboard			

12) How often do you use the following technology tools in your classes (including for homework assignments)?				
	Daily	Weekly	Infrequently	Never
a) audio/video production editing software (Audacity, MovieMaker etc.)				
b) content specific software applications (for math, social studies, etc.)				
c) e-mail				
d) image (photo) editing software (eg photoshop)				
e) interactive whiteboard software (Promethean ActivInspire, SMART Notebook, etc.)				
f) spreadsheets				
g) simulation software				
h) word processing				
i) presentation software (eg powerpoint)				
j) videoconferencing				
k) accessing or creating podcasts				
l) Internet resources				
m) YouTube				
n) a content management system like Moodle or Blackboard				

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13) Rate the degree to which you agree or disagree with the following statements:					
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
a) Students should be encouraged to carry out assignments/activities that require them to use problem solving and innovation.					
b) Some school time should be devoted to guiding students in community service projects.					
c) The ability to work effectively in a team is an important skill for today's students.					



d) Technology has made students less interested in learning.					
e) Citizenship skills can only be acquired through non-formal learning.					
f) It is important to make students aware of the relationship between the subject that I teach and other areas of their lives.					
g) I try to instill in my students a sense of responsibility toward the world community.					

14) In your opinion and experience, what is the biggest obstacle to allowing you to integrate technology in your lessons? (Please select only one answer.)	
I am just not aware of the ways in which I can integrate technology into my class.	
I don't think integrating technology will have any benefit.	
My school does not provide enough training in how to use and integrate technology.	
My school doesn't provide enough technology resources.	
There is a lack of support and encouragement from the administration when it comes to integrating technology.	
The current education system makes it difficult to integrate technology.	

15) How would you define the term "global citizen"? Please type your thoughts in the box below.

## Appendix G: Interview information sheet for students



### Interview Information Sheet for Students

**Study Title:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

#### Invitation

You are being invited to take part in the second stage of data collection for the research study, “The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context”. This project is being undertaken by Samira Nicolas, a doctoral research student at Keele University (England), in fulfilment of her doctoral thesis.

You may remember some of the details of this study from the first stage of data collection which you participated in, but please take time to read this information carefully to refresh your memory and discuss it with friends and relatives if you wish. You may ask me if there is anything that is unclear or if you would like more information.

#### Aims of the Research

Many discussions about education in the last several years have included the term technology and have focused on how teachers can effectively integrate technology into their classrooms. Although technology in education is an important topic to be explored, there has not been much research conducted in Lebanon about the role technology plays in education here. This study is particularly interested in discovering if classrooms and teachers that integrate technology into their instruction are cultivating the skills and attitudes of what has been defined as global citizenship.

#### Following are the answers to some questions you may have:

##### Why have I been chosen?

You have been chosen because the researcher is interested in the feelings and perceptions of students in their last two years of high school regarding how technology integrated into classes and lessons is preparing them for their futures.

##### Do I have to take part?

You are free to decide whether you wish to take part or not. If you do decide to take part you might be chosen to participate in a focus group interview with 4 to 7 of your peers. You have one week from today

to decide if you want to take part. If you would like to take part, you can inform the researcher either directly through her email given below, or through your principal. If you do not want to take part, you do not need to contact anyone.

### **What will happen if I take part?**

If you volunteer to participate in this stage, your name will be entered into a random draw with others who have volunteered to take part. The researcher will randomly select 5 to 8 names and if you are one of those chosen to be a part of the focus group, your teachers, principal, and the researcher will agree on a time during school hours when you will be interviewed with some of your peers who were also randomly chosen by the researcher. The group interview will take between 20 and 30 minutes. The researcher will ask you questions about your technology use in school, your feelings about how technology is used and how you like to use it, and your understanding of and perspectives on global citizenship. The interview will be recorded using a software program called Audacity which will be on the researcher's laptop. You will not be asked to provide your names. Instead you will be given (or you can choose) a pseudonym (a fake name) that will refer to you. Before the group interview begins, you will be asked to sign consent forms in which you confirm that you understand what you are participating in and agree to participate, as well as whether or not you agree to have quotes used in the report. If you do not understand this, please do not hesitate to ask the researcher to clarify.

### **What are the benefits (if any) of taking part?**

There are no tangible benefits for you if you take part in this study. You will however be contributing positively to the knowledge generation process which can eventually have an impact on future generations of students and the education sector in Lebanon.

### **What are the risks (if any) of taking part?**

There are no risks of taking part in this study.

### **How will information about me be used?**

No personal information about you and your peers, including your names will be included in the study report. You will be given pseudonyms (a fake name) which will be used in the study report when discussing the answers you provided to the questions the researcher asked. The answers you and your peers provide will be analyzed to discover themes which will help to answer the research questions of this study.

