SMART TEACHING?

– Teachers' perspectives on interactive whiteboard technology in foreign language teaching–

Master's thesis

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Tiivistelmä – Abstract

Viime vuosikymmenten aikana yhteiskunnassamme on tapahtunut valtavia teknologisia muutoksia. Koulumaailma on joutunut uusien haasteiden eteen yrittäessään mukautua muutoksiin. Teknologian kehittyminen on kuitenkin tapahtunut sellaisin harppauksin, että koulut ovat väistämättä jääneet kehityksessä jälkeen, niin laitteiden päivittämisessä kuin henkilöstön kouluttamisessa. Yksi viimeisimmistä kouluihin saapuneista ilmiöistä ovat interaktiiviset valkotaulut. Elämme myös suuren sukupolvenmuutoksen keskellä, jossa tämän hetken internet-sukupolveen kuuluvat oppilaat ovat syntyperäisiä teknologian käyttäjiä. Nämä uuden sukupolven nuoret ovat kasvaneet teknologian ympäröimänä ja heille sellaiset käsitteet kuin kosketusnäyttö ovat arkipäivää. Aikaisempien sukupolvien on täytynyt, ja täytyy edelleen, sopeutua yhteiskunnan muutoksiin ja jatkuvasti päivittää tietotaitoaan sekä opetella uusia taitoja. Koulutus ja työelämä vaativat yhä monipuolisempia taitoja ja opettajankoulutus onkin avainasemassa näiden vaatimusten täyttämiseen. Olemassa olevien toimintamallien muuttaminen vaatii kuitenkin aikaa.

Tutkimuksen tavoitteena oli selvittää miten kieltenopettajat suhtautuvat interaktiivisiin valkotauluihin sekä teknologiaan yleisesti ottaen ja millaisena opetusvälineenä he interaktiivisen valkotaulun kokevat. Tutkimuksessa pyrittiin myös ottamaan selvää siitä millä tavoin opettajat taulua työssään käyttävät sekä miten tämänhetkinen teknologiakoulutus vastaa heidän tarpeitaan.

Tutkimuksen aineistona oli internet-kysely, josta analysoitiin 23 kyselyn kokonaan täyttäneen vastaajan vastaukset, sekä jälkeenpäin toteutetut kolme teemahaastattelua. Vastaukset analysoitiin sisällönanalyysin keinoin.

Opettajien vastausten perusteella voidaan sanoa opettajien ottaneen tämän uuden teknologian positiivisesti ja innolla vastaan. Yleisesti ottaen opettajien suhtautuminen teknologiaan on myös hyvin myönteistä. Kuitenkin, vaikuttaa että kyseisen teknologian ollessa vielä suhteellisen uusi ilmiö suomalaiskouluissa, opettajat eivät ole täysin tietoisia sen käyttömahdollisuuksista ja ovat toistaisesti tyytyneet käyttämään sitä hyvin perinteisin tavoin, jolloin taulu menettää interaktiivisen ja taktiilin luontonsa. Vaikuttaisi siis, että opettajat ovat lisäkoulutuksen tarpeessa, etenkin paremmin kohdistetun koulutuksen. Yksi mahdollinen ratkaisu koulutustarpeeseen voisi olla opettajien välinen yhteistyö sekä työpaikkamentorointi.

Asiasanat – Keywords Interactive whiteboard, educational technology, foreign language teaching, foreign language teachers

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1. INTRODUCTION

In the past decades, our society has undergone vast technological changes. New equipment and technology are being developed by the minute. For schools this has meant facing a difficult challenge of keeping up with the changes around them. Our education has had to adapt to technological advancements and evolve with them. Major investments have been made to upgrade equipment and train personnel. Nevertheless, the incredibly fast pace of progress in technology has meant that schools have inevitably been lagging behind, both in acquiring new equipment and training their personnel to use it. One of the most interesting and topical recent developments in educational technology in the Finnish classroom is the emergence of the interactive whiteboard into an increasing number of schools and classrooms. As schools are renovated and brand new schools built, we are seeing the disappearance of old educational "technology" such as blackboards, overhead projectors, televisions, video recorders and even the relatively new DVD- and CD-players from the way of interactive technology.

We are also living in a time where there can be seen a significant gap between generations of the 20th and the 21st century. The 21st century learners have grown up in an environment where internet, smart phones and interactive touch screens, etc., are part of everyday life. Their generation can be described as the internet- or mobile generation, 'digital natives', adept at using technology already since their infancy. The 20th century generations, in their turn, can remember a time before mobile phones or the internet, let alone interactive technology. These earlier generations have had to adapt, and are still adapting, to the change. For them, learning to use these new technologies takes time. Meanwhile, technology keeps evolving and changing. The actual changes in society and the world around us occur more quickly than our institutions can react to the new needs and demands of society, labour market and education. To meet the needs of society and this new generation of learners, we must keep evolving and innovating our education and train our educators. Teacher training is therefore critical to the successful development of teaching. Nevertheless, changing existing models takes time.

As the phenomenon of interactive whiteboards is so current, conducting research on the subject seemed inspiring. Research on technological equipment for teaching, especially on computer assisted learning, has been carried out in recent years, for example by

(2007), Salovaara (2006), Iiskala and Hurme (2006), yet there is not much research on how the use of this equipment is actually seen to work. Iiskala and Hurme (2006) for example, have examined the possibilities of technology in developing learners' metacognitive skills, whereas Salovaara (2006) has analysed the significance of learning strategies when learning through different learning management systems, such as virtual learning environments. Taalas (2007) on the other hand, has studied flexible learning models and technology integration. However, as the interactive whiteboard is such a new phenomenon in the Finnish school environment, research on it and its use in the Finnish classroom or even globally is only in its infancy.

The objective of this study was to shed light on how foreign language teachers were adapting to welcoming and using the interactive whiteboard and to find out what their views on it as teaching equipment were. Furthermore it aimed to discover how teachers were actually using the interactive whiteboard, their views on new educational technology and whether today's technology training was meeting their needs. The data of the present study consisted of an online questionnaire and three thematic interviews that were analysed after the principles of content analysis.

In chapter 2, we are introduced to the interactive whiteboard. In chapter 3, technology's possibilities in aiding learning and the issues involving technology integration and teacher training are discussed. The data and methods of the present study are presented and described in chapter 4. The findings of both the questionnaire and the interviews are presented and discussed in chapter 5, followed by a conclusion with further implications in chapter 6.

2 FROM BLACKBOARD TO SMART BOARDS

In the past 50 years, our society has undergone vast technological changes. This has meant that schools have faced a difficult challenge to keep up with the changes around them. The school environment and teaching has had to adapt to technological advancements and evolve with them. However, the pace of progress in technology is so fast that schools have inevitably been lagging behind, both in acquiring new equipment and training their personnel to use them.

There is a huge gap between generations of the 20th and the 21st century. The 21st century learners have grown up in an environment where internet, smart phones and interactive touch screens, etc., are ordinary. Their generation can be described as the internet- or mobile generation, adept at using technology already since their infancy. Whereas the 20th century generations can remember a time before mobile phones or the internet, let alone interactive technology. These generations have had to adapt, and are still adapting, to the change. Learning to use these technologies takes time. Meanwhile, technology keeps evolving and changing. Today, some schools are already opting to acquiring only interactive technology, which presents challenges to the teachers to adapt to the situation and become equipped to use this technology.

2.1 Evolution of teaching technology

Chalk and the blackboard made their classroom debut at the end of the 19th century, the only two classroom favourites that survived through the years of changes up until the computer age of today (Wilson, Orellana and Meek 2010). During time, the colour of the board changed to green, to relieve the strain to our eyes and later on, to get rid of the chalk dust flying everywhere, causing allergies, the whiteboard was developed (Hlynka 2012). Popular in the business world, it eventually found its way to schools as well. It could be written on with soft felt-tipped markers, eliminating the screeching sound made by chalk and the irritating chalk dust was then replaced with the pungent smell of marker (Hlynka 2012). Around the 1930's, auditory aids in the form of the use of the radio spread to schools. During that period, the first prototypes of the overhead projector were also developed, a device that eventually spread to schools and stayed on until the 1990's and to some extent to this day (Wilson et al. 2010). In the 1950's

behaviourist environment students participated in drill-sessions in the newly arrived language-laboratories (Wilson et al. 2010). After the 1980's technological innovations in computing, began the rise of the computer-era and finally, at the turn of the 21st century, the Interactive Whiteboard was introduced as an interactive tool that began to replace the trusty old blackboard (Wilson et al. 2010).

2.2 Interactive whiteboard (IWB) – what is it?

Smart board, Active board…it has many names, but all in all the interactive whiteboard (IWB) is basically a giant touch screen. The screen is connected to a computer and a video projector (separate or built into the board). The board functions by touch of a pen or a hand. Documents, images, numbers, words and letters on the board can be moved around and modified then and there and saved for later use. Suomen koulupalvelu describes the IWB as the following:

> The IWB is a device that can be characterized as the teacher's interface to teaching materials. With it the teacher or a student can operate computer programs, mainly the boards own software, which combine a computer screen, a flip chart, a whiteboard and web resources or any computer operated programs, such as Microsoft Office-applications, digital maps, CD-ROMs and DVDs, educational software, music software or image processing-applications. Depending on the technology used, the teacher employs a pen, a tablet, a touch screen or any other cursor recognizing technology. Combining these, the user has completely new type of possibilities to enliven teaching and bring interesting content to students in real-time. Combining a document camera to the computer leaves out copying papers and overheads.
> (Suomen koulupalvelu, adapted)

In the years of its existence, the IWB-technology has undergone many changes. The boards have gone from boards that could only be operated by one person at a time to ones that can be used by several persons at the same time (Edu.fi). The choices available today vary immensely from different sizes and different types of fixed, wall-mounted systems to movable ones. Most new models include a built-in short throw-projector and public address system (PA), whereas the older models work with a separate video-projector and require an external PA system (Edu.fi, Smart Technologies and Promethean). Some boards have a built-in processor, which enables the use of the board without a computer, and there are also available different types of mobile systems that can transform any flat surface to an interactive screen (Edu.fi).

However, every piece of equipment is different by design and function. Therefore being a proficient user of one, does not necessarily translate into using all the different equipment and consequently training is needed (Edu.fi). The various manufacturers offer their own software, which usually can also be operated with IWBs of other manufacturers (Edu.fi). Most manufacturers have also their own online communities where both registered- and not registered users can download contents such as the required software, different applications, lesson plans and electronic materials (Edu.fi). Today there are multiple electronic resources available online for teachers to use with the IWB: various internet-sites and online communities for teachers where teachers themselves are designing content and sharing their work with others. Also the textbook publishers have begun designing their own electronic and interactive materials. However, teachers need to keep a critical eye on the materials available online. New technologies have made it easy for anyone, not only to acquire, but produce content on the Internet. Therefore the quality of the materials at hand may vary enormously, both pedagogically and linguistically. Even when downloading materials from an online community designed for teachers, one needs to bear in mind that the materials found are made by teachers (and not necessarily qualified teachers) with varied educational backgrounds, language proficiencies in the taught subject, coming from varied educational systems where the standard may be higher of lower than in the downloader's own educational system for learners of the same age or skill level. The teacher therefore needs to assess and evaluate the materials they find and possibly modify them to suit the desired pedagogical aims, target group etc. Luckily, with today's computers and computer programs modification of the materials is made easy.

3 MODERN TECHNOLOGIES AND FOREIGN LANGUAGE TEACHING (FLT)

New teaching equipment, educational applications and software as well as new ways of using the existing technology are being invented as we speak. Schools can benefit from the fast evolving technology. Yet the slow evolution in the world of education had unfortunately led to a situation where schools were becoming outdated and lagging behind in today's fast developing world where technological innovations are happening minute by minute. However, during the past few years, the schools have begun to catch up with technological innovations, such as video-projectors, document cameras, IWBs

and tablet computers. New technology is, to a certain degree, reaching schools, but they are not often used most effectively because of the lack of practical know-how in schools. In addition, old ways of thinking and teaching slow down and at worst stop the evolution at hand. When not used to its fullest potential, new technology loses the benefits of its original purpose.

Nevertheless, without the knowledge of how, teachers cannot be expected to be able to take full advantage of the newest technology. The slow process of progress in the field of education affects teacher training as well. Not enough time is given to informing language teacher trainees of the new technology and teaching them how to use it. With technology, educators are leaving it up to the teacher trainees to educate themselves about technology after graduation. Technology, such as the simple, innovative and multifaceted document camera, can be reduced to the equivalent of an overhead projector or chalk and board in the hands of an oblivious teacher.

Taalas (2007: 420) explains that there are several courses for teachers in the working life to improve their knowledge of technology and their multimedia skills, but the effect of these courses tend to be very short lasting. In addition, she mentions that the courses usually concentrate on particular software, Internet pages or practising individual language skills with the help of technology. Thus they provide a very narrow view to what can be done with technology in language teaching.

As well as teachers, students too are unaware of the benefits that could be achieved with the help of technology in language learning. Though today's students are more adept at using modern technology and have the know-how, they do not seem to be able to translate it into language learning. Evaluating one's learning and analysing it seems a task too difficult at least for students in secondary schools. This could be a result of the traditional idea of what school teaching is and the traditionally passive role of a learner. Traditionally in the classroom the teacher is the one directing the action and when students need to take initiative they fail to do so, even though outside the classroom context they would be more than capable of doing so. I, for example, have seen students being very innovative and using their creativity searching for information about something having to do with their past-time, using several mediums, *Google*-searches in multiple languages, *Youtube*, the *Facebook*, blogs etc. to find information. However, when the information search is connected to a classroom assignment, all these skills

seem to disappear, and even using simple *Google*-searches becomes difficult. Suddenly, they are restricting their thinking to this little framework of the classroom and the language in question. In the students' minds, there seems to be little connection between what they are used to doing with new technologies outside the school and learning. Vähähyyppä (2011: 19) sees important that students are taught the basic technical skills to use different productivity programs and especially to understand the vast possibilities of technology in order to be able to utilise and apply those skills in the future. The challenge is to marry the two 'opposite' worlds of pure business that is the school and entertainment that is the natural technological environment of the students.

Teachers are not necessarily any better in bridging this rift between this generation of digital natives and the adults teaching them. Rivoltella (2012) reminds us that teaching is nonetheless transmittance of oral, written and, especially in today's society, multimedia literacy in varying cultural contexts. New technologies and new media present teachers with all new challenges of teaching not only themselves but also their students about media ethics and digital literacy. There is a truth to Rivoltella's (2012) statement that today we have situation where it is a case of the skilled and stupid vs. the unskilled and instructed.

3.1 Technologies aiding learning

Prashnig (2000: 23, 157) notes that traditional teaching is based on using analytical teaching methods. She adds that even the classrooms are made for learners who use the left hemisphere of the brain. In a traditional classroom, learners are often already positioned in a way designed for teacher led lessons, learners sitting in individual desks (straight rows and lines), facing the front of the classroom and the blackboard, listening to the teacher and looking at the blackboard, involving the use of auditory and visual skills. Learners for whom the traditional classroom is most suited have usually strong mathematical and linguistic skills that are highly valued in the world of academia. Traditional teaching methods therefore require learners to use the left – the analytical – hemisphere of the brain, favouring both visual and auditory skills. As an end result, students involved in the traditional way of teaching are conditioned to using a particular learning style whether it suits them or not. The problem with this in Prashnig's (2000: 31,193) view is that many students cannot learn through the traditional teaching

methods and for many students, listening is the worst possible and the most difficult way of learning and remembering complex information. These types of learning environments do not advance learning, Prashnig (2000: 23) declares. However, Prashnig (2000: 29, 31) states that people are able to learn many things provided with the teaching methods and the learning environment that are suited for them.

According to Iiskala and Hurme (2006: 48), technology could provide help for the situation, since it can facilitate solving problems otherwise impossible for the student to tackle independently. They propose that with the help of technology (especially computers, computer programs and web-environments), learning environments can be turned into ones where learners have the possibility to influence task difficulty, acquiring and receiving additional information and the duration of tasks, thus helping the student to create their own solutions to tasks and problems. Taalas (2007: 415) adds that this does not mean ridding ourselves of the traditional one-on-one lessons but using the two forms of learning side by side providing different learning paths for the needs of different learners.

Järvelä, Häkkinen and Lehtinen (2006: 63) speak of the advantages of using information and communications technology in education, asserting that it provides possibilities for different types of learners to advance by their individual requirements. Salovaara (2006: 111-112) presents for example the possibilities of hypertext as a learning aid, since its diversity allows learners to use several different ways of reading. Its non-linear structure combined with visual elements enables information to be presented in various forms, for example text can be linked to images, examples and figures (Salovaara 2006: 111-112). Therefore, technology in education can create possibilities for students to process information in their own way and further their learning instead of them being suppressed to using only a specific way of learning defined by the traditional school environment. Taalas (2007: 414) points out that, thus far, teaching is teacher-oriented, giving students little possibilities for individual learning or taking an active role in their learning. Nevertheless, the situation is slowly but surely changing with the emergence of IWBs and further training of teachers (Setälä 2012).

