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Interacting with Screenagers in Classrooms

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Abstract

The differences in communicating methods between teachers who have learned to study in paper based context and students who are more familiar with screen based context can cause problems in classrooms. This paper discusses issues and concerns in interacting with students who grew up surrounded by multimedia and digital devices, in other words, screenagers, in classrooms. Based on the recent projects and research findings, four key themes are discussed regarding interacting through personal learning devices, communicating with the students in the way they do using social media, appropriate amount of exposure when using audiovisual resources, and possible side effects of using personal learning devices. Finally, teachers' roles and responsibilities in dealing with screenagers are discussed, and suggestion for using teaching models and teacher training are provided.

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Keywords: Screenager; interactivity; personal learning devices; teachers' roles

1. Introduction

There always have been frustration and difficulties in understanding when it comes to communicating to teenagers. But there seems to be more than just generation gap and misunderstanding when trying to interact with the students in the 21\textsuperscript{st} century. The students in classrooms now have been surrounded by multimedia and digital devices since they were very young, and they are very comfortable with high-technology and using small screen devices, hence the term—screenagers. These screenagers read information provided on screen instead paper, write using keyboards or keypads instead of pen or pencil, and they can tap into immeasurable amount of information on the Internet without having to physically get to the library. They freely use multimedia for instantaneous communication, multi-tasking, and information management in nearly all aspects of daily life.

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Therefore, teachers have to keep in mind that it is not simply generation gap or misunderstanding, but the means of communication itself for the young people have undergone radical changes. In choosing appropriate ways of teaching the screenagers, suitable communication methods needs to be taken into consideration as well as the characteristics of screenagers.

There are many countries where high-technology and multimedia play an essential role in the society, and South Korea is one of them. In most homes and schools, high-speed Internet connection is available, and most people, including children, use cellular phones. Taking advantage of the groundwork of nationwide information technology, digital textbook, personal digital media, Internet Protocol TV (IPTV), and others have been explored for possible use in education in last five years. Specialists in education and technology have been trying to find effective and efficient teaching methods and techniques for the screenagers. What is more, research projects using such multimedia tools have been concentrated on investigating the appropriate functions of learning devices, development of applicable teaching methods, a high level of interactivity, changes in students’ academic performances, motivation and attitude, and suggesting solutions to problems that may arise when using the tools in classrooms. Based on these researches and projects, this paper discusses what the researchers have found as well as the lessons learned about screenagers in classrooms, focusing on the following four key themes: 1) interacting through personal learning devices (PLDs); 2) communicating as students do through social media; 3) appropriate amount of time for using moving pictures; and 4) possible side effects of using PLDs.

2. Interacting through Personal Learning Devices (PLDs)

In 2005, the development of digital textbooks was instigated with the funding from the South Korean government. By 2009, digital textbooks for 10 subjects including Korean, English, social studies, mathematics, science, music for 5th grade, and Korean, mathematics, social studies, and science for 6th grade were developed. The implementation of digital textbooks began with 5 experimental schools in 2006, and by 2010, they were put into service in 112 schools. From 2015, teachers and students are to use digital textbooks in the language classrooms at elementary and secondary schools nationwide, and learning tools in the smart learning environment are to follow (C. H. Lee, 2012). Extracurricular support for cyber home learning system (CHLS) using videoconferencing for the digital textbook has been developed and has shows positive results according to research findings (Lee, Yoon & Lee, 2013).

The reasons for using digital textbooks are due to rising need for a change in educational environment and up-to-date pedagogy that is more suitable for screenagers. PLDs and shared displays have been found to promote student participation and interaction while improving learner articulation process as well (Liu, Chung, Chen & Liu, 2009). Digital textbook provided through tablet PC is implemented, therefore, as an evolved form of learning materials for the screenagers. Digital textbooks use the same content as the printed textbooks along with multimedia contents such as video clips, animation, virtual reality, access to search engines, and a variety of interactive tools. The hardware used for digital textbook is tablet PC networked to the teacher’s computer and the electronic blackboard. Students can use electronic pens to take notes or highlight contents in the textbooks and save them for later viewing (KERIS, 2008). The digital textbook not only expands the possibilities for learning, but it makes what was impossible with printed textbook possible. For example, video clips of interviews with authors can show students what the authors had in mind in more personal manner than via paper. Augmented reality technology or animation of volcano eruption can visually assist science lessons. In foreign language classes, authentic audio and video files can provide much needed ample exposure to the target languages.