### **Who will have access to information about me?**

The only person who will have access to the complete focus group interview transcript will be the researcher. The transcript is simply everything that was said in the focus group interview and will not contain any personally identifiable information about you except for your ages; the names included in the transcript will be your pseudonyms as explained above. The focus group interview transcript will be

stored on a password protected laptop (accessible only by the researcher), and will be kept for as long as it takes to complete the study, after which it will be deleted from the hard drive of the laptop. The interview transcripts will be backed up on a password protected external hard drive that only the researcher will have access to, and will similarly be removed once the study is complete. The researcher's supervisor may also look at the data, but as explained above, your identity will remain anonymous.

### **Who is funding and organising the research?**

Since this is a doctoral research, I, the researcher, am funding and organising the research.

### **What if there is a problem?**

If you have a concern about any aspect of this study, you may wish to speak to the researcher who will do her best to answer your questions. You should contact Samira Nicolas at [s.s.nicolas@keele.ac.uk](mailto:s.s.nicolas@keele.ac.uk) Alternatively, if you do not wish to contact the researcher you may contact her supervisor, Professor Farzana Shain at [f.shain@keele.ac.uk](mailto:f.shain@keele.ac.uk)

If you remain unhappy about the research and/or wish to raise a complaint about any aspect of the way that you have been approached or treated during the course of the study please write to Nicola Leighton who is the University's contact for complaints regarding research at the following address:-

Nicola Leighton

Research Governance Officer

Research & Enterprise Services

Dorothy Hodgkin Building

Keele University

ST5 5BG

E-mail: [n.leighton@uso.keele.ac.uk](mailto:n.leighton@uso.keele.ac.uk)

Tel: 01782 733306

**Appendix H: Student focus group consent form**



**STUDENT FOCUS GROUP CONSENT FORM**

**Title of Project:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

**Name and contact details of Principal Investigator:**

Samira Nicolas, University of Balamand, P.O. Box 33, Amioun Al-Koura, North Lebanon, Lebanon  
s.s.nicolas@keele.ac.uk

**Please tick the box if you agree with the statement**

- 1 I confirm that the researcher informed me about what it will mean to participate in the focus group interview and I have had the opportunity to ask questions.
- 2 I understand that my participation is voluntary and that I am free to withdraw at any time.
- 3 I agree to take part in this study.
- 4 I understand that data collected about me during this study is anonymous.
- 5 I agree not to repeat any sensitive or private issues that my peers might mention during the focus group interview.
- 6 I have discussed this with my parents, and they do not object to me participating in the focus group.

\_\_\_\_\_  
Name of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**Appendix I: Student focus group consent form for using quotes**



**CONSENT FORM**

**(for use of quotes from focus group interview)**

**Title of Project:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

**Name and contact details of Principal Investigator:**

Samira Nicolas, University of Balamand, P.O. Box 33, Amioun Al-Koura, North Lebanon, Lebanon

s.s.nicolas@keele.ac.uk

**Please tick the box if you agree with the statement**

1 I agree for any quotes to be used.

2 I do not agree for any quotes to be used.

\_\_\_\_\_  
Name of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

**Appendix J: Interview information sheet for teachers**



## **Interview Information Sheet for Teachers**

**Study Title:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

### **Invitation**

You are being invited to take part in the second stage of data collection for the research study, “The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context”. This project is being undertaken by Samira Nicolas, a doctoral research student at Keele University (England), in fulfilment of her doctoral thesis.

You may remember some of the details of this study from the first stage of data collection which you participated in, but please take time to read this information carefully to refresh your memory and discuss it with friends and relatives if you wish. You may ask me if there is anything that is unclear or if you would like more information.

### **Aims of the Research**

Many discussions about education in the last several years have included the term technology and have focused on how teachers can effectively integrate technology into their classrooms. Although technology in education is an important topic to be explored, there has not been much research conducted in Lebanon about the role technology plays in education here. This study is particularly interested in discovering if classrooms and teachers that integrate technology into their instruction are cultivating the skills and attitudes of what has been defined as global citizenship.

### **Following are the answers to some questions you may have:**

#### **Why have I been chosen?**

You have been chosen because the researcher is interested in the feelings and perceptions of teachers regarding integrating technology into classes and how it may be preparing students for their futures as global citizens who must function within a global workforce. This study is particularly interested in your use of technology in the management of your class as it pertains to all aspects of your teaching.

