LEBANESE AMERICAN UNIVERSITY

“Academic Networking: Bridging the Gap between Teachers and Students of the 21st Century”

By

BELAL JAMMAL

A thesis
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I dedicate this research to my family, friends, and wife for their continued love and support.
“Academic Networking: Bridging the Gap between Teachers and Students of the 21st Century”

Belal Jammal

Abstract

This study chooses to take an approach that recognizes that children of the 21st century are exceptionally well advanced in modern day technologies, and possess technological literacy that is superior to that of the majority of adults in our societies. From video games, to software, to communication tools, to social media, chances are that students depend on and interact with these emerging medias much more than their teachers do. The purpose of this study is to shed light on the current gaps between Lebanese teachers and students with respect to educational technology and social media. This study also attempts to measure if training teachers on the development and integration of such innovations actually improves students’ performance. Quantitative methods including a pilot study and an experimental method are used sequentially on a sample of 42 students and 42 teachers to answer the three research questions proposed by this study: 1) What are the differences in literacy rates between Lebanese teachers and students in regards to multimedia production software and social media? 2) Is the integration of educational videos through social media a relevant educational solution? 3) Are learning outcomes improved by integrating educational videos through social media? The experimental research method tested the outcomes of developing and integrating an educational YouTube video as homework versus the standard reading assignment on the subject of cell theory (8th grade biology). The results from the pilot study portray that Lebanese high school students are more advanced in technological literacy and practice in comparison to Lebanese teachers. The experiment results highlight a more consistent and less variable performance by students who were exposed to the social and educational media intervention in comparison to those who received a reading assignment instead. Accordingly a training method and suggestions to improve the quality of the professional development activities at schools were developed and proposed by the researcher in order to provide a more modern, relevant, and creative learning environment.

Keywords: Social Media Integration, Educational Technology Integration, Educational Videos, Multimedia Production, Professional Development, Academic Networking, Educational Video Production Training, Social Educational Media Integration Training
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ACADEMIC NETWORKING
BRIDGING THE GAPS BETWEEN TEACHERS AND STUDENTS OF THE 21ST CENTURY

Belal Jammal

April 2012
Chapter I

Introduction

1.1 - The Evolution of Education

Historically people lived in small communities and villages. Transportation was so demanding that the availability of knowledge was limited to merely the knowledge and experiences accessible in one’s village. If new knowledge was to be acquired, one had to travel great distances, or await a visitor to share some of his/her limited knowledge. Each generation, since the beginning of human existence, has sought to pass on cultural and social values, moralities, traditions, knowledge and skills to the next generation (Kendall, Murray, & Linden, 2004). In pre-literate societies, education was achieved orally and through observation and imitation. The young learned informally from their parents, grand parents, and village leaders. With the development of writing, it became possible for stories, poetry, knowledge, beliefs, and customs to be more accurately recorded and passed on to people of current and future generations (Kendall, Murray, & Linden, 2004). With the development of books, teachings spread across great distances, and in due time education took a shift from personal tutors to educational institutions, and finally to places of higher education.
Today we find ourselves at a new paradigm shift in the realm of information sharing, an era unparalleled to any example in the history of our existence; a shift so powerful, none of us can fully fathom the opportunities it presents. Today we currently live in the “information age”; an age where any required piece of information can be acquired immediately and is only a click away. As educators, we can choose to resist the reality of this age, ignore it and downplay it, or we can attempt to engage with the technology and communication innovations it has facilitated, and develop or learn ways in which to utilize them in an effort to keep education fun, effective, and relevant to younger generations.

**1.1.2 - What makes this study different?**

Most studies related to educational technology focus on the development or integration of technologies to improve the technological literacy of students (Ertmer & Ottenbreit-Leftwich, 2010; Lawless & Pellegrino, 2007). In most cases, schools design technology integration from a perspective which believes that students’ knowledge of technology is inferior to that of their teachers. This study however, chooses to take a significantly different approach on the issue of educational technology. This approach recognizes that children of the 21st century are, in actuality, exceptionally well advanced in modern day technologies, and possess technological literacy that is superior to that of the majority of teachers. From video games, to software, to communication tools, to social media, an increasing amount of research shows that our children depend on and interact with these emerging medias much more than their teachers do (Ertmer & Ottenbreit-Leftwich, Ahn, 2010). Such dependency by our younger generation has made words such as iPod, twitter, Facebook, and mp3 part of our daily household vocabulary.
These technologies are a solid part of our students’ lives. They depend on them for entertainment, friendship, communication, education, and for establishing relevance with their friends and peers. As educators we must recognize that it is not the children of today that need improved technological literacy, but rather we are the ones who continue to lag in this domain. We are the ones resisting these changes, the ones refusing to engage with them, and the ones attempting to ignore them. We, as educators, are often responsible for building a wider gap between the generation we belong to, and the one we are teaching. It is natural, of course, to be afraid of what we do not fully comprehend. We are afraid because we do not understand these technologies. We fear that they prove how old fashioned we are. They remind us of our aging, demanding us to continuously keep up with the latest Internet lingo like “bff” and “lol”. They require us to keep our reading glasses at bay, and to replace personal human interaction with a virtual one. As much as we all share these fears, we have to be realistic with the times we live in. Whether we embrace them or not, studies consistently emphasize the unparalleled growth and popularity of such technologies, and since our youngsters are already spending many of their valuable hours engaging with them everyday, it is only reasonable for us to test the potential positive outcomes that such technologies may present to our educational objectives in order to develop effective methods for their integration. To achieve that, we must first begin by improving the technological literacy of our teachers.

1.1.3 - Background and Significance

Through visual art and media development, the researcher has spent the last 6 years developing, integrating, and utilizing multimedia and social media to reach targeted and general audiences around the world. The researcher has been utilizing popular trends
in social media in order to reach these audiences in what has become one of the most
effective, practical, and best of all, cost effective platforms we have. From his experience,
the researcher has witnessed several examples of teenagers and adults who have
established their desired communication goals through the use of such tools. Likewise the
researcher believes that teachers can be trained to become effective educational media
developers, who utilize social media as an effective tool to reach communication
objectives.

Children of the 21st century are living in an intensely stimulating period and are
being besieged with information from every platform, from computers, from IPhones,
from advertisement hoardings, from hundreds of television channels and hundreds of new
technologies (Robinson, 2010). We must recognize that our children are living in a
different age, one of intense and continuous stimulation, and while we remain fixated on
penalizing them for getting distracted at school, we will continue to oversee that the true
problem lies with the stimulation levels at school and not with the attention span of our
younger generations. Unless schools are able to mirror and integrate teaching
methodologies and activities that compete with the level of stimulation students receive
outside of school, students will continue to get distracted and demotivated. (Robinson,
2010).

1.1.4 - The right technology equals effective integration

Technology integration is the incorporation of technology resources and
technology-based practices into the daily routines in efficient and effective ways to
support school goals and purposes (Lawless & Pellegrino, 2007). However, rather than
learning technologies that are used for one purpose or limited occasions, let us utilize
technologies that both teachers and children can continue to benefit from throughout their
lives. Accordingly, the technologies covered in this study share the same common
foundations; they are all simple, practical, highly effective, and will continue to be used
by millions of people around the world. The selected technologies are simple in that they
are basic software that anyone can learn on their own. They are practical in that all the
software covered in this study are free of charge, and available on every computer,
effective, in that they can develop or aid in achieving structured and noteworthy
educational objectives.

1.1.5 - Social networks can become academic networks

With the ever-growing popularity of social media we do not have to invent or
create educational technologies from scratch. We do not have to pay universities or
software developers large amounts of money to develop specialized technology programs
for our schools. All we have to do is utilize the most popular and practical social media
available. These “fads” are already changing global markets, overthrowing governments,
influencing pop culture, initiating market trends, and changing the way the world
operates. So why not introduce them into our educational reforms programs and test their
effectiveness?

Contrary to popular belief, social networking is not utilized solely for flirting and
the sharing of humorous videos. The evolving world of Internet communication includes
blogs, networking, podcasts, tags, file swapping, and media production. Such tools offer
students radically new ways to research, create, learn and share. Nonetheless, too often,
schools use computers as little more than glorified workbooks. (Lehman, 2008). Research reveals that technology within schools is used to either support traditional teaching methods (teacher-centered classrooms) or to achieve administrative and communicative purposes (Grant, Ross, Wang & Potter, 2005). However, schools are meant to reflect the world we live in today. Currently, we live in a social world, and we need to teach students and more importantly teachers how to be effective collaborators in that world; how to interact with people around them, and how to be engaged, informed twenty-first-century citizens. We need to teach students the powerful ways networking can change the way they look at education, not just their social lives. We don't talk enough about the incredible power of social-networking technology when being used for academic benefit. When it comes to teachers and educational objectives we should modify the terms. We should not call it social networking, we should begin to call it “academic networking” (Lehman, 2008).

Many opportunities are presented by academic networking: A teacher can set up accounts at social networks, such as Facebook, Twitter, YouTube, and a blog, all of which, can be related and integrated with extreme efficiency. These channels allow us to store, organize, and share information with subscribers and friends. In other words they facilitate ways for our students to subscribe to our accounts and remain up to date with what we are sharing in regards to assignments, presentations, multimedia productions, reminders, readings, interesting links and so on. It is simple; any teacher with a computer and an Internet connection can use it. However there are some pioneering benefits that can change the way we view such integration.
Let us say a teacher is forced to be absent for a specific time due to a funeral, illness, or other unexpected circumstances: in the world of social networks such circumstances are easily manageable. The teacher can record a podcast (an online audio recording), from anywhere in the world, which includes the lessons or lectures required for that period, and upload them onto the Internet. He/she can then share the link of these podcasts on his/her twitter account, where all subscribers or “following” students get an automatic update of the link shared on all their personal pages, allowing them to access these podcasts anytime and anywhere they please. In another example, a teacher can watch an interesting science video on Discovery Channel’s YouTube page. The teacher can then “favorite” that video on her YouTube account, and click “share”, which automatically shares that video with all her friends and subscribers; in this case, her students. Instead of long reading assignments or boring homework, teachers can assign relevant videos from the Internet as homework. Assignments can also involve social networking for educational or social benefits amongst students from the same neighborhood, or community. Teachers can also benefit from these networks by using their channels to subscribe to other educators around the world, to learn and be inspired by what other innovators are doing. Soon enough, teacher channels become rich and diverse libraries of relative and innovative educational media. Principals can also join in by opening channels, and collectively teachers and principals can follow, plan, coordinate, and oversee the online achievements of such integration. Through such a process academic networking begins to come to life.