Having the option to influence the duration of tasks is especially substantial for the kinaesthetic and the tactual learners, due to their difficulties of staying in one place for longer periods of time, therefore needing more flexible ways of studying. For these

learners the IWB could, in my opinion, provide a tool for understanding, organising and processing abstract information such as grammar, in language learning.

3.1.1 "Hands-on" learners: kinaesthetic and tactile

Carbo, Dunn and Dunn. (1986) remark that the kinaesthetic learners are very different to the visual and auditory learners, since they require self-experiencing, moving and involvement in tasks to learn in a way most suitable for them. Prashnig (2000: 155) states that kinaesthetic learners need full body experiences and physical activities during learning. In addition, Prashnig (2000: 161) notes that these types of learners are not satisfied by just sitting in one place and listening to the teacher but they excel in and are often interested in the more practical school subjects and physical education where kinaesthetic methods are used.

Prashnig (2000: 157) and Carbo et al. (1986: 14) describe tactual learners as those who use their hands when they need to concentrate or listen attentively. They both report that tactual learners learn the easiest when touching, manipulating and handling things. Carbo et al. (1986: 14) mention that writing, doodling, drawing and moving their fingers help tactual learners remember information easier. Prashnig (2000: 159) remarks that tactual learners are capable of staying in their places but it requires a considerable amount of work from them. Prashnig (2000: 157) adds that when tactual learners are forbidden to use their hands, the need of touching and moving only increases, shifting the learner's focus to what is forbidden instead of the task or situation at hand. Even though both the tactual and kinaesthetic learners may seem to be using similar perceptual strengths they are indeed different. Whereas one especially uses the sense of touch to help learning, the other uses the sensory feelings of the whole body. Their ways of learning are different and, therefore, Prashnig (2000: 155) stresses that it is important to distinguish the tactual learners from the kinaesthetic ones.

However, Carbo et al. (1986: 17-18) and Prashnig (2000: 36-37, 187, 319) agree that the issue of learning styles is not as simple as that. They state that one major factor involving these and any learning styles is the impact of the human brain. They explain that the domination of a cerebral hemisphere, whether it is the left or the right, affects a learner's way of processing information. They illustrate that the analytical thinker uses

the left hemisphere, whereas the holistic thinker uses the right. They detail that the differences between analytical thinkers, holistic thinkers and those who use both hemispheres of the brain cause the most substantial differences between and within learner types. According to Prashnig (2000: 271, 283) and Carbo et al. (1986: 17-18), the fundamental difference between analytic and holistic thinkers is that analytic thinkers process information bit by bit, starting from details and piecing them together to form a complete picture, whereas holistic thinkers start by forming an overall comprehension from which to proceed to examine the details. They explain that both types learn equally well, it is just a question of what they need from the teaching to learn to their full potential.

Prashnig (2000: 271, 283) describes analytical thinkers as logically and mathematically gifted. She characterizes them to have both cyclical and analytical deductive skills which makes them capable of working by stage to stage instructions, whereas holistic thinkers always require the overall comprehension and therefore stage to stage instructions do not suite them at all. According to her, analytical thinkers rely on logic and consistency. She explains that they value routines and prefer to work quietly in one place. She notes that this is very different to the holistic thinkers for who first and foremost need learning to feel good. Therefore they require variation and occasional exercise during classes and prefer a relaxed working environment.

3.2 New technologies and language skills

Knowing a language is something more than just knowing how the language system works. It not only involves having linguistic, pragmatic and sociolinguistic knowledge for instance, but also the ability to use various communicative strategies. Nevertheless, whatever approach the language teacher decides to adopt to classroom pedagogy and practice, they will no doubt focus on developing their students' various language skills. These skills are usually divided into four categories: reading, writing, listening and speaking. Reading and listening are considered as receptive skills, whereas writing and speaking are thought to be productive skills. Receptive competences always exceed productive ones: for example writing normally requires the ability to read simply to construe or assess one's own production, and the act of speaking usually takes place in contexts which also involve listening and understanding (Saville-Troike 2012: 172).

In the world of academia the receptive skills have traditionally had a more prominent role than the productive ones. Yet, to be able to fully communicate students must learn all of them. Writing and speaking are different from reading and listening primarily since they involve constructing language on one's own rather than interpreting that of others (Saville-Troike 2012: 172). What sets the two apart are that they are typically addressed to different audiences (readers and listeners), writing allows time for planning and editing while speaking is often unplanned, more immediate and connected to the context of that moment (Saville-Troike 2012: 172). The complex skill of speaking entails having to learn many different factors and listening plays a major interactional role in successful spoken communication. Writing is a common medium for testing knowledge in the world and therefore could be considered as the most important productive activity, especially for academic purposes (Saville-Troike 2012: 172). Reading has a central role in relation to developing all the other language skills. In the following these language skills will be discussed and some examples of how technology and the IWB could aid in producing teaching and tasks that can combine together all areas of language skills will be presented.

3.2.1 Listening

To derive meaning from the language they are listening to, learners need to identify and understand different factors involved in speech, such as sounds, intonation, rhythm and stress (Levy 2012: 280, Field 2012). Awareness of language specific phonetic characteristics furthers understanding, whereas unfamiliarity with them may hinder it (Field 2012). Technologies can help segmentation, repetition and speed regulation in listening instruction (Levy 2012: 280). With the help of new technologies, teachers can isolate speech passages and individual sounds from audio materials, replay and slow down the audio. New technologies can also add interactivity to listening instruction, enabling teachers to link audio materials to further information on the subject on hand via a webpage etc. (Levy 2012: 280). With the IWB, teachers can combine different media (audio, video, images, text etc.), access and operate it using this single equipment. For example, within one file, clicking a word may play an audio file demonstrating the pronunciation of that specific word; another click may lead to a

dictionary entry showing the definition of that word or perhaps to an exercise practicing pronouncing a specific sound within that word.

As we know, not all speakers of a language talk in the exact same manner. Especially within languages that have become “lingua franca”, there are a vast majority of variants. Therefore it is sensible to familiarise learners also with other forms of language than the standard. Teaching through authentic materials and contexts acquaints learners with conversational features of the language (such as fillers, false starts and overlapping turns) that they are likely to encounter in reality (Field 2012). Understanding this kind of imperfect speech also requires teaching listening strategies (Field 2012). In Finland, there is a vast supply of language textbooks and teacher’s manuals with audio materials. However, in Finnish textbooks actual authentic audio materials are a rarity. Moreover, the audio materials of the textbooks are traditionally designed for specific pedagogical purposes for foreign language learners. Therefore, within these foreign language textbooks learners are not traditionally presented with other variants of the language than the norm which could make it difficult for them to become accustomed to the conversational features of the language. This could result to failure of comprehension in actual authentic communication scenarios. Luckily today, in addition to the textbooks, teachers have a wide range of resources at hand online, with television broadcasts, *YouTube*-videos, magazine articles, blogs and social media etc. which allows them to show not only different variants of the spoken language but various registers as well.

3.2.2 Speaking

Thornbury (2012) describes that learning to speak involves knowing the language system, including grammar, vocabulary and phonology. Yet, he adds, knowing the system does not automatically translate into knowing how to speak the language. Knowing a language is something more than just knowing how the language system works. Thornbury (2012) sees that knowing a language composes of three factors: knowledge (grammatical, lexical, sociolinguistic, and pragmatic features of the language), skills (fluency, negotiation and management skills) and communication strategies. Martinez-Flor, Usó-Juan and Alcón Soler (2006: 139, 147-151) classify these factors involved in the speech act under communicative competence that consists of linguistic, pragmatic, strategic, intercultural and discourse competences. They further

explain that speaking is a complex act of interaction that involves simultaneous production, understanding and modification of language, while using all the various skills, knowledge and strategies (as mentioned also in Thornbury 2012) to compose linguistically correct utterances suitable for that specific speech situation. Therefore, as with listening, there is a need for varied examples of speech, not just the standard to develop the necessary skills for successful communication.

With technology, such as the IWB, teachers can easily access electronic materials available on the internet to diversify the input received and examples given. Teachers can for example show students various videos of authentic speech situations. Teachers and students can record speech activities in the classroom using a microphone and a document camera or an *iPad* etc. attached to the IWB. The video footage can be replayed, edited, discussed and evaluated right then and there. This can provide instant feedback, made by the teacher or the peers, or by way of self-evaluation. Learners can also take part in "Tandem learning": face-to-face interaction with speakers of a foreign language. Paola Leone (2012: 131-132) describes it being very close to conventional peer communication with similar characteristics such as turn-taking, negotiation of meaning, repairing each other's incorrect language use, code-switching and the use of gestures and body movements. Consequently, many learners find speaking easier than for example writing, as it permits them to seek clarification and other support from their communicative partners (Saville-Troike 2012: 172).

Teachers can utilise for example exchange or friendship-programs such as the Erasmus- or Comenius networks or eTwinning to organise teletandem videoconferences with native speakers. In these discussions the participants use their L1 and L2 to communicate utilising the Internet, video and instant messaging software such as *Skype* (Leone 2012: 131-133). The conversations can, for instance, revolve around pre-elected themes. Simultaneously the videoconferences can serve for learning about culture as the themes can be selected to represent various cultural issues of both the source and target languages. Learners are also likely to need to practice their communicative strategies when speaking with a native speaker whose language proficiency is higher than their own. Leone (2012: 131-133) reports that especially negotiation of meaning and correcting each other's language use, that arise from misapprehensions, inappropriate target language vocabulary or expression and uncertainty about language use of the target language, are instrumental in the development of L2 communication ability.

However, Levy (2012) reminds us that when it comes to the quality and speed of transmission, there are limitations to technology. For instance, the successfulness of videoconferences can sometimes be hindered by the equipment used by the participants: the audio feed may be difficult to hear, or there can be problems with the video (for example the connection may break up or the image can lag behind the sound) that can affect comprehensibility.

3.2.3 Writing

Writing is a process of constructing texts rooted in social contexts (Cumming 2012). The objective of successful writing is to create a well-formed, coherent text that meets the intended communicative purpose in a set context (Usó-Juan, Martinez-Flor and Palmer-Silveira 2006: 391). To achieve effective communication, learners have to utilise their linguistic, pragmatic, socio-cultural and strategic knowledge together (Usó-Juan et al. 2006: 391). Some second language learners find the productive skill of writing easier to acquire than speaking because it provides them time to reflect and edit their language and output (Saville-Troike 2012: 172). When writing, learners need to be aware of, for instance, how their choice of words, their use of sentence structures and punctuation may affect the comprehensibility or the effect produced by the text, as well as understanding the appropriateness of their choices in a particular context (pragmatic and socio-cultural knowledge) (Usó-Juan et al. 2006: 391-393). They also have to be able to use different communication strategies to write effectively: for example paraphrasing, restructuring or making literal translations from their first language (Usó-Juan et al. 2006: 393). Peer feedback is also seen to be an important factor in developing the strategy of revision (Usó-Juan et al. 2006: 393).

As stated by Starke-Meyerring (2009: 506), technologies are essential to writing as they facilitate writing, whether it is the actual equipment we write with or by which we print and publish our texts. Today most of our writing happens in fact in digital environments and is published on the internet, were it by e-mail, in a blog, in the *Facebook* or any other of the myriad of possibilities online (Starke-Meyerring 2009: 507). Therefore, why not utilize this medium in the classroom as well? Teaching groups can set-up their own blogs, social media profiles or internet sites and publish students' texts on them.

There the texts are open to peer-feedback and evaluation in the form of commenting. Texts can be edited and re-posted or written replies can be composed. Possibilities are a plenty. However, copyright and privacy protection issues need to be considered when publishing students' work online.

With technology and especially word processing programs, editing text is quick and easy. Most IWB software even include handwriting recognition, which enables teachers and students to write their text on the board with a pen (that comes with the board) or with their hand and immediately edit the text on a word processing program or just wipe it away. Technology makes it fast and simple to create and combine various media: text, images, hypertext, video etc.

3.2.4 Reading

To read is to solve problems (Ediger 2006: 303). Deemed to be a fundamental academic skill and an introductory skill to independent language learning, reading entails being able to translate meaning from a written text and understand the purposes of the discourse features (for example markers, cohesion and coherence) used in the particular context employing different reading strategies to construct sense (Usò-Juan and Martinez-Flor 2006: 261, 268, 271). Moreover, the skill of reading requires knowledge of the rules and mechanics of the language (i.e. grammar, vocabulary, alphabet, punctuation etc.), as well as pragmatics (for example register and choice of words) and cultural factors, that may affect the meaning of the text, for example, the socio-cultural background of the target language (Usò-Juan and Martinez-Flor 2006: 269-270). The strategies students use, depend on the purpose for reading (Ediger 2006). Tasks in authentic contexts and reading for specific purposes can help students develop varied strategies for reading comprehension for diverse objectives (Ediger 2006).

Therefore, acquainting students to reading and comprehending various genres of texts, not only pedagogical or academic, and involving tasks for reading for different purposes can prepare students for proficient reading comprehension. Technology aids teachers and students to access and view a multitude of texts online as today almost everything is published on the internet. Consequently, finding various texts in diverse genres and registers as well as using them in the classroom is fast and cost efficient. Via a computer

and a video-projector or an IWB, teachers and students can for example compare different genres of text side by side and discuss them, without the need of printing or making photocopies. With the IWB, text can be for instance enlarged, underlined or circled; In other words the text can be edited and highlighted in a multitude of ways instantaneously right there in the classroom. This can be done by the teacher, or more effectively, by the students, involving them in the process and getting them physically involved in the reading and comprehension – beneficial to the kinaesthetic and tactile learners.

3.3 Integrating new technologies into teaching

There is no denying that technology is here to stay but how it is used by teachers and to what extent varies enormously. Taalas (2007: 413) reminds us that even though technology and the ways to use it have developed and multiplied and though technology has been an aid to language teachers for decades, it nonetheless has not become a fixed part of language teaching. Quite the contrary, Hockly (2009), notes that teachers have a tendency to integrate very little technology into their classes despite using a multitude of technologies in their daily lives. This, she adds, may be due to three factors. Firstly, the fear and insecurity of teachers to use new technology and feeling it may be too late to learn how to use them. Secondly, the lack of training and support from the workplace or employer, which renders teachers overwhelmed with knowing how to use new technologies or where to start learning how to use them. And thirdly – which is especially the case in Finland with smaller schools and areas outside the larger cities particularly in the current economy – the lack of resources: schools simply cannot afford to make investments in new technologies and therefore many teachers do not have access to them. A new study by the Finnish National Board of Education showed that working communities had not yet widely immersed themselves to the development of the use of educational technology and that resources varied greatly between different schools and regions (Mikkonen, Sairanen, Kankaanranta and Laattala 2012/13).

The high cost of the technology is one of the major factors restricting the change to using IWBs as the price for equipping a single classroom comes to several thousand euros (Setälä 2012). Typically, the total cost is comprised of the actual equipment, the software and technological training for the personnel provided by the manufacturer

(Setälä 2012). Usually the equipment can be bought without the training from the manufacturer, but some manufacturers such as Promethean do not sell their boards without a training package (Promethean ActivBoard-training 19.2.2013). After all it only makes sense to train the teachers immediately before or with the arrival of the equipment to get them using it as soon as possible.

Yet, in situations where schools have the resources and equipment but do not train their teachers in using them, employers are being very short-sighted because adequate training is needed for not reducing this expensive technology to a mere silver screen of old technology (Setälä 2012). As Sharma (2009) states, it is how the technology is used and not which technology is used, that can improve learning. Nevertheless, even though it is stated in the syllabus that language teachers are expected to equip their students with information-technological skills, the use of technology remains merely an additional spice to the lessons or an aid to practising a single area of language through mechanical repetition (Taalas 2007: 413-414). Furthermore, new electronic materials often only replace a task previously done in class (Taalas 2007: 414). Rivoltella (2012) elaborates that the arrival of new technologies into schools if often greeted by teachers with the idea that simply introducing technology into the classroom suffices to change teaching and learning but as Tapscott (2009: 148) notes, teachers cannot merely throw technology into the classroom and hope that it will work.

3.3.1 From recreational to educational

As Hockly (2009) expresses, it is a completely different matter to use technologies in our everyday lives in contrast to using them in the classroom. Teachers need to know what to do with the equipment in the classroom. In order to implement different learning paths, teachers need to be thoroughly aware of the students' language skills and develop more diverse teaching practices. They also need to be able to comprehend and evaluate the effects achieved by using different technologies and how to combine them to acquire effective results (Levy 2012). This demands a great deal of knowledge from teachers and therefore educating the teachers is critical for development. Sharma (2009) lists a few key principles for successful implementation of new technologies. Firstly, making clear the roles of the teacher and the technology, that is to say the technology does not replace the teacher but it is there to complement and enhance the teacher's

actions. Secondly, keeping an open mind and not giving up before even trying something new.

There are several different types of training available for teachers, for example, formal courses, workshops, In-house Teacher Development programmes that include long-term mentoring and varied online training (Hockly 2009). Taalas (2007:420) reports that during the years 1995-2004, there has been a multitude of technological training for teachers but unfortunately the problem with these courses has been their inefficiency to generate lasting practises. According to Setälä (2012) schools should always acquire training when purchasing the IWBs to ensure their successful integration to the classroom practices.

