

AMERICAN UNIVERSITY OF BEIRUT

MONITORING THE IMPLEMENTATION OF AN INNOVATIVE
INTERVENTION: THE CASE OF ENHANCING MICROSOFT
OFFICE SKILLS IN FIFTH GRADE ENGLISH CLASS AT A
LEBANESE PUBLIC SCHOOL

by

LAYAL ABDALLAH ABBAS FAYAD

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LAYAL ABDALLAH ABBAS FAYAD

Approved by:



Dr. Rima Karami Akkary, Associate Professor
Department of Education

Advisor

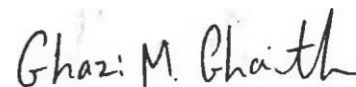
Dr. Saouma Bouiaoude, Professor
Department of Education



Member of Committee

Dr. Ghazi Ghaith, Professor
Department of Education

Member of Committee



Dr. Yara Hilal Jurdi, Visiting Assistant Professor
Department of Education

Member of Committee



Date of thesis defense: June 17, 2020

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AN ABSTRACT OF THE THESIS OF

Layal Abdallah Abbas Fayad for Master of Arts
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Title: Monitoring the Implementation of an Innovative Intervention: The Case of Enhancing Microsoft Office Skills in Fifth Grade English Class at a Lebanese Public School

This study aimed at understanding the benefits and challenges of implementing a small scale, technology integration intervention in a Lebanese public K-6 school. The purpose was to examine the implementation of a small scale innovative intervention with the aim of improving its design and making it responsive to the context of the school. A Technology Integration English Unit using UbD framework was developed based on the official Lebanese curriculum for Grade 5 along with an implementation plan which contributes to school improvement within a specific context. The unit emphasized using technology tools such as Microsoft Office tools in the learning activities and was integrated in Grade 5 English classes over a period of four weeks. This study employed an action research design and covered pre and post methods of data collection such as test scores, observation tools, and teachers' and students' interviews. Data were analyzed using quantitative and qualitative analysis methods. The results indicate a positive impact of the intervention on student learning and a positive change on the teachers' views on the usefulness of integrating technology in their English classes. Moreover, teachers' reflections on the facilitating and hindering factors that affected the implementation of the technology integration intervention were in alignment with what the literature has previously recorded on the factors that are influential to the success of innovative interventions at schools. The study concludes with implications for practice and suggestions for future research.

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CHAPTER I

INTRODUCTION

Research in the previous decade has shown that integrating technology as Information and Computer Technology (ICT) has beneficial effects on students' learning, in particular their potential to promote decision-making, problem solving, data processing, and communication skills (Whitworth & Berson, 2003).

Driven by the prospect of greater economic, social, educational, and technological gains, governments and policy makers are initiating education reform with a clear focus on ICT integration in education not just to enhance teaching and learning but to prepare citizens that are skilled in the use of technology (Jhurree, 2005). Thus, many countries have taken an advanced position on using computer technology in education. For example, in 2004, the Government of Jordan launched the "Jordan Education Initiative (JEI)", a \$380 million public-private partnership between the Government of Jordan and over 30 public and private partners, in order support Jordan's transformation toward global competitiveness by experimenting with various ICT tools and platforms in Jordanian schools (Burns, 2012). The United Kingdom has been considered a global leader in the area of educational technology in schools with the British Government spending close to 2 billion pounds (1997-2008) in huge investments in Information and Communications Technologies (ICT) in schools (Burns, 2012).

Integrating computer applications such as Microsoft Word into the curriculum as basic computer competency is viewed as an important step toward technology integration (S. Anderson & Maninger, 2007). The main goal of this study is to explore the implementation of a small scale, innovative technology integration intervention with the aim of improving its design and making it responsive to the context of a Lebanese public school. The literature shows a number of factors that affect technology integration. Some of these

factors are school principal support, teachers' professional development, teachers' beliefs, and the way technology is integrated in the curriculum whether it is an integrated approach in the instructional strategy of the school or taught in a separate class (Cuban, 2001; Glazer, Hannafin, & Song, 2005; Hennessy, Ruthven, & Brindley, 2005). Thus, the Technology Integration English Unit proposed in this study is responsive to the context of the school and identifies the factors that support the implementation of this model unit while ensuring the sustainability of both its impact and integration in the existing curriculum. The unit proposed aims to increase students' knowledge of Microsoft Word and to improve their writing skills.

During my work as a school principal for a private school in south Lebanon, I visited a number of public schools in the Educational Zone of Nabatieh area as part of collaboration between the school and its surrounding community. During these visits, I have come to realize that computer labs (if found) are never used other than for teaching computer literacy itself, and that there is no integration of computer technology in English language instruction classes despite research studies that support the benefits of computer technology in language learning (Debski & Levy, 1999). Moreover, most of the students and teachers I have come across show a lack in basic computer literacy skills such as using power points and word processor which are considered essential components in any framework for teaching 21st century skills.

Problem Statement

Research indicates that ICT can help create a teaching and learning environment that is active and collaborative. This improves students' acquisition of knowledge and skills that will prepare them to become life-long learners (Garcia-Valcárcel, Basilotta, & Lopez, 2014).

Integrating ICT in curricula is expected to prepare students to succeed in a rapidly changing world. One of the main pillars of the 21st century skills framework, as supported by the Organization for Economic Cooperation and Development (OECD), is acquiring information, media, and literacy skills (Fadel, 2008).

Formally, Lebanon initiated its educational technology strategy in 2000. In 2007, the Ministry of Education and Higher Education (MEHE) launched a national educational technology strategy under the project titled “Lebanon’s Education Reform Strategy and Action Plan (LERSAP)” which emphasized the role of technology as the main link which could equip learners with the knowledge, dispositions, skills, competencies, and proficiency to meet the demands of a digital world (Awada & Diab, 2016). In 2011, Lebanon began the revision of its curriculum for Cycle 1 (grades 1-3), and it was piloted in 100 private and public schools by 2012. The curriculum revision allowed for the possibility of having digital content that is integrated into the curriculum; however, this initiative lacked a solid teacher support system which is intermittingly provided by the Center of Educational Research and Development (CERD) (Burns, 2012). The lack in teachers’ professional development stands in stark contrast to what the literature has well documented in terms of the concept of building teachers’ capacity when implementing an educational reform at any level (Fullan ,2010; Lambert ,2007). Moreover, this project was put on hold in the year 2015 when a new Minister of Education was appointed (Awada & Diab, 2016). The halt in the project aligns with the challenges faced by educational reforms, especially in the Arab World (Bashshur, 2009), where funders and international organizations have certain agendas that make their funds contingent on the ebb and flow of local politics with the elections of new governments in Lebanon.

Thus, public and private schools preparing students for the Lebanese Baccalaureate in Lebanon continue to use the English Language curriculum that was last modified in 1997. The curriculum briefly highlights the importance of using the audiovisual aids, computer laboratories, LCD projectors, and other digital devices with little support for language teachers on how to use computer technology beyond its traditional usage in Information Technology (IT) classes. However, there are concerns regarding the importance given to the

subject of Information Technology as it is only taught in Grades 7 to 12 with one class per week, and it is not assessed in the official Lebanese exams which discourages schools from teaching this subject (Burns, 2012). This denies young Lebanese learners the opportunity to acquire the basic computer literacy skills at a young age and sends a negative message to the learners about the importance of using computer skills in their daily lives.

The study uses action research to examine the implementation of a small scale, innovative technology integration intervention with the aim of improving its design and making it responsive to the context of a Lebanese public school.

Rationale

The 21st century is characterized by its rapid technological advancement. Technology is considered by educational reformers as a means to expose and familiarize students with other cultures. Therefore, today more than ever, technology education plays an integral part in preparing learners to become global citizens. Educational reform initiatives have been dominated by calls to introduce technology as part of enhancing students learning towards acquiring the 21st century skills. A number of frameworks have been proposed with the support of governments and international organizations in order to have a better understanding of the 21st century skills. A quick review of the most prominent three frameworks: Partnership for twenty-first Century Learning (P21st), Assessment and Teaching of twenty-first Century Skills (ATCS), and Framework based on Organization for Economic Cooperation and Development (OECD) countries, reveal that all of these frameworks that set out to prepare learners for the challenges of the 21st century share a common component which is technology skills that include basic computer literacy and information literacy (Chu, Reynolds, Tavares, Notari, & Lee, 2017). For example, The Partnership for 21st Century Learning which was founded in 2002 in the U.S. to place 21st century learners at the center of US K-12 education, and which is currently being used by thousands of educators and

hundreds of schools in the U.S. and abroad, has created a comprehensive framework for conceptualizing different types of skills important for life and the workforce including information, media, and technology skills such information literacy, media literacy, and computer/communications/technology literacy (Partnership for 21st Century Skills, 2009).

The expectations of these frameworks in terms of technology literacy starkly contrasts with the current situation in Lebanon where according to the official national curriculum designed in 1997 by the Centre for Education Research and Development (CERD), a public institution under the Lebanese Ministry of Education and Higher Education (MEHE) the subject of Information Technology is only taught in Grades 7 to 12 with one class per week, and the subject is not even included in the official Lebanese exams such as Brevet or Baccalaureate which discourages schools from teaching this subject (Burns, 2012).

Moreover, research in the past three decades has continuously supported the positive outcomes of incorporating computer software technology in early childhood education curriculum. Evidence points to the effectiveness of computers in education for young children, helping them to interact socially, work collaboratively, develop language and communication, gain confidence, and move from concrete to representational thought (Berkeley-Jones ,2012; Digregorio and Lojeski ,2010).

The most common applications of technology use in classes are the “productivity tools”, typically Microsoft Word processor, databases, spreadsheets, power points, and graphics programs (Burns, 2012). Studies concerning the use of word processor in students’ lives are not strictly based within a school context, a study by Al Ghadian (2007) revealed that 80% of first year university students in Qatar use word processor in their assignments.

Various studies show that the Arab countries are catching up with the technology trend in education which in turn is prompting researchers to explore aspects of integrating technology into the curriculum including language classes and students’ academic lives

(Hamadanah & AL-Hersh, 2009; Shaltout & Salamah, 2013). The most recent attempt in Lebanon to integrate information technology in the national curriculum took place in 2011 with the support of the former Minister of Education and Higher Education, Hassan Diab, who initiated a reform project titled “Lebanon’s Education Reform Strategy and Action Plan (LERSAP)”. The reform focused on promoting and employing the information communication tools (ICT) in the curricula and emphasized the role of technology as the main link which could equip learners with the knowledge, dispositions, skills, competencies, and proficiency to meet the demands of a digital world (Awada & Diab, 2016). However, this initiative lacked a solid teacher support system which is intermittingly provided by CERD (Burns, 2012). This lack of teacher training and support stands in stark contrast to what the literature has well documented in terms of the concept of building teachers’ capacity when implementing an educational reform at any level (Fullan, 2010; Lambert, 2007). Moreover, the project was put on hold in the year of 2015 when a new Minister of Education was selected by the Lebanese Government. The new administration did not follow up on this project (Awada & Diab, 2016). Thus, the English curriculum implemented in 1997 which aims to develop the level of English language proficiency, social interaction, academic purpose, and socio-cultural development but does not have any links to integration of technology (Bacha & Bahous, 2011) remained in use in the absence of any new serious initiatives to develop the curriculum to suit the needs of the 21st century learners.

The effectiveness of integrating technology into a curriculum depends upon an appropriate curriculum framework that helps meet the different leaning styles of various students and helps teachers plan for learning activities with clear goals. It is important when discussing technology integration into a curriculum to embed it in meaningful experiences; teachers need to purposefully integrate ICT tools in the learning process in order for the students to apply technology related knowledge and skills (Eady & Lockyer, 2013). There are

a number of curriculum frameworks that may be used to help educators plan. The Understanding by Design (UbD) or backward design is one of the curriculum design models that have been effective in developing students' understanding and their transfer of learning (Wiggins & McTighe, 2011). It offers a planning process that helps focus the curriculum and teaching on the development of students' understanding and their ability to effectively use content knowledge and skill; this effective curriculum planning ensures that learning happens and not just teaching (Wiggins & McTighe, 2011). Also, UbD is a useful curriculum design when planning for an integrated curriculum (Drake & Reid, 2018). An added advantage to using UbD design in English curriculum planning is that recent studies indicate that it can also help English as a Second Language (ESL) teaching by giving the teachers a tool that makes knowledge meaningful and spreads the authentic and original usage of the target language in class, which is the focus of ESL teaching (Yurtseven & Altun, 2015). The study uses UbD for integrating technology (Microsoft Office tools) in Grade 5 English curriculum in a manner that is natural and authentic which simultaneously increases students' skills in Microsoft Office and English language writing.

However, the move to integrate technology into a curriculum is not an isolated action; it is a school improvement initiative/innovation aimed at improving the teaching and learning practices at the school and has implications on teacher training and the pedagogical strategies they use in their classrooms (Chapman & Mahlk, 2004). Fullan (2001) argues that not every change leads to a school improvement because there are requirements needed for the different phases of the change process such as school leadership, school culture, and teachers' practices and beliefs. He identifies three overlapping phases of the change process: the initiation phase, the implementation phase, and the institutionalization phase. The implementation phase which is the focus of this study is the most crucial according to Fullan (2001) because this is the stage where individuals who are part of the implementation plan need to be supported and

empowered by capacity building strategies to improve instruction in order to feel they are part of the implementation plan rather than feeling out of control as passive observers. Moreover, teachers need to clearly understand the advantage of this change in terms of greater student achievement. This is part of the building capacity that schools undergoing change need to plan for.

Research indicates that building teachers' capacity is a requirement for sustainable school improvement and may be achieved by providing teachers with opportunities to engage in reflection (Bellei, Vanni, Valenzuela, & Contreras, 2015). Action research is one way to achieve this as it is primarily a form of self-reflective inquiry that allows the participants to understand their practice and to connect them to wider issues of curriculum, teaching, and reform (Simms, 2013). It is considered an action-reflection model used to attempt a change in an organization (Campbell, 2013). Moreover, action research has proved to increase teacher growth and interest in change initiatives and actively engages them in a commitment to make things happen at the school (Bellei et al., 2015) which aligns with the requirements for successful and sustainable change (Fullan & Hargreaves, 1996; Lambert, 2007).

Research on sustainable school improvement also states that reform initiatives should take into consideration the cultural context of the change models applied to achieve reform objectives; thus, one must build change strategies based on the characteristics of the national culture in order to bring about a more lasting change (Hallinger & Kantamara, 2001). In the Arab world, many scholars have pointed out that attempts for school reform initiatives have failed to bring significant and sustainable improvements on the level of teaching practices and ultimately on student achievement levels not only due to the top-down, centralized approach favored by the Arab governments to introduce educational reform in which teachers becomes passive members within the reform initiative (Karami-Akkary, 2014) but also because most of the reform projects do not consider the local context of the country in which the reform is

being applied in and are seen as foolproof initiatives simply because they originated in more developed countries. Thus, ignoring the priorities of the local context when designing interventions will not help in achieving the goals of this intervention (Bashshur, 2009) as cited in Karami- Akkary (2014). Hence the importance of using an action research plan that has been modified to suit the cultural characteristics of our Arabic environment.

One such project that attempts at supporting school-based educational reform initiatives using action research as a vehicle to support school improvement in the Arab world is the Al-Tatwir al-Mustanad ila al-Madrasa (TAMAM) project funded by the Arab Thought Foundation. It currently covers 7 Arab countries and 40 schools. The project uses a constructivist, inquiry-based approach for school improvement which recognizes the cultural context of the school and the dynamic nature of school reform projects. The project is driven by outside Project Steering Committee (PST) which plays the role of the external change agent and takes the responsibility of designing, planning, monitoring, and evaluating by collecting data throughout the course of this project. By adopting a collaborative participative approach through the different cycles of the action research, the PST makes sure all stakeholders including school principals, teachers, students, and parents are voluntary committed to the project and their feedback is incorporated in the decision- making process; thus, paving the way for local school teams to be empowered to lead school-based improvement initiatives that are helpful within the local school context (Karami- Akkary, Saad, & Katerji, 2012). The project's recent technical report presents a case study for the impact of the first phase of the project on a school in Jordan. The report states that the school team members met the expectations of the project and claimed the success of the TAMAM project in creating a shift in beliefs and attitudes towards school-based improvement (Karami- Akkary, El Sahel, Mansour, Katerji, & Saredidine, 2016).

This study is informed by the TAMAM project approach that uses action research as a tool for enhancing the effectiveness of the implementation of school-based improvement. Specifically, it will adopt the template developed by the project designers to guide the implementation steps of an innovative intervention introduced at the school level with active engagement from the teachers. The researcher follows the TAMAM school-based improvement model by identifying a problem of practice related to student learning, namely the lack of addressing key 21st century skills, designing an intervention for integrating technology skills in the English curriculum, monitoring the implementation and measuring its impact while seeking the voluntary participation and commitment from a selected group of teachers at a selected school. The researcher then will engage with the teachers in professional development sessions and dialogue to minimize anticipated obstacles in the implementation plan while routinely collecting data and analyzing it in order to revise and edit the plan to suit the needs of the school; thus, making sure the intervention is sustainable by being well integrated in the school system.

Research Questions

Review of recent research reveals that the introduction of ICT in curriculum has a positive impact of student learning. Using Microsoft Office tools as a technology integration intervention exposes students to language in meaningful ways through audio- visual contexts and promotes a computer- based communication which is beneficial for language learning. Technology has affected both what is written and how it is written by making it easier to edit and revise such as using word processor in writing which makes the students more engaged in their writing (Hennessy et al., 2005; Van Leeuwen & Gabriel, 2007). The main goal of this study; therefore, is to develop and implement an intervention that will facilitate the integration of computer technology in Grade 5 English language curriculum and improve students' learning in English language classes through the integration of Microsoft Office tools.

The data collected during and after the implementation of the planned intervention will provide answers to these research questions:

1. To what extent did Grade 5 students' knowledge in Microsoft Office such as Microsoft Word improve as a result of implementing the Technology Integration English Unit?
2. To what extent and in what ways did the English language teachers achieve the operational objectives of the implementation plan?
3. What is the overall effect of the implementation of the Technology Integration English Unit on Grade 5 teachers' and students' views about the usefulness of technology integration in English classes?
4. From Grade 5 teachers' perspectives, what were the factors that facilitated or hindered their implementation of the Technology Integration English Unit?

Significance/Implications

There is no study in Lebanon, so far, that investigates the implementation process and the effects of integrating Microsoft Office tools in primary cycle English curriculum using the UbD curriculum on students' learning. The result of this study will be an effective springboard for further studies to examine the implementation of a small scale, technology integration intervention in the context of Lebanese public schools. Educational reformers, curriculum designers and English Language teachers will also benefit from this study as it provides a framework for effectively integrating technology in the curriculum using UbD as a curricular design. Moreover, it is hoped that this study will inform how action research can be used to implement and monitor the implementation of certain interventions while inviting the involvement of teachers and preparing them to implement these improvements with the aim of achieving sustainable school improvement within a Lebanese context. The information presented can help school leaders in developing and implementing school improvement or reform initiatives related to technology integration in education.

CHAPTER II

LITERATURE REVIEW

This literature review is organized to first explore technology integration as part of educational reform and school improvement that aim at improving student learning and teaching practices while using action research as a model to attempt change within the context of the Arab world. Second, this chapter explores the impact of technology interventions that have been implemented internationally. Thirdly, it examines the need for updating the Lebanese curriculum by reviewing multiple sources of information that reveal recent attempts from the Lebanese Government to integrate technology and performance tasks into the Lebanese curriculum. Fourthly, to conclude the review, a focus on UbD curriculum framework will give a better understanding of how it can be used as a design tool to implement a technology integration intervention.

School Improvement Implementation in Education Reform

The task of integrating technology in the schools suggests that schools must transform themselves in order to make effective use of the technology innovation (Warschauer, 2000). The education environment is characterized by rapid change and increasing complexity; thus, researchers are considering different aspects when thinking about change in schools in order to reach a sustainable school improvement (Fullan, 2007). In a study by Supovitz and Weinbaum (2008) which summarizes school improvement implementation research in the 30 years preceding their study, it was found the difference between the implementation goals and what was actually enacted within the schools is the rule rather than the exception. Research on successful school reform has shown that the processes by which change is managed are as important as the content of the change initiative itself (Thompson & Scott, 2010). Thus, a balance needs to be found when implementing a new initiative such as technology integration between the approach used

when introducing the change (bottom up and top-down), the leadership processes, and the local adaptability because change is not a linear process, and it should be flexible enough to adapt to the local context of the school (Fullan, 2007). Using action research when implementing a new plan within a school reform initiative helps strike the balance needed in planning for a change that will lead to school sustainable school improvement.