On a more advanced level, teachers can learn basic multimedia software, which allow them, with remarkable ease and practicality, to create and edit structured videos
aimed at meeting the specific learning outcomes of each course. Once comprehended, we can begin to see the vast amount of opportunities that are at the forefront of our keyboard and mouse, and it is our choice to either be an innovator in this domain, or a stagnant follower. Almost immediately, we can build a virtual school online, that systematically follows the goals, procedures, and curricular objectives that our real school requires in the real world, and this is revolutionary. Why should we focus on teachers? Well, since integrating computer technology requires a change in teaching methods, teachers play a central role in such a transition. Schools, administrators, and professional development teams need to continuously stress and understand the role of teachers as facilitators of the learning process, and if the way we learn and receive information in today’s world has changed, then so too should the facilitators of the learning process. The International Society for Technology in Education [ISTE] (as cited in Franklin, 2007) states that teachers should not only demonstrate proficient use of technology but also develop “developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners” (p.12).

1.1.6 - A professional development solution

If teachers perceive computer technology as a useful tool that will inspire and help them communicate their message effectively, they are more likely to value it and use it. However, if teachers continue to credit technology as a replacement to their traditional roles as well as being a catalyst for unwanted or uncontrollable change, they will be reluctant to embrace such technologies (Cuban, 2001). Moreover, confidence is highly related to technology use (Franklin & Molebash, 2007). In fact, once teachers are confident in their abilities with technology, they will feel comfortable about the use of
technology. Hence the need for training and practice with technology should become a solid part of teachers’ professional development in order to boost their comfort, familiarity, and consequently their confidence with technology. Relevant research has also declared that technology training received by teachers is significantly related to improving their ability to integrate technology in their teaching practices (Kumar, Rose, Lawrence, D’Silva, 2008; Schlitz, O’Connor, Pang, Stryker, Markell, Krupp, Byers, Jones & Redern, 2009; Franklin & Molebash, 2007; Peterson & Bond, Keller, Hixon, Bonk, & Ehman, 2004). In other words, any plans of integrating technology will always be faced with difficulties and struggles unless we train and improve our teachers’ technology literacy first.

Based on the above, the researcher chose to focus this study on multi-media training and social media integration for educational objectives. The researcher chose to incorporate a multi-media training unit that was developed by Apple to train users on the creation and development of educational media using the industry standard IMovie software. Teachers can then focus on creating social media pages for the purpose of uploading the educational material they have developed. Following the creation and integration of their content, teachers can begin to share this media effectively with their students and peers.

The researcher believes that through such a training process we can effectively improve the technological knowledge, interest, and literacy of teachers, in order to become up to date with our students’ generation and standards. The researcher also believes that through academic networking we can inspire teachers and students to realize that one can become an educational online citizen. By developing a study that covers
video production software and social networking for the purpose of improving educational goals, the researcher aims to present significant insight into the infinite opportunities that such simple integration can provide, and build a groundwork of educational technology integration for any interested reader or educator of the present and the future. It is simple, all we have to do is create, integrate, and educate.

1.2 - Purpose And Rationale:

Through the incorporation of a pilot study, this research sheds light on the current gaps between Lebanese teachers and students in respect to multimedia technology and social media. To bridge these gaps, this study aims to empower teachers by highlighting the importance of training and professional development for the purpose of online academic networking. “iMovie” and social media integration are implemented to facilitate academic networking for the purpose of meeting educational objectives. The effectiveness of academic networking is finally measured through the use of a posttest-only non-randomized experiment.

The findings of the proposed research will provide feedback that enables administrators, professional development teams, and teachers to reflect and benefit from the proposed technology integration solutions, as well as understand the justification and relevance of emerging technologies such as the Internet and social media.

1.3 - Research Questions:

1) What are the differences in literacy rates between Lebanese teachers and students in regards to multimedia production software and social media?
2) Is the integration of educational videos through social media a relevant educational solution?

3) Are learning outcomes improved by integrating educational videos through social media?

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1.4 - Industry Standard Software:

What is meant by industry standard? An industry standard is a list of established norms or requirements about current day systems. Such norms establish uniform engineering or technical criteria, methods, processes and practices. Software that have established themselves as industry standards, are software that will not be changed or discontinued, rather they will only be upgraded with time. Meaning that when we learn the basics, we can always apply our existing knowledge to the upgrades with ease, rather than continuously having to learn new software. This is an important point to note. Examples of industry standard software include Microsoft Word, PowerPoint, and Photoshop.

To further explain industry standard software, let us take Microsoft Word as an example. Word is an industry standard text writing and editing software, where the majority of computer users, use Microsoft Word as the globally accepted text software. Just like Microsoft Word, the software incorporated in this study presents the same relevance, and has achieved global industry standards through Apple operating systems. In today’s world, technological integration has become vital, and regardless of one’s chosen field, a motivation to acquire such skills can help in reaching our professional goals in an ever-advancing technological age (Boyd, 2008). The selected software will present teachers with alternative ways to entertain and educate, but most importantly, teachers can utilize these software for several years to come.
1.5 - Hypothesis:

Improving the technological literacy of educators will lead to improvement in educational technology integration as well as students’ learning outcomes.

1.6 - Summary

The following sections of the study are divided into four chapters. Chapter two includes a literature review that covers issues in emerging technologies, professional development, educational media, social networking, and empowerment. Chapter three presents the research design including the methodology employed in this research, the participants in this study, the instruments used to collect data, and the methods that were used to analyze the collected data. After that, chapter four presents results of data collected from the 3 different instruments (survey questionnaires, training and academic networking observations, and an experiment), which are triangulated and presented as findings. Finally chapter five presents a reflection and comparison between the obtained information and the reviewed literature, and a general conclusion is offered where recommendations, limitations of the study, and suggestions are discussed.
Chapter II

Literature Review

2.1 - The Benefits of Educational Media Integration

When we look towards media or the Internet it is vital for us to understand that anyone who tries to make a distinction between education and entertainment does not know the first thing about either (McLuhan, 1964). Today emerging media are changing the ways we operate and acquire information, and they can most definitely change the way we teach and learn. With infinite ways to enhance and upgrade the learning experience, and endless opportunities to make learning fun and relevant to the generations we are teaching, social media is proving to be an effective and flexible tool that adds value to all subjects and all genres.

As social media has become a trendy phenomenon, it presents several interesting ways in which the Internet and software utilization can be employed to establish relevance and effective educational objectives with today’s youth. The students we teach today are products of a very different environment, one in which the ability to stay connected with the others is constant, and communication takes many forms. For example, writing for adolescents who live in an age of digital communication, has taken on a new importance and plays a prominent role in the way they socialize, share information, and structure their communication (Sweeny, 2010). Students’ use of technology has introduced new ways of integrating the Internet and writing instruction. Authors like Sweeny explain how these new trends in communication should influence classroom activities and assignments. Instead of requiring all students to write a five-
paragraph persuasive essay for example, teachers can assign a written piece meant to persuade, but the piece may include video images, music, and the student narrating a persuasive rap (Sweeny, 2010). This type of innovative upgrades allows students to engage with the assignment as well as employ creativity when creating such products. How will students be able to develop this? Their computers come equipped with the latest audio and production software, however their teachers remain captivated by PowerPoint.

Research conducted by Hull and Storaiulu (2010) stir up several significant arguments and criticisms regarding the utilization or lack thereof of technologies in schools today. Gaps, disconnects, and contradictions, largely characterize the relationship between technology, schools, teachers, and students. This is due to our schools remaining organized for the most part by tools, relationships, and participant’s structures that belong to a previous age, and these structures remain very to impermeable to change (Hull, Storaiulu, 2010). On the one hand, social media has taken the digital world by storm, surpassing everyone’s imagination in terms of the rate of popularity, and viral speed, especially by young people and especially out of school. On the other side, schooling has not kept time, being generally skeptical of the educational value of social media and especially alert to the risks of social networks and media sharing (Lemke, Coughlin, Garcia, Reifsneider, & Bass 2009).

When a learning environment chooses to become progressive, innovation customized towards students’ needs becomes a necessary tool that should reflect the times we live in, and should be enriched with stimulation and innovative fun, rather than a fixation on traditional learning.
Drawing on data from a multi-year digital storytelling project, the comparative case study titled *Crafting an Agentive Self: Case Studies of Digital Storytelling* (Hull & Katz, 2006), offers portraits of two emerging authors, one a child, and the other a young adult. This insightful study highlights the interactive process of multimedia development and the effects it has on an educational environment. The case involves 2 candidates who were assigned to use multimedia to articulate vital moments in their lives and reflect on life trajectories. A lot of creativity was involved, deeper meanings were communicated, and personalized and empowered learning was established. With such examples the class did not only benefit from their lesson on storytelling, but each participant gains an interactive formula of communication and greater awareness of themselves and their peers, in a fashion that reflects the world we live in. These cases demonstrate how digital storytelling for example, in combination with supportive social relationships and opportunities for participation in a community based organization, provided powerful means and motivation for forming and giving voice to “agentive” selves (Hull & Katz, 2006).

Ertmer and Ottenbreit-Leftwich (2010) stated that the aim of purposeful technology integration is to facilitate enriching learning experiences by enabling students to develop deep and connected knowledge that can be useful in real life situations. Unfortunately, teachers remain using Power Point presentations or some search engines to support teacher-centered instruction rather than to help students construct their own learning. The use of technology in classrooms needs to exceed traditional instruction and target meaningful learning. Integration is not achieved by increasing the number of computers available in the classroom or by buying the newest software, but rather it is
determined by its contribution to the teaching and learning process. (Wachira & Keengwe, 2011; Ertmer & Ottenbreit-Leftwich, 2010).