Sharma (2009) presents some challenging factors concerning technology training for language teachers and its success. Firstly, the teacher's attitude determines the change produced by the input. Without a positive or at least a neutral attitude towards new technologies, there cannot be a change in the teacher's practices. Secondly, every argument has their positive and negative sides which vary according to the teacher's views on the matter. Thirdly, each teacher has their own views on the pedagogical issues involved with the technology. Their opinions vary on issues such as what for is the technology used and what purposes it serves. Fourthly, there is a lot of heavy jargon related to technology and some terms have multiple meanings. Therefore, it is important that the trainer training language teachers is careful in selecting only the relevant terminology for the trainees, and that they are in agreement with the meanings behind those terms. Fifthly, it is essential that the level of knowledge or skills of a training session meets the needs of the trainees. The needs of a digital native new to teaching are different than those of an experienced teacher not so well acquainted with the latest technology. Lastly, we can expect there to be a certain amount of resistance from the teachers due to the fear of technological problems and relinquishing control. So, what to do when technology fails?

Teachers may also be concerned about complicated copyright issues that do not seem to be clear for the students either. There is constantly news of various copyright infringement cases, invasion of privacy, monitoring, censorship etc. Perhaps because publishing and acquiring information is so easy and can even be done anonymously, it seems often unclear whether something is legal or appropriate. Today, more than ever,

the issue of media ethics is important, when employees are being fired over their actions on the internet and students are involved in cases of internet bullying and defamation. As Rivoltella (2012: 27) mentions, new media seems to give the youth incentive to misbehave. One example being a recent phenomenon in Finland of students posting on *Facebook* notes that their teachers have given on *Wilma* (web-based school administration software) on their behaviour. Rivoltella (2012: 27-28) states that teachers today need to educate their students not only on critical thinking when it comes to new media but also on their accountability in the public space. He further notes that scholars and governments are faced with a challenge of equipping the digital natives of today and educators with what he calls *digital wisdom* i.e. the knowledge on how to use new technologies and media responsibly. He divides this concept of *digital wisdom* into two categories: *digital skilfulness* and *digital stupidity*. Skilfulness means the ability to use technology but also the ethical and critical knowledge relating to its use. One can be skilful in operating technology but *stupid* (irresponsible, harmful, unethical) in the way they use it and vice versa.

Yet, successful integration of technology into the classroom is not merely a question of inducing teachers to adopting the technology and training them into using it. It also requires getting today's "diginative" students to viewing it as a natural part of classroom work. Yes, this new generation of learners is very adept at using the newest technology and gadgets for entertainment purposes, but given a task involving the use of word processing programs or *PowerPoint*, their knowledge of technology does not necessarily help them to complete the task. Or the idea that social networking sites, such as the *Facebook*, could be used for academic purposes, for example sending school assignments to one another, goes beyond their imagination.

3.3.2 Educating educators

The Finnish educational system attracts educators from all over the world to come to Finland to study our educational system. Our students' continuous success in the PISA-tests has undoubtedly had its effect on the popularity. Nevertheless we mustn't forget that even though we are now at the top of international lists with our learning results, the situation might not remain the same if we do not take care that our schools keep up with change (Vähähyyppä 2011: 19). As the world we live in, the labour market and the educational structures change, so does also what is demanded and expected of teachers and teacher training (Taalas and Aalto 2007: 153). This is especially true in today's society where the pace of change is so rapid. The actual changes in society and the world around us happen more quickly than our institutions can modify their functions to react to the new needs and demands of society, labour market and education. Higher education and the working life require more and more varied skills and many of the youth today will in their time be graduating to professions that do not even exist at the moment; Professions, where they will be expected to have even more creativity and flexibility than before (Vähähyyppä 2011: 19). As stated by Tapscott (2009: 127), we are now living in an era of lifelong learning, where students are required the skills of creative, critical and collaborative thinking, excelling in reading, mathematics, science and information literacy in addition to mastering basic skills. He adds that students are also expected to be able to react to situations quickly and make their way through them effortlessly and creatively. He concludes that today's students are being raised to become responsible citizens who are continuously interested and willing to contribute and learn from and about the world around them.

But teaching this new generation of students may prove to be quite the challenge for there seems to be rather significant differences between the baby boomers generation that our current educators are largely part of and the 'digital natives' that walk the halls and absorb information taught to them. Tapscott (2009: 104-108, 126-127) explains that the 'digital natives' he refers to as the *Net Generation* differ from earlier generations in that contrary to previous generations they will not be satisfied sitting quietly in their seats listening to a teacher lecturing. They will answer back and challenge the teacher to conversing. They want and expect to have a choice in what they are taught, when they wish to learn it, how they want to learn it and also where they wish to do the learning. He points out that the 'digital natives' want their education to be relevant to the world

they live in and they want learning to be interesting and fun. He remarks that forward-looking educators today are designing ways to change pedagogy to meet the demands of the 'digital natives'.

Changes in pedagogy will certainly be necessary as, in order to be efficient, teaching should take in account that the youth of today are learning in very different ways than their parents did. Tapscott (2009: 104-108) illustrates a fundamental difference between the ways in which the 'digital natives' and for example the baby boomers absorb information. Baby boomers take in information in a linear and sequential way, starting from the beginning and moving towards the end. 'Digital natives' on the other hand absorb information in a non-linear and non-sequential way: they use *keywords, hypertext, clicking and cutting and pasting* to gather information. Their brains are rewired to leap around to acquire information. It seems that they have a certain need to be distracted to feel comfortable and are constantly multitasking using various media simultaneously. He explains that both generations have also learned to read in different manners. The ones that have grown up digital are trained to find meaning in images and icons with one look, instead of reading the whole text from start to finish. As a result, they are much more visual than their predecessors. Tapscott also presents that research such as a study by *Oxford Future of the Mind Institute,* have shown 'digital natives' to think quicker and switch between medias and information but their multitasking leaves them less effective in thinking more imaginatively or profoundly about complex issues or recovering from disruptions. He adds that because of their continuous multitasking they are also more likely to become less deliberative, struggling to resolve problems and accept stereotypical solutions.

Educational methods and practices of today seem not to suit this new generation and according to Tapscott (2009: 126-127) it has led to situations of students dropping out of schools because they find it uninspiring and uninteresting as he describes is the situation in the United States at the moment. He proclaims that students themselves or the Internet bear no responsibility of the situation. Perhaps, but generations before them have been able to attend school, participate in lessons and take responsibility of their learning without, I imagine, finding school particularly fascinating. Nevertheless, certainly in the light that today's students do actually learn naturally in a different way than before schools should adjust their methods accordingly, utilising students' strengths and building up their weaknesses. The information taught should of course be

relevant as suggested previously by Tapscott (2009). However, adapting pedagogy to meet the needs of a new generation is not the same as tailoring it to accommodate students' wishes and allowing them to dictate their education in order to make everything interesting and fun. After all, what kind of a lesson would we be giving to the new generations if we were to try and make everything fun to get them even attempting to do it or that showing them that quitting is acceptable if something is not that interesting? As Tapscott (2009) noted, schools are supposed to be raising responsible future citizens. Is it not then important to teach them that in school, just as in the workplace, they are expected to perform tasks whether or not they find them interesting? We criticise parents for indulging their children, why then should schools do the same?

However, we need to be aware that the factors that will keep us at the top of the PISA results etc. are no longer the same that took us there (Vähähyyppä 2011:19). Therefore we must keep evolving and innovating our education. This new generation of 'digital natives' need us to help them not only how to learn to look for information but how to analyse, synthesise and then evaluate it critically (Vähähyyppä 2011: 19; Tapscott 2009: 134). The days of uniform teaching and mass lectures have passed in the way of a need for more individualised teaching. Technology could provide help for creating a more student-focused, customised, collaborative learning environment but changing existing models takes time (Tapscott 2009: 127-128, 143-144). Teacher training is critical to the successful development of teaching (Taalas 2007: 419).

3.3.2.1 Evolving teacher training

Vähähyyppä (2011: 19) tells us that the nature and quantity of information have changed in the recent years. She explains that we have less need of our own memory capacity for recalling detailed information such as telephone numbers, addresses or dates, since everything can quickly be checked online or the information is stored on our mobile phones. She adds that information has also become clearly more visual and to the youth video photography is often a more natural way of receiving and producing information than a written text. Information technology is an essential part of the everyday-functions of today's schools and new learning environments (Kankaanranta, Palonen, Kejonen and Ärje 2011: 47). However, it seems that teacher training has not

been able to keep up with the growing presence of multimedia in society, schools and students' lives even though, as stated by Taalas and Aalto (2007: 153, 167), teacher training has moved from a didactics-orientated viewpoint, that emphasises the teacher, teaching and teaching methods, to adopting an approach which is focused on reflecting on pedagogy, learning and guiding learning. They present that following this also the teaching methods have diversified, yet multimedia education in teacher training is easily reduced to superficial web-discussions, restricted and detached take on media education, and supporting the use of a learning platform of a single course. Taalas and Aalto (2007: 171) assert that the university curriculum does not prepare teachers to various forms of language training, adult education for instance, since it heavily emphasizes educational aspects directed principally to bring subject teachers closer to class teachers. They further add that a majority of teaching performed by teacher trainees during practical training is teacher-led classroom work even though teaching methods have significantly diversified. They note that for example online-teaching is not a part of training and teacher training does not equip trainees with any abilities or models to executing this kind of teaching. They also report that at the same time there is a growing pressure to diversify language training starting from basic education where small groups of several schools could be joined to form complete teaching groups with methods of multifaceted teaching. With varied forms of teaching schools, towns and municipalities could not only create full teaching groups but also to form groups that would not otherwise be formed due to lack of pupils to meet official quotas. At the moment students may need to change schools in order to study a chosen foreign language. However, with the help of online-teaching, for example, teaching groups could be created combining students from several schools with the teacher teaching from one of the schools via video-conferences, for instance. Co-operation and combining resources between schools, towns and even different municipalities could help in situations where teaching groups are being cut because of budgetary problems.

In order to successfully employ new digital learning environments to pedagogical use, teacher training should ideally always be one step ahead of the schools' learning and studying practices (Järvelä and Kauppinen 2012). In other words, universities and teacher trainers would need to become virtually clairvoyant in a sense to be able to predict upcoming changes in society. However, we might question to what level this is possible, given that the technology itself develops in such a fast pace that even the pure logistics of keeping up with the latest software and equipment is a mammoth task. Not

to mention the time it takes to implement changes to the university's curriculum and to actually train students. By that time technology would possibly have developed so much further that the training might already be out of date. Consequently, we might agree that being ahead of change would be a task quite impossible for teacher training as already keeping up with change is one huge play of cat and mouse. Teacher training should however try to follow very closely the changes in schools' learning and studying practices and develop their training accordingly. The key could be trying to speed up the process of change within universities, in order to get the results of the training quickly to the field, in schools.

During the past two decades, there have been massive governmental investments to technology training projects such as *Tieto Suomi* 1995-1999 and between 2000-2004 *ope.fi* for primary and secondary school teachers and *TieVie* for teacher of higher education. Nevertheless, the numeric goals of the projects were not reached and the effects of the training to the teachers' pedagogical methods have remained insubstantial. Teachers seem to have really profited from the training only at times. They have understood the added value of technology and gained social and collegial benefits from the training but rarely received any lasting use. The problem lies in the fact that the available technology training is usually short-term and technology is viewed as add-on equipment rather than a resource enabling pedagogical development of teaching. (Taalas 2007: 419-420).

Taalas and Aalto (2007: 168) advocate that only through personal reflection can a teacher discover pedagogical value for the use of technology and multiple media. Maintaining and developing ones professional skills is in a key role in changing schools (Vähähyyppä 2011: 20). Thus the true challenge of teacher training is to guide teacher trainees to build their pedagogical knowledge together with the use of multiple media. Also, a further challenge to teacher training is to assess and predict how the natural multimedia environment of today's youth could benefit learning in schools and finding natural ways to integrate technology to the syllabus. There is a need for more technology training in teacher training, yet as stated by Taalas and Aalto (2007: 169) the solution is not to add a few more IT-courses to the curriculum but broaden the current way of thinking and integrate a multimedia approach to the entire course of teacher training.

There are some advancements and experiment being made, such as the collaboration between the departments of information technology (IT) and the Finnish language of the University of Jyväskylä. It was project during the academic year of 2011-2012 where students of IT and teacher trainees of the Finnish language produced five teaching experiments employing new technologies and methods in teaching Finnish language. In this experiment the IT-students realised the significance of pedagogical support and the teacher trainees of Finnish were able to develop their information technological skills with the assistance and support of the IT-students (Järvelä and Kauppinen 2012). Ventures such as this one are vital in figuring out how to integrate more effective and targeted technology training into teacher training.

Nonetheless, if advancements such as the project by the University of Jyväskylä do not produce lasting effects to teacher training but remain individual experiments, as is the tendency of technology training in general, teacher training cannot meet the needs of the society or of the teachers themselves. It is not enough to have knowledge of the 'mechanical' functioning of certain equipment; Teachers need knowledge on the pedagogical use of technology and how to combine different technologies effectively to aid their students' learning. A course on some general aspects of the use of the IWB for example may get teachers started with working with technology but to truly get the maximum advantage of the equipment, teachers would also greatly benefit from subject specific training. If we compare for example a language teacher and a mathematics teacher we can expect them to have very different needs concerning the function and pedagogy of the equipment. Therefore to fully profit from training and to create lasting practices, they would require training that would address issues concerning their respective subjects.

3.3.2.2 Continuing learning

Norrena, Kankaanranta and Nieminen (2011: 97-99) report in their case study that teachers on the field have access to technology in schools but they lack a concrete example of how to diversify and enrich teaching with technology. Mikkonen et al. (2012/13: 10, 14-15, 17) add that while teachers have a positive view on technology and feel quite confident in their technological skills, they feel uncertain about their skills regarding the pedagogical use of technology. Kankaanranta et al. (2011: 47) further

state that recent studies have showed there to be great differences between schools in the use of IT-technology, the methods of use and the pedagogical use of IT-technology, and even regardless of existing resources, IT-technology has not been widely implemented. Their notions are supported by the results of the SITES 2006-study by Kankaanranta and Puhakka (2008), who report that in Finnish schools the use of IT-technology in teaching different subjects had not become more frequently or widely used and it was still quite insubstantial against expectations or economical investments. In fact, they note, a great number of teachers were not using IT-technology in their teaching at all and therefore were still largely ignorant to its possibilities. Kankaanranta et al. (2011: 48) attest that while proper resources are necessary, the use of IT-technology in teaching requires more. As cited by Rivoltella (2012) and Kankaanranta and Puhakka (2008) for instance, simply increasing technological resources and investing in infrastructure do not produce successful integration of technology into teaching. Norrena et al. (2011) note, that teachers need pedagogical support for the use of technology. Kankaanranta et al. (2011: 48) further advocate the teacher's pedagogical approach to technology to affect students' learning results. Vähähyyppä (2011: 20) is in concurrence with Norrena et al. (2011), noting that teachers should have the opportunity to participate in varied actions supporting their professional development, such as training, research and networking.

The results of the study by Norrena et al. (2011) showed that professional development of teachers is linked to the innovativeness of teaching practices. Participation in teacher-networks and research-orientated approach were also found significant. Whereas one-sided training, such as taking part in formal training, individual courses or courses based on a merely technical point of view, were seen to have a lesser effect on renewing teaching practices. They further found that there were so called 'innovator-teachers' in schools who by their own actions are instrumental in bringing new practices to their work environment. These teachers did not differ much from their colleagues with regards to their teaching practices, only that they used a wider range of practices and combined more traditional ways of teaching with innovative ones. Sadly, these innovators were often quite alone in the workplace and rarely received the needed support to implement new practices to their schools. They were often met with resistance from their colleagues and had the pressure of being made responsible for the regeneration of the entire school. The diffusion of innovative teaching practices as part of the school culture would require building a common vision and goal for the school as

a whole and giving the needed pedagogical support to the innovators driving the change to bring forth change in their colleagues too. Kankaanranta et al. (2011: 49, 52) report that on the school level the most significant factors affecting teachers' use of technology were the schools' head teachers' views on technology's significance to learning results, factors involved with the development of directorship and the support given to teachers to use technology. They further presented that in the views of head teachers of Finnish secondary schools, IT-technology played an insignificant role in developing schools and teaching. Yet, in a report by the Finnish Institute for Educational Research (Piesanen, Kiviniemi and Valkonen 2006) concerning teachers' continuing education, mastering the pedagogical use of IT-technology was one of the teachers' central needs for training.

However, Taalas and Aalto (2007: 185) express their concerns over the fact that the number of teachers who have never participated in continuing education or refresher courses has continuously increased. This has happened regardless of the fact that we are living in an era where lifelong learning is constantly emphasized and the learning of new is seen highly important, as stated by Tapscott (2009: 127). Yet, if teachers are supposed to teach students to value and pursue lifelong learning, it seems greatly contradictory that they in turn would not be continuing to educate themselves. In the report by the Finnish Institute for Educational Research (Piesanen et al. 2006) concerning teachers' continuing education, it was concluded that many of the development program's recommendations had not been properly materialized in practice. It was also stated in the report that there were many obstacles to continuing training, such as attainability, resources and attitudinal or motivational issues, and that continuing education was not seen adequately supporting teachers' work and training was not equally available to all teachers.