#### **Do I have to take part?**

You are free to decide whether you wish to take part or not. If you do decide to take part, you will be interviewed by the researcher at a time agreed upon by you, the administration, and the researcher. You have one week from today to decide if you want to take part. If you would like to take part, you can

inform the researcher either directly through her email given below, or through your principal. If you do not want to take part, you do not need to contact anyone.

### **What will happen if I take part?**

If you take part, you will be asked to give approximately 10-15 minutes of school time, to be agreed upon by yourself, the administration, and the researcher, in which the researcher will ask you questions about your technology use in school, your feelings about how technology is used and how you like to use it, and your perspectives on global citizenship and what it takes to prepare students to be global citizens. The interview will be recorded using a software program called Audacity which will be on the researcher's laptop. You will also be asked to sign consent forms indicating that you confirm your agreement to participate and whether or not you agree to have quotes used in the reporting of the results.

### **What are the benefits (if any) of taking part?**

There are no tangible benefits for you if you take part in this study. You will however be contributing positively to the knowledge generation process which can eventually have an impact on future generations of students and the education sector in Lebanon.

### **What are the risks (if any) of taking part?**

There are no risks of taking part in this study.

### **How will information about me be used?**

No personal information about you, including your name will be included in the study report. You will be given a pseudonym which will be used in the study report when discussing the answers you provided to the questions the researcher asked. The answers you provide will be analyzed to discover themes which will help to answer the research questions of this study.

### **Who will have access to information about me?**

The only person who will have access to the interview transcript will be the researcher. The interview transcript will be stored on a password protected laptop (accessible only by the researcher), and will be kept for the duration of the study, after which it will be deleted from the hard drive of the laptop. The transcript will also be backed up on a password protected external hard drive, accessible only to the researcher, and similarly will be deleted upon completion of the study. The researcher's supervisor may see parts of the transcript, but as already explained, your identity will be anonymous.

### **Who is funding and organising the research?**

Since this is a doctoral research, I, the researcher, am funding and organising the research.

### **What if there is a problem?**

If you have a concern about any aspect of this study, you may wish to speak to the researcher who will do her best to answer your questions. You should contact Samira Nicolas at [s.s.nicolas@keele.ac.uk](mailto:s.s.nicolas@keele.ac.uk)



Alternatively, if you do not wish to contact the researcher you may contact her supervisor, Professor Farzana Shain at [f.shain@keele.ac.uk](mailto:f.shain@keele.ac.uk)

If you remain unhappy about the research and/or wish to raise a complaint about any aspect of the way that you have been approached or treated during the course of the study please write to Nicola Leighton who is the University's contact for complaints regarding research at the following address:-

Nicola Leighton

Research Governance Officer

Research & Enterprise Services

Dorothy Hodgkin Building

Keele University

ST5 5BG

E-mail: [n.leighton@uso.keele.ac.uk](mailto:n.leighton@uso.keele.ac.uk)

Tel: 01782 733306

## **Appendix K: Interview consent form for teachers**



**Keele  
University**

## INTERVIEW CONSENT FORM

**Title of Project:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

**Name and contact details of Principal Investigator:**

Samira Nicolas, University of Balamand, P.O. Box 33, Amioun Al-Koura, North Lebanon, Lebanon  
s.s.nicolas@keele.ac.uk

**Please tick the box if you  
agree with the statement**

- 1 I confirm that I have read the information sheet and I have had the opportunity to ask questions.
- 2 I understand that my participation is voluntary and that I am free to withdraw at any time.
- 3 I agree to take part in this study.
- 4 I understand that data collected about me during this study is anonymous.

\_\_\_\_\_  
Name of participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

### Appendix L: Interview consent form for using quotes of teachers



## CONSENT FORM

**(for use of quotes from interview)**

**Title of Project:** The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context

**Name and contact details of Principal Investigator:**

Samira Nicolas, University of Balamand, P.O. Box 33, Amioun Al-Koura, North Lebanon, Lebanon  
s.s.nicolas@keele.ac.uk

**Please tick the box if you agree with the statement**

- 1 I agree for any quotes to be used
- 2 I do not agree for any quotes to be used

\_\_\_\_\_  
Name of participant                      Date                      Signature