By understanding the significance and effectiveness of social media, we can begin to understand and develop ways to integrate them into our educational organizations while controlling the risks. The more we engage and gain experience with social networking, the clearer the answers to how, why, where, and what if become. Related studies noted the presence of a positive correlation between teachers’ personal use of technology as a cognitive and communicative tool and their willingness and ability to integrate computer technology and learn ways in which to improve its integration and use within their teaching practices (Wozney, Venkatesh, & Abrami, 2006; Wachira & Keengwe, 2011; Fer, 2004; Guha, 2003). So the more they engage with emerging technologies the more familiar and willing they become to utilize, improve, and avoid possible negative outcomes. If teachers and schools remain dominated by fears and hesitation, they will continue to lag in this domain, while their students remain on the cutting edge, embracing every new technology and social networking trend. (Kumar et al., 2008; Schlitz et al., 2009; Franklin & Molebash, 2007; Peterson & Bond, 2004). It is unfair to our teachers and students that we simply acknowledge this gap, but do not start acting to eliminate it. Students no longer view teachers as their only source of knowledge on the subjects being taught; instead the Internet presents them with infinite links and various other teachers that are just a click away. So this is a huge responsibility that the teachers and educational organizations need to understand and tackle to secure more effective educational and curricular outcomes.
In his book *Understanding Media*, Marshall McLuhan coined the term “The Medium is The Message”, where he argues that a message is, the change of scale or pace or pattern that a new invention or innovation introduces into human affairs (*McLuhan, 1964*). He emphasizes that it is not the content or use of the innovation, but the change in inter-personal dynamics that the innovation brings with it. Why is this understanding of "the medium is the message" particularly useful? Well when we start noticing change in our societal or cultural ground conditions, this usually indicates the presence of a new message, that is, the effects of a new medium. With this early warning, we can set out to characterize and identify the new medium before it becomes obvious to everyone, a process that often takes years or even decades. With the emergence of social media today, one must recognize the fascinating speed and popularity that this communication tool has enjoyed, and attempt to understand how this medium affects our inter-personal dynamics, and why it is as popular as it is. Many other industries are taking note of these trends, and many have taken decisive steps in reshaping their traditional models in order to keep with the times. However, such efforts are not as easily recognizable if we examine the educational industry.

Social media has become a phenomenon that is not and will not wait for teachers or educational organizations to catch up with. Social media has established itself as a worthy innovation, and a new social and cultural dynamic that is here to stay. We are past the “let’s wait and see how far it will go” phase. Today social media integration is at a level where teachers can choose to be innovators or lagers. Currently, professional organizations from other industries in the Middle East are listing social media experience as a preferred quality in the applicants they seek. Subsequently the question we should
ask is; when social media experience becomes a requirement in other industries, where will the education industry’s experience with social media be?

2.2 - Empowerment through professional development

As McLuhan reminds us, control over change would seem to consist in moving not with it but ahead of it. Anticipation gives the power to deflect and control force (McLuhan, 1964). Not only should such anticipation and training be available at professional development within schools, but they should also be prevalent throughout university studies. The correlation between teachers’ computer self-efficacy and academic achievement was investigated by several researchers in the field who argued that education students’ exposure to technology throughout their university studies and pre-service trainings positively affected their computer and technology self efficacy (Koh & Frick, 2009; Baker & Christies 2005, Davis & Roblyer, 2005; Rice, Cullen & Davis, 2011; Milman & Molebash, 2008). If schools and universities begin training their teachers on the integration of relevant technology such as social media, rather than irrelevant technology, schools will be investing in the empowerment of teachers and students. Schools will empower their teachers by teaching them new skills that allow them to adapt to emerging trends. Students will also become empowered by such a formula because their teachers will be reaching them through “their language”, and not the other way around, whilst empowering them through the use of innovative and personal learning methods. It can become a win-win formula, and several studies provide significant evidence to justify this focus (Ertmer & Ottenbreit-Leftwich, Ahn, 2010).
Efforts and strategies aimed at the incorporation of relevant technologies that both students and teachers will continue to use outside of school, will ultimately work towards building both student and teacher empowerment. The effectiveness of such empowerment will be based on the assumption that teacher empowerment such as participation in school decision-making can enhance teachers’ commitment, expertise, and, ultimately student achievement (Marks & Louis, 1997). By understanding how teacher empowerment can affect educational outcomes, we can design effective technology training methods that aim to add to or build teacher empowerment.

On the other hand studies by Houserand and Frymier (2009) provide key insight into uncovering that empowered students are more motivated to perform classroom tasks, as they feel more competent in the classroom, and they find the required tasks more meaningful. By allowing students to feel that they have an impact on their learning process, they will develop a more connected and motivated will to learn which assists students in discovering the relevance of the subjects and learning tasks they have to undertake. Nonetheless an argument on where to focus persists. Should empowerment, or technology reforms focus on the teacher or the students, or both? Lawless and Pellegrino (2007) commented that professional development is essential to ensure that teachers keep up with changes in student performance standards, learn and acquire new methods of teaching, discover ways to make an effective use of new technologies for teaching and learning, and adapt their teaching to the changing school environments and the diversity of their students.
2.3 - Safety Concerns

When we discuss the Internet, many teachers and parents worry about safety issues regarding what their students and children may be exposed to. Teachers’ beliefs are not expected to change abruptly but this process should rather occur steadily and in a timely manner. According to Lawless and Pellegrino (2007), change is a multidimensional variable, which includes both cognitive and affective components. Teachers and schools should be convinced to view computers as inspirational and instructional tools rather than imposed new technological trends, or unsafe and uncontrollable ventures.

A study by Andre Blau (1993) titled *K-12 Access to Internet: Securing the Legal Framework*, discusses legal issues that may arise as schools begin to provide Internet access to K-12 students. Although this article is almost 2 decades old, it continues to highlight how little has been done regarding Internet security and schools utilization of the Internet since then. It also highlights how we as educators have been paralyzed by the same fears during all this time. A common concern is that students may be exposed to material that parents or teachers find inappropriate. In other electronic media such as broadcast TV, cable TV, and radio, legal restrictions have been placed to protect children from harmful, indecent, or inappropriate material. such laws are not as efficiently enforced on the internet. Censorship and protection are more challenging, however this is not stopping the youth from participating on the Internet, and it should not stop educators from developing and discovering solutions. Other concerns are issues such as minors and indecencies, as well as career liability for teachers or school staff in regards to Internet activity. Although each concern is legitimate, very little has been done in regards to
solutions, instead adults have chosen to refrain from such integration, and such integration will never come into fruition unless solution based initiatives are commenced.

It is difficult to control traffic of information on the Internet, and there are no easy answers, however all participants understand the desire of a system of clear guidance and answer. Educators and public interest groups should develop workable models, and utilize trail/error methods, and review models annually or bi-annually. Through experience, improvements are established, but stopping due to fears and concerns will not achieve much. Today the majority of our youth is on the Internet and have become active sharing and receiving online citizens. However we, the educators, continue to lag behind, powered by our fears and our lack of control. No substantial gains have been made, but nothing limits any school of developing great formulas. Positive practice will influence positivity and a healthy online community. Sure we will have our troublemakers from time to time, and this is expected, but we can learn from their practices and develop new criteria and online management methods.

2.4 - Social Networking Benefits for Teachers and Parents:

Another benefit of academic networking is that it also allows educators to get inspired and learn from other innovative educators across the globe. Such examples arise the Science Leadership Academy. Upon introducing networking tools such as messaging, file swapping, idea sharing, and blogging, the S.L.A ventured on a new vision for their academy’s future. With the introduction of such tools, weeks before the first day of school, the incoming students jumped onboard. Students utilized their school’s web sites to meet and talk with their teachers, as well as share their hopes and ambitions in regards
to their education. So began a conversation that still persists in SLA chat rooms and cyberspace, a conversation that customized education towards the needs of the students. It's a bold experiment to redefine learning spaces, the roles and relationships of teachers and students, and the mission of the modern high school. By being connected to the internet, such examples and several others can inspire teachers and schools in different cities and countries to follow suite. Even better, inspired teachers can customize communication methods designed for their schools’ or students’ specific needs. If our job is to create twenty-first-century citizens, we should be reinventing schools to help kids be adaptable in a world that is changing at a blinding rate (Lehmann, 2010).

Another interesting side to social networking is the involvement of parents. Education doesn’t stop at school, but a lot of what we do and learn at home effects our overall development and achievement. Walker and Riley (2001) began their research on parents and social networking, and uncovered results showing that discussing and sharing newsletters through social networks was associated with greater self-reported change. Individual use of newsletters and sharing of the content had effects on parenting, parental involvement and motivation (Walker & Riley, 2001). On this side of the spectrum we can understand that social networking doesn’t only present benefits within the school, and should not be strictly related to teacher-student interaction, it can also build a stronger and maybe more practical bond between school, teacher, student, and parents.

Using technology to simply do the same things that we have always done is no longer enough. Boring software that does what we already do by hand or in person or in teams is not the type of technology we should be looking towards. Instead we must utilize technology that changes the way we operate, learn and teach. Education is based upon
relationships. While people often look at social media as just “technology”, we have to see how proper use can help really bring our world together. If we are proactive in the way we work with kids using social media, there is no limit to what we can do (Couros, 2011).
3.1 - Research Design Overview

This chapter presents the research design, sample instruments and data analysis guided by the study’s purpose. Throughout this chapter a referral to some leaders in educational research Lawless and Pellegrino, (2007); Rosaen, Hobson and Kahn, (2003); Keller, Hixon, Bonk and Ehman, (2004); Keengwe, Kidd and Kyei-Blankson (2009); and Dimitrov and Rumrill (2003), is used to justify and explain the use of specific methods.

3.1.1 - Experimental Method

The selected experimental method was the Nonrandomized control group posttest experiment design, which was conducted to measure the effectiveness of teacher academic networking on student performance. This design was planned in accordance to Dimitrov and Rumrill (2003), and involved two sections of an 8th grade biology class, which made up the control and treatment group. The main significance of this post-test design is that participants are not randomly assigned to groups; instead this design deals with intact groups/sections and thus does not disrupt the existing research setting. This reduces the reactive effects of the experimental procedure and, therefore, improves the external validity of the design. The experimental learning condition was defined as social and educational media integration (SEMI) and the control condition was traditional problem based learning (TPBL). The results for dependent variables are reported as learning outcomes, (measured by performance on course examination). This experimental study included 1 high school biology teacher and 42 students enrolled in two biology
sections from a private international school in Beirut. These students made up the control
group (TPBL) and “video” group (SEMI).