There are alarmingly great regional differences in attaining continuing education. Teachers in the South of Finland are in an advantage whereas teachers in Eastern Finland are least likely to have the opportunity to attend continuing education. Training usually takes place in Southern Finland, thus making it difficult for teachers from other regions to participate, especially if the employer is not willing to pay for a substitute teacher and compensate travel expenses, even though the actual training were free. Larger cities and schools are in a far better position compared to smaller ones. Teachers may have little say in the matter of their own further training, as it is normally the head

teachers or the municipality that decide on training their staff, often without consulting them on their needs at all. Training appears fragmented to teachers, as it is usually short-term and there does not seem to be a continuum between teacher training and later continuing training. Also, teachers rarely have the possibility to choose training that would be relevant to their previous learning history. In addition, the different career stages of teachers are not taken into consideration in the supply of continuing training although it is evident that the needs of a teacher just starting their career and one who has been working for over a decade are very different. At the moment we cannot talk of teachers' lifelong learning or even continuing training that would enable the continuous development of teachers' professional skills. Furthermore, there are too few opportunities for language teachers to improve their language skills regularly through, for instance technology training given in a foreign language. (Taalas and Aalto 2007: 185-186).

Taalas and Aalto (2007: 185-186) reveal that training is offered by several quarters and there are no uniform records of accomplished training. Furthermore they add that the system of financing training tends to favor short-term training that is founded on needs issuing from various reports and strategies. Piesanen et al. (2006) propose that more support should be given to training based more on comprehensive, wide-ranging and long-term personal- and academic development plans. They add that teaching should be seen as part of lifelong learning, where teachers' needs for training may change throughout their careers but spontaneous development of one's self, one's work and the entire working community are always present. All in all, according to Taalas and Aalto (2007: 187-188), it seems that teachers' right and responsibility to partake continuing training is haphazard. They state that in order to improve the current state of continuing training, there needs to be a system of supervision to monitor its quality and of those providing the training, the number of various training, their effects and financing, and to ensure that teachers all over Finland are getting equal opportunities to participate in training. They add that teachers' lifelong learning should be supported systematically and the development of their professional skills has to be guaranteed regardless of the financial situation of their school or municipality. In addition, they state that guidance for new teachers should be developed and opportunities for mentoring support and workplace learning should be increased. In very few professions updating personnel's knowhow has been so disregarded blaming it on the economic situation, they remark.

4 THE PRESENT STUDY

This chapter outlines the research design of the present study. First, the motivations for the present study in addition to the research questions are discussed. Second, the chosen research methods will be presented, and moreover, the questionnaire and the interviews used for data collection are described. Finally we will move on to the data processing procedures.

4.1 Aim of the study

As noted in Chapter 2, the Finnish classroom has undergone vast and rapid changes in the past decades and especially in recent years. Teachers and students are working amidst an ever-changing environment and schools have a need of keeping up as the world around us changes. One of the recent developments in educational technology in the Finnish classroom is the emergence of the interactive whiteboard (IWB) into an increasing number of schools and classrooms. As our ageing schools are being renovated and brand new schools built, we are seeing the disappearance of old educational “technology” such as blackboards, overhead projectors, televisions, video recorders and even the relatively new DVD- and CD-players.

As the IWB is such a new addition to the Finnish classroom and a new global phenomenon, there is a need to know more about the equipment and its use. In this case the interest is on foreign language teachers and their perspectives. Also, since technology and technology training seem to have been a recent trend attracting vast governmental support, there was motivation to find out how the emergence of new technologies such as the IWB can be seen in technology training and teachers’ view on the training itself. The objective of this study was to shed light to how language teachers of FLT were adapting to welcoming and using the IWB, how they viewed new educational technology and whether technology training was meeting their needs.

4.2 Research questions

As the present study set out to discover language teachers' attitudes and views on the IWB and new educational technologies, as well as their thoughts on technology training, the study was founded on the following questions:

- How are teachers responding to IWB and interactive technology?
- What are teachers' views on IWB as teaching equipment: strengths, weaknesses, possibilities and disadvantages or negative effects?
    a) for the point of view of teaching
    b) for the point of view of learning
- How are teachers using IWB?
- How is the training in new technologies meeting teachers' needs?

4.3 Choosing methods: Questionnaire and interview

For this study the data was collected through an online questionnaire and a semi-structured thematic interview. This combination of a questionnaire with the interview was made in order to enrich the data of the study. Moreover, the results of a questionnaire can be more easily generalized, whereas the results of the interview may provide more comprehensive and detailed insight into the teachers' experiences and perspectives (Tuomi and Sarajärvi 2011: 72-77). In the following, the chosen methods are discussed and the design of the questionnaire and interview, as well as the participants is presented.

4.3.1 Questionnaire

Using a questionnaire as a means for gathering data has several advantages. Questionnaires are very versatile as they can be used for several types of purposes for all types of people in various situations, and the data is suitable for quantitative or qualitative analysis (Alanen 2011: 146; Dörnyei 2010: 6, 9-10). Additionally, questionnaires save the researcher's time and effort as they are generally quite easy to construct, the data can be collected rather quickly and the data processing can be done fairly straightforwardly (Dörnyei 2010: 1, 6). However, according to Valli (2001), using

questionnaires may be challenging sometimes. Both agree that the questions have to be well planned and constructed as well as straightforward enough in order to avoid any misunderstandings and distortion of information caused by these misapprehensions. While Dörnyei (2010: 6-9) professes that reliability and validity may be difficult to achieve, Valli (2001: 101) notes that the reliability is enhanced by the fact that the questions are presented to each responded in the same manner and, for example compared to the interview the researcher has little chance of affecting the responses by his presence or behaviour.

A questionnaire should always be planned carefully. Valli (2001) and Alanen (2011: 149-153) highlight a few critical points. Firstly, the researcher must keep in mind the target group and the research questions while planning the questionnaire. The questions asked should provide the researcher with relevant information which can then be applied to the themes and research problems of the present study. If the questions include 'closed questions', i.e. there are alternative responses, it is important that they are framed in a manner that they do not affect the respondents' opinions or attitudes. Secondly, the language of the questionnaire must be thought thoroughly. The language should be natural and the statements short and simple. Thirdly, there can also be open-ended questions which can be more informative than closed questions. However, answering open-ended questions can be heavy and time-consuming, and processing the answers can be statistically unreliable. Fourthly, it is also wise to think about the order of the questions. The questionnaire should be appealing enough for the respondents to fill it in and thus it is preferable to start the questionnaire with, for instance, easy background questions. Fifthly, the estimation scales must also be planned carefully. There are several different scales to choose from, such as the Likert- or the Flechen-scales, and it is up to the researcher to decide which is the most applicable for the current study. Finally, giving proper instructions is essential when executing a questionnaire. The respondents should know what the questionnaire is about, what the aims of the study are and by whom the questionnaire is made. It is fitting to emphasize that the respondents are encouraged to give their own opinions freely and that there are no wrong or right answers.

Even if the questionnaire is planned carefully and constructed keeping in mind the previously mentioned important points, it is still possible that there will be some problems with using a questionnaire. Alanen (2011: 160) lists some possible

disadvantages of using a questionnaire. Firstly, the answers may prove to be rather simple and superficial, since the questions cannot be too detailed to avoid the influence of the researcher's own views on the respondents' answers. In addition, the respondents may not be willing to use a long period of time to fill in the questionnaire, which may limit the depth of the analysis of the answers. Secondly, the respondents may be unreliable and unmotivated to fill in the questionnaire and to answer the questions honestly. Thus, the results of the questionnaire may vary greatly from one respondent to another, depending on the time and thought given to answering the questions. It is also possible that the respondents leave out some questions, either by mistake or on purpose. Thirdly, there is often little or no opportunity for the researcher to double-check the validity of the answers. The respondents may simply misunderstand some of the questions or forget something. Fourthly, sometimes it is possible that the respondents do not provide true, honest answers about themselves but answer in a way that they feel is expected or accepted. In other words, the questions are often rather transparent and the respondents are able to guess what the desirable, acceptable or expected answer is and provide this answer even if it is not true. This is characteristic to human nature, since usually people want to present themselves in a good light.

4.3.1.1 The design of the questionnaire

For the present study the questionnaire (to be found in Appendix 1) was created using Mr.Interview-software. With Mr.Interview, it was possible to design a web-based questionnaire that could be easily distributed to respondents via a web-link. An online questionnaire was a practical way of collecting data, facilitating the distribution of the questionnaire and being cost-free. A web-based questionnaire was also considered to be a good way to reach a large number of possible respondents and therefore to acquire a sufficient amount of data, taking into consideration that the aim of the study was to find out teachers' own experiences, attitudes and opinions about IWB in foreign language teaching.

The questionnaire consisted of an introduction with an example definition of the IWB, some background questions followed by content questions in the form of estimation scales, multiple choices and open-ended questions. The content questions were arranged by theme, starting with new technology in general – attitudes and views – and

technology training, continuing with IWB-technology. The questions relating to the IWB as a tool for teaching and learning, were designed on the basis of the SWOT-analysis and divided under four categories (strengths, weaknesses, possibilities and disadvantages or negative effects) with two subcategories (for the teacher and for the pupil).

Before distributing the questionnaire, it was tested with three language teacher trainees, who completed it online. Their response time became to an average of around 15-20 minutes, which in hind sight was too narrow a time frame for the experienced teachers answering the questionnaire.

4.3.1.2 Respondents

Since the questionnaire was distributed via regional language teacher associations (internet-sites, message boards etc.), it is unknown how many people it reached, but the questionnaire produced 50 responses of which 23 were successfully completed. In this study, only the completed responses were analysed, to avoid any distortion of the data by the mixing of completed and uncompleted questionnaire responses.

Of the 23 successfully completed responses, 21 respondents were female and two were male. They represented ages varying from people in their thirties, forties, fifties and up to their sixties. One of the respondents had a Bachelor's degree in Humanities and the rest had a Master's degree in Humanities. All of the respondents had completed their pedagogical studies. 20 respondents had received technology training at some point of their careers, some quite extensively, others only a course or two. Their responses showed a vast variety of different technology training options that have been available. They also revealed that these courses were indeed primarily concentrated on a specific software etc. as noted by Taalas (2007).

4.3.2 Interview

One clear advantage of interviewing is adjustability, since an interview provides the interviewer an opportunity to interact with the respondent and, for example repeat, reorganise and reformulate questions as well as clarify any arising misunderstandings or

pose further questions (Tuomi and Sarajärvi 2011: 73-75). Another benefit of the interview includes the fact that the researcher has the opportunity to choose respondents who have experience in, or knowledge of the research topic (Tuomi and Sarajärvi 2011: 73-75). In addition, when the interview permission is personally acquired the participants are not likely to decline or withdraw the sanction to use the acquired data. However, there are some drawbacks concerning interviewing. Hirsjärvi, Remes and Sajavaara (2003: 193-194) note some of them. Firstly, interviews are time-consuming. Secondly, since it involves interaction between two or more persons, there are several factors (due to the interviewer, the interviewee or the situation) that can affect the reliability of the information. Also, interviews and the information gathered are always situation- and context-bound, which means that persons may speak and act differently in the interview situation than in another.

Different types of interviews allow researchers to examine diverse phenomena and search answers to various problems. The chosen interview type for the present study was a semi-structured thematic interview. In this type of interview the researcher proceeds with a set of prepared questions and with the help of clarifying questions relating to pre-selected themes (Tuomi and Sarajärvi 2011: 75, Eskola and Vastamäki 2001: 26-27). In a semi-structured thematic interview, the individual's interpretations of the topic are highlighted (Hirsjärvi and Hurme 2000: 48). With the semi-structured thematic interview it is not strictly determined that the content of the interview needs to remain precisely the same with all the respondents or that the questions should be presented in exactly the same order (Eskola and Vastamäki 2001: 26-27, Tuomi and Sarajärvi 2011: 75, Hirsjärvi and Hurme 2000: 48). Nevertheless, the researcher cannot ask any aimless questions but the questions proposed are based on agreed themes. Eskola and Vastamäki (2001: 33) present three examples of how the themes may develop: by intuition (or some might say haphazardly), by the background literature or by a theory that is converted into a measurable form. Tuomi and Sarajärvi (2011: 75) adopt a more strict view on the matter, defining that the themes are at the very least envisaged after the theoretical framework of the study. However, a good study entails a balanced combination of all the before mentioned cases (Eskola and Vastamäki 2001: 33-34). The relation of the questions to the framework varies depending on whether the interview allows more intuitive open answers and observations or adheres to previously determined questions (Tuomi and Sarajärvi 2011: 75).

An interview, just as a questionnaire, requires careful planning. Eskola and Vastamäki (2001) and Hirsjärvi and Hurme (2000: 48-67, 73-74, 102-112) list a few important factors to take into consideration when conducting a thematic interview. Firstly, the selection of the type of interview best serving for the current study. Normally, as before with making a questionnaire, the research problem and the research questions guide this selection. Secondly, there is the choice of what to ask. In a thematic interview, the questions are based on selected themes and the questions may vary from structured and detailed to more general and open questions. It is important not to pack the interview with endless amounts of questions about anything and everything possible, but concentrate on what seems most relevant for the current study. Thirdly, the researcher should also think about the way they speak. An interview is ultimately meant to be a conversation and the researcher needs to find ways to enable a safe and comfortable enough situation where the interviewee feels at ease to have a confidential discussion. This can be achieved for example by carefully choosing a suitable manner of speaking, usually a less formal one, and by beginning the interview with a little informal chatter before moving onto the actual interview. Fourthly, the researcher needs to find a suitable place for the interview. The place of interview may seem an irrelevant point when conducting an interview but in fact that is not the case. The choice of venue can define the formality or informality of the interview and cause a feeling of insecurity to the interviewee. Also, ideally an interview would take place in a calm and quiet surrounding, for the technical point of view and so as not to be interrupted.

4.3.2.1 Interview design of the present study

The frame of the thematic interview was designed after the questions of the online questionnaire. It was also divided by themes, beginning with questions relating to new technology and its use in teaching, moving onto questions specifically about the IWB. Part of the questions relating to the IWB used the SWOT-analysis as a base, just as explained before with the questionnaire. The frame for the thematic interviews can be found in Appendix 2.

4.3.2.2 Interviewees

To get a more detailed outlook to how teachers have reacted and adapted to the arrival of IWB-technology and how (or if) they have used it, three language teachers were interviewed. These three teachers were selected to represent a varied age range and level of experience. One of the teachers was an experienced long-standing teacher, other a teacher newer to teaching but with several years of experience and the third a young teacher working in her first position.

Teacher 1:
She is a 28-year old language teacher with a Bachelor's degree in Humanities (with completed pedagogical studies in 2009), working as an upper secondary school teacher of English and Swedish while trying complete her Master's thesis at the same time. She completed her Bachelor's degree in 2008 and has been working in the before mentioned upper secondary school since 2009. Her previous work experience includes a year as a school helper and short temporary posts as a language teacher.

Teacher 2:
She is a 53-year old language teacher of English, Swedish and German. She has a Master's degree in Humanities and she completed her pedagogical studies in 1986. She has been working as a language teacher for 21 years of which 20 years in the same school.

Teacher 3:
She is a 42-year old language teacher with a Master's degree in Humanities and she completed her pedagogical studies in 2003. Before graduating she had had experience as a language teacher in both elementary and secondary school, as well as upper secondary school. After graduation, she worked one academic year as a university lecturer and has worked as an English teacher in elementary, secondary, and upper secondary school since 2006.

4.4 Data collection and data processing

The data collection for the present study began with the construction and distribution of the online questionnaire described in chapter 4.3.1.1 that was created and managed with the online *Mr. Interview* software. In May 2010, a letter of request with a link to the questionnaire was sent to six different local-or regional language teacher associations, mostly in southern Finland, and to the language teachers of five schools, three of which were involved in a IWB-project at the time.

Later, as the responses produced by the online questionnaires were limited in number and content, three semi-structured thematic interviews, designed to follow the themes present in the questionnaire (new technologies in general – attitudes and views –, technology training and IWB-technology as a tool for teaching and learning) were conducted to enhance the research data. The interviews were carried out in December 2011-January 2012. The interviewees were selected to represent different ages and levels of teaching experience.

The questionnaire responses and the thematic interviews in the present study were analysed according to the guidelines of a theory-guided content analysis presented by Dörnyei (2007), Eskola (2001) and Tuomi and Sarajärvi (2009). They define content analysis as the endeavour of identifying themes or topics and finding latent themes or emphases in any written data and describing them verbally (Dörnyei 2007: 36-39, 245-246; Eskola 2001: 143-153; Tuomi and Sarajärvi 2009: 104-108). The intent is to increase the information value of the data by making the information meaningful, coherent and consistent (Tuomi and Sarajärvi 2009: 104-108). Data processing is based on logical reasoning and interpretation, where the information is first broken down to smaller units, then conceptualised and reassembled to a new logical unity (Tuomi and Sarajärvi 2009: 104-108). In theory-guided analysis there are theoretical links, but the analysis does not necessarily arise directly from theory or is based on a specific theory (Eskola 2001: 137). Rather the analysis is guided or aided by previous knowledge and creating new thought processes (Tuomi and Sarajärvi 2009: 96-100). It is based on inductive reasoning combined with a theoretical background that guides the end result, yet there are no set rules to when and where during the process the theory is brought in (Dörnyei 2007: 245; Tuomi and Sarajärvi 2009: 104-108). Moreover, in qualitative research the data collection and analysis are not separate processes but rather

simultaneous and interweaved (Dörnyei 2007: 124). Therefore, qualitative analysis is an ever evolving process that both defines and is defined by the data.