An appropriate use of multimedia tools and resources like digital textbooks and web contents can make classrooms come alive, but then again, that does not mean that it always increases students’ comprehension and cognitive ability. Multimedia alone cannot substitute the role of teachers, replace the humanness of classroom interaction, nor take the place of firsthand experience (C. H. Lee, 1988, 2012). Therefore, appropriate and high
quality interaction patterns, students-content, student-student as well as student-teacher interaction need to be ensured and enforced through suitable application of multimedia tools and resources. Figure 1 shows how PLDs can be used for various types of interaction among teacher, individual student, groups, whole class, and PLDs in individual learning as well as whole class teaching. For example, interactive composing tools can be used in music classes where students can compose musical pieces and play them using variety of musical instruments. Also in math classes, students can solve problems on their respective table PCs. Teachers can click on students’ computers from the teacher’s computer to take a look at how they are doing. The teacher can also display a specific student’s tablet PC screen on the electronic blackboard for the entire class to see. The individual students can then compare the process of solving mathematical problems with their peers. By sharing their thought processes and knowledge with each other, students can engage in both reception of knowledge and active production through engaging in interactive learning.

There is an assortment of PLDs available for classrooms like tablet PC, personal digital assistant, portable media player, and cellular phone to name a few. In employing PLDs in the classroom, the interaction patterns need to be maximized regardless of the type of PLDs and functions. Appropriate use of PLDs in classrooms have been reported to promote learner collaboration and interaction and provide enrich learning experience (J. Lee, 2012; Roschelle, 2003; Zurita & Nussbaum, 2004). When the teachers successfully make the most of PLDs while providing maximized interaction, it will bring about positive changes to the students’ performance and the quality of education in schools.

3. Communicating as students do through social media

The majority of students in Korea carry cellular phones with them wherever they go. Cellular phones are primarily used for communication purposes, but some students use them for more than just communication. The advance and evolution of cellular phone technology has allowed users to listen to mp3 files stored in their phones to listen to songs, study foreign languages, or record voices. Most phones now allow users to take pictures as well as record videos, surf the Internet, and watch Internet lectures through digital multimedia broadcasting services. Recently, the expansion of smartphones enabled numerous academic applications to be used by students and teachers both in and out of the classroom. Students can search for the nearest library and the availability of books
before they actually go to the library to rummage through the shelves, and visually impaired students can download applications that read books aloud for them.

In the flood of applications and functions that are made available via cell phones or smartphones, the most popular and the most frequently used ones are, needless to say, Short Message Service (SMS) and Mobile Messenger Application (MMA). It is common to see students sending SMS or MMA messages in school, in restaurants, on the street, and even in classes. The one way to overcome the communication gap is actively engaging in communication using the methods that the target group uses. If students use SMS or MMA to carry on interaction, it means that it is worth considering SMS or MMA as a potential tool of student-teacher interaction. In fact, incidents of South Korean public school teachers successfully building relationships and taking communication to a meaningful level with teenagers using SMS have been reported (Lee, 2007). The interactions reported were meaningful in that they were more than mere increase in number of messages, but the content of communication was genuine. In other words, students felt more personal to the teachers who are willing to communicate in the way that they do and were willing to open up to the teachers who seem to understand them.