3.1.2 - Pilot Study

The Ask Same Questions “ASQ” closed-ended survey questionnaires were
utilized to understand the gaps between Lebanese teachers and students in regards to
multi-media software and social media. This part of the research was designed in
accordance with Harkness (2008) as a fixed design strategy where data was recorded in
the form of numbers and percentages. Firstly the questionnaires focused on the key
components that evaluate the differences in behavior patterns and literacy rates between
students and teachers, in hopes of understanding if these differences reflected the
conclusions provided in the literature. Secondly the pilot study assisted in the design of
the experiment by ensuring that the experiment was planned to measure what it was
supposed to measure. Several resources such as Lawless and Pellegrino, (2007); Rosaen,
et al. (2003); Keller et al., (2004); Keengwe et al., (2009) were used to construct the 12
items included in the questionnaire, and contributors to the pilot study included 84
participants. Furthermore, results from these questionnaires were for triangulation.

3.1.3 Sample

The experimental study included 1 high school biology teacher along with 42 8th
grade biology students enrolled in a private international school in Beirut. These students
made up the “control” group and “video” group.
The sample of the pilot study included 42 teachers and 42 high school students enrolled in private schools located in Beirut, Lebanon. The participants constitute a purposive sample chosen to reflect the sample of the experiment. 42 female Lebanese teachers ranging from different teaching levels and backgrounds received close-ended questionnaires. This sample included 24 elementary teachers, 10 middle school/high school teachers, and 8 undergraduate education majors at a private university in Beirut. The 42 students were selected from a private international high school in Beirut.

3.2 - Reliability and Validity of the Pilot Study

According to Mitchell and Jolley (2010), reliability of an instrument expresses the repeatability and regularity of the answers collected using this instrument. On the other hand, validity is regarded as a test to check if the instrument is measuring what it is supposed to measure. Consequently, the researcher, after consultation with experts and knowledgeable professionals, selected and designed his research methods. The issue of reliability was observed throughout the study from the initial planning stage till data analysis. Firstly, through the use of a focus group, the validity and reliability of the pilot study questionnaires were tested. The researcher was then able to examine if the results to the questionnaires reflected those presented by the experimental sample, and he was also able to measure if these results mirrored the research and conclusions provided in the literature. Through the use of a focus group from a university in Beirut, Lebanon, the questionnaire items were carefully reviewed to make sure they were clear, free from any possible contradictory interpretations, and aligned with the rationale and purpose of the study. This increased the reliability and validity of the pilot study. Questions followed the
multiple choice design with the majority of the questions designed to be answered either yes or no, and the remaining questions involved closed ended checklist designs. The participants who contributed in the pilot process had the same characteristics as the experiment sample. Collectively such a design made sure that questions and analysis would be as close ended, valid, and reliable as possible, and results provided the researcher with constructive feedback and statistics that improved his experimental design.

3.3 - Internal and External Validity of the Experiment:

The Nonrandomized control group posttest experiment was selected due to its strength against selection-instrumentation because it doesn't use repeated measurement. When it comes to experimental design the randomized group post-test only and the non-randomized control group posttest design are, despite their simple structure, some of the best research designs for assessing cause-effect relationships (Dimitrov & Rumrill, 2003). This design has practical advantages because it deals with intact groups and thus does not disrupt the existing research setting. This reduces the reactive effects of the experimental procedure and, therefore, improves the external validity of the design (Dimitrov & Rumrill, 2003). Indeed, conducting a legitimate experiment without the participants being aware of it is possible with intact groups, but not with random assignment of subjects to groups, and since the experiment would involve social networking, it was crucial that this design be selected over the randomized control group posttest. However, this design is more sensitive to internal validity problems due to interaction between such factors as selection and maturation, selection and history, and selection and pretesting (Dimitrov &
Rumrill, 2003). The main issue with this approach is that, even if there are posttest differences between groups, those differences may be attributable to characteristic differences between groups rather than to the intervention. Random assignment to groups, on the other hand, equalizes groups on existing characteristics and, thereby, isolates the effects of the intervention (Dimitrov & Rumrill, 2003).

**3.3.1 - Justification for this design selection**

This design was selected over random assignment because if we were to separate students into randomized groups, this would require students from the same sections to be part of different groups, and this would increase their awareness of the experimental procedure and possibly lead students from the control group to visit and watch the created YouTube video out of curiosity, which would invite unwanted variables into the experiment. However since the nonrandomized selection dealt with intact groups, it did not disrupt the existing research setting and hence prevented awareness of the YouTube video to travel across groups.

**3.4 - Triangulation**

A methodological triangulation was utilized in order to endorse the incorporation of 3 methods of data collection. This triangulation process was used to analyze results from the pilot study, the experiment, and the recorded observations that took place during teacher training sessions, and students’ interaction with the uploaded educational material. Triangulation was specifically selected to increase the credibility and validity of the results, to discourage any discrepancies in the results, and to help validate claims.
introduced by the hypothesis (Denzin, 2006). Triangulation requires multiple sources of
data, and since this study utilized three instruments (questionnaires, observations, and an
experiment), the results were correlated to show a relationship to the hypothesis, thus
justifying the initial claims made by the pilot study.

3.5 - Procedure

Step 1:

The first process of data collection involved closed ended questionnaires from the
pilot study that were designed to measure research question 1. This data collection
involved close-ended questionnaires for teachers and students that were shared with a
sample of 42 teachers and 42 high school students. Questions followed a multiple choice
format and were designed to measure teacher and student technology literacy, specifically
in regards to social media and multimedia production software that are used to create
material for social media outlets. (See Appendix I)

It was predicted that this step would highlight significant gaps between students
and teachers in regards to Internet and technology literacy, and consequently reflect the
conclusions provided in the literature. It was also predicted that this step would
emphasize a significant point highlighted within this study, being that the majority of
Lebanese teachers do not reflect their academic roles online.

Step 2:

Step 2 implemented the “IMovie” training kit (see Appendix III). This training kit
was developed by Apple to train users on the creation and editing of videos. The
researcher incorporated this training unit for the purpose of adhering to the needs highlighted by questionnaire results, as well as the concerns of professional development raised by studies such as Wozney et al., (2006); Wachira and Keengwe, (2011); Fer (2004); and Guha (2003). As previously explained this training aided in the development and uploading of educational multimedia onto the Internet. The selected teacher spent a total of 2 hours of training and about 3 hours of multimedia development to create and integrate her video. Observations were recorded during this period for the purpose of triangulation with the other data.

Step 3:

The Experiment:

A teacher was selected from the private international school in Beirut to participate in this research. This teacher taught 2 different sections of the same 8th grade biology course, and the researcher decided to test the links between social media integration and student performance through an experimental method. The aim of the experiment was to assign the same lesson to both sections, with one section, being the control group, receiving the lesson as a reading assignment, while the other section, being the “video” group, receiving an educational video presentation on YouTube. Both sections then received the same exam, which measures the same desired learning outcomes in accordance to the teacher’s lesson plan.

The researcher had to start off by training the teacher to develop her own science video through the “IMovie” training (see appendix). Upon completing the required training sessions, the teacher independently developed and edited her own educational video which covered the lesson of “cell theory”. Once her video was completed the
teacher opened a YouTube channel and uploaded her video. On the day of the assignment, one biology section (TPBL - control group) was assigned the regular reading handout on cell theory, which was the same handout usually shared for this lesson each year. The other section (SEMI-video group) received the teacher’s YouTube channel address. For their assignment, students from the “video group” had to watch a YouTube video developed by their teacher covering the same lesson on cell theory. Both class sections were notified that they would be quizzed on this assignment, and on Friday Oct. 21, 2011, an identical exam was handed out to both sections, with questions measuring the desired learning outcomes stated on the teacher’s lesson plans. The researcher and the teacher designed the multiple-choice exam in accordance to Robson (2002) and Harkness (2008) as a fixed design strategy where data was recorded in the form of numbers (See Appendix II). The results are shared in the next chapter.

3.6 - Data Analysis

Statistical analysis was conducted using the Microsoft excel software (Version 14). All of the variables of interest were measured and converted into percentages. Variables from the questionnaires were analyzed through comparative analysis using frequencies and percentages that were generated and examined through Microsoft Excel. These percentages were then displayed through the use of pie graphs, bar graphs, and scatter variability graphs. For the experiment results, performance was analyzed through statistical calculations of standard deviation, mean, mode, and median, and evaluated through t-tests. These results are also displayed through bar graphs.

3.7 - Ethics
A description of the study, its aim, importance of the topic researched, confidentiality of the results, and volunteer participation, were explained to participants before taking their consent to participate in the study. The privacy of the participants and schools was also emphasized in the cover letters electronically mailed which ensured the confidentiality of the data gathered. Furthermore the name of the school and university were replaced by the general characteristics of the school and university.

Upon presenting a discussion on the various methodologies used to gather the data needed to answer the research questions developed at the beginning of this study, the need to transition to the next chapter arises. In the subsequent chapter, a statistical analysis of the results gathered from the pilot study, observations, and experiment are presented. The results collected from the different instruments are assembled under the three research questions, “what are the differences in literacy rates between Lebanese teachers and students in regards to multimedia production software and social media? Is the integration of educational videos through social media a relevant educational solution? Are learning outcomes improved by integrating educational videos through social media?”
CHAPTER IV

Results and Evaluation

4.1 - Overview

This chapter presents the data collected from the pilot study questionnaires, the social media interaction observations, and the experimental examination, as well as data analysis results that are used to address the research questions. Questionnaires (Appendix I) were distributed to 42 teachers and 42 high school students to shed light on the different practices and literacies regarding social and multimedia. Results from these questionnaires along with the results and recommendations discussed in the literature assisted the researcher in implementing a training, which involved the creation of the “intervention” (social media integration). This training was implemented on a high school biology teacher and the outcomes of this integration were tested on 42 high school biology students. Data was collected and analyzed from 1) the questionnaires, 2) the teacher training and students’ online interaction with the uploaded educational material, and 3) students’ performance on an experiment in class examination. The 42 students made up the “control group” (TPBL traditional problem based learning), and the “video group” (SEMI social educational media integration).