Both Eskola (2001: 143-153) and Tuomi and Sarajärvi (2009: 92-93), present a few relatively simple steps in content analysis. There can be found a few major features in common although they have categorised and organised these steps in a slightly different manner. Firstly, coding the data, that entails reorganising the data and choosing relevant and interesting information, as well as making comments and reflections, making theoretical links and sketching out ideas. It is a form of note making. Secondly, thematising the data, that is to say regrouping the information according to themes and finding out relevant information to each theme from the interview or questionnaire responses. This is not always that simple, since the relevant information can be scattered around the interview for example. And finally, writing a recapitulation of the information, the researcher's interpretations and linking it to the background theory. Dörnyei (2007: 246) further includes one more step to the beginning of the analysis process: the transcription of data. By this he means the translation of information that can be for instance in the form of audio files, as in the present study, notes, or even images, into written form.

There are many advantages to qualitative analysis. It offers flexibility to making unexpected discoveries during the process of analysis since it does not necessarily require any specific or literal hypotheses as a starting point but the analysis can either be data-driven, theory-guided or rule-driven (Tuomi and Sarajärvi 2009; Eskola 2001; Kiviniemi 2001: 75). To be more precise, analysis is present during the entire research process enabling continuous development, modifying and improvement of the study (Dörnyei 2007: 37, 40; Kiviniemi 2001: 75; Tuomi and Sarajärvi 2009: 108). Furthermore, qualitative research usually consists of a rich variety of data and a possibility of conducting immediate "further research" (Dörnyei 2007: 37-40).

However, this method is not without its downsides. First of all, it is a highly time consuming and labour-intensive work. Especially the processing of data takes up a considerable amount of time, which is why there usually is a small sample size of data. Also, the interpretive nature of qualitative analysis can be seen as a weakness: for example amongst the quantitative camp of researchers the fundamentally interpretive character of qualitative research may have given the appearance of unprincipled and

blurred form of research. In addition, considering the subjective role of the researcher, and the usually small sample size, there is a possibility that the researcher may produce over-generalised theories affected by personal biases. (Dörnyei 2007: 41-42).

The analysis of the present study was not entirely dependent on interpretation, since it was guided by theory. The aspects that were to be looked for have been presented in the background in chapters 2 and 3. The research questions guiding the questionnaire and interviews were based on these aspects. However, it cannot be said for certain if some of the aspects presented in the theory were not in the end discussed with the data, or whether others that had not been considered beforehand but have arisen during the analysis have been taken into account in the data. This is where the interpretative and flexible nature of qualitative analysis comes in to play.

5. FINDINGS

The objective of the present study was to find out how teachers were responding to IWB technology and what their views on it as teaching equipment were. Furthermore it aimed to discover how the teachers were actually using the IWB and whether today's technology training was meeting their needs. In this chapter the findings of the study are reported beginning with the questionnaire, followed by the thematic interviews. It seemed most logical to present the findings of the questionnaire and the interviews separately, while drawing connections between them, as the idea of the questionnaire was to provide a more general view on the topic and the interview to produce more detailed information about the subject. Both sections (questionnaire and interview) follow the same pattern: the information was organised on the basis of the primary research questions presented in chapter 4.2, however beginning with the main interest of the study, which was the teachers' views on the IWB (chapters 5.1.1 and 5.2.1), and continuing with teachers' views on technology (chapters 5.1.2 and 5.2.2) and closing with teachers' views on technology training (chapters 5.1.3 and 5.2.3) The chapters concerning teachers' views on the IWB were divided in four subchapters after the themes inspired by the SWOT-analysis that served as a base for both the questionnaire and the interview: strengths, weaknesses, possibilities and disadvantages or possible negative effects.

5.1 Questionnaire

The first stage of data collection involved an online questionnaire. The objective was to find out teachers' own experiences, attitudes and opinions about technology and the IWB in foreign language teaching. On the questionnaire language teachers were asked to respond to questions concerning their attitudes and views on new technology in general, technology training and finally how they viewed IWB-technology as a tool for teaching and learning. The questions relating to the IWB, were designed on the basis of the SWOT-analysis and divided under four categories (strengths, weaknesses, possibilities and disadvantages or negative effects) with two subcategories (for the teacher and for the pupil). In the following their responses will be discussed, arranged after the before mentioned themes, starting from their views relating to the IWB-technology, organized after the SWOT-analysis, and moving onto technology in general and finally ending with their thoughts on technology training.

5.1.1 Teachers' views on IWB as teaching equipment

The teachers were firstly asked whether they were already acquainted with IWB technology and how they had been introduced with it. With the exception of three respondents out of the 23, almost all of the respondents had previously been acquainted with IWB technology. Most of them had read articles on the subject or had come into contact with IWBs in their workplace. Technology training and product demonstrations came close seconds as channels of introduction. Six respondents had also been introduced to IWBs by their colleagues. Interestingly trade fairs and the Internet proved to be the least successful channels of information. Approximately three in five of the respondents stated that IWBs had already been acquired or were on the process of being acquired to their workplace while two in five affirmed that their workplace did not yet have IWBs or was not acquiring them at the moment.

Regardless of the rather high number of respondents whose workplace had acquired IWBs, over a half of the respondents had not utilised the IWB. In three cases it was due to lack of possibilities as there were only a few boards in the school but in one case the respondent openly stated that they did not wish to use it. Of the 10 respondents who had indeed used the IWB, one had not received any training for it and one had acquired

training independently. The rest had received training provided by their employer and mostly given by the manufacturer. A common feature for all the training as presented by Taalas (2007) was that it was short-term: equivalent of one or two afternoons.

At the end of the questions relating to the IWB, the respondents were asked how they viewed the IWB technology in relation to other, more traditional equipment: better and why or worse and why. Their responses reflected themes common throughout the questions concerning the IWB. The versatility of the equipment regarding materials, resources and possible activities rose as a definite positive with 14 respondents describing its flexibility. Its possibilities in illustrating, enlivening and motivating were also credited. On the other hand the technical problems that come with complex technology were thought as an almost equal negative with nine explicit responses and three respondents naming it highly unecological because of its energy use. The high cost of equipping a single classroom that comes to several thousand euros, one of the major factors restricting the change to using IWBs note by Setälä (2012) was also a great concern for over a quarter of the respondents, some of who questioned whether the tight resources of schools might be better directed to students' school lunches, for instance. Three teachers also suggested that it might actually prove to be too much technology for the students, and produce negative learning effects.

There seems to be a need for further technology training in the light of the teachers' answers, as of the ten that had actually used the IWB in their work, only three respondents expressed that they had used the board utilising all of its features instead of using it merely to replace the document camera and the video-projector. Also, some of the teachers' comments show their unawareness or uncertainty to what exactly can and cannot be done with the IWB. They may for instance believe that some of the things that can be done with, for example, a blackboard cannot be carried out with the IWB as noted in example 1.

> (1) ei pysty säästämään vain osaa pysyvästi (esim. liitutaudulla toinen puoli voi olla pysyvästi esim. kotitehtävämerkinnöille tai kokeille, jossa pysyy samat merkinnät) [sic]
>
> Keeping just one part of the board permanent is not possible (e.g. on the blackboard you can designate one side of the board for permanent notes, e.g. homework or tests) (respondent4)

As a matter of fact this can be done also with the IWB, or just with a computer and a video-projector. *Microsoft Windows* even has an application of *Post-it*-notes that can be attached to the desktop. All or parts of what is written on the IWB can be saved for later use. Of course the information cannot be seen when the IWB is switched off or the text file is not open but does it really need to be seen at all times or only when it is needed? At least when the information is saved on the computer it cannot be erased by mistake by the cleaning lady.

There may also be questions about how to combine the traditional printed materials to this technology as in example 2. This teacher is not yet able to see a way to combine the use of printed materials and digital technology through the IWB.

> (2) …Haluaisin käyttää älytaulua tekstien käsittelyssä, mutta kirjan tekstejä ei kai pysty siinä näyttämään ja alleviivaamaan (?)
>
> …I would like to use the board for word processing, but I suppose you can't show the textbook texts on it and underline them (?) (respondent10)

Perhaps the teacher sees the equipment as something that gets all the materials from the Internet or other digital source, but in fact what they are describing here is very much possible with a few steps. The teacher starts by using the document camera already linked to the IWB to take a picture of the text to be saved in a digital form on the computer where it is ready to be used on the IWB software to be edited on the board. This way, the teacher has the original textbook text at hand on the computer whenever they need it. Once the picture is opened in the IWB software, the teacher can proceed by editing the text in any way they prefer: underlining, magnifying, copying, cutting, moving pieces of text around etc. All of the edits can be done and undone easily without having to make any notes to the original print copy of the text. The edited text can also be saved for later use.

This uncertainty and insecurity about using the IWB and new technologies could easily be remedied by further and more accurately focused training for teachers. One respondent summarized the situation impeccably:

> (3) Kun oppisi käytön kunnolla ja saisi nimenomaan kieltenopettajille suunnattuja vinkkejä, jaksaisi ehkä itsekin panostaa teknologiaan oppitunneilla vähän enemmän.
>
> If one would only learn to use it properly and would get some tips especially directed to language teachers, one might be inclined to put a little more effort to technology in lessons. (Respondent 21)

In my opinion general and short-term training only produces results that reflect exactly that: superficial and short-lived knowledge. Teachers would undoubtedly be more apt in translating what they have learned into their own teaching if the training was more in depth and focused on their respective field or speciality.

5.1.3.1 Strengths

The first section of the questions concerned with the IWB as teaching equipment based on the SWOT-analysis addressed the teachers' views on what they perceived to be the strengths of this technology for the teacher (examples T) and for the student (examples S). For the benefit of both the students and the teacher, the respondents complimented factors such as versatility and combinability, both the use of the equipment and the materials, illustrating and exemplifying, the possibility to store and recapitulate information and motivating students. Two also thought the technology enabled ergonomic working.

Approximately half of the respondents applauded the versatility of the use of the IWB and the possibility to combine and edit various materials (examples 4T and 5T) or using existing materials provided by textbook makers (example 4T) or for example IWB manufacturers and online communities as noted in chapter 2.

> (4T) Minulla on perusmateriaali valmiina kirjantekijältä, johon voin tehdä älytaulun avulla lisäyksiä ja joko tallentaa ne tai jättää tallentamatta.
>
> The textbook publishers have provided the basic materials to which I can make additions to with the IWB and then either save them or not. (respondent 16)

> (5T) …Kun kirjoittaa, saa taulun puhtaaksi yhdellä klikkauksella…
>
> …When you write, you can wipe the board clean with one click… (respondent 23)

Teachers seem to have found the existing materials very convenient and quick to use. They can mix different mediums, text, video and audio to add interest to teaching (example 6T). However, at the same time, they are also concerned about problems with the use of technology. The equipment and technology available at schools varies according to the schools resources and thus the capacity of the equipment or technology may not always be up to part to using all the materials at hand (example 6T).

> (6T) Erilaisten oheismateriaalien, äänen ja kuvan käyttö erityisesti , lisää mielenkiintoisutta. Tietokoneyhteydet eivät tahdo pelata, joten esim. YLE:n sivujen ja oheismateriaalin käyttö tunneilla usoimmiten mahdotonta."[sic]
>
> The use of different supplementary materials, especially sound and image, adds interest. Computer connections tend not to work, which makes e.g. the use of YLE[1]-web pages and supplementary materials impossible most of the time during lessons. (respondent14)

But this shouldn't stop teachers from finding the desired materials and resources to use in teaching. Since there is so much variety available on the internet, there is always another option to be found when one fails. Today virtually everything can be found on the internet and accessed easily, as noted by one respondent (example 7T).

> (7T) Kaikki materiaali, minkä vain voi kuvitella tarvittavan opetuskäyttöön, on kirjaimellisesti käden ulottuvilla. Myös kaikki, mikä tarvitaan open päähänpistoihin.
>
> All the teaching materials imaginable are literally at the tip of my fingers. Also everything needed to execute the teacher's whims. (respondent22)

Yet when everything imaginable is so readily available on the internet to be used on a whim, as said in example 7T, teachers need to be careful when it comes to copyright when acting on a sudden idea. One respondent raised their concerns on copyright issues when working with the IWB and thought that they were able to be more respectful to copyrights using other equipment, such as the computer and video-projector (example 8T).

> (8T) Toistaiseksi pystyn tekemään haluamani asiat mielestäni paremmin (ja jopa tekijänoikeudellisesti laillisesti) yhdistelemällä monipuolisesti mainitsemiani välineitä (dokumenttikamera, valkotaulu, läppäri+dataheitin, moodle ja oppilaiden läppärit).
>
> For the time being I am able to do the things I want better (and according to copyright laws) by combining the before mentioned equipment (document camera, whiteboard, laptop+video-projector, *moodle* and the students' laptops) in a versatile manner."

Personally, I see no difference to copyright issues between situations where the teacher uses the IWB or a computer and a video-projector, since essentially using the IWB is using a computer. Therefore, the same exact edits etc. can be done with both the IWB and the computer. Whether copyright laws are respected depends on how the teacher or students are using the material, not which equipment they are using to do this. Since both equipment fundamentally involve operating a computer, similar things can be done with them, such as saving the materials created during lessons. The possibility to store information and editing it was viewed useful and time-saving, not only for teachers but

[1] Finland's national public service broadcasting company

for students also. As reported in example 9T, teachers are able to preserve what is discussed during lessons, as well as reuse and reveal this saved information to the students in smaller sections which may be of assistance to the analytic thinkers as presented in Prashnig (2000) and Carbo (1986).

> (9T) Samaa asiaa ei tarvitse taas kirjoittaa uudelleen niin kuin liitutaululle, älytaululla kirjoittamansa voi tallentaa ja 'paljastaa' oppilailla pala palalta. Ajankohtaisen tiedon hakeminen ja päivittäminen on nopeaa.
>
> You don't have to write down the same thing all over again like you do with the blackboard, you can save what you have written on the IWB and "reveal" it bit by bit to the students. Searching and updating current information is quick. (respondent6)

Updating information can also be done quickly (example 9T) and teachers can also send the materials also to the students via e-mail or uploading them to a cloud service for instance. Not to mention, if the materials are accessible to all the students in the digital form it might quickly eliminate the myriad of excuses from absent students who claim they did not know what was discussed during the lessons and what their homework was. Having the option of receiving the materials in the digital form enables auditory learners to concentrate on listening to the information instead of concentrating on writing. Those visual and tactile learners who are benefitted by writing down information can still do so and perhaps the teacher might engage those tactile and kinaesthetic learners who need more full body involvement into working with the IWB and acting as the teacher's 'hands' while the students are actually learning the information themselves.

In addition, the IWB brings the tactile and kinaesthetic aspect to teaching and learning that computers combined with a video-projector do not. For the tactile and kinaesthetic learners, as well as all the rest, the IWB can offer a way of clarifying, exemplifying and illustrating things that are for example more abstract such as grammar. For instance the teacher in example 10T demonstrates how students are actively involving their body in learning for example vocabulary. This is especially beneficial to the tactile and kinaesthetic learners who have a need to touch and move their hands and fingers or their body to concentrate and learn more effectively, as Carbo (1986) and Prashnig (2000) also reported. Another teacher in example 11S states that the IWB thus makes teaching illustrative in a new way for the learner.

> (10T) sillä on kiva havainnollistaa, lukiolaisetkin pitävät esim. siitä, että saavat osallistua vetämällä "laatikoita" pois sanojen/oikeiden vastausten päältä. Resursseista löytyy kaikenlaista valmista.[…] Värien käyttö ja fonttien on hyvä keino myös. [sic]

> It is nice to exemplify with, even the upper secondary school students like, for example, to participate in pulling away ”boxes” hiding words/correct responses. There are all kinds of ready materials in the board’s resources. […] The use of colour and fonts is a good method too. (Respondent 23)

> (11S) Opetus on havainnollista uudella tavalla. Oppilaan motivaatio saattaa kasvaa.
>
> Teaching is illustrative in a new way. The student’s motivation may grow. (Respondent 22)

And when everything works, and the teacher is motivated, the IWB can in teachers’ view motivate, inspire and interest students (examples 11S and 12S). Two respondents noted that it may just prove to be the impact of novelty but one viewed it as bringing the lessons closer to the world of the today’s ‘diginative’ students (example 13S) and therefore they should be a natural part of lessons.