The term action research was first introduced in 1946 by social psychologist Kurt Lewin who characterized action research as a method consisting of spiral steps of planning, action, and fact-finding about the result of action which is a more purposeful method to examine the effects of actions already taken rather than formulating and testing a hypothesis (Stringer, 2007). Thus, action research is an inquiry conducted with the intent of having an action or improvement result from it that is fit for a particular context or group of people with the purpose of finding an appropriate solution for a particular dynamic (Stringer, 2007). It consists of a group of approaches that may vary in design; however, they reflect common characteristics that seek to involve, empower, and improve an organization and its stakeholders (Reason & Bradbury, 2008).

Herr and Anderson (2005) related action research to research that focuses on theories in action and discussed the five basic goals of action research: generation of new knowledge, achievement of action-oriented results, the education of both the researcher and the participants, creating results that are relevant to the local context, and applying a sound and appropriate research methodology. While Coghlan and Brannick (2010) asserted that an action research cycle requires the researcher to diagnose, plan action, take/implement action, and evaluate action.

A review of the current literature reveals several models for action research. The Kemmis and McTaggart (2000) model involves a five-step process of education action research: planning, acting, observing, reflecting, and re-planning. Sagor (2005) presented a

seven-step process which requires the researcher to select a focus, clarify theories, identify research questions, collect data, analyze data, report results, and take informed action. Mills (2007) model suggests that researchers engage in a four-step action research spiral which requires a researcher to identify an area of focus, collect data, analyze, and interpret data, and develop an action plan. Finally, Stringer (2007) presented a model that specifies the identification of research design, data gathering, data analysis, communication, and action.

Thus, although these models present different components, they can be collectively summarized as a spiraling process that facilitates planning, acting/implementing, collecting, observing, evaluating, and reflecting in a systematic matter. The spiraling process also provides an opportunity for practitioners to learn and hence build their capacities. This process also serves the purpose of developing a plan of action to address a problem within an organization (Kemmis & McTaggart, 2000; Mills, 2007; Sagor, 2005; Stringer, 2007).

Sagor (2000) believes that guiding school improvement with action research is an empowering process because it helps educators solve problems that lay at the heart of what every educator wants: the teaching and development of students. In his book *Guiding School Improvement with Action Research*, Sagor explains that action research is an opportunity to trigger learning and build capacity and works efficiently on guiding school development process which usually targets the development of higher-order thinking, positive social behavior, and integration of technology in various subjects (Sagor, 2000).

An example of how action research can guide sustainable school improvement launching from within the school is the research and development project Al-Tatwir al-Mustanad ila al-Madrassa (TAMAM) which a school-based reform project funded by the Arab Thought Foundation. TAMAM project uses a constructivist, inquiry-based approach for school improvement which recognizes the cultural context of the school and the dynamic nature of school reform projects. The researcher follows the TAMAM school-

based improvement model by identifying a problem of practice related to student learning, namely the lack of integrating technology in the English curriculum, designing an intervention and implementation plan and monitoring the implementation and measuring its impact while seeking the voluntary participation and commitment from a selected group of teachers at a selected school. The researcher then will engage with the teachers in professional development sessions and dialogue to minimize anticipated obstacles in the implementation plan while routinely collecting data and analyzing it in order to revise and edit the plan to suit the needs of the school; thus, making sure the intervention is sustainable and integrated in the system (Karami- Akkary et al., 2012).

The Effect of Technology Integration Tools in Education

Computer hardware, interactive software, adaptive devices, alternative input devices, and related off-computer activities incorporated into the early childhood curriculum give young children a set of tools to improve learning opportunities across developmental domains and curricular content. Evidence clearly points to the effectiveness of computers in education for young children, helping them to interact socially, work collaboratively, control their environment, gain confidence, develop language and communication, and move from concrete to representational thought (Berkeley-Jones, 2012; Digregorio & Lojeski, 2010; Fu, 2013; Gurevich & Gorev, 2012). In a review that summarizes the relevant research on the use of ICT in education, it has been found that ICT use can assist students in accessing digital information efficiently and effectively, support student-centered and self-directed learning, produce a creative learning environment, promote collaborative learning in a distance-learning environment, offer more opportunities to develop critical (higher-order) thinking skills, improve teaching and learning quality, and support teaching by facilitating access to course content (Fu, 2013). Students and teachers provided with laptops, appropriate technology resources, and wireless learning environments show a positive

impact on teacher classroom practices, student academic achievement, engagement, and research skills; moreover, interviews with teachers and students reveal that students' use of laptops affects learning, communication, exploration, and expression (Bello, 2011).

Increases Student Achievement

The research literature related to information computer technology (ICT) and student achievement records a positive effect of specific uses of ICT on students' achievement in almost all school subjects. Most of the conclusions made indicate a strong relationship between the ways in which ICT is used in schools and the achievement levels of students. In a study by Berkeley-Jones and Spotswood (2012) to investigate the impact of using educational technology on student achievement as measured by the Texas Assessment of Knowledge and Skills (TAKS) score, the researchers noted that teachers, who scored high on the level of integrating computer technology in their classrooms, favored a more student-centered environment which in turn lead to higher student achievement in TAKS scores.

The effect of integrating educational technology applications is not specific to one subject matter. In a study to integrate dynamic geometry software in geometry classrooms, the authors analyzed changes made in the pedagogical instruction in class which ultimately affected students' achievement. The results of the study showed that that implementation of the geometry software improved students' usage of the computerized environment for both simple and difficult types of problems at most stages of the solution. Moreover, it enabled students to improve their achievement significantly even for relatively difficult problems (Gurevich & Gorev, 2012).

There are positive gains to be reaped in literacy, mathematics, and science for children aged 7- 11 years old when taught using an Interactive White Board (IWB). Using one of the many ready- made interactive programs related to IWB such as Easiteach Maths has been recorded to show significant improvement in attainment of math concepts over the

school year. Researchers noted that the improvement in students' math scores was due to the nature of the interactive software of Easiteach Maths which involves students directly by having them use the board themselves (Digregorio & Lojeski, 2010).

Enhances Literacy Skills in Writing

The most common applications of technology use in classes are the “productivity tools”, typically Microsoft Word processors, databases, spreadsheets, power points, and graphics programs (Burns, 2012). The use of computer-based instructional tools in classrooms is a technology “growth area”, and the development of tools that enable teachers and students to work on their own products—ranging from multimedia presentations to digital videos is exploding (Dyrli & Kinnaman, 1994).

Microsoft Office package is a software with different tools that are beneficial to both students and teachers. Microsoft PowerPoint is a presentation tool that has shown good results in helping students apply skill integration tasks (Schcolnik & Kol, 1999). This software is designed to help students express their ideas in pictures, words, shapes, motions, and sounds; it provokes students to think and feel in a specific situation in class. In a study by Bilqis (2012), results of the data analysis proved that Microsoft PowerPoint had a significant effect on eighth grade students' English Language speaking skills. Another study encouraged using Microsoft Excel to minimize students' anxiety in solving Math problems and the results showed that students were more confident in Math classes after learning Excel (Shi, 2010).

Microsoft Word processing tool has been used consistently in research to promote writing skills. A five-year study of laptops and writing showed that sixth, seventh, and eighth grade students who wrote using their own computers (using word processor) had a greater chance of achieving proficiency in the state's writing standards in the US state of Maine in addition to having more developed answers and get higher scores on state tests

(Burns, 2012). Another study by Van Leeuwen and Gabriel (2007) revealed that grade one students preferred using word processor in writing over the pencil and paper, and that word processors are tools that can complement the range and type of writing activities in elementary school classrooms. Moreover, a writing task completed with word processing software introduces a new realm of instructional strategies and teacher–student interactions. Puckett, Judge, and Brozo (2009) state that the ease of use cut and paste in word processing program gives students motivation to revise and edit their writing instead of looking at it as chore. A previous study by Scott and Mouza (2007) claimed that word processors have introduced new ways of organizing and editing texts which made revisions easier for students.

More recent studies in the Arab world have also noted the positive effects of using the computer for improving students' writing skill performance of the first secondary grade in Jordan (Hamadanah & AL-Hersh, 2009). Another study by Shaltout and Salamah (2013) in private schools in Amman revealed significant statistical difference in the writing scores between the experimental group of 30 grade eight students who used word processor in writing their composition and the control group (30 students) who used pencil and paper.

Studies concerning the use of word processor in students' lives are not strictly based within a school context, a study by Al Ghadian (2007) revealed that 80% of first year university students in Qatar use word processor in their assignments.

Integrating Technology and Teacher Professional Development

Fullan and Quinn (2010) and Einav and Levin (2010) maintain that capacity building is essential to sustain a whole school reform, and instructional precision developed by improving the quality of instruction is at the heart of achieving the reform goals. Research shows that teachers cannot just jump into applying a technology intervention; it is a change process that requires time, resources and commitment (Fullan, 2007). School improvement

plans aimed at improving the teaching and learning must account for building teachers' capacity especially the teaching strategies they use in their classrooms (Chapman & Mahlk, 2004). Robinson, Hohepa, and Lloyd (2009) meta-analysis on school leadership and student outcomes states that formal and informal opportunities for teacher development are associated with greater level of change in student outcomes. When implementing technology into the classroom, teachers must encourage interactions between students and the teacher, provide prompt feedback, and respect diverse talents and ways of learning (David, Keaton, Morris, Murphy, & Stapley, 2008). Thus, time and energy should be applied to better understand teachers' abilities and perceptions on using technology in education within the classroom teaching practices. Teachers should also have the time and expertise to explore the technology tool used and the confidence to use it within the instruction (Halsey, 2007; Hansen, 2008).

The Lebanese Curriculum Catching Up with the Technology Trend

This section discusses the most recent attempts that have been implemented by the Lebanese Ministry of Education and Higher Education (MEHE) development team to integrate technology into the Lebanese curriculum, explores the challenges that prevented successful implementation of technology reform projects, and discusses the integration of educational technology tools in the Lebanese context.

The Ministry of Education and Higher Education (MEHE), under the direction of ex-Minister Hassan Diab, underwent a major curriculum reform in 2011 focusing on promoting and employing Information Communication Tools (ICT). This reform was translated into Lebanon's National Educational Technology Strategic Plan which emphasizes the role of technology as a pedagogical tool that would help equip the Lebanese learners with the digital literacy necessary for 21st century learning. The project's plan is based on six pillars: infrastructure, curriculum, instruction, assessment, professional development, and management and leadership (Awada & Diab, 2016).

Below is a summarized draft of the goals and objectives outlined in the strategic plan that would be implemented in five years, from 2012–2017 (MEHE, 2012):

1. Providing the school with different technology resources (hardware, software, connectivity, and digital content)
2. Maintaining technology resources in classrooms and schools
3. Planning for ongoing professional development, and support for principals and teachers to manage, utilize, and integrate technology to strengthen teaching and learning
4. Implementing, supporting, and assessing technology-related initiatives in Lebanese schools
5. Supporting the curriculum, content, instruction, and assessment through the introduction and integration of technology into the classroom

Regardless the effort and the ongoing studies that were prepared to attain a successful integration of the Lebanese educational curriculum and ICT, the project's plan was put on hold in the year 2015 when a new Minister of Education was appointed (Awada & Diab, 2016). This hold on the continuation of the plan was due to the fact that the former was funded by international organizations and humanitarian agencies which usually have certain agendas and make their funds contingent on the ebb and flow of local politics with the elections of new governments in Lebanon. Moreover, a study entitled "The Difficulties Facing Technology Integration into Mathematics Education in Lebanon" which was presented in the conference *Learning Technologies and Mathematics Middle East Conference* that was held in Oman in 2007 showed there are some obstacles that prevent the schools from conducting proper teachers' professional development due to the following factors: financial matters, time constraints, teachers' own beliefs about technology

integration in math education and the type of workshops designed for technology integration in math teaching (El-Hariri, 2007).

As for the integration of ICT in the Lebanese English curriculum, there are few recent studies that demonstrate the accessibility of implementing technology in English classes. Most of these studies investigated the use of technology tools such as WebQuest, Wiki, Window Live Movie Maker (WLMM), and Google Drive to improve the learners' communication and research skills, to enhance the creativity in students' journal writing, to enhance English as a foreign language (EFL) writing proficiency, and to decrease the writing apprehension of eighth graders and eleventh graders enrolled in a Lebanese public school. The findings of these studies highlighted the positive effects of using these technology tools in English classes (Awada & Diab, 2016).

The currently used national English curriculum came as a result of an urgent call to revise the curricula after a period of curricular stagnation during the Lebanese Civil War. The revised English curriculum had to provide opportunities for students to develop their skills and knowledge deemed necessary for 21st century. As for the technology use in the newly adopted curriculum back in 1997, the latter highlighted the importance of using the audiovisual aids, computer laboratories, LCD projectors, the Internet, and other digital devices. However, while the acquisition of all these aids might not be problematic for many private schools; other schools, specifically public schools do not place them on their list of priorities (Shaaban, 2013).

Based on the points raised above, it can be concluded that despite the fact that language experts and classroom practitioners developed the Lebanese English language curriculum in line with international standards, many factors in the Lebanese context have hindered its effective implementation. Over the years, subsequent ministers of Education and Higher Education have stressed repeatedly the need to introduce revisions upon the 1997

curriculum, the most notable one headed by ex-Minister Hasan Diab, and recently by the ex-Minister Marwan Hamade who announced during the launching of a workshop entitled “Lebanese Curriculum, Prospects and Expectations” that the Ministry will be working on building a strong corporation between the learning process and ICT implementation (CERD, 2017).

The Lebanese Ministry of Education and Higher Education (MEHE) and the Center for Educational Research and Development (CERD) recognize that technology can equip learners with the necessary knowledge, aptitudes, competencies, and expertise to meet the demands of a digital world (El-Daou, 2016).

Extensive research in the Arabic data base Shamaa yielded few recent studies that showcase the positive effects of integrating technology tools into the Lebanese curriculum compared to many case studies exploring the effects of integrating technological tools in the Kingdom of Saudi Arabia, United Arab Emirates, and Jordan.

In a study by Awada (2014) on the effectiveness of Windows Movie Maker in decreasing Grade 11 Lebanese students’ levels of writing apprehension and increasing their EFL writing proficiency, the author discussed the importance of this computer–assisted language tool in allowing students the opportunity to creatively write and express themselves using music and visual effects. The results of the qualitative data of this study reflected the importance of using Windows Movie Maker (WMM) in the writing process and the usefulness of this tool in teaching writing skills in general and journal writing in particular (Awada, 2014).

In another study, Awada and Ghaith (2014) examined the effectiveness of using a WebQuest model in increasing writing motivation and lessening students’ apprehension in English writing class in a Lebanese middle school. The study yielded positive results in

terms that students who used WebQuest outperformed their classmates who studied the same skills but with regular writing class dynamics.

El-Jiryas (2011) conducted a study in two Grade 10 classes in a private high school in Lebanon with the purpose of studying whether integration of technology in teaching quadratic functions affects students' understanding, critical thinking and problem solving abilities, and whether it changes their attitudes towards mathematics. The results showed that the attitudes of students exposed to technology such as the programmable calculator Casio Class pad 330 and the DGS Geogebra were more positive than those of the students who used only the non-programmable scientific calculator. Moreover, the quantitative analysis of the post-test showed that students' achievement improved over time after being exposed to technology.

However, it is important to note that most of the software used in the literature gathered on the positive effects of integrating technology into the curriculum assumes that students and teachers are already familiar with Microsoft Office processing tools and the availability of technological resources at the schools. However, this is not the case in Lebanon where investments and initiatives in ICT within education depend on private organizations, philanthropic foundations, and some government projects. The data collected concerning the integrating of computer technology in schools in Lebanon show that ICT initiatives are on a small scale, lack consistency and follow up, and are faced by many challenges such as providing consistent teacher support through professional development workshops by CERD (Burns, 2012).

Understanding by Design (UbD) as a Curriculum Framework

The effectiveness of integrating technology into a curriculum depends upon an appropriate curriculum framework that helps meet the different learning styles of various students, and helps teachers plan for learning activities with clear goals. It is important

when discussing technology integration into a curriculum to embed it in meaningful experiences; teachers need to purposefully integrate ICT tools in the learning process in order for the students to apply technology related knowledge and skills (Eady & Lockyer, 2013).

UbD is one of the backward design curriculum models that has been effective in developing students' understanding and their transfer of learning. It offers a planning process that helps focus the curriculum on the development of students' understanding and their ability to effectively use content knowledge and skill; this effective curriculum planning ensures that learning happens and not just teaching (Wiggins & McTighe, 2011).

The section below provides an overview of backward design, the three stages of setting the sequence of the curriculum using Ubd curriculum framework, and displays research on achievement related to UbD.

Definition of Backward Design

According to Wiggins and McTighe (2011), backward design, also called backward planning or backward mapping, is a process that educators use to design learning experiences and instructional techniques to achieve specific learning goals. Backward design begins with the objectives of a unit which is what students are expected to learn and be able to do and then proceeds "backward" to create assessments and lessons that achieve those desired goals. The basic rationale motivating backward design is that starting with the end goal ensures that the objectives are aligned with the teaching methods and assessments and assignments adopted. Moreover, it allows teachers the flexibility of adapting the assessments and teaching methods to the needs and interests of the students while maintaining their alignment with the goal.

The UbD framework is based on seven principles (Wiggins & McTighe, 2011):

1. Learning is reinforced when teachers think purposefully about curricular planning.

2. The UbD framework supports the learner's development of understanding and transfer of learning.
3. Understanding is revealed when students autonomously make sense of and transfer their learning through authentic performance. Six facets of understanding: the capacity to explain, interpret, apply, shift perspective, empathize, and self-assess can serve as indicators of understanding.
4. Effective curriculum is planned backward from long-term, desired results through a three-stage design process (Desired Results, Evidence, and Learning Plan).
5. Teachers' main goal is to maintain learning rather than teaching; they always aim and check for successful meaning making and transfer by the learner.
6. Reviewing units and curriculum to avoid the old design standards enhances curricular quality and effectiveness, and provides engaging and professional development.
7. The UbD framework aims to evaluate the learner's achievement and desired result. The results of the design and student performance include needed adjustments in curriculum and instruction so that student learning is maximized.

The Three Stages of Backward Design

The UbD framework consists of a three-stage backward design process for curriculum planning. It includes a template and set of design tools that embody the process. A key concept in UbD framework is alignment (i.e., all three stages must clearly align not only to standards but also to one another). In other words, Stage 1 content and understanding must be what is assessed in Stage 2 and taught in Stage 3.

Stage One: Identify Desired Results

In the first stage, teachers must identify the learning goals of the unit or lesson. Wiggins and McTighe (2011) provide a useful process for establishing curricular priorities. They suggest that teachers ask themselves the following three questions as they progressively focus on the most valuable content. The questions are stated as the following: What should participants hear, read, view, explore or otherwise encounter? What knowledge and skills should participants master? What are big ideas and important understandings participants should retain? The answers to these questions cover the knowledge that most students are familiar with, the knowledge that is important for students to know and do, and finally the big ideas that teachers want students to acquire after they have completed the unit or lesson. By answering the three questions presented at this stage, teachers will be able to identify the best content for the unit by selecting the most important knowledge and facts. In Lebanon, teachers do not design these learning goals, but they rather adopt them from the national English curriculum.

Stage Two: Determine Assessment Evidence

At this stage, teachers identify the type of the assessments and performance tasks students will complete in order to demonstrate evidence of understanding and learning. Teachers will want to check if the students have achieved the desired results by engaging them in opportunities based on the six facets of understanding identified by Wiggins and McTighe (2011):

1. Students can explain concepts, principles, and processes by putting it their own words, teaching it to others, justifying their answers, and showing their reasoning.
2. Students can interpret by making sense of data, text, and experience through images, stories, and models.

3. Students can apply by effectively using and adapting what they know in new and complex contexts.
4. Students demonstrate perspective by seeing the big picture and recognizing different points of view.
5. Students display empathy by perceiving sensitively and walking in someone else's place.
6. Students have self-knowledge by showing meta-cognitive awareness, using productive habits of mind, and reflecting on the meaning of the learning and experience.

However, it is not necessary to use all the above-mentioned facets in an assessment; it depends on the content of the subject and the objectives to be assessed. Thus, at this stage, it is important to consider a wide range of assessment methods to ensure that students are being assessed over the identified goals the teacher wants students to attain. The assessment can be a performance task where learners have to apply the acquired knowledge into a new and authentic situation as a means for transferring learning, while the other types of assessment includes the following: term papers, short-answer quizzes, free-response questions, homework assignments, or group projects.