The use of three different methods to collect information aimed to triangulate the data and check for accuracy. Results of data analysis for each instrument were used to address each research question.
4.2 – Data Analysis

The questionnaire results from the pilot study allowed the researcher to realize a much wider spectrum of social media being utilized by students in comparison to teachers in Lebanon. This correlated with the research presented in the literature. Results also emphasized that students are much more engaged in multi-media software in comparison to their teachers. Such results emphasize the need for professional development of teachers specifically on different social media trends. Results also emphasized that Lebanese teachers require specific focused training on how and why social media can be utilized for educational purposes (figures 1 through 8). As previously mentioned in this research, Facebook is not the ideal medium for educational integration, and when the majority of teachers only engage with social media via Facebook, this should be a clear indicator for professional development needs in regards to social media and media communication. This will be further explained throughout this study. Results from the pilot study are presented below.

4.3 – Pilot Study Results

1) What are the differences in literacy rates between Lebanese teachers and students in regards to multi media production software and social media?
The majority of students utilize Facebook, twitter, and YouTube, while the majority of teachers only utilize Facebook.

(Fig. 1) (Sample 42 of each group: Teachers in blue, students in green)

(Fig. 2) Production software comparison between students and teachers

(Sample 42 of each group)

The results to the teacher questionnaires provided significant justification for the researcher’s specified direction and focus on teachers needs regarding social and
multimedia training and development. The questionnaires also offered statistics that answer research questions 1 and 2. The significance of social media is also highlighted since 96% of all teachers questioned were aware of this unprecedented communication trend. Since awareness is so high, the researcher’s focus on this technology is vindicated. Nonetheless when research proves that the majority of teachers are only members of Facebook and not other media outlets, one can deduce that those teachers are “socializers” on the online world, and have not yet taken advantage of online privileges to become “educators” online. Although we can teach and share educational media through Facebook, Facebook remains a private socializing site, and one that the researcher deems inappropriate for educational communication. The researcher believes this because teachers who have a Facebook account will not feel comfortable in adding strangers or even students to their accounts for the purpose of education. This lack of comfort is based on a sense of loss of privacy, and a preference to keep personal lifestyles and information private. With the exception of anonymous Facebook pages set up by teachers specifically for education, which was not observed or recorded, the researcher believes that valuable online education takes places on different and more anonymous media outlets such as blogs, YouTube, forums, and twitter. Such outlets allow teachers to educate private and public audiences without having to compromise personal information.

Figures 3 through 8 further highlight this point by comparing the differences in online activities between teachers and students.
(Figure 3) Students

(Figure 4) Teachers
(Fig 5) Daily hours spent on Internet by students;

(Fig 6) Frequency of sharing material on social media by Students
These results highlighted a need for training and professional development, aimed at improving teachers’ understanding of how social media can be utilized for education. This need is highlighted because although teachers are aware of social media, and 88% of...
them experience it through Facebook, only 3 out of 42 have shared educational media online, and only 1 teacher has created educational media for the Internet. In other words out of the 38 teachers who utilize social media to socialize and network, only 3 have utilized it for educational purposes. This result highlights a responsibility that is being ignored by teachers, but more importantly by the organizations responsible for training them, i.e. their schools and educational institutions. These results influenced the direction and design of the experimental method of this study.

2) Is the integration of educational videos through social media a relevant educational solution?

Observations were made during the process of teacher training, and students’ interaction with the uploaded material for the purpose of better understanding the relevancy and effectiveness of this educational solution. The following research question was answered through 2 methods, one being the questionnaire results shared above, and the other was observations made during training sessions, and the students interaction with the video uploaded to YouTube.

Figure 1 highlights that YouTube is ranked as the 2nd most used social media amongst teachers following Facebook, so it was a great place to start. Through the first meeting the researcher explained to the teacher the importance and relevance of social media, educational videos, and video production skills. The teacher communicated her awareness of this relevance and her interest in learning the discussed production and integration skills. She attended the first meeting with her own laptop that already included the production software required. After completing a two-hour training session,
the teacher felt ready to start creating her own video. It is important to note that this 8th grade biology teacher was fairly up to date with social media trends; nonetheless she only had a Facebook account and had never produced a video before. The teacher spent 3 hours producing her video by editing 2 videos from YouTube that included visuals related to cellular theory. She then added text and music to effectively communicate the lesson in a clear and interesting way. On October 13 2011, the cellular theory video was uploaded to YouTube, and during the assignment period, 63 views were recorded. For a class of 18 students (video group) this was a successful amount as it indicated that each class member averaged at least 3 views. By the time this study was completed, the video has enjoyed close to 300 views on YouTube. This indicates that not only has this educational content benefitted the class members involved in the research, but also other interested parties across the world be it teachers, students, or general interested viewers of cellular theory. The researcher believes that this further justifies the claims made by this study because if this video did not gather the required views it would have been deemed an inappropriate educational integration solution.
4.4 - Experiment Results & Evaluation

3) Are learning outcomes improved by integrating educational videos through social media?

For the experiment we had two 8th grade biology sections that were taught by the same teacher. These sections received identical examinations covering the same lesson plan. The only different variable was that one section watched the lesson on “cell theory” through a video via their teacher’s YouTube page, while the other section, the “control group”, were handed out a reading assignment on cell theory. This reading assignment was the same one shared each year by the school and both sections knew they were to be examined ahead of time. The exam was a close-ended multiple-choice design that was graded out of 20, and the results were as follows.
The modes and medians were identical between the 2 groups, with a slightly better mean recorded by the “video” group. However the major significant result was the difference in variability of test scores. This variability can be easily observed in figures 10, 11, and 12.
(Fig. 10) Test scores out of 20

Control group (TPBL)

(Fig 11) Test scores out of 20

Video Group (SEMI)
The researcher believes that the difference in variability is based on a heightened level of motivation and engagement by the students from the video group in comparison to the control group. This increased motivation and engagement is believed to be based on the usage of a video and the stimulating characteristics that a video encompasses. However it is also believed to be based on the integration of a relevant communication platform such as YouTube to deliver an educational message.

Some may argue that the differences in performance may be attributed to characteristic differences between groups rather than the intervention. This was a point brought up when we discussed one of the weaknesses in a nonrandomized posttest experimental method. Hence for the purpose of understanding if indeed the difference in standard deviation between groups were due to the intervention as explained in the
previous paragraph or due to the general characteristics of the groups, the researcher requested previous exam grades from the same chapters and analyzed the statistical differences between the groups when no intervention was applied. The results below are not from a pretest covering the same lesson, but rather from a previous exam administered by the teacher that covered a different lesson with no intervention. These results were incorporated to better understand class averages and their standard deviations.
Test scores on different lesson without the intervention

(fig 13) Control Group

(fig 14) Video Group
In this comparison we realize that although grades were lower due to a more difficult test, the class averages and standard deviations are quite similar, unlike when the intervention was introduced. If we compare the differences from group averages between the experiment test and the test with no intervention, we realize a very small 0.12 difference between the means of those exams. However when it comes to standard deviation a true difference is observed. Although the standard deviation between the 2 groups in the above examination is not significant, the variability observed in the experiment with the intervention equaled a difference of 1.8 between the 2 groups (control group = 2.38, video group = 0.58).
Such an observation allows us to infer that the “video and social media intervention” may have led to significant improvements in variability and consistency amongst students’ performance. This inference is due to all other statistics remaining similar except for standard deviations.

As anticipated, a high percentage of teachers were aware of social media and 88% of them engage with it via Facebook. However the majority of Lebanese teachers have ignored other social media outlets, especially the ones designed for educational communication. This signifies that teachers in Lebanon just like teachers in other parts of
the world have not duplicated their roles as teachers in the online world, since they have not utilized media sites that empower them to teach and/or share educational media online. The above results infer that if technology trends such as social media and online videos get integrated into the learning environment they would improve the consistency of performance by facilitating more engaged and motivated groups of students.
Chapter V

Discussion

This study uncovered that the technological gaps between teachers and students from the selected sample, did not differ from most of the samples studied in the literature. Furthermore, the implementation of professional training on the use of social and educational media integration (SEMI), led to improved educational performance. After analyzing data from the various instruments, a discussion was conducted in order to interpret the significance of this data to our research. Each research question will be discussed thoroughly by utilizing data gathered from the pilot study, observations, and experiment. Moreover, this chapter presents an association of inferences and correlations between this study and the literature, as well as recommendations and deductions for the future.

The first research question aimed to understand the differences in literacy rates between Lebanese teachers and students in regards to multimedia production software and social media. The pilot study addressed this question as highlighted in the charts presented in chapter 4. Ertmer, Leftwich, and Ahn (2010), as well as Lawless and Pellegrino (2007), addressed these gaps and stated that students are more advanced, comfortable with, and dependent on such technologies in comparison to their teachers. Findings from the pilot study correlated with this view by showing that the conditions in Lebanon, in regards to this dynamic, are no different than other parts of the world. The majority of Lebanese students from the sample utilized various and widespread activities
and practices within social and educational media, while the Lebanese teachers remained one dimensional with such technologies. Only 7% percent of teachers were utilizing social and educational media for educational reasons, a percentage that highlights a need and an opportunity for improvement.

Beach, Hull, and O’Brien (2008), identified that social media has taken the digital world by storm, surpassing everyone’s imagination in terms of the rate of popularity, and viral speed, especially by young people and especially out of school. Nevertheless in this study, not one of the 42 teachers had ever received social and educational media training from their schools or universities. Since this gap was evident in Lebanon, a training component was introduced into the design, in order to facilitate educational and social media integration. Kumar et al. (2008), and Fullan, Franklin, and Molebash (2007), declared that technology training received by teachers is significantly related to improving their ability to integrate technology in their teaching practices. This furthermore inspired the need for social and educational media training as a professional development solution. The teacher involved in the experiment had never utilized these techniques before, but after receiving the technology training (Appendix III), she was able to independently create educational media, upload her work onto social media, and share it with her students. In other words, as with the studies mentioned above, gaps were identified in this study, and teacher training proved to be a healthy step forward.

The second research question asked if the social and educational media integration was a relevant educational solution. This question was addressed through the pilot study and observations. The pilot study highlighted that 96% of teachers were aware of social media and 88% used it through Facebook, which proved that the above solution
did not deal with alien concepts and technologies even though most of the teachers had never utilized their social media skills for educational objectives. Research question 2 was also addressed through observations of student interaction with the uploaded material as an efficient total of 63 YouTube views were recorded for a class of 18 students during the assignment period, and about 300 YouTube views have been collected up to date.