Affective domains regarding knowledge and skill acquisition such as students’ attitude, beliefs, underlying emotions can affect learning significantly (Brown, 2007). Also intimacy to the teachers cause students’ affinity seeking behaviors in a variety of context and positively affect students’ performance in respective academic subjects, and ultimately, school life in general (Mottet, Richmond, & McCroskey, 2006). It is also found that learners are given the opportunities to be creative and produce information when they were given the chance to apply the knowledge they have learned in the manner they are familiar with, such as in networked environment or online environment (Beghetto, 2007; Burleson, 2005; Sawyer, 2006; Tuomi, 2007). If a teacher can successfully communicate to the students using SMS or MMA to reinforce genuine student-teacher interaction, it may lower students’ affective filter and promote enhanced learning environment. To promote such effect, SMS component of cellular phone can be used as a tool for individual counseling, and social media such as MMA, Tweet, and blogs can be used as group counseling or group communication tools for the whole class. Figure 2 shows how 6th grade students used camera application, picture editing application and Social Network Service (SNS) application in their smartphones to conduct a group project in science class (J. Lee, 2012). J. Lee (2012) reported that the students were able to successfully complete their projects on comparing and contrasting of objects of their choice and suggest possible usages without technical difficulties. PLDs provide group and individual communication tools such as e-mail, SMS and MMA messages, Bulletin Board System (BBS), and chat. Moreover, instantaneous application, and students’ familiarity, cellular phone and social media seem to be more efficient and effective for communication purposes.

![Figure 2. Group project using PLDs and SNS (J. Lee, 2012, p. 47)](image)

4. Amount of time for using moving pictures

In order to get in touch with screenagers, more and more teachers are turning to TV programs, videos files, and DVDs to use as teaching resources in classrooms. To assist these teachers and to enhance the quality of
education through ample provision of academic programs and resources, the government began installing IPTVs in all South Korean public elementary and junior high schools since the fall of 2009. Unfortunately, the teacher perspectives on IPTV have not been positively so far. Some teachers have complained that the remote control operated IPTV is complicated to use, and others wanted control panel to be linked to the teacher’s computers. Surprisingly, the biggest issue with IPTV that the majority of the teachers addressed was not the technical unfamiliarity or difficulties. They questioned the educational value of using audiovisual contents for a prolonged time in class and pointed out the length of video programs to be the biggest problem (Lim, Kim, Han, & Ko, 2009). It is difficult to find time to have students-teacher interaction outside of the classroom, and student-teacher interaction mostly takes place in the classroom. Accordingly, many teachers were unwilling to sacrifice in-class students-teacher interaction time by showing audiovisual contents for prolonged time in classrooms.

When it comes to the most preferred web contents by Korean elementary school teachers, it was found that the 3 minute video clips from the major Korean broadcasting companies and foreign news programs related to the contents addressed in the textbooks were the most one (Lee, 2004). These short 3 minute video clips related to the contents found in the national curriculum are provided to the teachers as educational resources. The teachers found them useful for focusing students’ attention on the content, activating schema, and bringing together the lesson for follow-up activities. When DVDs or TV programs are used in reality, they are too long to allocate class time to check for comprehension, not to mention discussion or interaction. Audiovisual contents can be very useful in classes, but it seems that too much of it can do more harm than none. To conduct a class using short video clips, Lee (2004) suggests a thorough and effective listening class can be conducted in language classrooms using 3 minute video resources in Figure 3. It can be seen that each step serves to promote learners’ listening skills using video, audio, as well as textual aid.

![Diagram](image)

**Figure 3. Five stages of using video effectively (Based on Lee, 2004)**

5. Possible side effects of using PLDs

The digital textbook used in Korea displays the contents through monitors and projectors and use the wireless Internet just like PLDs. It seems to be helpful in teaching and learning as well as communicating to the students. Moreover, when the level of exposure to electromagnetic wave was measured, and the result showed that it was less than that of tablet PC. It seems to be effective and appropriate for the screenagers, but it is not a cure all, and
there are downsides to it. When 40 elementary school students who have used digital textbook for more than 1 year were asked if they have experienced discomfort while using the digital textbook, some students have complained of eye fatigue, stiff neck, shoulder pain, fatigue, dizziness, drowsiness, and lethargy when using the digital textbooks (SeoMoon et al., 2009). Therefore, the students were advised to keep a distance of at least 50cm from the screen to prevent health risk and take frequent breaks from staring at the monitor for a prolonged period of time. Also, a study on children’s interaction with tablet PCs, it was reported that when students use individual tabletop display and there was no shared display available in the classroom, there were possibilities of loss of eye-contact as well as unaware of visual focus (Scott, Mandry & Inkpen, 2003). The availability and arrangement of technical devices in classrooms need careful consideration in actual implementation.