Stage Three: Plan Learning Experiences and Instructions

The final stage of backward design is when teachers begin to set their plan about how they will teach. This is when instructional strategies and learning activities should be created. With the learning goals and assessment methods established, the teacher will have a clearer vision of which strategies would work best to provide students with the resources and information necessary to attain the goals of the unit or the lesson.

To sum up, understanding cannot simply be told; learners have to actively construct meaning by being given the opportunities to apply their learning to new situations and

receive timely feedback on their performance to help them improve. Thus, the teacher's role expands to become a facilitator of meaning and a coach giving feedback and advice about how to use content effectively.

Research on Achievement Related to Understanding by Design

In a 1996 study conducted by Newmann, Marks, and Gamoran (1996) which measured how well 24 restructured schools implemented authentic pedagogy and authentic academic performance approaches in mathematics and social studies, results revealed a significant decrease in the inequalities between high and low performing students when normally low-performing students used authentic pedagogy, performance strategies and authentic assessments. The study provides strong evidence that authentic pedagogy and assessment lead to improved academic achievement for all students, but especially for low-performing students. Thus, this research supports the UbD approach which emphasizes the use of real-life assessments and promotes a focus on deep enduring understandings (McTighe, Seif, & Wiggins, 2004).

In more recent studies by Anderson (2012); Andrews (2011); Yurtseven, Dogan, and Altun (2013), the authors respectively examined the effect of UbD on students' meaningful learning and achievement, reading skills, and science academic achievement. The results of these studies yielded significant difference in treatment and control group students' achievement scores after UbD implementations, positive contributions to both students' reading skills and reading test scores, and a significant difference between pre- and post-tests results after implementing a UbD based science instruction for three weeks.

I have searched existing data bases like Shamaa for similar studies in the Arab world that mention the usage of UbD and student achievement and found one study by Almasaeid (2017); the study explores the impact of using UbD model on 8th grade students' achievement in science in two private schools in Dubai, and the results show the

rising of the academic achievement rates for the experimental group which was taught using UbD model compared to the control group which was taught the traditional way.

Conclusion

Upon coming across the previously reviewed research, this study examined the implementation of a small scale, innovative technology integration intervention with the aim of improving its design and making it responsive to the context of a Lebanese public school.

In a review that summarizes the relevant research on the use of ICT in education, it has been found that ICT use can assist students in accessing digital information efficiently and effectively, support student-centered and self-directed learning, produce a creative learning environment, promote collaborative learning in a distance-learning environment, offer more opportunities to develop critical (higher-order) thinking skills, improve teaching and learning quality, and support teaching by facilitating access to course content (Fu, 2013). Furthermore, many educational frameworks which cater to students acquiring 21st century skills share a common component which is technology skills that include basic computer literacy and information literacy.

The researcher thought carefully about using action research as an opportunity to achieve the desired results of the implementation plan of the intervention. In the educational realm, action research becomes a research conducted to improve practices in educational settings, a way for the researcher to seek improvement or solve a problem (Glanz, 2003). The researcher was informed by the TAMAM school-based improvement model which required building relationships and interactions with the teachers and school principal through a systematic process; thus, the researcher was able to design an intervention that engages the teachers and allows the researcher to explore and reflect on the factors that facilitated or hindered the implementation of the intervention.

The literature on school improvement implementation during the past three decades suggested there are variations between what is enacted in the school and the school improvement plan, as the latter does not guarantee the fidelity of implementing any plan. Fullan (2007) called for a balance to be struck between the approach used and the local context of the school when implementing new interventions such as integration of technology. Several studies cited in this literature review indicated the existence of a relationship between school improvement and action research. Sagor (2000) believes that action research is the right approach to use when guiding a school improvement initiative that needs to implement a planned change.

Moreover, this study took place in a Lebanese context. The Lebanese English curriculum implemented in 1997 which aims to develop the level of English language proficiency, social interaction, academic purpose, and socio-cultural development does not have any links to integration of technology. Therefore, the researcher investigated the impact of implementing a Technology Integration English Unit based on UbD curriculum framework on Lebanese students' knowledge in Microsoft Word and their attitudes towards learning English and using technology in class, in addition to the impact on teachers' views regarding the usefulness of technology integration in English classes.

UbD is one of the backward design curriculum models that has been effective in developing students' understanding and their transfer of learning. It offers a planning process that helps focus the curriculum on the development of students' understanding and their ability to effectively use content knowledge and skill; this effective curriculum planning ensures that learning happens and not just teaching (Wiggins & McTighe, 2011) which makes it an ideal choice to explore how it can be used as a design tool to implement a technology integration intervention.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine the implementation of a small scale innovative intervention with the aim of improving its design and making it responsive to the context of a Lebanese public school. The intervention is considered an innovation in the context of Lebanese public schools and is aimed at using Microsoft Office tools integrated within a UbD model unit in Grade 5 English language curriculum to equip students with basic computer literacy in the 21st century following a design that integrates these skills in the regular English curriculum. Moreover, the study also sought to identify factors that affect the implementation of this model unit by engaging different stakeholders at the school in implementing and monitoring the factors surrounding the implementation, and identifying preliminary impact of this intervention to ensure the sustainability of its impact.

Action research is a flexible form of research which is applicable to a variety of social situations; however, when used within the realm of education, it becomes a research conducted to improve practices in educational settings (Glanz, 2003). The cyclical process of the action research requires the researcher and/or stakeholders to identify an area of concern, collect information, implement a plan to change the existing situation, collect data to monitor and evaluate the implementation, share the results from the research, then determine if the plan was effective (Glanz, 2003). This study employed an action research design. The researcher was trying to investigate the implementation of an intervention model being implemented in a school in real time while collecting and analyzing data on its effectiveness during the course of the implementation which allowed for adjustments to be made in the implementation plan while considering factors that are essential to bring sustainable change in the teaching practices such as building teacher capacity through

professional development sessions; hence, this scenario made action research in action as the most plausible approach.

The major steps of the cycle of the action research are the planning, action, observation, and reflection (Kemmis & McTaggart, 2000). Thus, this research cycle began with the researcher identifying the problem and creating a (Plan). The (Action) would be the activities implemented in the classroom and within the school which were recorded and (Observed) by the researcher. The data collected would be reflected upon which would lead to (Revising) the unit design as well as the plan to create a general conclusion linked to existing literature review on the integrating computer technology in the national English curriculum (Young, Rapp, & Murphy, 2010).

Research Questions

Review of recent research revealed that the integration of ICT in curriculum has a positive impact on student learning. Using Microsoft Office tools as a technology integration intervention introduces students to language in meaningful ways through audio-visual contexts and promotes a computer-based communication which is beneficial for language learning. Technology has affected both what is written and how it is written by making it easier to edit and revise such as using word processor in writing which makes the students more engaged in their writing (Hennessy et al., 2005; Van Leeuwen & Gabriel, 2007). The main goal of this study; therefore, was to develop and implement an intervention that would facilitate the integration of computer technology in Grade 5 English language curriculum and improve students' learning of these computer skills through the integration of Microsoft Office tools.

The data collected, before, during and after the implementation of the planned intervention provided answers to the following research questions:

1. To what extent did Grade 5 students' knowledge in Microsoft Office such as Microsoft Word improve as a result of implementing the Technology Integration English Unit?
2. To what extent and in what ways did the English language teachers achieve the operational objectives of the implementation plan?
3. What is the overall effect of the implementation of the Technology Integration English Unit on Grade 5 teachers' and students' views about the usefulness of technology integration in English classes?
4. From Grade 5 teachers' perspectives, what were the factors that facilitated or hindered their implementation of the Technology Integration English Unit?

Study Site and Participants

Study Site

School X, a public elementary school located in a village in south Lebanon, was the setting for the implementation plan of the Technology Integration English Unit. Having worked in the region, the researcher had built connections with the community which made it easier to have access to the school. The school has a total of four hundred fifty students in Grades kindergarten through Grade 6, and all the students enrolled are of low or lower-middle socioeconomic status. The school has seventeen classrooms with one library that serves also as a computer room which is equipped with twelve desktops, a white board, and a projector. Grade 5 has a total of fifty-three students distributed over two sections, and each section is taught by a different English teacher. All data collection for this study was collected on site.

Participants

As stated by the school supervisor, at the beginning of the school year students are randomly assigned to the different sections of their grade level. The school has two sections of Grade 5. Each section includes around twenty-six or twenty-seven mixed (22 boys and

31 girls) students. Students in the two Grade 5 sections constituted the participants in this study. The participants included fifty-three fifth grade students enrolled into these two sections along with the two English teachers who are assigned for teaching Grade 5 English classes. Both English teachers are females with an age range of mid-twenties to late thirties while Grade 5 students are of age 10-11 years old. The researcher got permission from the school principal, the school supervisor, and the Grade 5 English teachers to carry out this study. Both a child assent and a parental consent were required to approve their participation in this study.

Data Collection Tools

In order to monitor (action research in action) the implementation of the Technology Integration English Unit and make sure that the operational objectives of this action research were met, the researcher concurrently collected both qualitative and quantitative data from different sources including the teachers and students. Quantitative data and qualitative data were collected via pre and post-test student assessment, classroom observations, and pre- and post-teacher and student interviews.

Student Pre- and Post-Tests on Microsoft Word

Tests are a powerful tool to gather numerical data; however, in considering testing as a tool to gather research data, it is very important to adhere to the purpose, objective, and content of the evaluation (Cohen, Manion, & Morrison, 2007). The purpose of the tests created by the researcher was to measure the impact of the achievement of Grade 5 students' Microsoft Word knowledge after implementing the Technology Integration English Unit. The pre-test was used to determine students' knowledge of Microsoft Office tools and is made up of multiple-choice questions that covered basic and advanced Microsoft Word features. The test was administered at the school's library under the supervision of the researcher and the English teachers in order to avoid having unreliable results. The post-test

which was identical to the pre-test was given after four weeks of classes at the school's library, where the computer lab is located, under the same conditions. The researcher had previously shared the test with an Integrated Computer Technology consultant working at an international school in Saudi Arabia and an Integrated Computer Technology teacher working at a Lebanese private school in order to make sure that the objectives of the test match the required skills of Grade 5 students' age and level.

Another assessment was used to measure the impact of the Technology Integration English Unit on students' knowledge in Microsoft Word. In the Technology Integration English Unit, students were assessed on integrating Microsoft Word tools in their writing assignments using performance task two. The task required the students to follow specific instructions concerning the layout, header, page number, and font of a document. Students' scores were collected after they finished performance task two in order to determine their knowledge in Microsoft Word tools.

Classroom Observations

Classroom Observations involve an observer collecting data while an individual is engaged in some sort of action or while an event is unfolding. Observation is a central and fundamental tool when collecting qualitative data (Marshall & Rossman, 2011). There are different methods of observations which suit different purpose of research (Gall, Gall, & Borg, 2004). To complete the data collection and to monitor the implementation of the technology component in the English classes, the researcher observed two full English classes for each classroom at the beginning and the end of the intervention study using an observational checklist to measure overall technology use. The classroom observation checklist was used to collect data on the class activities that took place while implementing the Technology Integration English Unit in addition to documenting students' access to computers during the intervention. The Technology Integration Checklist (Appendix E)

describes different strategies of technology use in the English class such as using technology as resource tool, using technology tools in meaningful activities that promote discussion among learners, students access to computers, and teachers competency the technology tools with based on the following rubric: *Not Observed* to indicate that strategy was not observed; *Rarely* to indicate that strategy was observed only once; *Occasionally* to indicate that strategy was observed twice; *Frequently* to indicate that strategy was observed several times; and *Extensively* to indicate that strategy was observed many times.

Pre- and Post-Intervention Interviews

Interviews are used in educational research because the researcher can gather data directly from the participants and learn the rationale behind the results (Seidman, 2013). The researcher opted for face-to-face, semi-structured interviews with open ended questions because they are flexible and allow the interviewer to adjust the questions and add more questions based on the participants' response (Fontana & Frey, 2005). The teachers' interviews (Appendix A; Appendix C) explored two major topics: the teachers' views on technology and its usefulness in English classes and the hindering and/or facilitating factors in the context of the school. Four interviews in total were conducted with the two English teachers at the beginning and at the end of the implementation plan in order characterize any changes in their responses to the topics mentioned above. The interviews were set for a maximum of 30 minutes during an approved time on a regular school day, and the researcher used the voice recorder in her phone to record the interview. The students' interviews before and after the implementation discussed their learning experience in English class and their views on using technology in classes. The interviews were organized individually with each student for ten minutes in the presence of the school supervisor. All teachers' and students' interviews were recorded and transcribed for later analysis.

Study Procedure

The impetus of this study came from the researcher's personal experience working as a school principal in a private K- 9 school in south Lebanon. The school followed the national Lebanese curriculum in all subject matters including English Language. Working with primary school English teachers on yearly pacing charts and daily lesson plans, the researcher noticed that the English curriculum which was set in 1997 has no links for integrating computer technology in its goals and objectives. Also, according to the official Lebanese curriculum designed by the Ministry of Education and Higher Education in 1997, the subject of Information Technology is only taught in grades 7-12 with one class per week. This denies young students the opportunity to acquire the basic computer literacy skills such as Microsoft Office tools at a young age. The researcher felt that already students in the educational zone in the Nabatieh area are at a disadvantage due to the troubled history of that area, and being born and raised in the South, she sought to implement a small scale intervention which aims at integrating computer technology into a unit of Grade 5 national English curriculum in one of the public schools in her community after a discussion with the stakeholders at the school. The researcher has strong connections in her community which allowed her to meet with the school principal and the English teachers and convinced them of the added value of their participation in this action research study. Using her own experience in working at a similar school context, the researcher knew that teachers usually show enthusiasm for a new project if they feel that they, in turn, are consulted throughout the implementation and are learning something new and useful. Moreover, based on her experience as an English coordinator in south Lebanon, she knew firsthand that the writing strand is an area which most of the English teachers struggle with, and students find difficulties in acquiring good writing skills. So, the plan would help the teachers with their problem of practice, and at the same time, they would feel that they are learning and

developing their professional teaching skills. The researcher would also explain to the teachers that they would be actively engaged in monitoring and evaluation steps that would be done to evaluate the progress of the implementation plan rather than an evaluation of their work as teachers because the main focus is on examining the implementation design of this intervention and to generate recommendations regarding the best measures that need to be in place to optimize the effectiveness and impact of innovative interventions.

In an action research in action, the role of the researcher becomes that of a resource rather than an expert who is doing the research; thus, the researcher became the facilitator who is engaging different individuals in order to accomplish a goal (Stringer, 2007). Action research helps build close relationships between the researcher and practitioner helping them both to better understand his/her work and to address a situation or problem to bring forth a change (Glanz, 2003). Thus, taking the background of the researcher who is also working as an English coordinator and an educational consultant, several steps were undertaken to achieve the goals of this research.

First, details of the Grade 5 national English curriculum (CERD, 1997) and the content of Theme Three “Discovering Our Heritage” (Units 1,2,3,4) of the Grade 5 English national textbook were reviewed to check for the use of technology and authentic assessment. There were no links to any use of technological tools in the existing activities and assessment provided for the students.

Second, an instructional unit covering Grade 5 objectives related to informational texts and expository writing was developed by the researcher (Figure 1). The unit is based on UbD curriculum framework and allows for opportunities to integrate Microsoft Office tools in both the teaching and learning processes; it also provides assessment tasks based on real life situations.

Third, an implementation plan of the Technology Integration English Unit was designed based on the TAMAM project of introducing effective and sustainable change in school improvement. The plan was set to be implemented over a period of seven weeks.

Technology Integration English Unit Development

The instructional unit about informational texts and expository writing is part of a year-long English language course. The duration of the unit is 24 teaching sessions each lasting for 50 minutes based on the English classes' distribution as allocated by CERD. The researcher developed all the curriculum materials (Figure 1) related to this unit based on UbD curriculum framework with special emphasis on the following:

- Review of Grade 5 national curricular objectives related to the unit in order to add new ones that serve the purpose of this study which is to integrate goals related to basic computer literacy.
- Use essential questions related to the developed objectives to guide the class discussions, gain insight into the students' thinking and give them opportunities to speak freely.
- Design learning experiences and instructional techniques to achieve specific learning goals.
- Connect English to real-life situations by planning authentic learning experiences that are relevant to their context and interests.
- Use Microsoft Office tools (word processing and power point) as teaching and learning tools.
- Use of performance tasks which calls for the students to apply what they learned in class, and to ensure that the transfer of learning has occurred.
- Use of formative assessment in order to track students' progress.

Figure 1

Technology Integration English Unit

STAGE 1- DESIRED RESULTS				
Curriculum Area	Gr. 5 English Language Arts	Grade level	5	
Theme 3- “Discovering our Heritage”	Units: 1,2,3,4	Time Frame	4 weeks	
Established Goals (based on Lebanese curricular objectives for Grade 5 of basic education and modified to suit the purpose of the study)	Enduring Understandings	Essential Questions		
<p>Reading: comprehend and interpret varied printed materials; determine the meaning of words and phrases as they are used in the text; recognize information; identify important ideas and details; react to written discourse through artifacts based on Microsoft Office Word tools</p> <p>Listening: comprehend and interpret spoken discourse; comprehend basic body language; arrange ideas into Power Points</p> <p>Oral communication: convey information and ideas using Microsoft Word multimedia tools such as PowerPoint to exchange opinions and interpretations; express feelings interests, and attitudes; demonstrate verbal participatory skills in oral discussions, presentations, and simulations.</p> <p>Written communication: Use keyboarding and Microsoft Word processing to develop competency in composing; produce creative and academic writing; participate in guided writing activities; develop confidence in ability to communicate in writing.</p>	<ul style="list-style-type: none"> ▪ Heritage defines an individual/ nation ▪ Reading a wide range of texts helps students build an understanding of different cultures ▪ People rely on a variety of resources to obtain information ▪ Technology is a tool to convey people’s reactions ▪ Visual materials enhance understanding. ▪ A writer has control of meaning through format, focus, and use of language. 	<ul style="list-style-type: none"> ▪ How did the Lebanese heritage shape our current identity? ▪ Why is it important to read non- fiction? ▪ Does technology convey (accurately) people’s reactions to different printed material? ▪ How and what can we communicate in the process of writing expository texts? 		
	<p>Knowledge Students will know...</p>	<p>Skills Students will be able to...</p>		
	<ul style="list-style-type: none"> ▪ The purpose of nonfiction texts ▪ The characteristics of nonfiction texts ▪ The difference between fact and opinion ▪ Writers create informational texts using a variety of resources to obtain information 	<ul style="list-style-type: none"> ▪ Read nonfiction materials for answers to specific questions or for specific purposes ▪ Paraphrase and synthesize information from different resources. ▪ Identify sequence, (order of events, steps). ▪ Conduct short research projects 		

	<ul style="list-style-type: none"> ▪ The definitions of the following words: inform, explain, supporting details, concluding statement, and voice. 	<ul style="list-style-type: none"> ▪ Create PowerPoint slides to express ideas and present research information ▪ Write an expository essay that conveys something important to their identity ▪ Use the editing tools of Microsoft Word processor for revising and editing expository writing assignments ▪ Work collaboratively on co-editing writing assignments using word processing tools
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STAGE 2- EVIDENCE

Performance Task 1 Description

The Performance Task describes a scenario or situation that requires students to apply knowledge and skills to demonstrate their understanding in a real life situation.

- **Goal:** Create a PowerPoint presentation about a person of significance in the Lebanese history.
- **Role:** Researcher
- **Situation:** You are a researcher working at the History Channel. You have to conduct a research about a prominent figure in the Lebanese history to be featured in an episode about Lebanon. You will need to present your information in a PowerPoint format to the producers of the show in order to approve the person chosen and commence with the production.
- **Product/Performance:** Your person should be someone who has made an important contribution to the Lebanese society or history and has become famous because of it. After doing your research, create a 7- slide PowerPoint presentation about this person. The slides should contain the following information: slide 1: background information on the chosen person, slide 2: why is he/she famous, slide 3: impact on others, slide 4: decisions made, slide 5: famous quotes, slide 6: other information/your choice, and slide 7: sources. You must add meaningful pictures on each slide. Slides should be clear and you should be able to explain them thoroughly with clear expressions.

Performance Task 1 Standards
The RUBRIC identifies how student understanding will be measured.