\_\_\_\_\_  
Researcher                      Date                      Signature

**Appendix M: Student focus group questions**

### **Student focus group interview:**

1. Do you feel that being bilingual/trilingual is an advantage or a disadvantage?
  - a. How far has technology helped you improve your language skills (in whatever language is your second/third language)? How? (Formally or informally)
  - b. What is the easiest way for you to communicate your thoughts and feelings?
2. What does 'cultural diversity' mean to you?
  - a. Do you think Lebanon is culturally diverse?
3. Do you remember how old you were when you first used some kind of technology?
  - a. Do you all have a smartphone?
4. Give me an idea about how much group work you do in class and out of class.
  - a. Do you belong to or have you created any groups on social media (WhatsApp, Facebook for example)? What is the purpose of these groups?
  - b. What do you think the benefits of collaboration are? Do you think there are any problems with collaboration?
  - c. Do you think it's important to interact with people or other students who live outside of Lebanon?
  - d. Do you think collaboration is easier with or without technology?
    - i. What kind of technology tools do you use for working with classmates?
5. Are there software programs that you know about that you wish your teachers would use/let you use in class or for assignments?
6. Do the teachers who use technology in your classes, use it in the same way? If so, how do they use it? If not, how are they different?
7. Were you taught in school (perhaps when you were in lower grades) how to use Microsoft Office – Word, Powerpoint, Excel?
  - a. What other software were you taught at school how to use?
  - b. Do you have computer or computer science class? If yes, what kinds of things do you learn?
  - c. The female students will be asked: As a girl, do you think having digital skills is as important as it is for boys? Why or why not? The male students will be invited to provide any thoughts on what the girls discussed.
8. Do you prefer to identify yourself as a Lebanese citizen, or as a global citizen who just happens to be living in Lebanon?
  - a. Do you feel a responsibility to the planet?
9. What do you think are some of the biggest problems facing the world? Do you think there is anything you can do about it? Do you feel a duty to do so?
  - a. Do any of your teachers ever make you aware of global issues?
10. (The surveys indicated that most students use technology more outside of school.) What do you use it for that is non-school related?

### **Appendix N: Teacher interview questions**

### **Teacher one-on-one interview:**

1. To what extent do you think citizenship skills have changed from what they used to be in years past? How so and why or why not? Follow-up: What is your role in developing these skills in students?
2. What specific technology tools (hardware and software) are available at your school for your use?
  - a. What kind of training does your school provide for integrating technology?
  - b. In what ways do you integrate technology into your teaching?
  - c. Why do you use technology to do this? Do you think it could be done without technology?
  - d. Speaking from your own experience, is there any difference in students' interest level when you use technology in a lesson?
  - e. \*\*For language teachers (Arabic/English/French) How has technology helped you to teach the language? Can you please give examples of particular technology (software) that you use and how you integrate it in your teaching?
  - f. The survey showed that almost all teachers feel fully prepared to use YouTube in their lessons. Do you? How do you use it?
3. How confident do you feel about using technology in your classroom?
4. How much do you incorporate real-life situations into the teaching of certain concepts?
  - a. What role does technology play in this type of real-life incorporation?
5. How do you attempt to instill in your students a sense of responsibility toward their community?
6. Does technology have any role in any collaboration you require of your students? Please explain.
  - a. Do you think it's important for your students to have interactions with students living in other countries? Why/why not?
7. Most teachers indicated on the survey that it is the structure of the education system that hinders the integration of technology in class. Do you agree with this? Please explain.
8. Can you give an example of your idea of a successful, engaging activity that integrates technology?

### **Appendix O: Ethics approval letter**



RESEARCH AND ENTERPRISE SERVICES

24<sup>th</sup> March 2015

Samira Nicolas  
Research Institute for Social Sciences  
Claus Moser Building

Dear Samira,

**Re: The relationship between technology integration and the development of global citizenship skills and attitudes in a Lebanese context**

Thank you for submitting your application for review. I am pleased to inform you that your application has been approved by the Ethics Review Panel.

The following documents have been reviewed and approved by the panel as follows:

Document	Version	Date
Summary Document	2	March 2015
Letter of Invitation	1	March 2015
Information Sheets	2	March 2015
Consent Form	3	January 2015
Consent Form for the use of quotes	3	January 2015
Questionnaires	1	January 2015
Interview Topic Guides	1	January 2015

If the fieldwork goes beyond the date stated in your application, you must notify the Ethical Review Panel via the ERP administrator at [uso.erp@keele.ac.uk](mailto:uso.erp@keele.ac.uk) stating ERP3 in the subject line of the e-mail.

If there are any other amendments to your study you must submit an 'application to amend study' form to the ERP administrator stating ERP3 in the subject line of the e-mail. This form is available via <http://www.keele.ac.uk/researchsupport/researchethics/>. If you have any queries, please do not hesitate to contact me via the ERP administrator on [uso.erp@keele.ac.uk](mailto:uso.erp@keele.ac.uk) stating ERP3 in the subject line of the e-mail.

Yours sincerely

HP

Helena Priest  
Chair – Ethical Review Panel

CC RI Manager  
Supervisor

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