> (12S) Kun opettaja on motivoitunut ja laitteet toimivat, erityisesti kielissä älytaululla voi tehdä paljon ja oppilaatkin sitä kautta innostuvat ja motivoituvat. Kielenkäytöstä saadaan tilannekohtaisempaa ja merkityksellisempää oppimistilanteen kannalta.
>
> When the teacher is motivated and the equipment works, especially in languages you can do a great deal with the IWB and that way also the students become enthusiastic and motivated. Language becomes more current and meaningful for the learning situation. (Respondent6)

> (13S) Vaihtelua, erilaisia metodeja. Joku opettaja muotoili: "Kun oppilailla erilaisia tekniikan härveleitä kotonaan, pitää niitä tarjota myös koulussa."
>
> Variety, different methods. A teacher once phrased: “When students have different technological gadgets at home, should they be offered them at schools too” (Respondent 5)

Another respondent added that the media environment of today’s youth has changed to a highly visual one and therefore the traditional paper hand-outs and whiteboards may not seem stimulating. Thus the IWB could provide for this need of visualization. The use of the IWB may also effectuate variety and new ways of teaching for language lessons, as also noted in example 13S and produce more current discussion (example 12S). Furthermore, teachers viewed that the interactive nature of the board may also encourage more student participation and perhaps make students to put more care into their work since it is displayed to all on the board.

Two teachers were however little cautious towards the technology and did not credit the technology to any further learning achieved (example 14S) but agreed to its possible effects on motivating the students as it can be seen more current than the older technology.

> (14S) Luulen, että oppilas oppii saman määrän riippumatta siitä, opetanko liitutaulun, dokumenttikameran vai älytaulun avulla. Motivaatioon voi olla vaikutusta, jos oppilas kokee esim. liitutaulun vanhanaikaiseksi ja tylsäksi mutta älytaulun moderniksi ja kiinnostavaksi.
>
> I think that the student learns the same amount regardless of whether I use the blackboard, document camera or the IWB to teach. It can have effect on motivation if the student feels for example the blackboard to be old fashioned and dull, but the IWB as modern and interesting. (Respondent 10)

Yet, one could question whether the students actually do learn through whichever equipment, channel, method or practice. Today's 'digital natives' as presented by Tapscott (2009) are hardwired to learning in different ways than older generations. Their attention span is shorter, because they are used to fast paced switching and multitasking; they are habituated in searching information quickly, using keywords, images and icons; and reading, for example, a book in the traditional way from beginning to end is foreign to them. Therefore teachers should not assume that their usual ways of working will work for future generations, unless they actively teach their students to learn in other ways than the ones that come naturally to them. Otherwise they are only headed towards a clash of 'cultures'.

5.1.3.2 Weaknesses

Since there is so much technology involved with using the IWB, such as the computer, the document camera, internal or external video projectors and AP-systems plus an internet connection, there are a myriad of possible technical difficulties that can arise. As reported after Levy (2012) in chapter 3.2.2, there are limitations to technology when it comes to the quality and speed of transmission. Furthermore, teachers have to deal with other troubles such as breaking internet connections or electrical faults. It is no wonder than that they may be a little apprehensive towards the technology actually working, as expressed in examples 15T and 16T. Over a third of the respondents phrased their concerns over the functioning of technology.

> (15T) Koskaan ei voi 100-prosenttisesti luottaa siihen, että koneet toimii. Aina pitää olla suunnitelma B.
>
> You can never trust a 100-percent that the equipment works. You always need a plan B (Respondent 10)

> (16T) Teknologia ei koskaan toimi täydellisesti, tietokoneet kaatuilevat ja sähköt katkeavat. En usko että koskaan koen sitä päivää jolloin kaikki opetusmateriaalini olisi pelkästään sähköisessä muodossa. Kalvoilla ja muilla materiaaleilla joita voi kosketella on omat hyvät puolensa.
>
> Technology never works perfectly, computers crash and electricity breaks. I don't believe that I'll ever see the day when all of my materials would only be in the digital form. Overheads and other materials that can be touched have their advantages (Respondent 2)

Not only do the teachers see the actual functioning of the technology as a drawback of the IWB but in their view there are certain inadequacies that affect especially the students when it comes to the boards. One of these shortcomings is the size of the board which is usually quite small compared to the traditional blackboards or whiteboards that can occupy a whole wall of the classroom. The small size of the IWB means that it affects the visibility of information, since only a small amount of information can be shown at one time without it being reduced to such small scale that it becomes impossible for the students to view. Of course with the board information can be zoomed in effectively but that means that the information must be presented in small sections. One teacher also mentioned a disturbing delay of text when writing on the board. This however can be just a problem of a piece of equipment, model, or manufacturer. Another respondent saw the IWB as quite static equipment detailing that being bound to one place or equipment was a weakness of the technology. Yet, if one compares the IWB to the traditional blackboard or the whiteboard for instance, the two latter are usually attached to a wall making them just as static. In fact, the IWBs come in many forms, as described in chapter 2.2, and can be wall-mounted, movable or the all the technology can be found in the projector which allows the use of any flat surface as an 'interactive screen'. Two respondents reported difficulties in simultaneous use of the board, stating that only a couple of students could come up to the board at a time, one adding that while other students wait and hopefully watch attentively. Obviously there is a substantial difference between how many students can theoretically work on a blackboard taking up an entire wall of a classroom compared to working on an IWB. But in reality how many students would a teacher have working simultaneously on a blackboard or a whiteboard? Consequently, as reported in chapter 2.2, today's IWB's can in fact be operated by several people at the same time. The older boards did have problems with simultaneous use and could only be operated by one person at a time. Whether it was a question of working on the blackboard or the IWB, the situation would still be that the remaining students would be waiting and watching as the others are

working. Question then lies in whether students would then be more interested in following the others writing on the blackboard or the IWB?

However, technology should never be taken as an absolute value. As Sharma (2009) stated, it is not which technology is used but how it is being used that can improve learning. Therefore, introducing technology into the classroom merely because of its novelty or entertainment value, without pedagogical thought, will hardly bring any benefit to learning. A quarter of the respondents criticized the notion of technology as an absolute value and suggested that focusing too much on the technology may take away from the actual teaching and learning. Playing around with technology may be fun for the teacher and the students but that does not guarantee good learning results (example 17T). As discussed in example 18S, stockpiling lessons with all imaginable materials and activities that can be produced with the IWB may at the end of the day be only confounding.

> (17T) Jos opetus keskittyy vain hauskaan tietokoneella kikkailuun ja teknologia vie aikaa itse opiskelulta. Sillä voi saada kivan open maineen, mutta ei välttämättä hyviä oppimistuloksia.
>
> If teaching is only focused on playing fun and games with the computer, technology takes time away from studying. It may get you a reputation as a fun teacher but it won't necessarily produce good learning results. (Respondent 10)

> (18S) [...] Toinen asia, mikä askarruttaa, on infoähky - miten saadaan selkeä rakenne kurssiin ja ettei kaiken maailman tekniset hienoudet ja halu kokeilla niitä vie huomiota olennaiselta eli sisällöltä."(vast22)
>
> […] Another thing that puzzles me is the information overload: how to get a clear structure to a course and not have all the technical subtleties and the desire to test them take away from what is essential which is the content." (Respondent 22)

As one respondent noted, the IWB is a mighty expensive toy to lark about with. As a consequence, it would be quite important for the teacher to have knowledge of not only how to use the actual technology but how to use the equipment to achieve specific pedagogical goals. Also, if the teacher is not adept at using the equipment, it is hardly motivating for the students. Therefore technology training is essential in ensuring that the teachers and especially the students are able to get the maximum advantage from the new technology as reported in example 19S.

> (19S) Jos opettaja ei hallitse laitteita, oppilas ei saa kaikkea, mitä voisi saada.

> If the teacher does not master the equipment, the student will not get all that they could get out of it. (Respondent 8)

One teacher further expressed their concern that if the teachers' energy is taken by figuring out all the technological quirks, students may be left as bystanders. Technology is the teachers' and students' aid; A tool with which to teach and learn. It should not be the focus of lessons or take away from the learning. It is easy to get caught up by something new as the respondent states in example 21T, but does introducing something new mean abandoning what was before as questioned in example 20S? The respondent in example 20S raises an important question of what really is essential?

> (20S) Pitäsikö käsialasta esim. luopua kokonaan, entä muista vanhoista systeemeistä? Mikä on todella olennaista oppia? [sic]
>
> Should we, for instance, give up learning handwriting entirely, or what about other old systems? What truly is essential to learn? (Respondent14)

> (21T) […] Tärkeää kielen tunneilla on myös sosiaalinen vuorovaikutus, ihmisen kohtaaminen (eli koneisiin ei saa "hurahtaa" väärällä tavalla). Tekniikka vie usein oudoille poluille, älytaulun mahdollisuuksia on haastavaa opetella.
>
> […] Important for language lessons is also the social interaction, meeting a person (therefore you shouldn't get "entranced" in the wrong way by machines). Technology tends to take you down strange routes; the possibilities of the IWB are challenging to learn." (Respondent 23)

Just as with finding materials, as discussed previously in chapter 2.2, teachers need to keep a critical eye to figuring out what works for them, their students and the subject they are teaching. As the respondent in example 21T reminds us, social interaction is important in language learning and should be taken into consideration. But technology and social interaction do not exclude one another. Think of the social media or 'teletandem'-learning presented by Leone (2012).

Interestingly the vast variety of materials that was previously considered as one of the strengths of the technology, turned out for to be the opposite for some. Six respondents reported issues involving materials as a downfall of the IWB, whether it was concern over respecting copyright laws, the arduous work of transferring old materials onto the board, not finding existing materials for their subject or materials that suited their needs. One specifically noted that there is in fact too much to choose from but nothing that suits exactly for their purposes. Therefore they were forced to prepare their materials themselves at the moment. As explained earlier in chapter 2.2, there are a plethora of

materials to be found with the boards' own software and resources and on the internet but it is choosing which materials to use where the critical eye comes into play. Perhaps a teacher does not have to create everything from ground but modify the existing materials. Whereas, some may find it less demanding to simply create their own.

Almost a third of the respondents noted also issues concerning the teacher's technological skills and what introducing new technology into lessons may demand from them. Time, for one, seems to be an important issue arising from the teachers' responses throughout the questionnaire. Teachers' time is taken by learning how to use the equipment, finding, modifying or creating materials, operating the equipment and dealing with technological difficulties. Therefore, acquainting oneself with the equipment may seem not worth the trouble. A good knowledge of the equipment helps minimizing the time consumption but it cannot be acquired overnight. Two respondents (examples 22T and 23T) were afraid that along with the IWB may come expectations that the teacher has to be making constant innovations to keep interesting the students.

> (22T) Voi tulla paineita, että aina pitää tutustua uuteen materiaaliin ja olla esittelemässä uusia juttuja"
>
> "There may be pressure to always be acquainting with new material and presenting new things" (Respondent 7)

> (23T) [...] Vaatii aikaa ja energiaa koko ajan keksiä uutta ja kiinnostavaa oppilaille. Vaatii myös aikaa ja energiaa työajan ulkopuolellakin pysyä teknologiassa ajantasalla.
>
> […] It takes time and energy to constantly keep coming up with new and interesting things for the students. It also takes time and energy outside work to keep up with technology. (Respondent 6)

The two viewed this kind of continuous pressure of always having to invent something new to be very time consuming and thought it could be very tiring and stressful. With this kind of thinking, teachers are actually setting themselves up and creating expectations for them that might not really be there. Teachers are not after all entertainers but educators. One respondent even thought that a teacher's weak technological skills and poorly constructed materials might make the teacher look somehow less professional. How does not succeeding in everything or every time make a teacher less adept in their profession? We do not expect our students to be experts at everything so why set such goals on ourselves? Yes there may be expectations from the students' part who associate technology with entertainment but we teachers need to teach them that everything does not always have to be fun. And we, the teachers should

try and remember that a person cannot know everything. Teachers are there to teach and help students learn, not to entertain or act as a *Google* search engine or *Wikipedia*.

As our society is more or less run by technology, the harsh reality of it all is that technology is here to stay. Therefore in the end we all have to learn to use it to a certain extent at some point, no matter how time consuming it is. However, I see no reason to start imagining that technology would begin to replace actual teachers as painted in example 24T.

> (24T) Yksi mielessä pyörinyt skenaario on myös se, että teknologian ajatellaan korvaavan ihminen - että etäkäyttömahdollisuuksien kehittymisen myötä alettaisiin vähentää opettajien määrää.”
>
> One scenario that keeps running in my mind is that technology would be considered to replace a person: that with the development of remote access possibilities they would start narrowing the number of teachers.” (Respondent 15)

Or at least hopefully that will not be the case, since teaching and learning is not factory work and as the respondent in example 25T proclaims: teaching is not a job easily replaced by machines.

> (25T) Eipä taida huippulaitekaan täysin kyetä opettajaa syrjäyttämään? Toivottavasti auttaa ja helpottaa työtä!!!
>
> Doubt that even a-state-of-the-art equipment could replace a teacher entirely? Hopefully it helps and makes work easier!!! (Respondent 19)

In the end the role of technology in education should be to aid and enhance teaching and learning; to improve practices and make them more effective.

Some teachers however were on a slightly different page when it comes to the IWB enhancing learning. Four respondents were concerned that the IWB might in fact have a passive influence on the students as they are forced to stare information at a fixed spot on the electronic screen that can be strenuous. One might question whether the situation is more or less the same whether they are staring at the IWB, any other screen, the blackboard or an image projected on the screen or on the wall by the overhead-projector or the document camera? One comment contained the idea that the use of the IWB prevents the students from doing enough work themselves. This could very well be the case if the equipment is mainly used by the teacher and the lessons follow a highly

teacher-led scheme. But as the respondent in example 26S notes, the IWB is as much a tool for the student as it is for the teacher and as such could actually develop students' skills and teach them responsibility.

> (26S) Oppilaalta vaaditaan taitoa seurata opetusta entistä tarkemmin ja taitoa käyttää vastuullisesti älytaulua, onhan taulu myös oppilaan ja oppilasryhmien väline. […](vast22)
>
> The student is required the skills to follow teaching more attentively and to use the IWB responsively, as the IWB is a tool also for the student and the whole class. [...] (Respondent 22)

Two respondents were nevertheless concerned about the ecology of the technology, one of them questioning the example schools and teacher are giving to students. Not encouraging them to think environmentally and for the sustainable development, as in their view the equipment wasted energy and increased the use of electricity.

5.1.3.3 Possibilities

I must admit that I expected the tactile and kinaesthetic aspects of the IWB to be more noticeably present in the teachers' responses in this section. However, those features did not come across considerably in the responses with the exception of one explicit mention. Instead, a most prominent issue in the responses appeared to be once again the versatility of materials and resources with 12 responses altogether dealing with this matter. Teachers felt that the IWB presented possibilities to make teaching more interesting for the student, making use of varied resources and materials, combining and modifying them to suit specific needs of the teacher or of the students. Teachers credited the variety of resources and materials for making it easier to supply current and authentic materials (example 27T), as well as a quick and flexible modification and storing of materials (example 27T and 28T), tailoring of them (example28T) and being able to give students access to materials of previous lessons for example.

> (27T) Ajankohtaisen ja autenttisen materiaalin käytön, saman materiaalin monipuolisen hyödyntämisen.
>
> The use of both current and authentic materials, multifaceted use of the same materials. (Respondent 12)

(28T) Materiaalien nopeamman muokkaamisen ja yhdistelyn, opettaja voi helpommin tehdä kullekin ryhmälle hyvin yksilöidyt opetusmateriaalit ja muistiinpanot, opetus monipuolistuu

Quicker modification and combination of materials, the teacher is able to produce very tailored materials and notes to each group more easily, teaching becomes more multifaceted. (Respondent 2)

The possibility to motivate and inspire students as well as the topicality and actuality of materials and resources seemed significant in the teachers' views for the students, with four respondents for both factors specifically noting these issues. One teacher commented that the use of IWBs enables creative thinking, access to topical and current issues, and connecting the classroom and the world outside.

(29S) Ajankohtaisiin asioihin kiinnipääsemisen; 'thinking outside the box' ja asioiden linkittäminen luokkahuoneen ulkopuolelle ja ulkopuolella helpottuu.

Getting access to topical issues; 'thinking outside the box' and linking things outside the classroom and linking them from outside the classroom becomes easier. (Respondent 6)

One teacher further added that with the IWBs teachers can enliven teaching with, for instance, the use of image and sound with only the imagination as boundaries. This teacher also deemed the board simple to use which frees teachers' resources to other activities. Simplicity of the use may be debatable as the teachers have previously expressed their concerns over the laboriousness of learning to use the technology and how time-consuming it is. Nevertheless, the fact may be that once learned it may in fact prove to be time-saving equipment, that, as said before in example 29S may enable the teacher to find new ways of thinking or working. In effect, five respondents imagined the use of the IWB might influence teachers to renew, develop and innovate their teaching methods to finding new ways of teaching ´the old and familiar things´ (example 30T).

(30T) Uuden välineen käyttöä, siis omien opetuskäytänteiden uusimista ja sinänsä toimintatapojen uudistamista.

The use of a new equipment, that is to say renewing your own teaching practices and as such remodeling methods. (Respondent 5)

Finding new ways of teaching may produce practices that are less teacher-led and involve students more into taking part in the lessons and influencing the course of the lessons, as well as taking more active responsibility of their own learning. One of the teachers who saw the IWB as a tool for this change remarked:

(31S) Tietoa voidaan yhdessä rakentaa aivan erilaisista lähtökohdista kuin perinteisesti, se tekee oppimisprosesseista mielenkiintoisempia ja saattaa vaikuttaa myönteisesti kouluviihtyvyyteen.