	3	2	1
Content	Content is complete (7 slides) and thorough with accuracy of information appropriate information presented in logical order	Content is complete (7 slides) but Information is not presented in a logical order, making it difficult to follow	Content is not complete (less than 7 slides);information is not presented in a logical order, making it difficult to follow
Creativity	Presentation is engaging (use speech bubbles and insert videos); use meaningful images. Layout is well organized.	Presentation is engaging (use speech bubbles OR insert videos); some images are not connected to the topic; layout is cluttered	No images, speech bubbles , or videos used
Mechanics	Presentation has no misspellings or grammatical mistakes	Presentation has three misspellings and/or grammatical mistakes	Presentation has four or more misspellings and/or grammatical mistakes
Non – Verbal Skills	Student maintains eye contact with the audience most of the presentation; he/she seldom looks at notes Student is relaxed and confident with no signs of tension	Student maintains eye contact with the audience but often looks at notes; Student recovers quickly from mistakes and displays little tension	Student occasionally uses eye contact, but still reads most of presentation. Tension and nervousness are obvious has trouble recovering from mistakes
Vocal Skills	Student uses clear voice and correct pronunciation of terms	Student voice is low; pronounces most words correctly	Student mumbles, incorrectly pronounces most words, and speaks too quietly

Score: -----/15

Performance Task 2 Description

The Performance Task describes a scenario or situation that requires students to apply knowledge and skills to demonstrate their understanding in a real life situation.

- **Goal:** to write an expository article/ or a brochure about some interesting places in Lebanon.
- **Role:** newspaper reporter
- **Situation:** You are a reporter working at a travel magazine, and your next assignment is to write about interesting places in Lebanon.
- **Product/Performance:** You will write an expository article using Microsoft Office Word and will add photos to make your article/ brochure more interesting. You will follow specific instructions concerning layout, header, page number, and font. The article/ brochure should cover the following topics: name of the country, description, important facts, culture, things to do and places to see.

Performance Task 2 Standards

The RUBRIC identifies how student understanding will be measured.

Task Description:

- Write an expository article using Microsoft Office Word. Follow these instructions: open **Microsoft Word** Document; **Layout** (Margins: Normal, Orientation: Portrait, Size: A4); **Insert Header** (Blank: Expository Article); **Insert Page Number**; **Font** (Times New Roman, size: 12); **Paragraph** (double lines); Save your word document on the desktop under your personal name
- Add photos to make your article more interesting

Criteria		3	2	1
Written Presentation		Computer generated following all format instructions (8 commands)	Computer generated but follows most of the format instructions (5 , 6, or 7 out of 8 commands)	computer generated but did not follow /follows some of format instructions. (less than 5 out of 8)
Evidence /Information		All the information used to develop the topic is meaningful and connected to the topic with accurate information	Some of the information used to develop the topic is not relevant	Ideas are developed with minimal information which is mostly irrelevant

Coherence, Organization, and Style	Shows clear organization Links ideas using transition words Provides a concluding statement that follows the topic and information presented	Shows some attempt at organization Inconsistently links ideas Provides a concluding statement that follows the topic and information presented	There is no evidence of organization Does not use transitional words to link ideas Does not provide a concluding statement
Grammar, Mechanics	Almost no errors in grammar, capitalization, punctuation and spelling.	Few errors in grammar, capitalization, punctuation and spelling that do not hinder understanding the article	Many errors in grammar, capitalization, punctuation and spelling which makes the article different to understand

Score: -----/ 12

Other Assessment Evidence: (Formative and summative assessments used throughout the unit to arrive at the outcomes.)

- Academic vocabulary copybook
- KWL chart
- T- chart (fact/opinion)
- First draft of expository article on cedar forests in Lebanon
- Final copy of expository article on cedar forests in Lebanon
- PowerPoint presentation on cedar forests article

STAGE 3- LEARNING ACTIVITIES

Unit 1: At the National Museum

Instructional Activities:

- **Focus: Non Fiction**
- Have students go through a virtual tour of Lebanon’s National Museum using the following links: <https://www.youtube.com/watch?v=wVtPf8OFeHY>
- Teacher will discuss what nonfiction is with the students. Have the students bring their science books and choose a particular text. Using a chart to discuss with students the characteristics of nonfiction texts (how does a nonfiction text looks different? how are graphic aids used? How is the vocabulary different?). By the end of this session, prompt students to define what nonfiction is and why it is important.
- Engage students in guiding questions that target the main theme the unit: What are the main traditions of Lebanon? What is the definition of heritage? How can we get more information using the internet about our traditions?
- **Focus: Using Context Clues-** “At the National Museum” is packed with new vocabulary words such as: artifacts, pottery, vessels, spears, mummies, coffins, carvings, sarcophagus.

- Students and teacher will alternatively read the words within the context of the text. The teacher can help students with the spelling of new words “sarcophagus” is spelled “Sar Kaw Fugus”. Ask students to pay attention to the sentences surrounding the word and to highlight familiar words that can give clues to the meaning of the new vocabulary word.
- Students will write their explanation of the new meaning on their Academic Vocabulary copybook.
- The teacher will provide information on the new words and use examples/descriptions/images (PowerPoint Slides) to provide an informal, natural context to learn the new words. (Avoid using definitions as most studies show that definitions are not a recommended method for vocabulary instruction as they do not provide learners an informal, natural way to learn new vocabulary.)
- Have students compare their notes with the teacher’s explanation.
- Ask the students to draw a picture, symbol, or an example of the word in order to reinforce their vocabulary mastery. (Students work in teams to help those who cannot draw).
- Put students in pairs to discuss their descriptions, images, and any new information related to the words.
- Provide opportunity for groups to share aloud and discuss conceptions and misconceptions. (The teacher will monitor as students help each other identify and clear up confusion about new terms.)
- In order to reinforce the meaning of the new words have students participate in vocabulary games using the following website: <http://www.english-4kids.com/powerpoint.html>
- **Focus: Finding Information**
- Teacher models note taking from nonfiction texts using a KWL chart.
- Students independently read “At the National Museum” and complete a KWL chart. (A K-W-L chart is useful technique in expository text instruction because it helps students to reflect on their own knowledge about museums, what they want to want to know about museums and what they learned about the National Museum in Beirut).
- Students complete written comprehension questions based on the text they read in class.
- **Focus: Expository Writing**
- Students will read an exemplary piece of expository article and mark up important parts of its content and structure with the help of the teach

Unit 2: Cedars of Lebanon

Instructional Activities:

- **Focus: Using Context Clues-** “Cedars of Lebanon” has new vocabulary words such as: archaeologists, trunks, temples, sap, recovered, ancient, habitat, endangered.
- Students and teacher will alternatively read the words within the context of the text. The teacher can help students with the spelling of new words. Ask students to pay attention to the sentences surrounding the word and to highlight familiar words that can give clues to the meaning of the new vocabulary word.
- Students will write their explanation of the new meaning on their Academic Vocabulary copybook.
- The teacher will provide information on the new words and use examples/descriptions/images (PowerPoint Slides) to provide an informal, natural context to learn the new words. (Avoid using definitions as most studies show that definitions are not a recommended method for vocabulary instruction as they do not provide learners an informal, natural way to learn new vocabulary.)

- Have students compare their notes with the teacher’s explanation.
- Ask the students to draw a picture, symbol, or an example of the word in order to reinforce their vocabulary mastery. (Students work in teams to help those who cannot draw).
- Put students in pairs to discuss their descriptions, images, and any new information related to the words.
- Provide opportunity for groups to share aloud and discuss conceptions and misconceptions. (The teacher will monitor as students help each other identify and clear up confusion about new terms.)
- In order to reinforce the meaning of the new words have students participate in vocabulary games using the following website: <http://www.english-4kids.com/powerpoint.html>
- **Focus: Finding Information**
- Students will read the “Cedars of Lebanon” text and complete a T- Chart on fact/opinion.
- Teacher will model reading a non-fiction text. Discussion will include important parts of a nonfiction text, purpose for reading nonfiction and strategies for locating specific information in the text.
- Students complete written comprehension questions based on the text they read in class.
- **Focus: Expository Writing**
- Students will work in cooperative groups with each group researching the cedar forests in Lebanon (using the computer lab at the school). The teacher will demonstrate how to take notes and the importance of paraphrasing in order to avoid plagiarism. Each group will type their notes on a separate word document (students can be provided with some beginning resources on how to open a word document, cut, paste, and save images/charts/ graphics using the following link: <http://www.e-learningforkids.org/computer-skills/lesson/microsoft-word/>
- Students will use their notes to make an outline for their report (individual work)

Unit 3: Taking a Trip

Instructional Activities:

- **Focus: Listening Skills**
- Students listen to the dialogue about taking a trip. The teacher will break up the dialogue by stopping few times and ask students to write a question or two about what they just heard.
- In pairs or groups, students will swap their questions and attempt to answer them under the supervision of the teacher.
- **Focus: Expository Writing**
- Students will write topic sentences based on the outline they completed from the previous writing session. Each student will attempt to write a paragraph for the topic sentence using examples and details from their notes.
- Students will start typing their first draft of the expository essay on the cedar forests in Lebanon and save it on the desktop.
- Students will use mouse- based editing for self-editing after they finish their first draft.

Unit 4: The Story of Our Flag

Instructional Activities:

- **Focus: Using Context Clues-** “The Story of Our Flag” has new vocabulary words such as: cabinet, mother- tongue, protesting, ancient, sacrifice.

- Students and teacher will alternatively read the words within the context of the text. The teacher can help students with the spelling of new words. Ask students to pay attention to the sentences surrounding the word and to highlight familiar words that can give clues to the meaning of the new vocabulary word.
- Students will write their explanation of the new meaning on their Academic Vocabulary copybook.
- The teacher will provide information on the new words and use examples/descriptions/images (PowerPoint Slides) to provide an informal, natural context to learn the new words. (Avoid using definitions as most studies show that definitions are not a recommended method for vocabulary instruction as they do not provide learners an informal, natural way to learn new vocabulary.)
- Have students compare their notes with the teacher’s explanation.
- Ask the students to draw a picture, symbol, or an example of the word in order to reinforce their vocabulary mastery. (Students work in teams to help those who cannot draw).
- Put students in pairs to discuss their descriptions, images, and any new information related to the words.
- Provide opportunity for groups to share aloud and discuss conceptions and misconceptions. (The teacher will monitor as students help each other identify and clear up confusion about new terms.)
- In order to reinforce the meaning of the new words have students participate in vocabulary games using the following website: <http://www.english-4kids.com/powerpoint.html>
- **Focus: Finding Information**
- The teacher should scan the text of “The Story of Our flag” and have a whole class Read Aloud projecting the text on the white board. (if a scanner is not available, she can take pictures of the text with her phone and then save the pics on the desktop as jpeg images)
- The teacher will have students identify the features of the text (paragraphs, key words, pictures, details, information).
- The teacher will use the Five Text Structures to explain possible text structures in found in exposition and what possible clues students can use to identify text structures.
- Students then will work independently with a blank graphic organizer in order to elicit ideas from the text.
- Students complete written comprehension questions based on the text they read in class.
- **Focus: Expository Writing**
- Following the self- editing, the teacher will review the first drafts (printed out) to address issues of content, coherence, and style as needed. Students will then make the agreed-upon modifications in the text file using the editing capabilities of the word processor, and final versions of the articles will be printed for inclusion in the students' writing folder or display on the classroom walls.
- **Focus: Article Presentation**
- Students will use a multimedia tool (PowerPoint) to present the important facts of their articles and reflect on why writing expository papers is important and what important information they have acquired by listening to their classmates’ presentation

Resources Used

- National Textbook: English in Progress (Part 1)
- Sample expository article “Stopping a Toppling Tower” (downloaded from scholastic website)
- Scanned copy of the text “The Story of Our Flag”
- Graphic organizers (KWL chart and T- Chart) (downloaded from scholastic website)
- Five Texts Structure handout (downloaded from scholastic website)
- PowerPoint presentation Rubric
- Computer lab
- Software: Microsoft Word – PowerPoint
- Websites used in instructional activities: <http://rubistar.4teachers.org/index.php>; <http://www.english-4kids.com/powerpoint.html>;
<https://www.beirutnationalmuseum.com/>; <http://www.e-learningforkids.org/computer-skills/lesson/microsoft-word/>;
<https://www.scholastic.com/teachers/unit-plans/teaching-content/5-day-unit-plan-introducing-nonfiction/>

The Implementation Plan

The implementation plan of the Technology Integration English Unit was designed based on the TAMAM project of introducing effective and sustainable change in school improvement (Figure 2). The plan was set to be implemented over a period of seven weeks.

Figure 2

The Implementation Plan

Improvement Goals	Improvement Objectives	Indicators of Success	Operational Objectives	Indicators of Success	Activities	Target Group	Time Frame
Integrating technology as part of the Lebanese English curriculum for Gr. 5 in order to cultivate in learners writing skills needed to be successful in the digital age	– Students will react to written discourse through artifacts based on Microsoft Office word tools	- Gr.5 students demonstrate a 50% increase in knowledge and skills of using MS Word through a pre-test and post- test on Microsoft Office word skills	1. Researcher presents the UbD design, Unit Plan (see appended Unit Plan), and the implementation plan to the school principal and involved staff members	-Minutes of Meeting (MOM) show evidence of highlighting the key points of the presentation and decisions made to follow through with the implementation plan	-Researcher plans several formal and informal meetings with school principal and English teachers	English language teachers, school supervisor , school principal,	Pre- Week 1
	– Students will convey information and ideas using Microsoft Word multimedia tools such as PowerPoint and word processor to exchange opinions and interpretations	- 90 % of Gr.5 students successfully complete Performance Task 1 and 2 from the UbD unit plan					2. Provide technology related professional development based on the identified needs for instructional staff in order to maximize the effectiveness of instruction
	– Students will work collaboratively on co-editing writing assignments using word processing tools	- Students know their roles in each team and they are committed to finishing their work	-Students practice a respectful and caring way of working together	-Conduct teacher training session on basic and advanced Microsoft Word skills	Pre-Week 1		

Improvement Goals	Improvement Objectives	Indicators of Success	Operational Objectives	Indicators of Success	Activities	Target Group	Time Frame
Integrating technology as part of the Lebanese English curriculum for Grade 5 in order to cultivate in learners writing skills needed to be successful in the digital age	<ul style="list-style-type: none"> Students will react to written discourse through artifacts based on Microsoft Office word tools 	<ul style="list-style-type: none"> Gr.5 students demonstrate a 50% increase in knowledge and skills of using MS Word through a pre-test and post-test on Microsoft Office word skills 	<p>3. Researcher provides a professional development session on the modified UbD unit in order to maximize the effectiveness of instruction</p>	<ul style="list-style-type: none"> Teachers show in their post-implementation interview responses positive feedback on the efficient way UbD can include all students in the learning process 	<ul style="list-style-type: none"> Conduct a workshop to review the elements of the UbD modified English unit (the workshop will cover the basics of UbD planning – mainly the 3 stages, performance tasks, and rubrics) 	English language teachers,	Pre-Week 1
	<ul style="list-style-type: none"> Students will convey information and ideas using Microsoft Word multimedia tools such as PowerPoint and word processor to exchange opinions and interpretations Students will work collaboratively on co-editing writing assignments using word processing tools 	<ul style="list-style-type: none"> 90 % of Gr.5 students successfully complete Performance Task 1 and 2 from the UbD unit plan Students know their roles in each team and they are committed to finishing their work Students practice a respectful and caring way of working together 	<p>4. Identify teachers' perceptions and views on technology use in English classes and factors that might facilitate or hinder the implementation</p> <p>5. Identify students' perceptions on technology use in English classes and their attitude toward learning English</p>	<ul style="list-style-type: none"> Pre and post individual interviews with English teachers show the impact of the implementation of technology integration English unit on their views in addition to interim adjustments that were suggested by teachers due to factors that might facilitate or hinder the implementation Pre and post individual interviews with a sample of Grade 5 students. 	<ul style="list-style-type: none"> Conduct individual private interviews with English teachers and sample of Grade 5 students 	English language teachers, Grade 5 students	Week 1 and Week 4
			<p>6. Collaborate with the principal to ensure that teachers participating in the project have release time to work on the plans</p>	<ul style="list-style-type: none"> Incorporate the teachers' work on the implementation plan within their timetables 	<ul style="list-style-type: none"> Modified teachers' allocation table 	school supervisor /school principal	Pre-Week 1

Improvement Goals	Improvement Objectives	Indicators of Success	Operational Objectives	Indicators of Success	Activities	Target Group	Time Frame
Integrating technology as part of the Lebanese English curriculum for Grade 5 in order to cultivate in learners writing skills needed to be successful in the digital age	<ul style="list-style-type: none"> Students will react to written discourse through artifacts based on Microsoft Office word tools 	<ul style="list-style-type: none"> Gr.5 students demonstrate a 50% increase in knowledge and skills of using MS Word through a pre-test and post- test on Microsoft Office word skills 	<p>7. Teachers use Microsoft tools to enhance students' communication and create informative texts</p>	<ul style="list-style-type: none"> 75% of the lesson plans collected showing a minimum of 1 or 2 activities in which teachers help students revise digital versions of their work using MS Word Software Activity log at the school's library showing regular teacher or student attendance (a minimum of once per week) for Gr. 5 English class 	<ul style="list-style-type: none"> Develop daily lesson plans with technology- based activities 	English language teachers	Weeks 1-2-3-4
	<ul style="list-style-type: none"> Students will convey information and ideas using Microsoft Word multimedia tools such as PowerPoint and word processor to exchange opinions and interpretations Students will work collaboratively on co-editing writing assignments using word processing tools 	<ul style="list-style-type: none"> 90 % of Gr.5 students successfully complete Performance Task 1 and 2 from the UbD unit plan Students know their roles in each team and they are committed to finishing their work Students practice a respectful and caring way of working together 	<p>8. Teachers implement the Technology Integration English Unit as designed including the already defined meaningful, learning experiences that embed technology.</p>	<ul style="list-style-type: none"> Complete technology observation checklist 	<ul style="list-style-type: none"> Integrate the two Performance Tasks listed in the UbD Unit Plan 	English language teachers, Gr. 5 students	Week 1 and Week 4

The Pre-Intervention

The pre-intervention planning started with the researcher setting multiple meetings with the school principal in order to explain the main goal of the action research. Using the TAMAM project model of introducing effective change into a school, the researcher set to acquire the school principal's commitment to be part of this intervention and to support it. After acquiring the principal's approval, a meeting with the two Grade 5 English teachers took place at the principal's office, and the researcher presented the Technology Integration English Unit for their perusal.

Professional development centered on integrating Microsoft Office tools within the UbD curriculum design was planned for a period of two weeks for both teachers prior to the beginning of the intervention. The workshop on the UbD curriculum framework was done by the researcher while the workshop on using all features of Microsoft Office tools such as Microsoft Word and PowerPoint was voluntarily done by a certified Microsoft Office trainer who is a colleague of the researcher.

After the training, the researcher conducted a pre semi- structured interview session (Appendix A) with each teacher in order to discuss the factors that might facilitate or hinder a smooth implementation of the Technology Integration English Unit in addition to explore their views on integrating technology in English classes. The researcher also randomly selected five students from both Grade 5 sections for a pre-semi structured individual interviews (Appendix B) in order to discuss their learning experience in English classes and their perceptions of using technology in classes.

The Implementation

The implementation of the Technology Integration English Unit was done over a period of four weeks. The English teachers used technology integrated activities during their classes in order to increase students' knowledge and skills in Microsoft Office tools. These activities included using videos, PowerPoint presentations, and vocabulary games for visual effects, using the internet for research purposes, and using Microsoft Word in writing classes for editing/ proofreading purposes. The researcher assigned a post-intervention, semi-structured interview (Appendix C) session with each teacher at the end of the implementation plan in order to discuss the factors that facilitated or hindered a smooth implementation of the Technology Integration English Unit and the overall effect of the intervention unit on their views of the usefulness of integrating technology in English language classes. Also, the researcher conducted a post semi-structured individual interviews (Appendix D) with the same group of five students selected at the pre-intervention stage in order to discuss the impact of the implementation of the Technology Integration English Unit on their learning experience in English class and their views of using technology in classes. The researcher conducted classroom observations using a technology-integration observation checklist adapted from Observation of Computer Use (OCU) by Lowther, Ross, and Morrison (2003) (Appendix E) during the first and last week of the intervention study.

Description of the Intervention

During the first week of the unit, teachers focused on the non-fiction genre characteristics using the text "At the National Museum"; students used a YouTube channel to take a virtual tour of Lebanon's National museum. Teachers prepared PowerPoint slides to engage students in visual activities while teaching them the skill of deriving meaning using context clues. Students also participated in online vocabulary games in order to

reinforce the meaning of new vocabulary words. During this week, the researcher with the help of the English teachers administered a pre- test targeting the knowledge level of Microsoft Word for Grade 5 students (Appendix F).