These findings are similar to Boyd’s (2008), who emphasizes that in today’s world, the integration of technology has become vital, and regardless of one’s chosen field, a motivation to acquire such skills can lead to the improved achievement of professional goals in an ever-advancing technological age. The sample of Lebanese students from this study seemed to be going through the same type of transitions as students from the referenced research. This notion is inferred as Lebanese students’ social media skills were consistently high throughout the pilot study. As such, this should encourage schools interested in technology integration to acknowledge and utilize such popularity, because such popularity highlights an opportunity for educational integration that can take place inside and outside of the school. Popularity surveys and performance indicators should be utilized to analyze and even predict the success of such integration. Wachira and Keengwe (2011), and Ertmer, Ottenbreit, and Leftwich (2010), as well as Bauer and Kenton (2005), confirm that integration is not achieved by increasing the number of computers available in the classroom or by buying the newest software, but rather it is determined by its contribution to the teaching and learning process. Likewise social media skills alone will not be enough without the necessary training of how to translate such skills into useful educational goals. This notion is explained by the researcher and can be further emphasized with results that indicated that although 88% of
teachers used social media through Facebook, none of them translated such skills into educational objectives.

The correlation between teachers’ computer self-efficacy and student academic achievement was investigated by several researchers in the field who argued that education students’ exposure to technology throughout their university studies and preservice trainings positively affected their computer and technology self efficacy (Koh & Frick, 2009; Baker et al., 2005; Rice, Cullen & Davis, 2011; Milman & Molebash, 2008). If schools and universities begin training their teachers on the integration of relevant technology such as social and educational media, schools will be investing in the empowerment of teachers and students. Schools will empower their teachers by teaching them new skills that allow them to adapt to emerging trends, while empowering students to learn in ways that are familiar to their generation. This can become a win-win formula that facilitates innovative and personal learning methods, and Ertmer, Leftwich, Ahn (2010) and Robinson (2010), provide significant evidence to justify this emphasis.

The effectiveness of such empowering integration was observed through the experiment and observation process, which yielded results that showcased successful use of the training (Appendix III), social media success through the YouTube views received, and performance improvement recorded through the experiment results. The third research question “Are learning outcomes improved by integrating educational videos through social media?” was addressed through an experimental method, and its results, for the most part, reflected the results provided in the literature. The social and
educational media integration (SEMI) group enjoyed a better average in comparison to the control group, and a significantly better performance in regards to standard deviation. The SEMI group, who was exposed to the intervention, performed better as a class and as individuals by collectively scoring between 18-20 out of 20. The control group’s scores on the other hand varied between 12-20 out of 20.

Overall the design and results of this research correlated with what was presented in the literature review. The dynamic in Lebanon regarding social and educational media was no different than any of the examples uncovered in the literature, and the implemented solution yielded similar results to the solutions discussed in the literature. These similarities should inspire repeated experiments in hopes of uncovering a more comprehensive view of educational technology integration across Lebanon. The broader implementation of similar research designs will ultimately lead to a better understanding of teacher and student needs, and more inclusive integration solutions.
Chapter VI
Conclusion & Recommendations

6.1 - Inferences

Social media and Internet integration are recent and quite effective trends in the field of educational management. One way to advance these integrations is by improving teachers’ skills. The review of literature shows that professional development has a positive impact on teachers’ practices and motivation in general. To improve the effectiveness of professional development activities, the literature suggests certain properties like specificity of the professional development activity, and tailoring the training workshops to fit teachers’ needs, and timing. This research suggests that learning outcomes can be improved and enhanced further once relevant technologies are given more attention. This study also advocates that relevance of technology should be decided by global trends and popularity rates amongst students. Only then will technology integration produce desirable results. According to the researcher, if technology is simply used to aid or guide what teachers and classes are already doing, then such integration will not create significant engagement or performance improvements. However if trendy technologies are integrated, they will facilitate significant performance improvements by facilitating a more engaged and motivated learning environment.

6.1.1 - Facebook Trend:

A trend was observed in the pilot study, which was that almost all teachers expressed their familiarity of social media through their practices and memberships with
Facebook. Since teachers’ social media literacy is mostly focused on Facebook, we can infer that their social media activities are aimed at socializing with family and friends. When more anonymous media outlets such as blogs, YouTube, forums, and twitter are ignored by educators, we can infer that educators are not utilizing the Internet or social media to educate. Consequently when research proves that the majority of teachers are members of Facebook and not other media outlets, one can deduce that those teachers are “socializers” on the online world, and have not yet taken advantage of online privileges to become “educators” online. This research proposes that it is through professional development training that teachers can spread out their social media literacy to outlets and software that reflect an educational online role as well. This research recorded a 96% awareness of social media, and an 88% Facebook membership amongst teachers, but only 7% of teachers acted as educators online, the rest have never shared educational material on the Internet. These statistics were presented as validation for this study’s focus on the technological literacy and practices of teachers, as well as its emphasis on social media integration skills as a professional development necessity.

6.2 - Data Implications

The data collected in this study cannot imply any significant improvements in class average, however it does present evidence for significant improvements to class variability. Students who were exposed to the intervention via an educational video on YouTube performed mildly better on the exam, however they performed significantly better in terms of consistency and variability after the intervention. In other words that the class who were exposed to the social and educational media intervention “semi”,
performed extremely similar as a group, while the other class had a lot of fluctuations in performance. Nonetheless other research covered in the literature, imply that technology integrations like the ones utilized in this study can be accounted for significant improvements in class averages as well variability of class performance.

In this study, questionnaires, training, and an experiment were conducted to study the effects of educational and social media integration. Results of the study, in general, are comparable with those found in the literature review.

Interpreting the data gathered from the literature review, questionnaires, training, and experiment provided the researcher with an insight on the educational pedagogy process implemented by some of the private schools in Beirut. The results suggested that although schools provide and require educational technology facilitation and integration, they do not provide teachers with opportunities for professional development in relation to the latest Internet skills and activities such as social media. This study concludes that the integration of such trendy technologies will decrease technology gaps between teachers and students, and will improve overall learning outcomes.

6.3 - Limitations of the Study:

In regards to the questionnaires from the pilot study, the participants included teachers and students enrolled in private schools located in Beirut. The participants constitute a purposive sample that was chosen due to its availability, and the limitations of this study can be summed up as the following. Firstly the sample size was considered as a limitation in relation to its size. Secondly, a school was selected to reflect the
socioeconomic diversity of private international schools in Beirut, however since only one school was selected this might affect generalizability of results. Thirdly, the number of the collected surveys could have been greater for wider generalizability, and finally the sample of teacher participants was not divided into subgroups. The teacher sample was made up of elementary teachers, high school teachers, and education majors. Different patterns were noticed amongst the different groups, for example education majors at universities were more up to date with technologies in comparison to teachers who have been professionally working for several years, and while certain interviewees were experts with extensive experience, other interviewees were novice teachers with limited experience. Such differences amongst the sample could have affected results.

The selection choices were made based on convenience and availability especially that an appreciable segment of teachers were not available during the survey time (summer of 2011). Lastly, the integrity of teachers in answering all the questions of the survey is another factor that could have affected the results of the study. Although the surveys were anonymous and the observations were covert, many teachers might not have been voicing out their true online literacy or habits.

In terms of the limitations of the experimental study, as with most experiments, certain uncontrollable factors could have affected the reliability and validity of the results. The design was purely quantitative; the study did not make an effort to incorporate qualitative methods in hopes of understanding why results were as they were. Furthermore the experiment included only one design being the nonrandomized post-test control design, rather than incorporating mixed designs that would have increased reliability and validity.
6.4 - Suggestions for Further Studies:

Further research should be conducted on other schools across Lebanon and the Middle East, as the researcher is confident in the validity and reliability of this design. He recommends that this study should be repeated with the involvement of hundreds of participants for the purpose of greater generalizability as well as more accurate indicators of teacher and student needs. However, results to teacher questionnaires should be separated into subgroups in accordance to teacher level and professional experience.

In terms of the experimental design, the research could involve repeated data collection and analysis over a period of a full academic year to come up with concrete generalizable inferences. A mixed design approach can be incorporated including randomized posttest experiments along with non-randomized designs. Lastly, qualitative instruments should be incorporated to measure attitudes and beliefs in hopes of understanding more clearly why results are the way they are and what are the undertones and denominators of different technology habits.

6.5 - Conclusion:

As of December 2011, this study was the first of its kind in the Middle East. Results of this study reflected the results, trends, and implications presented by other studies from the literature, which indicated that the relationship between teacher, student, and technology in the Middle East is no different than other parts of the world. This study endorses theories that implicate that popular trends in technology and communication present us with highly effective, inexpensive, and creative learning solutions that bridge
the gaps between teachers and students of the 21st century. In a globalizing world, innovations and trends are slowly overlapping barriers such as culture and region, and with the emergence of the Internet, we are more interconnected than ever before. As educators we should remain up to date with the latest trends sweeping the online and communication worlds, as such trends continuously provide opportunities for professional development as well as improved educational objectives and performances.

The popularity of technologies such as social media is unquestionable, today it is rare to find someone who does not have a social media account, however to understand how to utilize such technologies for educational objectives is a whole different ball game, and this responsibility should be taken more seriously by schools in Lebanon and the Middle East in order to move teachers from socializers to educators on the internet. If trendy technologies such as social and multimedia are integrated into the learning environment, they will not only bridge the gaps between teachers and students, but they will also improve classroom averages and performance variability. Create the educational multimedia, integrate it into the Internet, and allow social media to facilitate the required communication. Through such a strategy educational objectives will be met, and technology gaps between teachers and students will be minimized.
References


Franklin, C., & Molebash, P. (2007). Technology in the elementary social studies


Appendices

Appendix I:

Letter of Participation

You are kindly invited to participate in a research project conducted for the purpose of gathering information about educational technology integration in Lebanon. The data collected will be used as part of the thesis for a Master’s Degree.

Title of the Research Project: Academic Networking Bridging the Gaps between Teachers and Students of the 21st Century

Name of the Researcher: Belal Jammal Masters of Arts in Education (in progress)

Name of Faculty Advisor at LAU: Dr. Mona Nabhani

If you accept to participate in this study, you will be required to fill out the attached questionnaire. The data gathered will be analyzed and incorporated in the thesis. The questions you are kindly required to answer will help in understanding your literacy and habits regarding emerging technologies.