It allows building knowledge together from completely different starting points than traditionally, it makes learning processes more interesting and it may have a positive effect on students' school satisfaction. (Respondent 22)

The key word here is *together*, which implies to a more collaborative approach, where students can have an active role in what goes on in the classroom. Students are actively involved in the learning process and building knowledge in collaboration with the teacher and their peers, using for example methods such as *Tandem-learning*, as presented by Leone (2012). As another respondent expressed, the IWB makes it easier to enter the ´real world´ and more authentic language use situations during language lessons than with still images and an overhead-projector. Indeed, a third of the teachers perceived the IWB as a fruitful tool for illustrating and exemplifying. For example, they thought it brings further visual elements and comprehensibility to teaching and as presented in example 32T there are many possibilities to the IWB when it comes to exemplifying.

(32T) Värien käytön, fontit, nopeuttaa, selkeyttää, tuo visuaalisuutta (joka on tätä päivää ja nuorten maailmaa). Ja varmaan paljon sellaista, mitä en vielä edes osaa kuvitella. Monta aarretta on löytämättä.

The use colour, fonts, clarifies, brings more visual elements (which is of today and the world of the youth). And I bet a lot that I can't even imagine yet. Many treasures yet to be found. (Respondent 23)

Whether it is using colours, different fonts and font sizes, underlining or zooming in etc., the IWB does present multiple options for teachers to clarify and emphasize important and difficult things. Especially the tactile features of the board, such as moving things around with the touch of the hand, can help illustrating even the more abstract features of language, such as grammar. Making abstract things more concrete may be immensely beneficial to all learners, not only to learners with learning difficulties and being able to move and involve the body in the learning process benefits especially the tactile and kinaesthetic learners as expressed in example 33S and as presented by Prashnig (2000) and Carbo (1986).

(33S) kinesteettiset oppilaat voivat liikkua ja toimia, värit ja kuvat auttavat monia oppilaita.

> Kinaesthetic learners can move around and act, colours and images help many students. (Respondent 12)

With only one respondent naming the tactile possibilities of the IWB, it seems that the tactile application of the board might at the moment still be unexplored territory to teachers. Whereas, the more evident advantages such as the variety of resources and the ability to store information have been prominent throughout the teachers' responses.

5.1.3.4 Disadvantages or negative effects

With the exception of three respondents who saw no disadvantages or negative effects, teachers' responses reflected similar themes as in the question on the weaknesses of the IWB. Technological difficulties or defects, time, technology as an absolute value and making students more passive, showed their prominence also here. Other factors noted were for instance virtualisation of information, lessons becoming more limited and one-sided, and the concern that technology does not take everyone into consideration.

With eight responses, one of the teachers' greatest concerns seemed to be technology becoming an absolute value and the focus moving from teaching and learning to becoming too absorbed in toying with technology.

> (34S) Opettaja voi olla niin innoissaan teknologiasta että unohtaa opiskelijan kokonaan, voi siis olla että opiskelija ei opi. vast2
>
> The teacher can be so fascinated by technology that they forget the student entirely, thus it may be that the student doesn't learn. (Respondent2)

As expressed in example 34S, the students might in fact be left secondary to the teacher's fascination with technology. The teacher's time and attention may be taken by playing with technology but also with solving technical problems. In the responses of four respondents it could be seen that sometimes the problems arise with the functioning of the technology but they can also be due to actual physical restraints of the IWB, such as its usually relatively small size compared to traditional blackboards, or the technology being restricted to a specific place, as again noted by two respondents and discussed earlier in chapter 5.1.3.2 with the weaknesses of the IWB.

In addition to technical faults and physical restraints, another possible downfall of the IWB might be a situation as described in example 35T, where teachers have already possibly habituated to using the IWB and are put in a situation where they do not have access to their usual equipment.

> (35T) jos kone ei toimikaan tai joka luokassa ei ole konetta ja älutaulua.
>
> If the equipment does not work or there is not a computer and an IWB in every classroom (Respondent 20)

With all their materials and lesson plans dependent on a particular technology, teachers then will need to be equipped with flexibility when things do not go their way. Could there be situations in the future where teachers have become so accustomed to using a specific technology that they begin to lose their ability to function without it?

Although technology is of the world of today and today's youth, it may not be for everyone. Four respondents expressed their concerns over forcing this new technology onto students and the possible effects it might have. One of these four respondents believed that all students would not be able to keep up with the lessons because they are different. As to what they meant with being different, they did not specify. Perhaps they meant students with learning difficulties, disabilities or different learning styles. On the other hand they could have meant merely students that are not that interested in technology. Be that as it may, surely all of the above mentioned could benefit from the illustrative and exemplifying features of the technology? After all, as noted before, after Sharma (2009) it is not which equipment is used but how it used that produces results.

As amongst the adults in charge of the classrooms, there may be students too, who are not technology enthusiasts and would prefer other equipment and methods to learn. For these students new technology and the IWB might not be interesting or motivating as suggested in example 36S.

> (36S) Tekniikasta vähemmän innostuneet oppilaat eivät varmaan jaksa innostua tästäkään. Toisaalta oppilaat ovat jo vapaa-ajallaan niin paljon netissä ja sosiaalisessa mediassa, että voisi olla hyväkin irrottautua näistä oppitunnin ajaksi ja katsoa vain toista ihmistä - opettajaa ja kanssaopiskelijoita - livenä.
>
> Students less interested in technology most likely will not be bothered with this one either. On the other hand, students spend so much of their free time on the Internet and social media that it might be good to break away from these during lessons and just look at another person – teacher and peers – live. (Respondent 21)

As the respondent in example 36S notes, students are indeed greatly exposed to the internet and the social media on their free time and information in their world is already mainly in the digital form. As stated by Vähähyyppä (2011), in recent years the nature and quantity of information has changed to a more digital and highly visual form than before. It is possible that introducing further digital elements to teaching may make information seem even less tangible than it is today (example 37S). However, it may also be that technology can help make more abstract information and concepts seem more tangible.

> (37S) Kaikki on jo muutenkin nyt virtuaalista, eikä opiskelijalla ole paljoakaan "käsin kosketeltavaa". Vaarana on että opiskelija ei opi mitään, koska älytauluteknologian avulla jopa kontaktiopetus virtualisoituu niin, että "tieto on tuolla jossain".
>
> Everything is already virtual and the student hasn't got much that is ´palpable´. The danger is that the student doesn't learn anything, because by the use IWB technology even contact teaching becomes virtualised in a matter where the information is ´somewhere out there´. (Respondent 2)

> (38S) Älytauluteknologian ja muun visuaalisuutta korostavan opetuksen suosiminen saattaa johtaa siihen, että nuorten on yhä vaikeampi omaksua tietoa muuten, esimerkiksi kirjoista lukemalla. Olen jo nyt huomannut, että kolme-neljä sivua pitkän artikkelin tai novellin lukeminen on joillekin lukiolaisillekin ylivoimaista tunnilla.
>
> Favouring IWB technology and other teaching that has emphasis on visual aspects, may lead to young people having a more and more difficult time acquiring information in other ways, for example by reading books. I have already noticed that reading an article or a short story three-four pages long is an overwhelming task for some upper secondary school students. (Respondent 15)

In example 38S, the respondent describes observing that students today have difficulties accessing information that is not in the digital form and that a task of reading a short text only a few pages long appears to be insuperable for them. I too have noticed a similar phenomenon while working with students of secondary school. They seem to want to ´google´ everything and they seem to lack the skill to question and weigh the information found on the internet. They also appear to have trouble using for example the index of their course book to finding a particular grammar point etc. Instead they ask the teacher for the specific page or begin paging through the entire book from start to finish.

In light of this, the four respondents who asserted their concerns over the passive effect of the IWB have grounds to be apprehensive. As noted previously and as described in example 39S, getting accustomed to having all information, easily accessible on the

internet might in effect result to declining abilities of deduction and searching information.

> (39S) opitaan hakemaan liikaa tietoa netistä, oma päättely ja perinteisten tiedonhankinta menetelmien väheneminen.
>
> Learning to search information too much on the net, own deduction skills and traditional information search methods are diminished. (Respondent 4)

Perhaps with technology, students are being given a model where everything seems simple and easy, just a click or a search word away. On the internet there is ample information on practically anything imaginable, which they can just copy and paste. One teacher commented that having the materials ready on the computer may cause the teacher to advance too quickly for the students. Indeed, a situation with students habituated to a passive role and a teacher routinely hurrying through their materials could be a harmful combination. Technology has made it easy for the student but also for the teacher to access and process information. But having such easy access to information and receiving information during lessons in a digital form where they do not see the work behind it, may make students passive and workshy as expressed in examples 40S and 41S.

> (40S) [...]Oppilaille ei saa myöskään liiaksi pureskella kaikkea valmiiksi. Liiallinen visualisointi ja elämysten tuottaminen voi laiskistuttaa ja viedä tilaa omalta tiedon prosessoinnilta ja tuottamiselta.
>
> [...]Everything should not be too pre-digested for the students. Over visualising and producing experiences may make one lazy and take away from processing and producing information of one's own. (Respondent 22)
>
> (41S) Innostuu mediasta, eikä usko, että työtä on edelleen tehtävä (ja kielessä tärkeää on eri aistien käyttö, materiaalin toistaminen ja kertaaminen, jotta se jää muistiin, puhumisen harjoittelu yms).
>
> Getting fascinated by media and doesn't think that you'll still have to work (and with a language it is important to use different senses, repeating materials and revising, in order to remember, practicing speaking etc.) (Respondent 23)

The respondents were also concerned that the passive effect might in a way affect teachers too. One feared that lessons might become limited in methods and content when the teacher would restrict themselves in only operating the IWB and doing solely the things that can be done with the IWB. Another respondent feared it could result in harming the students speaking skills, if practicing them would be compromised over technology. Again Leone's (2012) suggestions on *tandem learning* would be of help there. And finally, two teachers expressed their concerns over the demands of constant

innovation it would present to teachers. One of them, being troubled by wondering how students would keep motivated when the teacher is too busy to innovate. Whilst the other distressed over being expected to keep coming up with new things every single time, putting up a new show similar to an entertainer. But this kind of constant innovation would then require support of time and resources from the teachers' working community as Vähähyyppä (2011) and Norrena, Kankaanranta and Nieminen (2011) recommended.

Nonetheless, technology is a useful aid that can facilitate the work to be done. As Vähähyyppä (2011) stated, we need to educate students in making use of technology as it is an essential part of today's society. However, to address the concerns of the respondent in example 41S, as noted by Taalas (2007), it does not mean ridding ourselves of the traditional methods or tools but using them together providing different learning paths for the needs of different learners. Nevertheless, in the ever digitalising world it becomes even more important to teach students how to use the internet and the information on it responsibly and ethically, as reported by Rivoltella (2012).

5.1.2 Views on technology

The respondents were asked to grade statements concerning their attitudes and views towards new technologies. The statements were to be graded on a four point Likert-scale ranging from option *fully agree* to *fully disagree*. The statements were presented both in the positive and negative form; the negative form being a complete polar opposite, when possible, or a statement that was close to a complete opposite. On the basis of their responses, teachers seemed to have a very positive outlook towards new technologies (see Figure 1). Only one of the respondents stated that they would not wish to learn to use new technologies and interestingly this individual was not as uncompromising when it came to answering statements on whether they were interested or eager to acquaint themselves with new technologies. Not a single respondent identified themselves as not being interested or eager to do so.

They also perceived new technologies as being useful in teaching, with nearly a half of the respondents stating that they fully agreed with new technologies being useful in teaching, and just over a half of the respondents somewhat agreeing. Only one

respondent somewhat disagreed with the statement that new technologies are useful in teaching. Interestingly, to the polar opposite [...] *technology is futile in teaching*, two respondents were a little apprehensive, stating they somewhat agreed, while a clear majority of 13 out of 23 stated they fully disagreed with the statement.

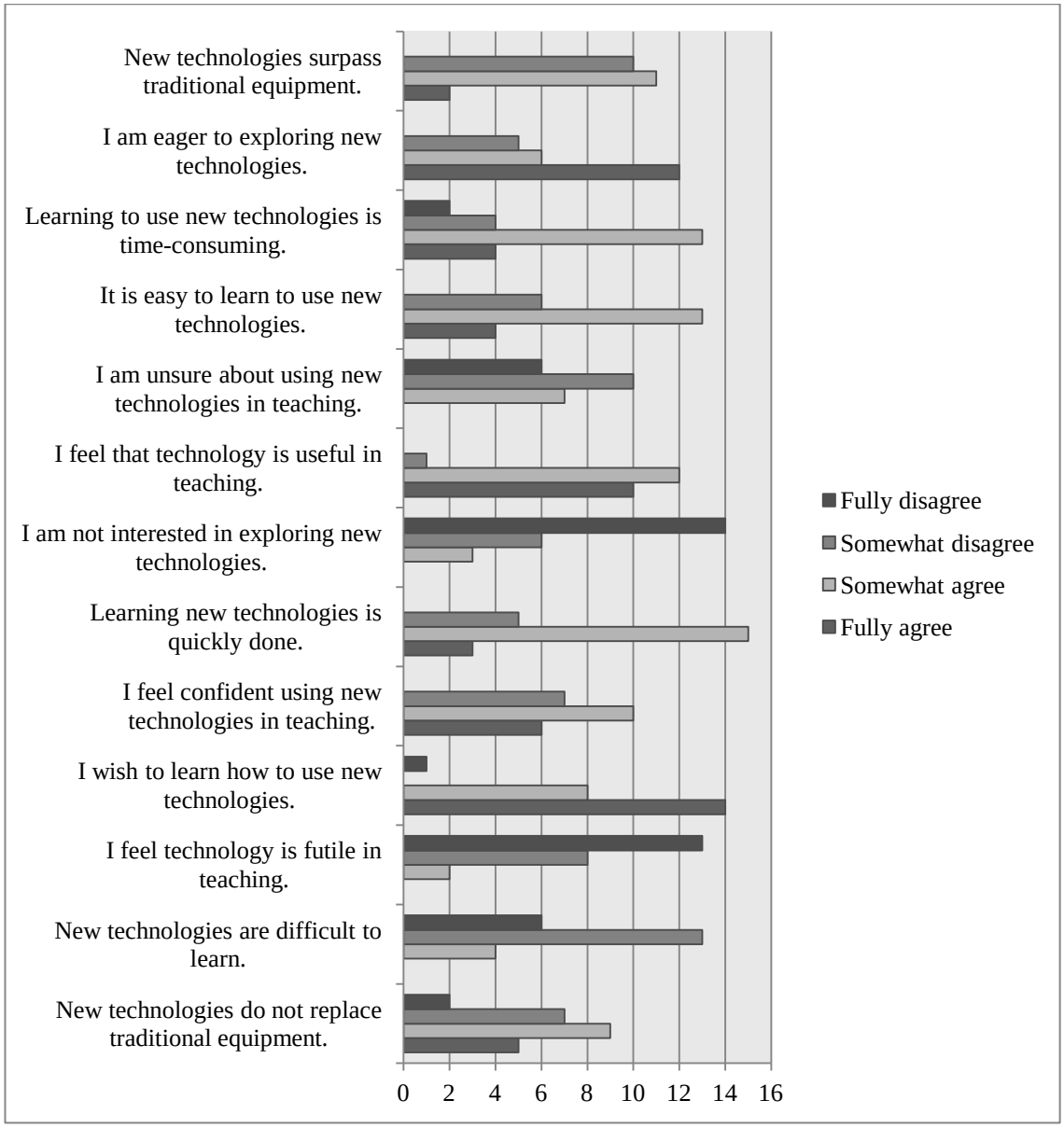

Figure 1. Teachers' responses on statements concerning new technologies.

The respondents seemed to think that learning to use new technologies was quite easy with four respondents fully agreeing with the statement and 13 somewhat agreeing. Six respondents somewhat disagreed. Understandably most respondents were not as definite in their answers but remained closer to the somewhat-range as while some equipment, software, applications etc. might be easier to learn, others might be more difficult, making it impossible to definitely state that all new technologies are easy to learn.

Again with the polar-opposite statement *New technologies are difficult to learn* the teachers' responses differed to the statement given in the positive form. Six respondents fully disagreed with the negative statement; Thirteen respondents somewhat disagreed and four somewhat agreed. Teachers also seemed to give quite contradictory answers to the pair *learning new technologies is quickly done* and *learning to use new technologies is time-consuming*, with respondents agreeing with both statements in more or less the same numbers.

It seemed that the statements in the negative form inspired more of a range in answers than the ones in the positive form, occupying all points of the scale. The only questions that produced the exact same answers in the positive and negative statements were whether teachers felt confident about using new technologies in teaching. Six respondents appeared to be very confident, ten respondents somewhat confident and seven respondents not that confident, yet none of them proclaimed to be none at all confident.

Yet as a whole their responses painted a positive picture, indicating that it is not a question of new technologies being disliked or dreaded by teachers or that it would be too complicated for teachers to learn to use new technologies in teaching given the time and training. Furthermore, as presented by Sharma (2009), teachers' attitude is one of the major factors determining the success of training and without a positive or at least a neutral attitude towards new technologies, there cannot be a change in teacher's teaching practices. However, looking at their responses on whether new technologies can or cannot surpass or replace more traditional equipment, it seems that older technologies and more traditional equipment still have their place in the classroom and as suggested by Taalas (2007) these should then be used alongside with new technologies to provide students with different learning paths to take.