As for the second week, the teachers provided the students with a mini session to review their knowledge on how to open a word document, edit, cut, paste, and save. During the writing session, students worked in groups to research cedar forests in Lebanon, take notes, and save images using a word document. The researcher conducted a second check-in in order to review lesson plans and various documents related to the implementation plan.

During the third week teachers continued using visual PowerPoint images to reinforce new vocabulary words and to engage students in discussing the meaning of new vocabulary words based on visual clues. Teachers started focusing on listening skills using an audio link about taking a trip followed by questions. Moreover, teachers honed the students' typing skills by starting the first draft of the expository essay on Lebanon's cedar forests. In this week, students were assessed using real life scenarios which allowed them to apply the skills and knowledge they acquired in order to create a PowerPoint presentation about a person of significance in the Lebanese history (performance task one). The task required them to assume the role of a researcher working at the History Channel and to conduct a research about a prominent figure in the Lebanese history to be featured in an episode about Lebanon. Students presented their information in a PowerPoint format made up of seven slides.

The fourth week marked the conclusion of the theme "Discovering our Heritage", students used teachers' feedback on the first draft of the expository essay to type their final paragraph while using cut and paste in Microsoft Word which made their revision process less tedious. Students applied the second performance task which was to write an expository

article using Microsoft Word about an interesting place in Lebanon. The second performance task required the students to follow specific instructions concerning the layout, header, page number, and font of the document. The article covered the following topics: name of the country, description, important facts, culture, things to do and places to see. Performance task two was evaluated using a detailed rubric that assessed students' adherence to the task's format instructions in addition to coherence, organization, grammar and mechanics. At the end of the fourth week, students took a post-test targeting the knowledge level of Microsoft Word in order to measure any significant change in their knowledge of Microsoft Word.

Data Analysis

The researcher used the mixed method approach in order to be able to triangulate the data and to have multiple viewpoints which would increase the credibility and validity of the results (Creswell, 2012). To answer the research questions and to better understand the overall impact of the implementation of the Technology Integration English Unit, the researcher collected and analyzed both quantitative and qualitative data. Moreover, both quantitative and qualitative data can be mixed in illustrating a more complete understanding of the research problem and together they create a "powerful mix" (Creswell, 2012).

Quantitative and qualitative data analysis methods were followed. Tools such as SPSS, rubrics and identification of emergent themes were used to analyze the students' test scores, performance task two assessment, as well as the data collected using the technology integration observation checklist, and teachers' and students' interviews. The researcher used the triangulation process in the study as means of achieving greater validity of the research data. Thus, the researcher corroborated evidence from different individuals (teachers and students), different types of data (interviews and observations), and different data collection

methods (pre- and post- tests and pre- and post- interviews) in order enhance the accuracy of the study and to collect rich data (Creswell, 2012)

Students Pre- and Post-Tests on Microsoft Word

Thus, for comparing the results of Grade 5 students pre- and post-test on Microsoft Word processor knowledge, the researcher used paired t-tests which are statistical tests that can be applied to two similar groups at different timings with the purpose of measuring a difference (Gall et al., 2004). A paired t-test which is valid for one independent variable, Microsoft Word test, and one dependent variable, students' scores, was done using an SPSS program to compare students' final scores on the Microsoft Words knowledge test before and after the Technology Integration English Unit in the English class. The p-value (<0.05) of the paired test determined whether there is a difference in the mean of pre- and post-scores; if p-value is <0.05 then there is significant change in the results of the students (Creswell, 2012).

As for performance task two, students' scores were analyzed using a detailed rubric (see Figure 1) that assessed students' adherence to the task's format instructions in addition to coherence, organization, grammar and mechanics with a total score of 12 points.

Classroom Observations

Data from classroom observation was collected using checklists during the first and last week of the intervention study in order to measure teacher's achievement of the operational goals of the implementation plan. The level of achievement of these goals was determined based on the implementation plan (see Figure 2). The results were reported using the indicators that were developed for the operational objectives as reported in bar graphs that compare each item on the technology integration checklist during week one and week four of the intervention study.

Teachers' and Students' Interviews

Teachers' and students' interviews were carried out before and after the Technology Integration English Unit was fully implemented. This study adopted Brown's (2006) iterative analysis methodology. In the aim of identifying the meaning and emerging themes in the collected data, different levels of analysis tables were used. At the first level of analysis, all the interview discussions were recorded and then transcribed. The researcher used the collected data to identify summary codes from participants' answers related to the research questions of the study. At the second level of analysis, the summary codes provided through data constituted the objects of analysis. Upon identifying summary codes from the collected data, the researcher grouped them into different categories. These categories represented the subthemes of the research. Finally, the researcher sorted the identified subthemes according to four main themes: the impact of the intervention on teachers' and students' views towards using technology in English classes, the impact of the intervention on students' attitudes towards learning English, the factors that facilitated the implementation of the Technology Integration English Unit, and the factors that hindered the implementation of the Unit. The following paragraphs provide details about analyzing teachers' and students' interviews.

After the intervention study was completed, the researcher transcribed the interviews with the teachers and students as a first level of analysis. This level included fourteen tables as follows: Pre-Intervention Teacher 1, Pre-Intervention Teacher 2, Pre-Intervention Student 1, Pre-Intervention Student 2, Pre-Intervention Student 3, Pre-Intervention Student 4, Pre-Intervention Student 5, Post-Intervention Teacher 1, Post-Intervention Teacher 2, Post-Intervention Student 1, Post-Intervention Student 2, Post-Intervention Student 3, Post-Intervention Student 4, and Post-Intervention Student 5. Each table consisted of five columns: Line Number, Speaker, Transcript, Concept, and Code Summary.

The first three columns are the mere transcript of the interview conversations. In the Concept column, the researcher analyzed the statements in the transcripts and categorized them into four themes. Then, the researcher objectively summarized the quotes of participants in the Code Summary column. As an example, Tables 1 and 2 represent a sample of interview transcripts with the teachers and students before the intervention.

Table 1*Sample of Teacher Interview Transcript – Pre-Intervention Interview –Teacher 1*

Name	Code	Description		
Teacher 1	T1	Female Lebanese Grade 5 English Teacher		
Layal Fayad	IN	Investigator		
Line Number	Speaker	Transcript	Concept	Code Summary
001	IN	How do you define technology?		
002	T1	Technology refers to tools and machines that maybe used to solve real world problems.	Perception of technology	Technology tools solve real world problems (positive)
003	IN	Give me an example of a technology tool that solves a problem		
004	T1	For example, laptops facilitate business and have become a vital gadget in many sectors like railways, electricity, and banking.	Perception of technology	<ul style="list-style-type: none"> - Laptops facilitate business (positive) - Laptops have become a vital gadget in many sectors
005	IN	How does a laptop facilitate business?		
006	T1	Internet access, email communication, bank transactions	Perception of technology	Laptops facilitate business (positive)
007	IN	Do you use a laptop in your work?		
008	T1	Yes, for handouts and worksheets for my classes. Also, sometimes, they help the learners to understand the basic ideas better with the help of audio or video examples.	Perception of technology use in English classes	Technology use improves learners' understanding (positive)

Table 2*Sample of Student Interview Transcript – Pre-Intervention Interview –Student 1*

Name	Code	Description		
Participant	ST1	Student Lebanese Grade 5		
Layal Fayad	IN	Investigator		
Line Number	Speaker	Transcript	Concept	Code Summary
001	IN	What do you think technology is?		
002	ST1	I don't know.	Attitudes towards technology	I don't know what technology is
003	IN	Ok, so what do you think about when you hear the word technology?		
004	ST1	An iPhone or a new phone.	Attitudes towards technology	Technology means new phone
005	IN	What is your favorite/least favorite activity in English class?		
006	ST1	My favorite activity is when we read stories and watch videos. I don't like the grammar class.	Attitudes towards learning English	Favorite activity in English class is reading stories and watching videos.
007	IN	Why?		Grammar class is boring
008	ST1	It's so boring.		

Proceeding with the analysis from these tables, the researcher categorized the summary codes into subthemes as a second level of analysis. At this level, the analysis comprised two tables: Pre-Implementation and Post-Implementation. All the summary codes from the interview discussions with both teachers and students before and after the intervention study were grouped and categorized into more general subthemes. Tables 3 and 4 display a sample of the categorization of summary codes identified from the teachers' and students' transcript table. Following that, the researcher compiled all the identified subthemes into a comparative table as a third level of analysis. This helped in sorting them in the four themes.

In order to ensure reliability of data analysis, the two English teachers were asked to examine the tables of the three level of analysis and reflect on the identified themes and subthemes. The teachers' role was to review the identified subthemes coupled with their categorization into the four main themes and suggest modifications accordingly.

Table 3

Sample of Summary Codes Categorization – Teachers

Teachers			
Pre-Intervention		Post-Intervention	
Summary Code	Subtheme	Summary Code	Subtheme
“I don’t use lots of technology because I have to take them (students) to the library”	Lack of resources	“Technology use is time consuming, we need to finish our yearly plan.”	Lack of time
“When we go to the library to use technology, students misbehave”		“I will use technology depending on time availability”	
...		...	
“Technology use in English classes really helps students to talk more/acquire the language”	Promotes oral language	“I feel more confident experimenting with different ways of integrating technology in English class ”	Teachers’ internal behaviors
“Technology use supports learning English speaking”		“I really feel proud”	
...		...	

Table 4*Sample of Summary Codes Categorization – Students*

Students			
Pre-Intervention		Post-Intervention	
Summary Code	Subtheme	Summary Code	Subtheme
“Grammar class is boring”	Attitude towards learning English	“Favorite activity vocab and spelling online games”	Attitude towards learning English
“My least favorite activity is writing ”		“My favorite activity the ppt presentation ”	
...		...	
“Technology makes learning more fun (time passes quickly – change of class setting)	Attitude towards using technology in class	“Learning was easier” “I did not like writing class.(could not focus, loud, sharing a computer)	Attitude towards using technology in class
“Technology makes learning easier to understand (visual representations)”		“I did not like PowerPoint homework. It was hard”	
...		...	

Validity and Reliability

The researcher attempted to address the validity and reliability of the research study by using the strategy of data triangulation. Thus, the researcher corroborated evidence from different individuals (teachers and students), different types of data (interviews and observations), and different data collection methods (pre- and post- tests and pre- and post-interviews) in order enhance the accuracy of the study and to collect rich data (Creswell, 2012)

Moreover, all data collection for the study was conducted on site with an extensive presence of the researcher. Classroom observations occurred during regular instructional school hours while students and teachers were in their classrooms. This regular

involvement reduced the influence of the researcher on the setting and the individuals (Maxwell, 2013).

Quantitative and qualitative data analysis methods were followed. Tools such as SPSS, rubrics and identification of emergent themes were used to analyze the students' test scores, performance task two assessment, as well as the data collected using the technology integration observation checklist, and teachers' and students' interviews in order to achieve greater validity of the research data.

CHAPTER IV

RESULTS

Through individual interviewing of study participants, careful classroom observations, and pre- and post-tests, quantitative and qualitative descriptive data were obtained. This chapter reports the findings of the study in six sections: the first and second sections explore the impact of the intervention on students' knowledge in Microsoft Word and their views about the usefulness of technology integration in English classes. The third section presents the operational objectives of the implementation plan and describes in what ways and to what extent the former has been achieved. The fourth section describes the effect of the intervention on the teachers' views about the usefulness of technology integration in English classes. Finally, the fifth and sixth sections identify the factors that facilitated and hindered the implementation of technology integration in English classes.

Impact of Intervention Study on Students' Knowledge in Microsoft Word

Analysis of the students t-test scores and students' implementation of performance task two in the Technology Integration English Unit Plan helped in answering the first research question: "To what extent did Grade 5 students' knowledge in Microsoft Office, such as Microsoft Word, improve as a result of implementing the Technology Integration English Unit?". Students' scores were collected before and after the intervention and were compared to see if there was a statistically significant difference using the paired sample t-test. Results of the t-test showed statistical significance indicating that students' knowledge of Microsoft Word improved.

A paired-samples t-test compares the mean of a single group examined at two different points in time. Table 5 and table 6 present the results of paired samples test. The

value of Sig. is $0.000 < 0.05$; therefore, the difference between the pretest and the posttest scores is statistically significant in favor of the posttest scores.

Table 5

Results of the Paired Samples t-tests for Microsoft Word

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	2.72	53	1.634	.224
	Posttest	4.58	53	1.134	.156

Table 6

Significance Level of the Difference Between Pretest and Posttest scores

		N	Correlation	Sig.
Pair 1	Pretest & Posttest	53.	.683	.000

This implies that there was a significant average difference between pre- and post-scores. On average, post-test scores were 1.868 points higher than pre-test grades. The results of the post-test showed an increase in students' basic MS word knowledge such as creating, naming and saving a document, using formatting tools (bold, italics, font, font size) in order to change the font and size of the text, using spell check, locating page numbers, determining word count on a document and selecting a text.

Table 7

Paired Samples Test

		Paired Differences			95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	T	df	Sig. (2-tailed)
Pair	Pretest – Posttest	-1.868	1.194	.164	-2.197	-1.539	-11.394	52	.000

Moreover, students in both sections implemented performance task two of the Technology Integration English Unit plan which requires them to type an expository article following instructions that focus on the following eight format instructions: creating a word

document, choosing a layout, inserting a header and page number, choosing a font, writing double lines, and finally saving the word document and naming it. All students observed in both sections were able to achieve the outcomes targeted in the unit plan, namely work in groups with their partners to finish the assigned task. Analysis of students' results using the rubric developed to assess performance task two of the Technology Integration English Unit revealed that 17% of students were able to meet the written presentation criteria of performing *all* format instructions; 58.5% of students followed *most* of the format instructions which ranges between performing five, six, or seven of the format instructions listed above; while 24.5% of students did *not follow* or followed *some* of the format instructions. The results show that more than half of the students were able to apply most of the tools related to Microsoft Word processing.

Effect of Intervention Study on Students' Views of the Usefulness of Technology in English Classes

The following section describes the effect of the intervention study on the students' views about the usefulness of technology integration in English classes and attempts to answer the second part of the third research question: "What is the overall effect of the implementation of the Technology Integration English Unit on Grade 5 teachers' and students' views on the usefulness of technology integration in English classes?" Students' answers in individual interviews before and after the intervention study were transcribed and analyzed using different levels of analysis tables. The themes identified from their answers are presented in Table 8.

Table 8

Effect of Intervention on Students' Views on the Usefulness of Technology in English Classes

Themes	Students
Positive change in students' attitudes towards learning English	4/5
Change in students' attitudes towards using technology in class	2/5

Positive Change in Students' Attitudes Towards Learning English

After the implementation of the intervention study, students reported positive attitudes towards certain strands of the English language such as grammar and writing classes and attributed this change to the integration of technology into the plan for the language unit.

Students attitudes towards the writing and grammar class changed positively after the implementation of the intervention study. Three students identified new favorite activities which were not referred to during the pre-intervention interviews. Analysis of students' responses before the intervention study revealed that grammar and writing classes were among the least favorite English activities cited by the five students. The reasons for this revolved mainly about the class being "boring" and "difficult". Student 1 expressed that grammar class is "boring" while Student 5 said "I hate the grammar lesson . . . because it is hard". Students 2 and 3 expressed similar attitudes towards writing class where one mentioned that "I don't like it when the teacher tells us to write a paragraph", and the other one said that "my least favorite is writing. . . it is hard". While Student 4 did not express any dislike for a particular strand in English language. On the other hand, students' responses indicated that reading stories, watching videos, storytelling, and hands-on activities such as cutting and gluing sentence strips are among their favorite activities in the English class.

After the intervention, Student 2 mentioned that using Microsoft Word made the “hateful” writing class pass “faster” than usual because writing was done in a “new way.” While Student 3 said that the writing was “easier” when done at the library using the computers because the options of word processor made the “the lesson easier and it was more fun.” Grammar class was no longer mentioned by Students 1 and 5 as something to be bored of. Moreover, three out of five students described technology-integrated activities such as “the project doing a PowerPoint about a famous person”, (online)vocabulary games”, and “(online) spelling games” as their favorite activities.

Changes in Students’ Attitudes Towards Using Technology in Class

All five students interviewed before the intervention study expressed positive opinions concerning using technology in class. Some of their answers focused on the attractive visual representations offered by videos and images: “It is easier for me to see pictures in colors”, “I think it (technology) makes it easier because I can see pictures”; while other answers focused on their experience of leaving their regular classroom and going to the school library (where the projector and computers are placed) which makes the English class “fun” and not “boring”.

However, students’ answers varied after the intervention study. While three out of five students maintained their positive outlook towards technology use in English class, describing the usage of technology tools, such as MS word and power point, in their daily work and assignments as “fun”; “something new and exciting” and an opportunity to work collaboratively with their classmates, two students expressed their discontent with using technology in class describing it as “difficult” and “hard”. They attributed this difficulty to lack of resources “the writing class (in the library) was too loud and I couldn’t focus; we also had to share a computer” and to difficulty in using technological tools such PowerPoint and certain aspects of Microsoft Word formatting features because they were “hard”, and they

did not practice these features enough. However, despite the obstacles that these students discussed, they were enthusiastic about continuing to use technology in class and not only in English or Science classes but also in other subject areas such as Mathematics and Arabic language classes.

Teachers Achievement of Operational Goals

The researcher reviewed multiple sources of data such as soft copies of teachers' lesson plans, computer lab (Library) schedule, and technology-integration observation checklists in order to answer the second research question: "To what extent and what ways did the English teachers achieve the operational objectives of the implementation plan?" The operational objectives are the following: a) teachers use Microsoft Office tools to enhance students' communication and create informative texts and b) teachers implement the Technology Integration English Unit Plan as designed including the already defined meaningful, learning experiences that embed technology.

The researcher reviewed samples of both teachers' lesson plans in order to make sure that they adhered to the Learning Activities Section of the Technology Integration English Unit Plan. The Learning Activities Section describes learning experiences that embed technology such writing an expository essay using Microsoft Word while using the editing and revising features, creating a PowerPoint about a famous person in the Lebanese history, and participating in on-line vocabulary games. Both teachers have implemented the activities listed above in their lesson plans during the period of four weeks; however, based on their weekly meetings to make sure their teaching remains parallel in addition to keeping pace with their yearly curriculum plan, the teachers agreed to modify some of the writing activities listed in the unit plan. Thus, the writing class lesson objective changed from "Students write an expository essay that conveys something important to their identity" to "Students write an expository paragraph that conveys something important to

their identity.” However, this change is not expected to have an effect on the integration of technology in English.

Moreover, the researcher reviewed the library schedule for each teacher. It is worth noting that the library is used as a computer lab. The activity log showed that both teachers have committed to attending the computer lab along with their students at least once per week as per the implementation plan.

Teachers Use Microsoft Office Tools to Enhance Students’ Communication and Create Informative Texts

Both teachers were able to achieve this operational objective through varying degrees. Teacher 1 and 2 lesson plans collected showed that they were able to integrate activities that required students to use technology tools such MS word to help these students review their work. These activities included; a) students typing their first drafts of the expository paragraph (using their research notes) on cedar forests in Lebanon and saving it on the desktop and b) giving students the opportunity to create a simple PowerPoint with a maximum of seven slides.

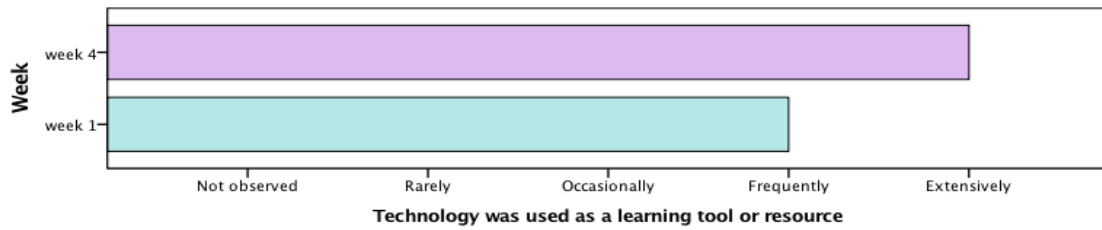
However, Teacher’s 1 class activity log at the school’s library where the computer lab is located showed more attendance by three times than Teacher’s 2 class activity log. Hence, students in section A had more opportunities to use Microsoft office tools during their English class activities than their counterparts in Section B. Data from the technology-integration observation checklist which shows the teachers’ progress in integrating technology in their sections is presented in Figures 1 and 2.