It is important to note that no payments will be made to volunteering participants. You can terminate your participation at any stage prior to submitting the completed questionnaire. However, if you choose to submit the questionnaire it will be taken for granted that I have your permission to use any information pertaining to my research.

Belal Jammal
Teacher Questionnaire

1) What subject and grade do you teach? ____________________________

2) Are you familiar with social media?

   Yes   No

3) Are you a member of any online social media networks?

   Yes   No

4) Kindly place a check next to the social media outlet you are a currently a member of;

   Facebook   Personal blog   None
   Twitter   Forum
   YouTube   tumblr
   Flickr   Vimeo

5) Have you viewed educational material on these outlets?

   Yes   No

6) Have you personally shared educational material through your social media channels?

   Yes   No
7) Have you created educational media for the purpose of “online sharing”?

Yes

No

8) How many hours do you believe your students spend on the Internet each day?

none

3–4

1–2

more than 4

2–3

9) Do you believe your students utilize social media and the Internet to learn more about the subjects you teach?

Yes

No

10) Place a check next to any media software you have used?

– Audio editing or production software

– Video editing or production software

– Image editing or production software

– None
11) Do you believe such software can enhance your teaching strategies?

Yes          No

12) Would you be interested to receive training in the above mentioned media software?

Yes          No
School Form

You are kindly invited to participate in a first of its kind research project conducted for the purpose of gathering information about educational technology integration in Lebanon. The data collected will be used as part of the thesis for a Master’s Degree.

Title of the Research Project: Academic Networking: Bridging the Gaps between Teachers and Students of the 21st Century

Name of the Researcher: Belal Jammal Masters of Arts in Education (in progress)

Name of Faculty Advisor at LAU: Dr. Mona Nabhani

If you accept to participate in this study, your students and teacher will be required to fill out the attached questionnaire and partake in a nonrandomized posttest only experiment involving the integration social media and educational multimedia through YouTube. The data gathered will be analyzed and incorporated in the thesis in the hopes of understanding your literacy and habits regarding emerging technologies.

It is important to note that no payments will be made to volunteering participants. You can terminate your participation at any stage prior to submitting the completed questionnaire. However, if you choose to submit the questionnaire it will be taken for granted that I have your permission to use any information pertaining to my research.

Belal Jammal
Students’ Questionnaire

1) What grade are you in? ____________________________

2) Are you familiar with social media? (This includes facebook, youtube, twitter etc)

   Yes          No

3) Are you a member of any such online social media networks?

   Yes          No

4) Kindly place a check next to the social media outlet you are a currently a member of;

   Facebook    Personal blog    None
   Twitter     Forum
   YouTube     tumblr
   □ Flickr     □ Vimeo

5) Have you viewed educational material on these outlets?

   Yes          No
6) How often do you share material on your social media pages?
   - Daily
   - Weekly
   - Monthly
   - Never

7) Have you ever created multimedia for the purpose of “online sharing”? (This may include videos, audio, images, or artwork)
   - Yes
   - No

8) How many hours on average do you spend on the Internet each day?
   - none
   - 1–2
   - 2–3
   - more than 4
   - 3–4

9) Place a check next to any media software you have used?
   - Audio editing or production software
   - Video editing or production software
   - Image editing or production software
   - None
10) If schools choose to use videos to teach, do believe this will enhance or improve your learning?

Yes          No
Teacher Questionnaire Evaluation:

Answers

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<tr>
<th>#</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>2</td>
<td>Are you familiar with social media?</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Are you a member of any online social media networks?</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Have you viewed educational material on these outlets</td>
<td>25</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>Have you personally shared educational material through your social media channels</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>7</td>
<td>Have you created educational media for the purpose of “online sharing”?</td>
<td>1</td>
<td>41</td>
</tr>
<tr>
<td>9</td>
<td>Do you believe your students utilize social media and the Internet to learn more about the subjects you teach?</td>
<td>19</td>
<td>23</td>
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<tr>
<td>11</td>
<td>Do you believe such software can enhance your teaching strategies?</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Would you be interested to receive training in the above mentioned media software?</td>
<td>39</td>
<td>3</td>
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<tr>
<th>#</th>
<th>Question</th>
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<tr>
<td>4</td>
<td>Membership of social media outlets</td>
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<tr>
<th>Facebook</th>
<th>Twitter</th>
<th>YouTube</th>
<th>Blog</th>
<th>Forum</th>
<th>Other</th>
<th>none</th>
</tr>
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<tbody>
<tr>
<td>37</td>
<td>6</td>
<td>15</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
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<tr>
<th>Place a check next to any media software you have used?</th>
<th>Audio</th>
<th>Video</th>
<th>Image</th>
<th>None</th>
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<td>4</td>
<td>6</td>
<td>13</td>
<td>10</td>
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The results to the teacher questionnaires provided significant justification for the researcher’s specified direction and focus on teachers needs regarding social and multimedia training and development. The questionnaires also offered statistics that answer research questions 1 & 2.

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<th>#</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>2</td>
<td>Are you familiar with social media?</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Are you a member of any online social media networks?</td>
<td>36</td>
<td>4</td>
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Results to question 2 and 3 highlight the significance of social media, since 96% of all teachers questioned were aware of this unprecedented communication trend. Since awareness is so high, the researcher’s focus on this technology is justified.

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<tr>
<td>4</td>
<td>Membership of social media outlets</td>
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<table>
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<tr>
<th></th>
<th>Facebook</th>
<th>Twitter</th>
<th>YouTube</th>
<th>Blog</th>
<th>Forum</th>
<th>Other</th>
<th>none</th>
</tr>
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<tbody>
<tr>
<td>Percentages:</td>
<td>88.80%</td>
<td>14.4</td>
<td>36</td>
<td>4.8</td>
<td>0</td>
<td>2.4</td>
<td>9.6</td>
</tr>
</tbody>
</table>

As the researcher anticipated, a high percentage of teachers questioned were aware of social media and 88% of them engage with it via Facebook. However the majority of Lebanese teachers have ignored other social media outlets, especially the ones designed for educational communication. This signifies that teachers have not duplicated their roles as teachers onto the online world, since they have not utilized media sites that empower them to teach and/or share educational media online. Although we can teach and share educational media through Facebook, Facebook remains a private
socializing site, and one that the researcher deems inappropriate for educational communication. The researcher believes this because teachers who have a Facebook account will not feel comfortable in adding strangers or even students to their accounts for the purpose of education. This lack of comfort is based on a sense of loss of privacy, and a preference to keep personal lifestyles and information personal. Hence valuable online education takes places on different and more anonymous media outlets such as blogs, YouTube, forums, and twitter. Such outlets allow teachers to educate private and public audiences without having to compromise personal information. Consequently when research proves that the majority of teachers are members of Facebook and not other media outlets, one can deduce that those teachers are “socializers” on the online world, and have not yet taken advantage of online privileges to become “educators” online.

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<tr>
<th></th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>5</td>
<td>Have you viewed educational material on these outlets</td>
<td>25</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>Have you personally shared educational material through your social media channels</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>7</td>
<td>Have you created educational media for the purpose of “online sharing”?</td>
<td>1</td>
<td>41</td>
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</table>

Answers to question 5, 6, and 7, highlight a need for training and professional development, aimed at improving teachers’ understanding of how social media can be utilized for education. This need is highlighted because although teachers are aware of social media, and experience it through Facebook, only 3 out of 42 have shared educational media online, and only 1 teacher has created educational media for the
Internet. In other words out of the 38 teachers who utilize social media to socialize and network, only 3 have utilized it for educational purposes. This result highlights a responsibility that is being ignored by teachers, but more importantly by the organizations responsible for training them, i.e. their schools and educational institutions. The usage of social media is unquestionable, it is rare to find someone who does not have a Facebook account, however to understand how to utilize such technologies for educational objectives is a responsibility that schools need to start taking seriously.

Finally questions 11 and 12 highlight the will from teachers to learn, and when there is a will there is a way.

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<th></th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
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<tbody>
<tr>
<td>11</td>
<td>Do you believe such software can enhance your teaching strategies?</td>
<td>41</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Would you be interested to receive training in the above mentioned media software?</td>
<td>39</td>
<td>3</td>
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</table>

These results are significant because they prove the sense of familiarity between teachers and social media, and justify the direction of the study towards the integration of such technologies and the focus on the improvement of teacher’s literacy. Since teachers’ use is mostly focused on Facebook, we can infer that their social media activities are aimed at socializing with friends and contacts. The researcher believes that it is through training and experience that teachers can spread out their social media usage to outlets and software that reflect an educational online role as well.
# Students Questionnaire Results

<table>
<thead>
<tr>
<th>#</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>Are you familiar with social media?</td>
<td>42</td>
<td>1</td>
<td>96</td>
<td>4.8</td>
</tr>
<tr>
<td>3</td>
<td>Are you a member of any online social media networks?</td>
<td>40</td>
<td>3</td>
<td>86.4</td>
<td>3.6</td>
</tr>
<tr>
<td>4</td>
<td>Have you viewed educational material on these sites?</td>
<td>24</td>
<td>19</td>
<td>60</td>
<td>25.9</td>
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<tr>
<td>5</td>
<td>Have you created media for the purpose of “online sharing”?</td>
<td>75</td>
<td>17</td>
<td>2.4</td>
<td>98.4</td>
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<tr>
<td>6</td>
<td>Of school and videos to teach would you believe this will enhance or improve your learning?</td>
<td>39</td>
<td>1</td>
<td>63.6</td>
<td>36.4</td>
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<th>#</th>
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<th>Twitter</th>
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<th>Blog</th>
<th>Forum</th>
<th>tumblr</th>
<th>none</th>
<th>Sicks</th>
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<tr>
<td>7</td>
<td>Membership of social media outlets</td>
<td>40</td>
<td>22</td>
<td>21</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>How often do you share material on your social media pages?</td>
<td>daily</td>
<td>weekly</td>
<td>monthly</td>
<td>never</td>
<td></td>
<td></td>
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Appendix II

Educational Objectives

Cell Theory

History

- Cells are the basic unit of **structure** and **function** in living things.
- The invention of the microscope (around 1590) made it possible for people to discover and learn about cells.
- Microscope = Instrument that makes small objects look larger
  
  Robert Hooke
  
  - One of the 1st people to observe cells (1663)
  - Observed a thin slice of cork using a compound microscope he built himself
  - Called the cork structure “cells”

  Anton van Leeuwenhoek
  
  - Made his own lenses and used them to build simple microscopes
  - Animalcules = one celled-organisms in water ponds
  - Observed single-celled bacteria on teeth scrapings

  Mattais Schleiden
  
  - All Plants are made of cells

  Theodor Schwann
  
  - All animals are also made up of cells

  Rudolf Virchow
  
  - New cells are formed **only** from existing cells

The Classical Cell Theory = A widely accepted explanation of the relationship between cells and living things

- All living things are composed of cells.
- Cells are the basic unit of structure and function in living things.
- All cells are produced from other cells

The Modern cell theory

The key points of modern cell theory include:

- The cell is the fundamental unit of structure and function in living things.
- All cells come from pre-existing cells by division.
Cells contain hereditary information (DNA) which is passed from cell to cell during cell division.