Using screens and monitors introduces learning environment that is completely different from using printed textbooks. Such environment can be effective, efficient, and convenient; but it needs to be acknowledged that it may cause computer-related health problems if used excessively. Bright screens and monitors causing eye fatigue and eye sensitivity are one example of it. Many of these health problems can be avoided with proper training and forming good habits such as having good posture and stretching constantly.

The good news is that there are new technologies and electronic devices being developed like flexible displays using e-ink, and smartpens that electronically save the handwritten notes. The introduction of such technologies and being aware of possible health risks may alleviate many health problems and concerns that current PLDs seem to cause. Despite how convenient digital technologies seem, as teachers, both students’ mental and physical well-being need to be taken into consideration, and the time and amount of PLDs usage should be carefully considered in using PLDs in classes.

6. Conclusions

What teachers know for sure about screenagers is that teachers do not know enough about them. The things teachers know are limited to the external descriptions like screenagers use the Internet and cellular phones all the time, they prefer audiovisual presentation over textual, they put an emphasis on emotion and sensation, and they are used to quick access to information online. But screenagers do not stare at screen just for the sake of doing so. They seek genuine interaction through SMS and look for group identity through BBS.

Some teachers use SMS or MMA to build student-teacher relationship and win their trust, and others use blogs and Twitters to reach out to their students. When experienced and qualified educators and teachers are clearly informed of the needs, preference, and learning styles of this distinct and unique generation, appropriate and effective teaching methods and teaching models can be developed and made available for improving the quality of the classrooms. Kangas (2010) presented Creative Playful Learning (CPL) model using technology to provide interesting educational contents in highly technology enriched environment. It aims to let learners play with technology in learning environment as they normally do in their daily lives. In order to use teaching models using technology, such as CPL model, the teacher has to be aware as the students are in using technology including PLDs and SNS, and teachers must be able to navigate the technology enriched environment with ease. Many teachers are now aware of the possibilities that online environment offers, and they are turning to blended learning models as well. An example of such teaching model is seen in Figure 4. Yoon (2011) presented a blended learning model for teaching spoken language skills using online and offline multimedia tools that are generally familiar to teachers and students using both asynchronous and synchronous communication. The model allows different types of learning to occur such as independent self-regulated learning, collaborative learning, and cooperative learning while promoting various types of meaningful interaction among teacher-students, teacher-whole class, and student-student. In this model, meaningful interaction is permitted in and out of the classroom using various multimedia tools which allow more focus and guide during in class task. It was found to be helpful for large classrooms because the students felt that they were given more personal attention by the teachers through interaction on PLDs and SNS. Teachers, in turn, should be able to take the model, make necessary modifications based on sound theories, and apply them to their own classes.
As Prensky (2001) claimed, the teachers now are digital immigrants whereas the students are digital natives, and the bizarre circumstance of immigrants trying to teach the natives is what is going on in schools. That of course, does not mean that the immigrants should give up and leave the natives own their own. What needs to be kept in mind is that the screenagers are students. They have lots to learn, and so far, they lack experience and knowledge and need teachers to guide them. That is why meaningful interaction between students and teachers is needed, and teachers need to learn the language of screenagers to communicate with them. When teacher presence was strong, and interaction was directly felt, students reacted as desired; however, when the teacher presence was taken away, even when the technical interactivity was there, the students did not meet the pedagogical goals as desired (Kennewell, Tanner, Jones & Beauchamp, 2008). Teachers must be well aware of the importance of using technology in the way the students do, but teachers must also take the responsibility to control and make appropriate use of technology for effective learning to occur. Therefore, proper teacher training programs based on hands-on practice are needed so that teachers can use, evaluate, and modify teaching methods and instructional models for application of multimedia and PLDs, and ultimately design and develop syllabus and contents for their classroom needs. The teachers need to rise up to the challenge of the current times. Teachers who can meet the needs of the learners are teachers who can bring about changes in their learners. In order to do so, they must take responsibility to evolve into knowledgeable teachers who can use multimedia and SNS efficiently and effectively.

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