Figure 1 illustrates the difference observed in using technology as a resource tool during the first and the fourth week of the intervention in both sections A and B. During the first week of the intervention, classroom observations show that technology was used *frequently* in Section A and *occasionally* in Section B. While in week four, during the last

stage of the intervention study, the results show an improvement by observing that technology was *extensively* used in Section A and *frequently* used in Section B.

Figure 3

Difference in Using Technology as a Resource in The Classroom Over a Period of Four Weeks for Teacher 1



Difference in Using Technology as a Resource in The Classroom Over a Period of Four Weeks for Teacher 2

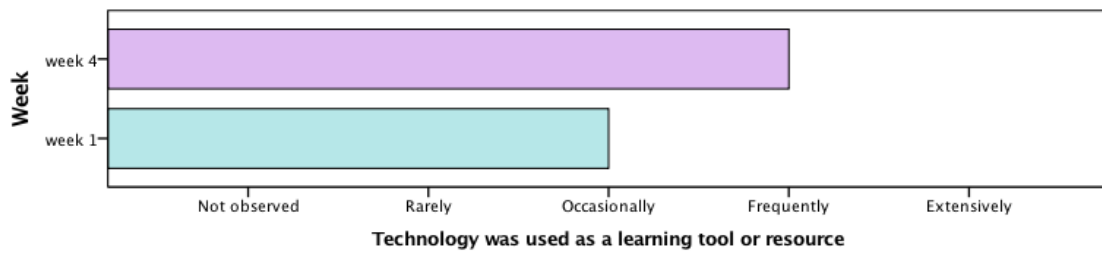
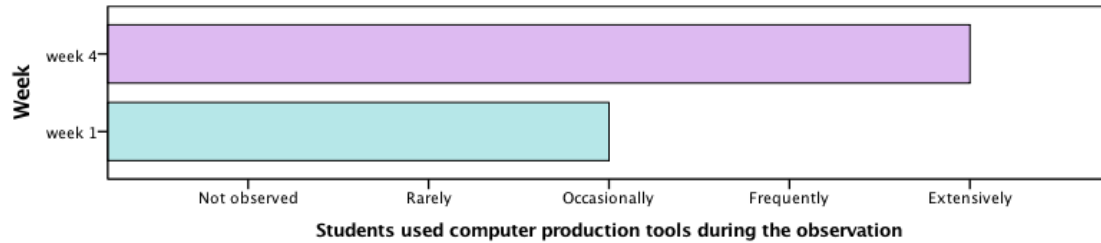


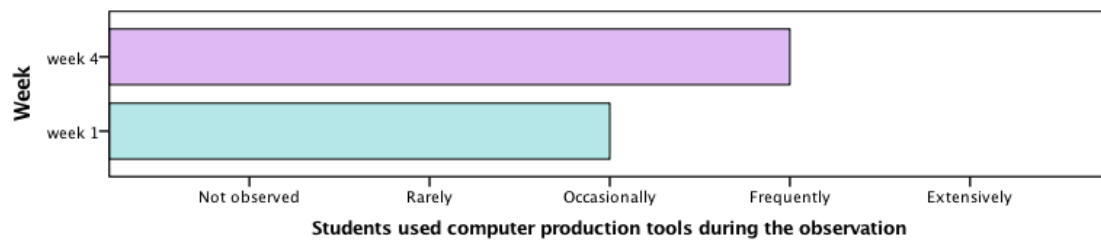
Figure 2 shows the difference observed in students’ use of computer production tools during the first and the fourth week of the intervention in both sections A and B. During the first week of the intervention, classroom observations in both Sections A and B show that students *occasionally* used computer tools. While in week four, during the last stage of the intervention study, the results show an improvement by observing that students in Section A *extensively* used computer tools and students in Section B *frequently* used them.

Figure 4

Progress Students Have Achieved in Using Computer Production Tools Over a Period of Four Weeks –Section A



Progress Students Have Achieved in Using Computer Production Tools Over a Period of Four Weeks –Section B



Teachers Implement the Technology Integration English Unit as Designed Including the Already Defined Meaningful, Learning Experiences that Embed Technology

Both Teachers adopted the implementation of the intervention unit including the already defined learning experiences which embed technology use such as writing an expository paragraph using Microsoft Word while using the editing and revising features, creating a PowerPoint on a famous person in the history of Lebanon, and participating in on-line vocabulary games which allowed students to have a visual reference for vocabulary words. During the end of the first week of the intervention study, Teacher 1 in Section A did not emphasize using the computers available at the library for students to work collaboratively and create notes on their research on cedar forests in Lebanon. She showed the students how to open a word document and write their notes without prompting them to discuss what relevant information fits under the

title of the expository paragraph on Lebanon's cedar forests. She also used the all three vocabulary online games to reinforce the meaning of the new vocabulary words.

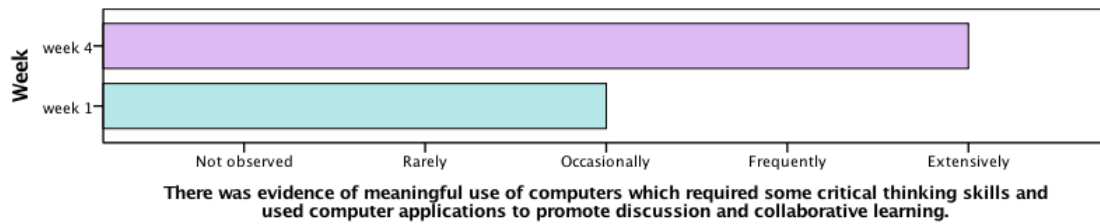
Classroom observations showed that students did not know which computer to use and they mostly chatted with each other instead of working collaboratively. Teacher 1 communicated to the researcher that she has not assign the students to groups. However, by the fourth week, Teacher 1 use of the computer tools available at the school such as word processor and PowerPoint software increased from *occasionally* to *extensively* in order to promote students to create a PowerPoint presentation about a person of significance in the Lebanese history and to type their expository paragraphs while practicing different features of word processor such as writing the title of the paragraph in bold, italics, and in a bigger font size. By the end of the fourth week, Teacher 1 divided students into groups of two or three and assigned each group to a specific computer in the computer lab; students were observed to spend more time on task.

Teacher 2 in section B rarely used the computers for technology-integrated learning activities during the first week of the intervention study. She was observed using the computer only once during the English class to show students a virtual tour about national museums in Lebanon with the rest of the class being spent discussing the main features of a nonfiction text. Also, the teacher did not previously assign students into groups in order to share the computers at the library, so students ended up fighting over their seating arrangement. However, by the end of the fourth week, Teacher 2 was able to implement most of the technology integrated activities from the Technology Integration English Unit such as students working on creating an expository paragraph on cedar forests in Lebanon including inserting images of said forests, creating a PowerPoint about a famous person in the Lebanese history, and using one out of the three online vocabulary games. During this week, students were observed to be on task when working in the groups they were assigned

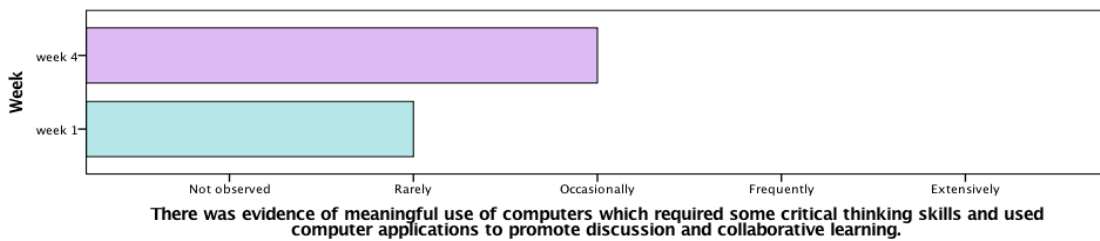
to in the technology integration session. Moreover, students appeared to be working collaboratively within their groups and there was less off-task time spent during these activities. Data from the technology-integration observation checklist which shows the teachers' progress in integrating the unit plan's technology-integrated learning experiences is presented in Figure 3. The bar graph shows that during the first week, Teacher 1 use of technology-integrated learning activities was *occasionally* observed while Teacher 2 was *rarely* observed using these activities. However, by the end of the intervention, Teacher 1 use of technology-integrated activities increased to being *extensively* observed while Teacher 2 was *occasionally* observed using these activities.

Figure 5

Progress Accomplished in Establishing a Meaningful Use of Computers in the Classroom Over a Period of Four Weeks- Section A



Progress Accomplished in Establishing a Meaningful Use of Computers in the Classroom Over a Period of Four Weeks- Section B



**Effect of Implementing the Intervention on Teachers’
Views on the Usefulness of Technology in English Classes**

The following section describes the effect of implementing the intervention on teachers’ views about the usefulness of technology integration in English classes and attempts to answer the first part of the third research question: “What is the overall effect of the implementation of the Technology Integration English Unit on Grade 5 teachers’ and students’ views on the usefulness of technology integration in English classes?” Two individual semi-structured interviews were conducted with the two English teachers before and after the intervention. Participants’ answers in these interviews were transcribed and analyzed using different levels of analysis table. The themes and subthemes identified from their answers are presented in table 9.

Table 9

Effect of Implementing the Intervention Study on Teachers’ View on the usefulness of Technology in English Classes

Themes and Subthemes	Teachers (1 and 2)
Belief in the Positive Impact on Students’ Attitudes Towards Language	
Increase student interest in homework	1
Promote students’ motivation to use their oral language skills	2
Belief in the Necessity of Technology to Achieve Learning Goals	
Must be embedded in educational activities	1 and 2
Must be adopted for regular use in class	1 and 2
Must include introducing pre – requisite Microsoft Office skills	1 and 2
Increasing Teacher’s Level of Motivation and Self-Efficacy	1 and 2

Following the implementation of the planned intervention, the teachers' answers in the individual semi-structured interviews differed from their initial responses before the intervention study. The main areas of differences were in teachers' views a) about the usefulness of the technology in their practice, b) that technology is a tool to achieve learning goals c) on technology's positive impact on their motivation and self-efficacy and d) about technology's positive impact on students' attitudes towards language.

The two teachers' responses before the intervention study revealed a simple outlook towards technology use on a professional level. As such, both teachers referred to the use of technology as primarily facilitating their work especially in the planning of the lesson and as a source of content knowledge while preparing their lesson plans. For example, Teacher 1 mentioned that "I use it (laptop) for handouts and worksheets for my classes." While Teacher 2 stated that she "usually look up for material for my lesson plan over the internet." Their lesson planning did not consider giving opportunities for students to use technology in class; moreover, they thought of technology use in class as a tool for "adults" only.

However, after the implementation of the intervention study, both teachers were able to expand their views towards the added value of using technology in class beyond the immediate effect of helping them facilitate their work noting its positive impact on students' attitudes toward language, the necessity of using it in class in order to achieve learning goals, and its impact on their own motivation. The following themes emerged from their interview analysis which are described in the following sections.

Belief in the Positive Impact on Students' Attitudes Toward Language

Based on the data analysis, it became apparent that both teachers changed their beliefs both in terms of nature and intensity with regard to the impact on students' attitudes toward language. Both teachers reported that students developed positive attitudes towards language, and they attributed this to the integration of technology in their teaching practices.

They discussed students' positive attitude towards English lessons during the implementation of the intervention study. There was an air of "excitement" pervading the classes assigned to the computer lab at the school library, and students viewed the technology integrated activities as being important parts of their study. Two subthemes emerged: a) increase students' interest in homework and b) promote students' motivation to use their oral language skills.

Increase Students' Interest in Homework

Students' enthusiasm to do their English homework increased during the intervention study. This was only noted by Teacher 1 who commented on students' enthusiasm to do their homework and compared it to the disinterest they usually show when she assigns an English homework. She emphasized this change, especially with respect to what she identified as "lazy students", whom she usually struggles with having them present a complete assignment; "they were motivated to do the homework; even the lazy students! They had questions about the homework and were really interested in doing it."

Promote Students' Motivation to Use Their Oral Language Skills

Teacher 2 noticed that students' motivation to speak English has increased during the teaching sessions. For example, she mentioned that she usually struggles with students speaking English in class as most of them prefer to use their native Arabic language "... I think in a way the unit really promoted students' motivation to learn and speak English; for example, the PowerPoint presentations allowed them to speak more ... I think that integrating the use of technology in class activities really motivates them (students) and helps them in this aspect."

Belief in the Necessity of Technology to Achieve Learning Goals

During the interviews, teachers were able to reflect on the role technology played in allowing them to achieve the learning goals of the English unit. Their description of how technology was used in their classes emphasized its role as a necessary pedagogical tool that should be embedded in their lesson planning in order to effectively achieve the learning outcomes. This represents a change from their initial view of technology as being a facilitating tool for their work or a source of content knowledge. It became apparent that one of the effects of the implementation is a growing belief among teachers in the necessity of using technology tools in the learning activities. Three subthemes emerged: a) technology must be embedded in educational activities, b) technology must be adopted for regular use in class, and c) technology integration must include introducing pre-requisite Microsoft Office skills.

Must be Embedded in Educational Activities

Teachers viewed technology as a means to improve students' attention and expose them to native English language. After the intervention, teachers expanded this view by considering technology as an integral practice in the class to actively engage students in educational activities and enrich their learning experience by providing opportunities for students to use technology tools such as PowerPoint and word in their learning. The two teachers used technology in their classes before the intervention sporadically using videos and power points passively, where students are at the receiving end of the visual and auditory aspects of the digital tools. For example, Teacher 1 talked about improving students' fluency in oral communication by exposing them to videos made by people who speak native English "videos are really useful for learning English speaking . . . I believe if we use it (videos) a lot, I am sure students will acquire English language in a good way." While Teacher 2 talked about using videos and colorful power points especially in grammar

classes to attract students' attention while teaching a what she described as a "very dry subject".

After the intervention study, both teachers expanded their views on the use of technology, explaining that a more successful approach in integrating technology in class calls for the technology to be embedded in activities that involve active participation of students similar to the activities that were suggested in the Technology Integration English Unit. Teacher 1 expressed this idea in the following statement:

... but I think what this project helped with is that I was always the one preparing the technology material and students were the recipient, but with the UbD plan, they got the chance to do their own work using the computer. . . also the technology integrated activities felt like they were part of the lesson and not just a separate subject.

Teacher 2 discussed how she used the vocabulary learning activity listed in the unit to involve the students in the PowerPoint rather than just going through the slides with the students:

I have learned to use the technology as a way to involve students more in speaking and writing; for example, with the vocabulary pictures, it was easier for me to try to elicit meaning of the new vocab words from them directly based on the image and this made it easier for them to use the new vocab words in sentences.

Must be Adopted for Regular Use in Class

In the pre-intervention interview with the teachers, both teachers talked about using technology in their classes on "special occasions" only such as when they finish a unit lesson early, and they want to reward the students. While in the post-intervention interviews, Teachers 1 and 2 noted the importance of having students practice using

technology tools regularly as compared to an occasional activity that would stop by the end of the intervention study. Namely Teachers 1 and 2 seemed to have developed awareness that integration of technology requires consistent use of technology in class in order to ensure that students will maintain the skills of using certain technological tools such as Microsoft Office tools. Teachers stated that they were ready to dedicate considerable time teaching the students on how to use some features of Microsoft Office tools. For example, Teacher 1 was concerned that after the intervention study “students will forget all of this if they don’t practice (on Microsoft tools) at home or at school regularly.”

Must Include Introducing Pre-Requisite Microsoft Office Skills

During the pre-intervention interviews, both teachers did not mention any pre-requisite skills in ICT that students must acquire in previous grades. However, after the intervention, both Teachers 1 and 2 stated that students must have previous knowledge in ICT in order for the teacher to build on that knowledge educational activities that integrate technology. They agreed that in order to maximize the positive effect of integrating technology in teaching English, certain specific Microsoft office pre-requisite skills need to be introduced to the students such as knowing how to create document, a power point, and to be familiar with using formatting tool (bold, italics, font, font size). Teacher 2 noted that while implementing the learning activities of the Technology Integration English Unit, “students that were exposed to it (Microsoft Word and power point) before, did better than their friends who weren’t”. Moreover, this view was further discussed by Teacher 1 who stressed that even though technology is important to use in English class, students should be trained outside the scope of English class on how to use Microsoft Office tools “students should be thoroughly trained to use Microsoft Office tools before coming to English class; otherwise, it will be time consuming and students will cause problems in class.”

Increase the Teacher Level of Motivation and Self-Efficacy

An increase in motivation and self-efficacy was another theme that emerged from teachers' conversation and was indicative of the effect of implementing the intervention study on teachers' view on the usefulness of technology in English classes. This was an internal factor that is related to their own learning experience during the implementation of the Technology Integration English Unit. Both teachers were able to reflect on their experience during the implementation of the intervention study and contribute factors such as "confidence" and "motivation" to the successful implementation of technology tools in class. Teacher 1 talked about experiencing an increase in her confidence in her teaching beliefs "I think this experiment showed me that I am on the right path because I think that integrating technology in class really motivates students and helps them.". Teacher 2 expressed feeling a sense of accomplishment that allowed her to feel confident that she has successfully integrated technology tools in class and motivated, not just to implement the unit, but to continue implementing technology in her classes: "as a teacher I feel more confident that my students have really acquired the lesson objective. I think in a way, this unit (Technology Integration English Unit) really motivated me to refresh my usage of technology in class... it definitely refreshed my teaching practices. Also, I think it gave me more confidence to experiment with the many ways we can integrate technology in English class."

Factors that Support Technology Integration

The following section highlights the factors that the teachers viewed as helping them to achieve their objectives throughout the implementation of the Technology Integration English Unit. It attempts to answer the first part of the fourth research question: "From Grade 5 teacher's perspectives, what were the factors that facilitated or hindered their implementation of the Technology Integration English Unit?" Further analysis of teachers' responses before

and after the intervention study resulted in the delineation of one theme and three subthemes which are presented in Table 10.

Table 10.

Grade 5 teacher’s perspectives on the factors that facilitated their implementation of the Technology Integration English Unit

Theme and Subthemes	Teachers (1 and 2)
Factors That Support Technology Integration	
Professional Development	1 and 2
Administration Support	1 and 2
UbD Curriculum Model – Performance Tasks	1 and 2

Professional Development

Both Teachers 1 and 2 referred to the importance of the professional development sessions they received during the implementation of the intervention, and how they wish if similar workshops would be available all year long. Teacher 1 highlighted this when she said: “The training courses on UbD and Microsoft Office were useful. I would be excited if we get the chance to do more of these projects in the school because we all benefit and not just the students.”

Teacher 2 described the professional development sessions that were done during the intervention study as a main factor that helped her during the implementation of the unit, especially the workshop on UBD. She also pointed out that positive effects of having professional development workshops throughout the whole year and not just during the intervention study. For example, she described her experience during the intervention study as “positive” and expressed her wishes “to have this support all year long. I feel like I did a mini-course at the university level.”

Administration Support

The respondents mentioned that having the support of the school principal and school supervisor was crucial to the successful implementation of the unit plan. Teachers 1 and 2 attributed their success of completing the English Technology Integration Unit plan to the release time that was incorporated in their timetables with the approval of the school principal and the support they received from the school supervisor to book the library sessions. Teacher 1 commented that it is not always easy to integrate technology in her lessons because it involves booking the school's library in advance and "it's not always easy to do this, as other teachers use it too. . . and sometimes the schedules are all mixed up." So, when the school supervisor gave her a priority in scheduling the library sessions, she felt encouraged to implement the learning activities of the unit plan. While Teacher 2 said that she is usually discouraged from using technology in her class because "she has to wait for her turn (in using the library)" and sometimes it takes up to two weeks to find a slot as the library is a multipurpose room used for many activities besides the computer lab. Thus, having the school's supervisor create special library schedules for them in which their classes were given priority was "a great support" that both teachers wish "they can have it all year long."

UbD Curriculum Model–Performance Tasks

Both teachers perceived UbD as a design tool for the unit and the curriculum to be a facilitating factor that helped them with technology integration. Teacher 1 highlighted the usage of the UbD as a factor that allowed her to "manage (my) teaching timer better" and anchor her teaching in general aims delineated in the UbD lesson plan; one of which was the technology-integrated activities: "it was clear to me what the end result will be". Moreover, she mentioned that the "performance tasks" which were very conducive to the use of technology tools such as PowerPoint and word processor were "new assignments" for

students which they “really interacted with and allowed for a successful integration of technology tools during the English classes.” Teacher 2 also pointed out the “performance tasks” as one of the elements that “stood out” in facilitating the integration of technology tools because “students’ were really interested in completing them”. She also recommended the UbD model to be used “by all English teachers” who want to integrate technology in their classes.