- All cells are basically the same in chemical composition.
- All known living things are made up of cells.
- Some organisms are unicellular, made up of only one cell.
- Others organisms are multicellular, composed of countless number of cells.

**Exceptions to the theory**

- **Viruses** are considered by some to be alive, yet they are not made up of cells.
- The first cell did not originate from a pre-existing cell.

**Light Microscope**

- For a microscope to be useful it must combine 2 properties: magnification and resolution.
- **Magnification** = ability to make things look larger than they are
- The lense(s) in a lighty microscope magnify an object by bending light that passes through them.
- Convex lens = a curved lens whose center is thicker than the edges
- Compound microscope = a light microscope that has more than 1 lens
- **Resolution/Sharpness** = the ability to distinguish 2 points as separate / the ability to distinguish the individual parts of an object.

**Electron Microscope**: uses a beam of electrons instead of light to examine a specimen

- electrons are tiny particles smaller than atoms
- Higher resolution than light microscopes.
Experiment Exam:
Place a check next to the right answer

1) Who was responsible for coming up with the name “cells”?
   □ Robert Hooke
   □ Mattais Schleiden
   □ Antoine Jackson

2) These structures were named cells because;
   □ they looked like small wine cellars
   □ they looked like small rooms
   □ they were discovered by a scientist who’s last name was Cell

3) The invention of the _____________ made it possible for people to discover and learn about cells.
   □ the lens
   □ microscope
   □ macroscope

4) Another scientist responsible for building simple microscopes through the use of lenses was;
   □ Robert Hooke
   □ Mattais Schleiden
   □ Anton van Leeuwenhoek

5) Through cell theory scientists discovered that all living things are made up of;
   □ cells
   □ Molecules
   □ blood

6) Who was responsible for stating that “all plants are made up of cells”?
   □ Robert Hooke
7) Who was responsible for stating that “all animals are made up of cells”?  
   □ Robert Hooke  
   □ Theodor Schwann  
   □ Anton van Leeuwenhoek

8) Rudolf Virchow was responsible for stating that “new cells are formed **ONLY** from”;  
   □ existing cells  
   □ existing molecules  
   □ existing blood

9) Which theory states the following;  
   “All living things are made up of cells, cells are also the basic units of structure/function, and cells are produced by cells”  
   □ life theory  
   □ structure theory  
   □ cell theory
**Extra Credit:** Fill in the blanks with the letters assigned to each scientist. You may only use a name once.

___________ and ___________ invented microscopes and discovered cells.

Their work inspired ____________, ____________, and __________ to develop cell theory.

a) Robert Hooke  
b) Mattais Schleiden  
c) Anton van Leeuwenhoek  
d) Theodor Schwann  
e) Rudolf Virchow  
f) Antoine Jackson  
g) Abraham Lincoln
### Quiz: cell theory (video group)

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Appendix III
Training

TRAINING QUESTIONNAIRE

1) Do you own any social media channels?

Yes       No

2) If “yes” kindly list the social media sites you currently have an account with.

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3) How do you rate your skills in terms of downloading YouTube videos?
   ___ No experience
   ___ Fair experience (need certain assistance from time to time)
   ___ Well experienced, can independently download video material.

4) Do you know how to upload video material to social media outlets?
   ___ No
   ___ Yes with some outlets
   ___ Yes with all outlets
5) If you find online media that interests you, do you know how to share it with your friends and peers via social networking?

| Yes | No |

6) How do you rate your skills in terms media production software?

___ No experience
___ Fair experience (need certain assistance from time to time)
___ Well experienced, can independently utilize such software.

7) How do you rate your skills in terms of developing educational audio or video material for the purpose of sharing on the Internet?

___ No experience
___ Fair experience (need certain assistance from time to time)
___ Well experienced, can independently produce educational media.

8) When assistance is required with any skill mentioned above, where do you turn to?

___ A friend, relative, or peer.
___ A book, or Manuel?
___ A search engine (Google, Yahoo, etc.)
___ A video tutorial on YouTube or other video social sites.
___ Blogs or forums
___ Other
The Training

The Basic 4 Steps of Creating a Video

When it comes to multimedia development these are 4 steps that need to be explained and followed in order for valuable outcomes to take place;

1) Searching and Incorporating:

When one has a topic in mind, one can begin writing the script of their video. This script should include what the video will be about, and how will it communicate the needed information effectively, sort of like a lesson plan. Teachers must then start to research material available on the Internet, which they can incorporate and edit into their video. Such material may include information, pictures, music, lectures, and last but not least videos. We can view this part as their “review of literature”. After the careful selection of this material, the user can finalize the script of the video, as they have prepared the informative, and multimedia aspects of their video.

2) Downloading:

There are several downloading software, sites, or solutions that allow you to download online material. The one used in this study is the website www.keepvid.com. This website was selected for its ease of use and efficiency. All you need to do is copy the url address of any YouTube video for example, paste it on this website, and click download. Its as simple as that. However another more exclusive attribute of this website is that it allows to make a selection of video quality and size dimensions, while most other website or software impose a specific quality and size once you hit download. To explain
size and quality significance, it is important for the aesthetic and professional appeal of a video, to have used same or similar quality and dimensions of material. Dimensions for examples are the length and height of a video. If an editor is editing with different dimensions the fluidity of the video is interrupted as the video goes from a vertical shape to a horizontal to a square shape and so on. So its best to stick to one or similar enough dimensions. The same goes for quality, one should try and maintain a similar quality between videos, as a video will suffer in its appeal if continuously switches form low quality to high definition to standard definition. It is best here to go for standard definition, and if high definition is possible why not present your video in the best quality it can be presented in.

(Please refer to the end of this section regarding copyright issues)

3) Organizing and Editing:

Once videos, pictures, and audio have been successfully downloaded the teachers were asked to open one folder on their computer to place all this material into. By not organizing the material you intend to use into one folder, a user will face lagging issues by both their editing software and computer as they both try to continuously locate and connect this material to the editing software. Following the organization of all material into one folder, the teacher can open their editing software and begin to “import” this material into the software, and begin the editing process.
4) Exporting:

After the video has been completely edited, the teacher can finally export it allowing it to become its own separate media able to be played online and on other computers.

Fair Use & Copyright:

The Fair Use & Copyright law in accordance to U.S and International law allows material to be used and or repeated for educational purposes (U.S Copyright Office, 2011). This is the same law that governs the fair use of written intellectual property that can be repeated or incorporated into our writings, journals, books etc. Likewise educators are allowed to use and sample multimedia material for educational purposes. However once this material is involved in or is being traded for financial gain, then a teacher violates this law and can face legal action.

3.7.2 - The Basic Principals of Editing

Basically it’s all about importing, editing, and exporting. After importing the needed material into the editing software you will have a menu like presentation to select what you want to use accordingly. Editing software have 2 sections, one that include the material that you have imported into the program, this is the material you will select from. The other area will be the timeline, or the section that involves the actual video that a user is creating. To begin you must select a new project, just as one opens a new document on Word. A user can then begin developing his/her video by selecting material and dropping it into their timeline.
As seen the bottom section of the image is the media library that has been imported, the upper left section is the timeline. A user clicks and highlights the needed video material from the library section which is highlighted in yellow, and drags and drops it into the time line as seen above. Once the selection is dropped into the timeline it will appear as it does below.
To edit or delete video material from your timeline, a user utilizes the teachers were trained on a technique called “Split clip”. This technique allows users to place the mouse directly over the area one wants to treat, and select split clip at the beginning and end of the section he/she wants to remove. By splitting the clip, it separates each clip as its own separate item that allows you to delete items without affecting the other items you want to keep. Splitting items allows a user to treat items differently, even when it comes to adding, improving, enhancing specific areas, and this will prove valuable.

Other types of multimedia can be easily added as well. Such media may include text, photo images, and music. To add text, teachers were trained to click on the icon that has a “T” on it and review and select a text animation from the various choices available. Text animations are ways in which the text will move over your video. It is important to recommend that one should follow the same text animation selection throughout the video, as this will keep its professional appeal. Having several different types of text animations give off an amateur feel. When text animation has been selected, all the user has to do is drag and drop to the area he or she chooses.
After the text box has been dropped, the user can edit the text style, format, and font as he or she pleases. To add a photo, teachers were trained to click on the photo menu by selecting on the camera icon on the right side. This opens the photos one has on their photo library. One can also select folders on their computers to import photos from.
Adding Transitions: Adding transitions are a very important tool that establishes fluidity throughout a video. By placing a transition between videos, photos, and text allows the transition between each type of media to flow really well. These transitions allow viewers to enjoy a video which transitions between different types of media in a smooth manner. It is needed to once again emphasize the incorporation of one type of transition animation. Although beginner users will be tempted to play around and add several different types of transitions, this usually harms the video that than add value to it.
Observations

Video views at the end of assignment (Oct. 21, 2011)

Video Views at the end of the study (April 2012)
The video is titled “Cell Theory DSB” and can be found on this link:

http://www.youtube.com/watch?v=HuVofeYsJNw&context=C4cee1b2ADvjVQa1PpcFMyZb_oB8ppRGRAFBKfbx319c3CFveAzAM=

This video has been uploaded by, and can also be found on, the following page: http://www.youtube.com/mayachebaro