Factors that Hindered Technology Integration in Class

The final and sixth section highlights the factors that hindered the teachers’ efforts during the implementation of the Technology Integration English Unit. It attempts to answer the second part of the fourth research question: “From Grade 5 teacher’s perspectives, what were the factors that facilitated or hindered their implementation of the Technology Integration English Unit?” Teachers’ responses during the interviews indicated that there are some challenges in integrating technology in their classrooms. Analysis of these responses delineated one theme and three subthemes presented in Table 11.

Table 11.

Grade 5 teacher’s perspectives on the factors that hindered their implementation of the Technology Integration English Unit

Theme and Subthemes	Teachers (1 and 2)
Factors That Hinder Technology Integration	
Lack of Resources	1 and 2
Lack of Time	1 and 2
Lack of Resources that Suit Students’ Language Readiness	2

Lack of Resources

Both teachers pointed out that they need more hardware and software resources such as computers, active whiteboards, projectors, and internet in order to integrate technology effectively in their classes. Teacher 1 stated that: “We don’t have enough computers and I think they are a bit old”. This teacher also discussed wasting instructional time as student had to leave the classroom and go the library to use the computers: “If we have computers in the classrooms, it will save our times and students times too.”

Teacher 1 also commented on the difficulty she faced in having students share computers: “I think the hardest part was setting up the library. You know with the big number of students, they had to share a desktop... and students start misbehaving which makes it hard for me to control the class”. Similarly, Teacher 2 commented on the negative aspect of not having enough resources at school when she discussed the following: “the fact that we don’t have computers or active whiteboards in the class is really difficult. . . It would be great if we can have a projector and smart board in every class because we all share one room and it is not always practical”. She also commented on the “lack on internet in classes” as a hindering factor to properly implement technology tools in her English classes.

Lack of Time

Both teachers invariably cited lack of time as a hindering factor for them to continue with their efforts to integrate technology in their lessons. One teacher mentioned the lack of time in terms of finishing the required curriculum, the other mentioned the lack of time in terms of being creative with the lesson planning and activities done in class. Teacher 1 explained that she would not use technology integration in her lesson on a regular basis “because it’s time consuming and we are not able to finish on time. I mean we have the yearly plan to finish at the end of each year and sometimes with the strikes, we are already behind”. Teacher 2 also mentioned that she needs more time to prepare lesson plans with

technology integration activities and gather resources “I mean I barely get enough time for writing lesson plans, correcting quizzes, substitution classes and recess duty.”

Lack of Resources that Suit Students’ Language Readiness

Teacher 2 discussed the unavailability of educational videos that are made by non-native English language speakers as a hindering factor to integrate visual material in her classes. Teacher 2 pointed out, in her conversation regarding the factors that hindered the implementation of certain technology tools in her lesson plans, students’ unfamiliarity with “native English-speaking accent”. This was specifically relevant to her when students watched the informational videos on international museums or when they played the online games which were not captioned. She mentioned that since most students barely understood the instructions or information given, she had to repeat the instructions or re-explain the information which put constraints on her teaching time.

CHAPTER V

DISCUSSION, CONCLUSION, AND IMPLICATIONS

This thesis aimed at understanding the benefits and challenges of implementing a small scale, technology integration intervention in a Lebanese public K-6 school. The purpose of this study was to examine the implementation of a small scale innovative intervention with the aim of improving its design and making it responsive to the context of the school. First, a theoretical overview of literature was presented. Second, a Technology Integration English Unit using UbD framework was developed based on the official Lebanese curriculum for Grade 5 along with an implementation plan which contributes to school improvement within a specific context. The unit plan was integrated in Grade 5 English classes over a period of four weeks. The intervention covered the implementation of the Technology Integration English Unit using pre and post methods of data collection such as test scores, observation tools, and teachers' and students' interviews. This chapter includes the discussion of the results of the research study, the conclusion, the recommendations for practice, and finally the recommendations for future research.

The discussion of the results is organized into three parts: the first section discusses the improvement objectives of the intervention, specifically students' achievement in Microsoft Word knowledge and their attitudes towards learning English. The second section discusses the extent to which teachers have implemented the operational objectives of the intervention as well as its impact on the teachers' views on the usefulness of integrating technology in their English classes. The third section discuss the teachers' reflections on the factors: (a) facilitating and (b) hindering they reported as influencing the implementation of technology integration in their classes. Lastly, the chapter will conclude with a conclusion and a presentation of the study's practical and theoretical recommendations.

Impact of Technology Integration on Student Learning

The improvement objectives of the intervention plan targeted the impact of technology on student learning and specifically on: (a) increasing student knowledge of Microsoft Word, and (b) positively impacting their attitudes towards learning English Language. The improvement objectives were based on research literature which highlights the effectiveness of using computers in education for young children, helping them to interact socially, work collaboratively, develop language and communication, and increase student academic achievement (Berkeley-Jones, 2012; Digregorio & Lojeski, 2010; Fu, 2013; Gurevich & Gorev, 2012).

Increase Student Achievement in Microsoft Word

A comparison between students' pre- and post-test scores in the Microsoft Word assessment shows an increase in their knowledge in Microsoft Word features. This increase may be an indication of the effect of the Technology Integration English Unit on students' knowledge in Microsoft Word. Students' knowledge of certain Microsoft Word skills such as creating and saving a word document and applying formatting tools was low in the pre-test scores before the intervention.

Another aspect that reveals students' increased knowledge in Microsoft Word is based on the Ubd design implemented in the intervention. The Understanding by Design (UbD) is one of the curriculum design models that have been effective in developing students' understanding and their transfer of learning. Moreover, when students are able to relate facts to big ideas, explore essential questions and apply their learning in new contexts, they engage in meaningful, significant learning (McTighe et al., 2004). Stages two and three of the UbD design give teachers autonomy in choosing the assessments and learning experiences; thus, allowing for various instructional tools such as using technology to be implemented by the teachers. Hence, UbD is a good design for technology integration

(Williams, Harkness, & IGI Global, 2018) which enables students to apply their acquired technological knowledge in new contexts (McTighe et al., 2004). This is confirmed by the results of the post-tests that revealed an improvement in students' scores in the Microsoft Word test in addition to the results of performance task two. For example, on average, post-test scores were 1.868 points higher than pre-test scores. The results of the post-test showed an increase in students' technology knowledge which was infused in the design of the UbD unit such as basic Microsoft Word knowledge e.g. creating, naming and saving a document, using formatting tools (bold, italics, font, font size) in order to change the font and size of the text, using spell check, locating page numbers, determining word count on a document, and selecting a text. While analysis of the results of performance task two which used real life situations to introduce new topics shows that 58.5% of students were able to accomplish up to seven Microsoft Word format instructions.

Increase Student Interest and Collaboration

Research conducted in classroom environments that support technology integration whereby students learn through using technology tools, shows that the classroom environment allows for more collaboration among the learners. The study by Garcia-Valcárcel et al. (2014) analyzes data concerning ICT contributions to collaborative work processes inside the classroom from the point of view of teachers working at schools with a high level of ICT integration. Teachers' responses indicated that, following a rough start during week one of the intervention, students were helping each other more, and it was easier for them by the end of week four to work collaboratively with the computer than with the traditional materials (paper and pencil); moreover, ICT provided the motivational component for collaborative projects. Classroom observation conducted during the intervention revealed an increased level of collaboration among students working together on researching, typing, and editing their writing tasks within their assigned groups. Moreover, students' visible

excitement was evident when working together on technology-integrated learning activities at the school's computer lab. One of the two teachers interviewed remarked on students' newfound interest in completing their English homework assignments. Before the intervention, most of the students in her section showed a disinterest in completing any English homework, especially students who were struggling with their academic performance. Both the teachers and the students attributed this excitement and interest in English classes to the technology-integrated activities which allowed students to create and communicate; thus, increasing their excitement about learning and motivated them to learn. In his article, Heafner (2004) examines the impact of the integrating technology in social studies class on student motivation based on expectancy-value motivation model. The author found that the nature of the task and student perception of the importance of the task influence student motivation in completing the task. If the task is fun and moderately challenging, students will approach it.

The second teacher noticed that students' motivation to speak in English rather than in Arabic increased in her classes during the intervention; especially when students discussed their PowerPoint presentations. This aligns with studies showing the impact of using Microsoft office tools such as PowerPoint on students' English language speaking skills.

Bilqis's (2012) study on Grade eight students in Indonesia proved that Microsoft PowerPoint has a significant effect on students' English language speaking skills. Moreover, an action research by Fauzi (2016) on the use of multimedia-based presentations such as PowerPoint to improve speaking skills in English as a foreign language showed that students speaking skills improved and their confidence to speak English in the class increased.

Positive Change in Students' Attitude Towards Learning English

Before the intervention, the students interviewed had a negative perception towards some of the English language strands such as writing; they found it difficult and hated any task related to writing. This aligns with the studies on writing in the second language which describe students' hardship in this domain as painful (Gilmore, 2009). Another study by Huang (2008) supported the idea that students' writing in English as their second language face difficulties when attempting to write in English. However, students' attitudes towards the writing class changed positively after the implementation of the intervention study. Post-intervention interviews with the students revealed that using Microsoft Word in their writing assignments made the task easier, more fun, and allowed them to approach the writing task in a new way. This aligns with research in the field where students' perception of the task as easy and fun improved their writing (Heafner, 2004).

This positive change in attitude towards the writing classes aligns with national and international literature on using Microsoft Word processing tools to promote writing skills (Burns, 2012). In a study by Fidaoui, Bahous, and Bacha (2010) to investigate the effectiveness of using computer assisted language learning (CALL) in motivating Lebanese fourth grade students English writing skills, the authors found out that 95.8% of the students considered the use of IT in writing as enjoyable and exciting, while 70.9% of students felt that their frustration with the writing tasks decreased whenever they had to use the computer. Hamadanah and AL-Hersh (2009) study on identifying the effect of using word processor for improving first secondary grade students' writing skills revealed that students who used the computer in their writing assignments were more motivated and performed better than the control group. According to Van Leeuwen and Gabriel (2007), Grade one students preferred using word processor in writing over the pencil and paper because word processors are tools that can complement the range and type of writing activities in elementary school

classrooms. Scott and Mouza (2007) claimed that word processors have introduced new ways of organizing and editing texts which made revisions easier for students.

Impact of Technology Integration on Teacher Views

Regarding Technology Use

Before the implementation of the intervention, the two teachers' views towards using technology in education revealed a simple outlook. As such, both teachers referred to the use of technology as primarily facilitating their work especially in the planning lessons, and as a source of content knowledge while preparing their lesson plans. However, after the implementation of the intervention study, both teachers were able to expand their views towards the added value of using technology in class beyond the immediate effect of helping them facilitate their work and integrate it within the learning and teaching process. The teacher's views towards their own practice as English language teachers were also positively improved after the intervention. The shift in teachers' views is in alignment with the literature (CERD, 1997; Copraidy, 2014; Hasley, 2007; Hsu, 2010; Lin, Wang & Lin, 2012; Teclehaimanot, Mentzer & Hickman, 2011; Ottenbreit-Leftwich, 2007; UNESCO, 2004) is further explained in the following sections. The views of teachers regarding using technology are discussed below.

Modify the Teacher Perception about Using Technology in Class

Time and energy should be applied to better understand teachers' abilities and perceptions on using technology in education within the classroom teaching practices (Halsey, 2007). Also, Hsu (2010) suggested that in order for technology initiatives to succeed in schools, we need to focus on the teachers' communication and sharing, planning, teaching and evaluation as some of the key factors in the success or failure of the initiative.

Moreover, research suggests that integrating technology is linked to pedagogy and instructional practice. Lin, Wang, and Lin (2012) created a model which links teachers'

progression of using ICT in their classes to their pedagogical practice; the case studies conducted in their research showed that when teachers' pedagogical and technological concerns are addressed, their competencies in integrating technology progressed. Teclehaimanot et al. (2011) suggest that teachers might be competent with technology use but not with integrating technology for instructional purposes; they lack the knowledge of the benefits of using technology to enhance student learning. This aligns with results of the study where teachers' responses primarily highlighted use of technology as a productivity tool and not as a pedagogical tool. During the interviews before the intervention, the teachers' initial view of technology considered it as a productivity tool that was only used to support their work. However, following the intervention, both teachers were able to reflect on the role technology played and stated that it allowed them to achieve the learning goals of the English unit. Their description of how technology was used in their classes emphasized its role as a necessary pedagogical tool that should be embedded in their lesson planning in order to effectively achieve the learning outcomes.

This shift in viewing technology as a pedagogical tool recognized the importance of building students' knowledge in ICT. Both teachers stated after the intervention that students must have previous knowledge in ICT such as Microsoft Office in order for the teacher to build on that knowledge educational activities that integrate technology. This is in alignment with lessons learned from integrating technology in education in a collective case study in six Asian countries which state that equipping students with ICT skills facilitates the effective integration of ICT in schools (Pacific, UNESCO, 2004). However, this finding is not mirrored in the current national Lebanese curriculum which does not delineate ICT as a subject in the primary grades (CERD, 1997). This suggests a need for follow up studies to more directly link ICT curriculum in primary grades and ICT integration, and a review of the existing national primary curricula.

Increase the Teacher Level of Self-Efficacy and Motivation

When asked to reflect on their experience during the implementation of the intervention, the first teacher expressed an increased confidence in her role as a teacher who can implement technology in her teaching. This can be related to the study done by Ottenbreit-Leftwich (2007) which states that when teachers witness how technology facilitates students' engagement and learning, their confidence in integrating technology increases.

The second teacher talked about a sense of accomplishment that motivated her not just to implement the unit plan but also to continue integrating technology even after the study is completed. This resonates with the study conducted by Copriady (2014) that identifies teachers' self-motivation as a significant mediator on teachers' willingness to integrate ICT in their teaching and learning.

Factors Influencing the Implementation of Technology Integration in the Classroom

The Technology Integration English Unit, the Implementation Plan, and the design of the intervention were based on literature components that ensured the alignment of the implementation plan with what is actually enacted within the school; thus, securing the gap that exists in the literature between the school improvement implementation plans and what is accomplished within the schools (Supovitz & Weinbaum, 2008). The key factors adopted from the literature that facilitated the implementation plan are (a) teachers' professional development, (b) administration support, and (c) the power of the Ubd curriculum model in integrating technology tools. However, this does not mean that the implementation of the intervention did not face certain challenges. Both teachers agreed that there were certain challenges they faced during the implementation process.

Facilitating Factors

Fullan and Quinn (2010) and Einav and Levin (2010) maintain that capacity building is essential to sustain school reform, and instructional precision developed by improving the quality of instruction is at the heart of achieving the reform goals. Both teachers highlighted in their post- intervention interviews the importance of the professional development sessions they received during the intervention and expressed their commitment to attend similar workshops all year long. This is supported by the literature of application of professional development in ICT reform initiatives. Hsu (2010) and Harris and Sass (2011) suggested that technology integration professional development is the primary means to support teachers with ideas on how to use technology devices as instructional tools that can exist in their curriculum to improve learning outcomes and student engagement. This is also compatible with the findings of the study by Gil-Flores, Rodriguez-Santero, and Torres-Gordillo (2017) which explores the factors that can explain the use of ICT in secondary education classes. The authors highlighted that at the teachers' level, the need of professional development is the most significant variable in explaining the classroom ICT use.

Another facilitating factor as reported by the teachers was having the support of the school principal and the school supervisor throughout the period of the intervention. The support was manifested in the release time that was incorporated in their timetables and prioritizing the booking schedule of the school's computer lab. Securing this support was planned on early by the researcher via personal meetings with the school principal and school supervisor in order to share the need for the intervention plan, explain its added value to the school curriculum, and answer all their instructional inquiries. This is aligned with the literature on targeting formal school leaders and obtaining their support early on in the reform initiative especially in school cultures that invest more power in the principal position (Hallinger & Kantamara, 2001; Hallinger & Lee, 2013). This also resonates with a

study by Yemothy (2015) which lists lack of release time for teachers to practice and plan to use computers or the internet as the main barrier to implementing technology integration in classroom. Lim and Khine (2006) suggest sufficient time for teachers in preparing ICT-mediated lesson as one of the six strategies employed by four Singaporean schools to manage barriers to ICT integration. Thus, providing this support to teachers is a main facilitator of a technology integration intervention.

After the intervention, both teachers perceived UbD as a design tool for the unit and the curriculum to be a facilitator factor that helped them with technology integration. One teacher highlighted the usage of the UbD as a factor that allowed her to manage her teaching timer better and anchor her teaching in general aims delineated in the UbD lesson plan; one of which was the technology-integrated activities. Moreover, she mentioned that the performance tasks which were very conducive to the use of technology tools such as PowerPoint and word processor were new assignments for students which they interacted with and allowed for a successful integration of technology tools during the English classes. The other teacher also highlighted the performance tasks as one of the elements that stood out in facilitating the integration of technology tools because students were interested in completing these tasks. This aligns with the study by Yurtseven and Altun (2015) about the influence of integrating UbD design on students' motivation in English as second language classes. The authors reported in the findings that carrying out performance tasks and the new way in covering the unit increased students' motivation in the class and knowledge transfer. The teacher also recommended the UbD model to be used by all English teachers who want to integrate technology in their classes. This is in accordance with research studies done to analyze teachers' perceptions of UbD such as the one by Anwaruddin (2013) in which the author states that teachers' enthusiasm and eagerness to learn the UbD is an indicator of how they responded to it. However, this suggests a need for follow up studies to more directly

link UbD curriculum framework with the technology integration in existing Lebanese curriculum.

Hindering Factors

Both teachers agreed that there were some challenges they faced during the implementation of the intervention. Some of these challenges are unique to the school context such as lack of resources that suit students' language readiness while others such as lack of time and lack of resources are more common challenges that can be generalized beyond the local context of the school.

One teacher shared her concern about unavailability of educational videos that are made by non-native English language speakers. Her students' unfamiliarity with native English speaking accent makes it difficult for her to integrate the audio/visual tools in students' learning; especially when there are no captions offered. This result relates to a study by Moinzadeh, Dezhara, and Rezaei (2012) in which the authors investigated the effect of non-native accent on Iranian EFL learners' listening comprehension. The study's findings revealed that students performed significantly better on listening comprehension with Persian accent; thus, supporting the literature that native language accent familiarity (in this case the Persian accent) may help improve students' learning of the foreign language.

Both teachers reported lack of time to complete all requirements of the program as a hindering factor to the implementation of technology integration in their lessons. One teacher reported that especially with the public education sector in Lebanon where it is affected by constant teacher union strikes, her priority would be to finish the yearly plan on time. The impact of teacher strikes on disrupting the curriculum especially in primary schools is discussed in a study by Baker (2013). While the other teacher considered that preparing lesson plans with integrated technology activities requires more time of her daily schedule. Data from literature supports these finding of teachers' frustration with the lack of

time to create additional technology related activities and embed it in their lesson plans (An & Reigeluth, 2011; Jones, 2004; Keengwe, Onchwari, & Wachira, 2008).

In their analysis of empirical studies from 1995-2006 that focused on the barriers that affect teachers' use of computers in K-12 schools, Hew and Brush (2007) listed resources as one of the main six categories examined in the literature. Both teachers pointed out that they need more hardware and software resources such as computers, active whiteboards, projectors, and internet in order to integrate technology effectively in their classes. A study by Hudson, Porter, and Nelson (2008.) reports that the main barrier that affected high school mathematics teachers' use of technology in their lesson plans is the lack of access to the school's computer labs. Kopcha (2012) also reported lack of access to technology as a barrier that influences teachers' use of technology in teaching.

Conclusion

The purpose of this study was to examine the implementation of a small scale innovative intervention with the aim of improving its design and making it responsive to the context of a Lebanese public school. The Technology Integration English Unit on the nonfiction texts developed by the researcher shares the same objectives of the nonfiction unit in the national English textbook used at the Lebanese public schools; however, the scope and sequence of their content as well as the pedagogic approach adopted are different. The unit developed by the researcher emphasizes the use of Microsoft tools within a UbD curriculum framework which focuses on the development of students' understanding and their ability to effectively use content knowledge and skill; it ensures that learning happens and not just teaching (Wiggins & McTighe, 2011). Although the revised English curriculum in 1997 highlighted the use of audiovisual aids and computer laboratories, the national English textbooks did not incorporate any ICT applications in the learning process (CERD, 2017). MEHE reform initiatives that focus on integrating computer technology in schools in

Lebanon are faced by many challenges such as providing consistent teacher support through professional development workshops (Burns, 2012). The research study's findings supported the literature on the added value of using action research as a strategy for supporting the implementation of school improvement within a specific context and promoting teacher professional development. As Sagor (2000) explains, action research is an opportunity to build capacity and work efficiently on guiding school development process such as the integration of technology in various subjects. Most teachers involved in action research become more self-conscious about their teaching, enjoy exchanging ideas, ask for advice from colleagues with expertise, and discuss pedagogical matters (Karagiorgi, Afantiti-Lamprianou, Alexandrou-Leonidou, Karamanou, & Symeou, 2018). Integrating technology into the instructional practice of the classroom is difficult; especially if the teacher lacks the knowledge to integrate it or to ask for help to do it (Thornton, 2018). Thus, including the teachers' perspectives in the researcher's implementation plan through meetings and interviews allowed the teachers to voice their opinions and to ask for help from the researcher when needed. The process also enabled them to self – reflect on their teaching practices and set an initial step to transform their teaching practices (Wang, Ke, Wu, & Hsu, 2012). Moreover, the professional development workshops planned in the implementation plan, which target technology integration, enabled the teachers to have pre-requisite knowledge about the intervention and its benefits; hence, setting the pace for successful implementation (Ertmer & Ottenbreit-Leftwich, 2010). Furthermore, the findings re-emphasized that integrating technology within the UbD curriculum framework promotes students' active construction of knowledge, where the teacher becomes a facilitator rather than a transmitter of knowledge and increases students' motivation to learn. In addition, it positively changes students' attitudes towards certain strands of the English language, such as the writing strand. Implementing a curriculum innovation using the Ubd framework expands

teachers' role to become an active member of curriculum development is supported by many research studies (Altun & Yurtseven, 2017; Andrews, 2011; Yurtseven et al., 2013). This section will discuss the reasons for the successful implementation of the intervention based on the findings of the study.

Ubd delivers a framework for teachers to work on designing plans that cover lesson content, instruction, and assessment; thus, ensuring various learning opportunities can be offered for diverse learners (Yurtseven et al., 2013). The design of the UbD lessons enables teachers to direct students' interest in the lesson and allows them to take part in the lesson depending on their learning styles (Altun & Yurtseven, 2017). Study findings revealed that teachers considered the design of the UbD framework was one of the factors that facilitated the implementation of technology activities in their teaching because it had a positive influence on students' interest in the English language activities.

Fullan (2007) stated that change is not a linear process, and it should be flexible enough to adapt to the local context of the school. The implementation plan, which was set for the intervention included a monitoring plan that used action research in action to collect data and make evidence decisions for interim adjustments that were suggested by the teachers due to factors that facilitated or sometimes hindered the implementation process. This design ensured that the plan is continuously adjusted to respond to the school's emerging needs, especially during implementation. Moreover, following the guidelines of the TAMAM school-based approach for implementing an intervention, it sought voluntary teacher participation, engaged them in professional development and dialogue to minimize anticipated obstacles in the implementation plan (Karami-Akkary et al., 2012). The planned meeting with the school principal and the English teachers to explain the purpose of this research has allowed teachers to ask questions and gain a better understanding of the intervention and its proposed benefits to their professional practice and for the school

improvement. It has also helped secure their commitment to integrate the intervention in the school system and to continue using some features of the unit plan model even after the intervention study is completed. Moreover, when faced by the challenge of the lack of time to finish all learning outcomes of the researcher's unit plan, the teachers' active participation in the planning and monitoring resulted in their suggestion to modify the writing learning outcome in a way that students would still acquire the needed writing skills but would require less teaching classes.

Fullan and Quinn (2010) maintain that teacher capacity building is essential to sustain school reform initiatives. Furthermore, Halsey (2007) and Hansen (2008) state that time and energy should be applied to understand better teachers' abilities and perceptions of using technology in education. The implementation plan took measures to incorporate teacher professional development sessions as part of the intervention activities in addition to conducting interviews to explore their views on technology use in their classes. It was noticed during the research study that teachers were more likely to participate when they are convinced that the reform initiative will actually improve their instructional strategies. Moreover, the interviews conducted with the teachers gave them a medium to reflect on the unit plan and evaluate its outcomes based on students' performance. This process made them feel confident in their abilities to integrate technology in their planning.

Sagor (2000) believes that the guiding principle of school improvement initiatives should be the teaching and development of students. Thus, the implementation plan's improvement objectives prioritized improving students' knowledge in Microsoft office tools in addition to promoting collaborative learning. It was also noticed that teachers were more willing to commit to the intervention when they experienced the positive effects it had on students' attitudes towards learning English skills, such as the writing skill, and their

motivation to learn English language that began to emerge through monitoring the implementation.

One insight that the researcher gained during the research study is that school improvement intervention plans should be approached with a researcher mentality instead of a planner one (Razfar, 2011). Even though the Technology Integration English Unit and the implementation plan were developed by the researcher, she did not presume that she knows all the answers to the problems that arose during the implementation, it was instead a joint effort whereby the school principal, school supervisor, students', and teachers' input was valued during the implementation process.

Implications for Practice

In order to implement a successful small –scale technology intervention within a public school in Lebanon, the following recommendations follow from this study: a) plan the intervention with the technology resources that are already available at the school to ensure sustainability even after the intervention, b) transparency in sharing the implementation plan, c) school leadership supporting the teachers' efforts to integrate technology such as increasing teachers' planning time, d) use UbD framework in other subject areas in order embrace technology integration as a tool to engage learners in all core subjects, e) establish a professional development program for the teachers which targets both technology skills and pedagogical knowledge in order to make sure that any curricular update will succeed, and finally, f) invest in more hardware in the school's computer lab to provide equitable access to computers.

Moreover, the findings of this study provide insights for leaders in MEHE and school principals who are involved in developing and implementing school improvement or reform initiatives related to technology integration in education, especially in the context of Lebanese public schools experiencing low levels of technology integration. The information

collected from this study can help in developing plans that facilitate the successful integration of technology in Lebanese public schools. Even though the findings reveal specific challenges that lie ahead in the public-school sector in Lebanon, adopting the measures highlighted in this study can ease the implementation process of the pressing need to integrate technology tools in the national curricula.

Implications for Future Research

An area for research can entail curriculum planners combining UbD framework and integration of specific technology tools in other disciplines like mathematics and science and its effects on student learning. This study can be replicated with teachers of these disciplines.

Teachers increased motivation and self-efficacy in integrating technology can trigger further research on the positive impact of the technology integration intervention on teachers' confidence and its contribution to a positive school climate in order to create a sustainable integration technology practice.

The enthusiasm of the school principal and supervisor to implement this study in the school can set up a starting point for future action research studies where public school principals participate in technology-related professional development and lead a similar small scale technology integrated interventions.

Another area of research can explore the relationship between students' attitudes towards technology and incorporating ICT discipline in the primary years' national curricula.

Moreover, the small sample of this study prohibits generalizations. The sample size for this study was fifty-three students and two teachers divided among two sections of the same grade in the same school. Thus, expanding the sample size and broadening the scope of the intervention to include an all year plan is needed (include more schools in rural localities). Yet, it sets a starting point for further research to be carried out on a larger scale

within the Lebanese public schools. It can also entail expanding this study to other grade levels as teachers and students in primary grades might have different views than high school teachers and students. The mixed-method research can be used for other technology integration projects. The quantitative data can identify specific improvement or deficiency while the qualitative data provides the deeper level of information needed to uncover the nuances in technology integration, teaching practices, and areas for improvement.

APPENDIX A

PRE -INTERVENTION INTERVIEW QUESTIONS WITH TEACHERS

Date: _____

Teacher: _____

1. How do you define technology? Give examples of technology and its uses in everyday life
2. Are you comfortable using technology in the classroom? Why or why not?
3. What are your thoughts on integrating technology in English classes? Do you think it can help students improve their English language skills? Why or why not?
4. Have you received any training on technology integration? What was it? Did this impact your teaching methodologies?
5. Overall, how would you describe your attitude/comfort toward technology integration in English classroom? Explain.

APPENDIX B

PRE -INTERVENTION INTERVIEW QUESTIONS WITH STUDENTS

Date: _____

Teacher: _____

1. What do you think technology is? What does the word “technology” mean to you?
2. What is your most favorite/ least favorite activity in English class?
3. List the ways you use technology (playing videogames, watching movies, social media, school work).
4. What do you think about when the teacher uses a computer in class to show you videos or picture? (does it make learning fun or more difficult?)

APPENDIX C

POST -INTERVENTION INTERVIEW QUESTIONS WITH TEACHERS

Date: _____

Teacher: _____

The following questions will be added for the teachers' post-interview questions:

1. Do you think students learnt how to use Microsoft Word?
2. What factors facilitated/hindered the implementation of the Technology integration English unit? Please be as specific as possible in listing examples.
3. Does using the UbD design to teach a technology integration unit enhance the implementation of the unit and in what ways?
4. Did this project change your understanding of technology integration and its pedagogical contribution to students learning? Explain.
5. Did this experiment of implementing the unit change your attitude / comfort level towards integrating technology in your teaching? Explain through examples.

APPENDIX D

POST -INTERVENTION INTERVIEW QUESTIONS WITH STUDENTS

Date: _____

Teacher: _____

The following questions will be added for the students' post-interview questions:

1. What was your most/least favorite activity this past month in the English classes?
2. What do you think about using technology such as the vocabulary power points and the Microsoft writing activities that the teacher used?
3. Would you like to introduce technology in other classes? Which subject would you choose?

APPENDIX E

TECHNOLOGY INTEGRATION OBSERVATION CHECKLIST

This observation checklist is part of a research study conducted to integrate technology in a Grade 5 English class based on a Technology Integration English Unit. It will be used obtain an impression of the types of teaching and class activities that take place while using the school computer room/library.

Please note that you are NOT being evaluated as an individual teacher.

Teacher: -----

Date: -----

Grade/Section: -----

The following rating scale will be applied for each element:

Not observed: Strategy was never observed

Rarely: Observed only once/ Clearly not a prevalent and/or emphasized component of teaching and learning

Occasionally: Observed twice / Not a prevalent and/or emphasized component of teaching and learning

Frequently: Observed multiple times/ Not a prevalent and/or emphasized component of teaching and learning

Extensively: Observed in all classes/ A highly prevalent component of teaching and learning

	Not observed	Rarely	Occasionally	Frequently	Extensively
1. Technology was used as a learning tool or resource					
2. Technology was accessible for student use					
3. Students used computer production tools during the observation					
4. Teacher was competent with materials and operating computer					
5. there was evidence of meaningful use of computers which required some critical thinking skills and used computer applications to promote discussion and collaborative learning.					

APPENDIX F

STUDENT MICROSOFT WORD TEST

Note: This test is part of a research study conducted in order to integrate technology in Grade 5 English class; the grades will not be part of the students' ICT assessment at the school, and it will not affect their school average in any way.

The test's duration is **45 minutes**.

Multiple Choice Questions (8 points)

Circle the correct answer in the below questions.

1. In order to save an existing document with a different name you need to:

- a. Retype the document and give it a different name
- b. Use the Save as.. command
- c. Copy and paste the original document to a new document and then save
- d. Use Windows Explorer to copy the document to a different location and then rename it

2. What would you see while spell checking the phrase "My father was write"?

- a. The word "write" in bold
- b. No errors
- c. The verb of the phrase will be highlighted
- d. blue squiggly underline under the word "write"

3. How do you insert characters that are located at the top of keys on your keyboard, for example the question mark symbol?

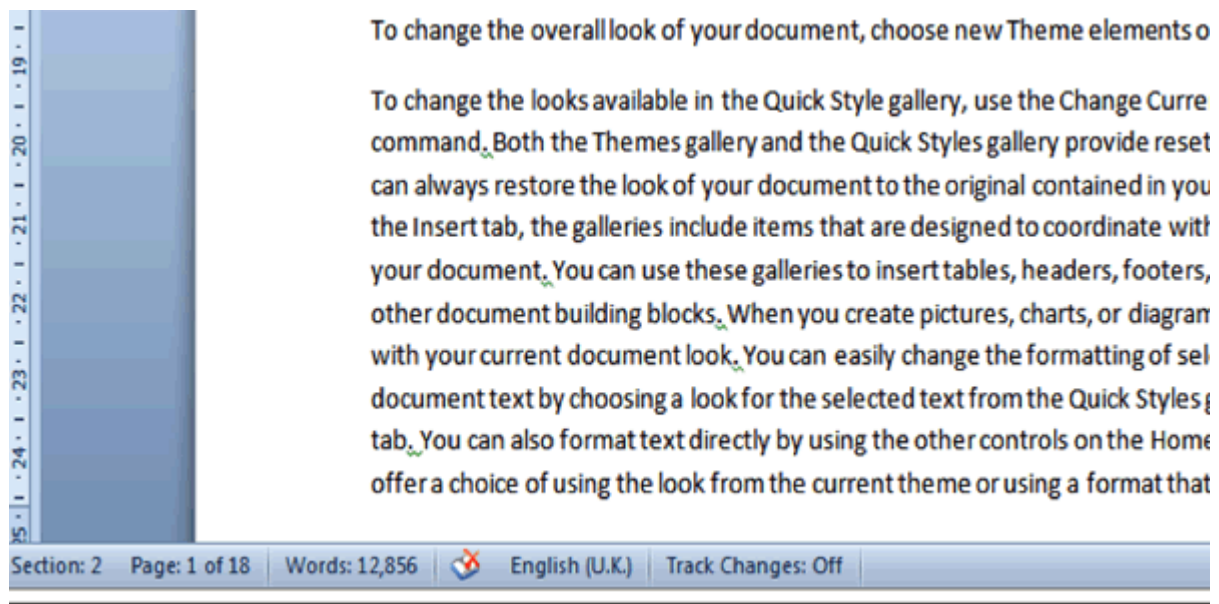
- a. Hold down the Ctrl key whilst pressing the required key.
- b. Hold down the Shift key whilst pressing the required key.
- c. Hold down the key containing the character you require until the correct character appears.
- d. Hold down the Spacebar whilst pressing the required key.

4. Before changing the font type, size and color of specific text, you must first:

- a. Set the font name, size and color in the Font group under the Home tab
- b. Clear all current formatting.
- c. Select the text you wish to apply it to.
- d. Position your cursor at the beginning of the document.

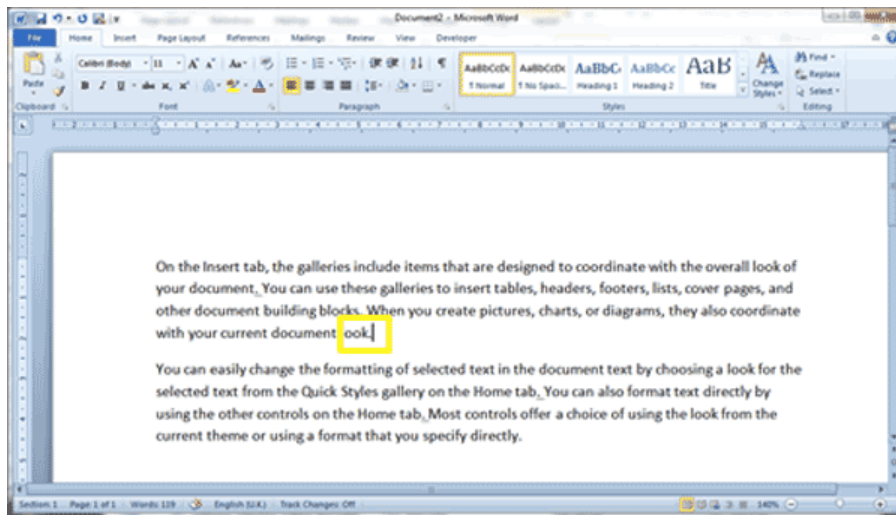
5. Study the image of a Word screen below this question. Which of the following statements is NOT true about the document pictured?

- a. The document contains 12,856 words.
- b. The cursor is currently positioned on page 2 of the document.
- c. There are 18 pages in the document in total.
- d. All of the above are correct.



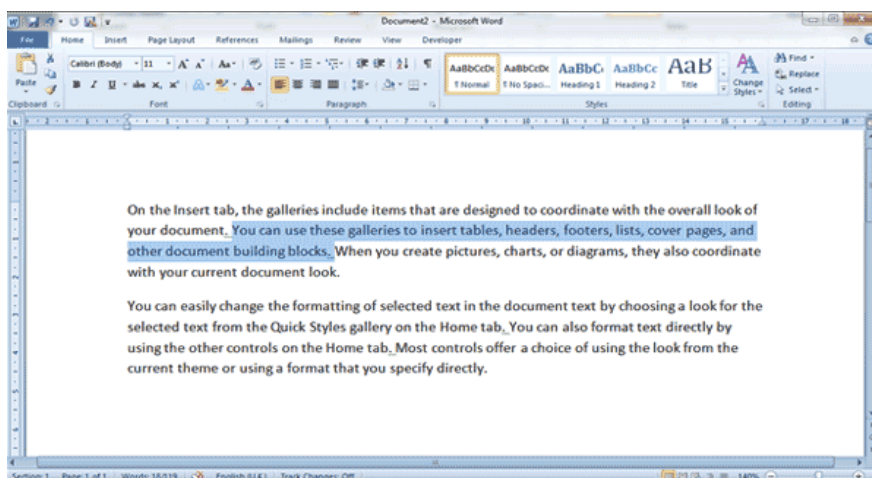
6. Study the screenshot below. The vertical line at the end of the yellow circled word indicates:

- a. The paragraph is selected.
- b. Your position in the document, this is where the next character you type will go.
- c. You are at the end of the paragraph and cannot move the cursor further right.
- d. None of the above options are true.



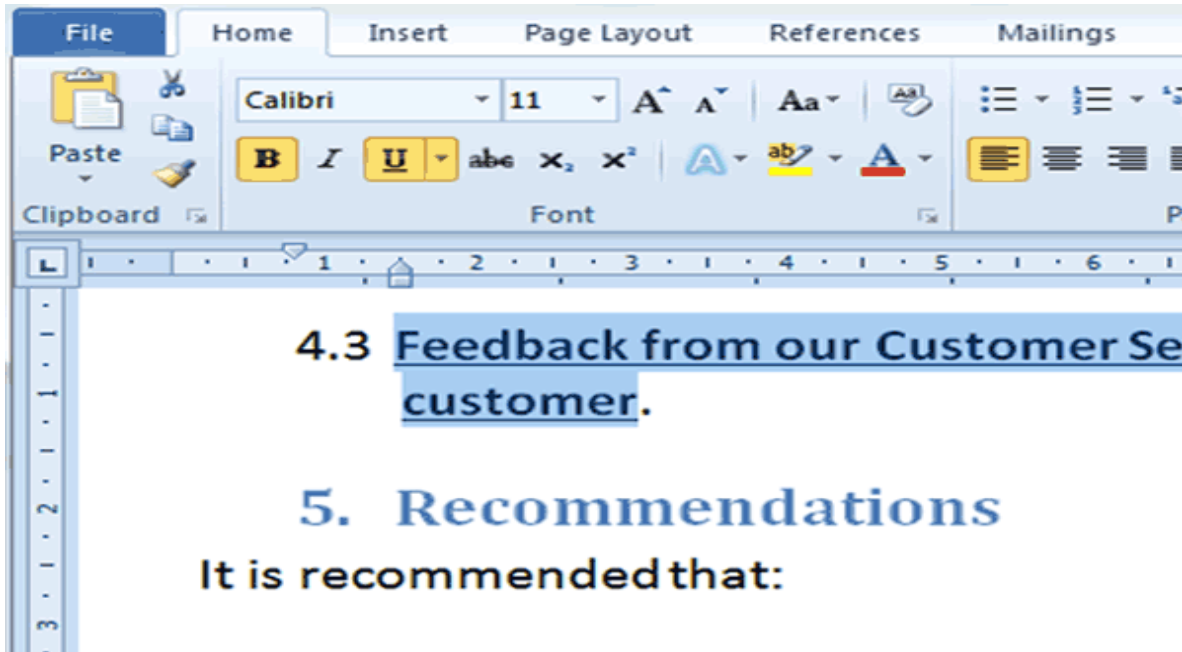
7. Study the selected sentence in the screenshot below. What is the QUICKEST way of selecting a sentence?

- a. Use your mouse to left-click and drag through all the words and characters in a sentence.
- b. Triple click your left mouse button anywhere in the sentence to select the entire sentence.
- c. Hold down the Ctrl key and click once anywhere in the sentence you wish to select.



8. Study the screenshot below. Is it possible to tell which Font effect(s) have been applied to the text?

- a. Yes, bold, underline and italics are applied.
- b. Yes, bold and underline are applied.
- c. Yes, Calibri, 11, bold and underline are applied.



- d. No, it is not possible to tell from the screenshot below.

Total Score: -----/8

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