5.1.3 Views on technology training

The respondents were also asked to grade statements concerning their views on technology training. The statements were again to be graded on a four point Likert-scale ranging from option *fully agree* to *fully disagree*. The statements were inspired by what had been expressed about technology training in Taalas (2007) and in Taalas and Aalto

(2007). Noted before after Hockly (2009) and Taalas (2007), there has been a multitude of several different types of technology training available for teachers but in the light of the respondents' answers one might speculate that information about these courses, workshops etc. has not effectively reached teachers in the field or that the focus of the proposed technology training is not quite suitable for language teachers (see Figure 2).

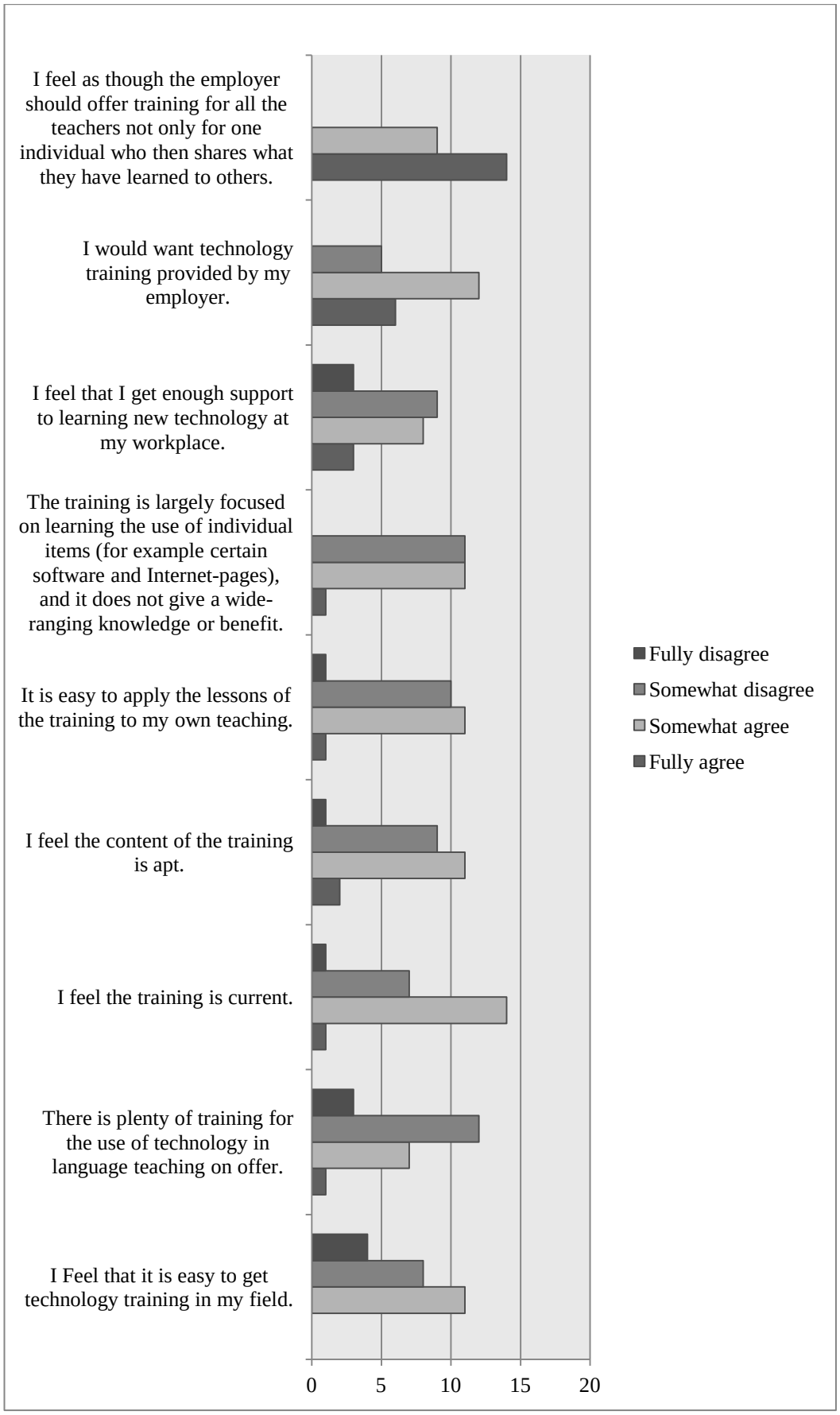

Figure 2. Teachers' responses on statements concerning technology training.

None of the teachers fully agreed with the statement that technology training in their field is easily accessible but the teachers' views on the statement were almost equally divided between the slightly apprehensive *somewhat agree* (11responses) and the more negative *somewhat disagree* (8 responses) and *fully disagree* (4 responses). When asked whether there was training widely available for language teachers in particular, only one respondent felt that there were indeed and seven respondents were somewhat on the same lines but altogether 15 respondents were on the negative side.

As noted by Taalas (2007), although there has been a wide variety of technology training for teachers, unfortunately the problem with these courses has been their inefficiency to generate lasting practises. An inkling of this can be seen in the respondents' answers to the statement *It is easy to apply the lessons of the training to my own teaching*, in which their responses were about equally divided between the agreeing and disagreeing sides and, with the exception of one answer in both extremities, their responses were concentrated on the more apprehensive *somewhat agreeing* or *somewhat disagreeing* options showing that transferring what is learned into actual practice might not be that successful as proposed by Taalas (2007). According to Taalas (2007) the problem lies in the fact that the available technology training is usually short-term, focusing on individual computer programs etc. and technology is viewed as add-on equipment rather than a resource enabling pedagogical development of teaching. However, this does not seem to be that explicitly the experience of the respondents as only one respondent fully thought that that was the case and the other respondents' views on whether the training does concentrate largely to learning the use of individual items were equally divided between those that somewhat thought it was focused on individual items and those that somewhat thought that it was not. However, as presented in Sharma (2009) the success of training could also be influenced by teachers' attitudes, the fact that each teacher has their own views on each matter and therefore the positive and negative sides of every argument vary according to those views, and also that every teacher has their own views on the pedagogical issues involved with the technology. In addition, after Norrena, Kankaanranta and Nieminen (2011) one-sided training, such as taking part in formal training, individual courses or courses based on a merely technical point of view, were seen to have a lesser effect on renewing teaching practices.

Overall, according to their responses for the statements concerning technology training the respondents seemed to think that the training was more or less current with approximately two thirds of the respondents on the agreeing side. On whether they thought the content was apt, there was a small majority of 13 respondents on the agreeing side against 10 on the disagreeing side. With both statements the respondents tended to avoid the extremities of fully agreeing or disagreeing, opting to stay in the middle range which suggests that while some aspects of each variety of technology training available may be topical and appropriate for some, it may not be so for others. As a matter of a fact, one respondent, when asked to give an example of any technology training they had participated in, described their experiences as such:

> (42) Kurssien kuvaukset eivät yleensä vastaa sisältöä. Lisäksi kursseilla esitettyjä juttuja on usein vaikea ottaa käyttöön omalla koululla, joko laitteisto- tai nettiyhteysongelmien takia. Ainakin oma into ehtii laantua, ennen kuin kaikki saadaan käyttövalmiiksi.
>
> The course descriptions usually do not correspond with the content. In addition the things presented on the course are often difficult to transfer into practice at one's own school, either due to problems with equipment or Internet connection. At least one's own excitement has time to blow over before everything is made ready to use. (Respondent 21)

Completely personalized training is understandably a mere utopia but perhaps there would be need for more specialised training. Specialised in the sense that it would be targeted to teachers of certain subjects, areas of expertise, schools levels etc. One teacher expressed how it is also important that the trainers training teachers would have a firm grasp on the pedagogical side of technology.

> (43) Esim. *Moodle*-kurssi keskittyi lähinnä tekniseen kikkailuun eikä siihen, miten siitä parhaiten hyötyy opetuksessa. Sitten kun keksin itse idean, miten haluaisin sitä käyttää opetuksessa(interaktiivisten tehtävien tekoon), se ei ollutkaan teknisesti mahdollista. Kurssien vetäjinä pitäisi olla opettajia, jotka itse käyttävät teknologiaa, eikä "insinöörejä", jotka vain osaavat tekniikan.
>
> E.g. a course on *Moodle* tended to concentrate on technical gimmickry and not on how to benefit from it in teaching. Then, as I came up with an idea by myself of how I would wish to use it in teaching (doing interactive tasks), it was not technically possible. The courses should be lead by teachers, who use the technology themselves instead of 'engineers' who only know the technical side of things. (Respondent 10)

Rather than training teachers to individual technology and concentrating on the mechanics and technical side of each individual equipment, software, etc., as described in example 43, training could be more applied, combining various media but approaching them from a certain pedagogical point of view of a specific group of teachers, for instance teachers of foreign languages. Thus, giving teachers the tools to

apply the acquired information into practice according to their specific needs as affirmed by Levy (2012), teachers need to be able to comprehend and evaluate the effects achieved by using different technologies and how to combine them to acquire effective results.

The respondents were also asked whether they would wish their employer would offer them technology training and none of them showed to be clearly against the notion with a clear majority being on the positive side of the spectrum. Six respondents indicated that they would indeed want their employers to offer technology training whilst 12 respondents somewhat wished it, whereas five respondents were a little more apprehensive staying on the negative side. The high number of respondents that were somewhat interest in technology training provided by their employer could possibly be explained by possible concerns over what kind of training would be in question and how much extra work it would entail. The teachers were further asked whether they thought that employer should train all the teachers and not just a few selected ones that would then act as ‘innovators’ in the workplace, passing their knowledge onto others as described in Norrena, Kankaanranta and Nieminen (2011). Their answers showed to be unequivocal with all the respondents agreeing with the statement and a majority by 14 respondents fully agreeing. However, as reported by Norrena, Kankaanranta and Nieminen (2011), the phenomenon of these ‘innovators’ is common today and sadly, they are often quite alone in the workplace and rarely receive the needed support to implement new practices to their schools. They are also often met with resistance from their colleagues and have the pressure of being made responsible for the regeneration of the entire school. The variable amount of support given to teachers willing to train themselves is also visible in the respondents’ answers to the statement of whether they felt they received enough support in the workplace to learn new technologies. There, the responses were clearly divided in half between the positive and negative sides of the spectrum, the negative, which was not getting enough support, winning by one vote.

The support of the working environment is crucial in integrating new practices into the workplace as noted by Norrena, Kankaanranta and Nieminen (2011). Therefore it would only make sense to offer that support and train the entire staff, not merely a select few to ensure that no-one is put under too much pressure and responsibility for implementing change in the workplace. When it comes to acquiring any new equipment not to mention IWBs, as asserted by Setälä (2012), schools should always acquire training

when purchasing the new equipment to ensure their successful integration to the classroom practices. After all, it makes no sense to make such expensive investments in new equipment without equipping teachers to using them. Preferably, in my view, this should be done well ahead of the arrival of the equipment, so as not to have it standing in storage or in the classroom, unused, waiting for the day when someone has had the time to learn how to use it.

5.2 Interview

The second stage of data collection entailed conducting three semi-structured thematic interviews. The objective was to enriching the data received via the questionnaire and to obtain a more comprehensive insight into teachers' experiences, attitudes and opinions about IWB in foreign language teaching. The interview followed the same themes as the questionnaire: teachers' attitudes and views on new technology in general, technology training and finally how they viewed IWB-technology as a tool for teaching and learning. As in the questionnaire, the questions relating to the IWB, were designed on the basis of the SWOT-analysis and were divided under four categories: strengths, weaknesses, possibilities and disadvantages or negative effects. In the following the interview responses will be discussed, arranged after the before mentioned themes, starting from their views relating to the IWB-technology, organized after the SWOT-analysis, and moving onto technology in general and finally ending with the teachers' thoughts on technology training. In the example interview excerpts, when there is more than one person speaking, the interviewer's speech is identified with a capital 'H' (short for interviewer in Finnish) and the interviewee's with a capital 'O' (short for teacher in Finnish).

5.2.1 Teachers' views on IWB as teaching equipment

The IWB was in some ways familiar to each interviewee, teacher No.1 had just received an IWB in her classroom and had been acquainting herself with it for a few weeks, teacher No.2 had had a chance to test the IWB as her school was under renovation and was acquiring IWBs to every classroom and teacher No.3 had been working with an IWB for a few years and was also mentoring other teachers in her school.

Teacher No.1 had become acquainted with the IWB during practical training of her teacher training. There was an IWB in the classroom of her supervisor who showed her how the board works. She was then able to try the IWB during her training lessons and execute a 'circuit training' language lesson to her elementary school-pupils where one of the exercises was on the IWB. Teacher No.2 had first seen IWBs in the *Educa*[2]-fair and was later shown how one of her friends uses the IWB in her lessons in primary school. She had also had a chance to try it herself when her workplace had an IWB on loan to test for a week in the teachers' lounge. She expressed to have only touched a few buttons and tried to use colours and exemplify things. Teacher No.3 had first been introduced to the IWBs through a couple of her colleagues who already had an IWB in their classroom. The head teacher of her school was inquiring whether other teachers would like to have an IWB in their classroom as well. Before making the decision to have one, teacher No.3 had asked her colleagues to demonstrate the IWB to her. Her colleague in the classroom next to hers had also received an IWB six months earlier and after seeing it teacher No.3 wanted to have one too and began learning how to use it.

In all of the teachers' schools, plans to acquire IWBs were underway. The school of teacher No.1 had acquired IWBs to five classrooms and according to her more were to be acquired when the funding would permit it. Although the school was gradually acquiring more IWBs, she reported that there were some, such as the mathematics teachers, who wanted the school to preserve the blackboards in the classrooms. The school of teacher No.2 was under a complete renovation and the new school was to have an IWB in every classroom. Whether or not training was to follow she did not know but she expected and hoped training to take place. IWBs had been acquired to almost every classroom in the school of teacher No.3, as the school had received a grant for the refurbishment. However, a few of the teachers had rejected having an IWB in their classroom at that point. However, teacher No.3 jokingly suggested that the situation would most likely change once those teachers retired.

While figuring out what could be done with the IWB, teacher No.1 had so far performed individual tasks with the students on the IWB, such as vocabulary and grammar exercises and presenting discussion themes linking them to Internet-pages. She also reported to have used it with the document camera to, for example, filling in the blanks,

[2] Educa is an annual national training event for educators in Finland

drawing and doing gap exercises together with the students. They had also done some vocabulary exercises where students named body parts by moving the correct word to its position on the body. Teacher No.2 expressed to have only touched a few buttons and tried to use colours and exemplify things when her workplace had an IWB on loan to test for a week in the teachers' lounge. Teacher No.3 on the other hand professed to use the IWB for *everything*. For her, the IWB serves first of all as board to write absolutely everything on, and with the document camera it becomes a display unit. She reports that they do for example vocabulary, grammar and listening exercises on it, play games and practice every area of language skills.

Teachers were also asked to imagine how they could use the IWB in the future and in their answers the possibilities of enlivening and enriching teaching, illustrating and exemplifying matters and the overall versatility of the IWB were accentuated. In example 44, the teacher presents how she feels that by activating one's body in the learning process can help students conceptualise grammar better by making abstract pieces of grammar into concrete objects that can be moved around and organised into their place, almost like a jigsaw puzzle.

> (44) H: Miten sun mielestä älytaulua voitaisiin käyttää kieltenopetuksessa?
> O: No just se havainnollistaminen on älyttömän hyvä. Sanajärjestykset, päätteet, siirtelu, korostaminen. Se tulee selkeämmin esille, kun sanoja voi ihan elävästi siirtää. Musta tuntuu että oppilaat hoksaavat sen paremmin sitä kautta. Se on älyttömän hyvä siinä. Tärkeiden juttujen huomioimen ja korostaminen on tosi hyvä siinä. Plus se että siihen saa kuvaa ja ääntä yhdisteltyä samaan. Murteiden selittäminen esimerkiksi olisi todella helppoa karttakuvan kautta, josta aluetta klikkaamalla saisi ääninäytteen suoraan. Kaiken saa kerättyä yhteen paikkaan ja kiinnostavalla tavalla. Et siitä tykkään kyllä.
>
> H: How do you feel the IWB could be used in language teaching?
> O: Well, what is precisely good is the exemplifying. Word order, endings and terminations, moving things around, highlighting. It becomes clearer when words can be vividly moved around. I feel that students figure things out better that way. It's incredibly good in that. Pointing out and highlighting important matters is really good with it. Plus that you can combine images with sound. For example, demonstrating dialects would be extremely easy with an image of a map where by clicking a certain area one could get a sound sample. You can collect everything to one place and in an interesting way. So, that I do like. (Teacher No.1)

The teacher in example 44 also saw the IWB useful in highlighting important matters and exemplifying by using multiple sources, combining images and sound all in one, which she thought to bring more interest in the matter. Teacher No.2 also perceived the IWB as something that would motivate and spark up interest in students, livening up lessons (example 45).

(45) Piristää, elävöittää, kuvia, musiikkia, välipaloja opetuksen sekaan. Pelejä, omaa materiaalia. Olen ymmärtänyt, että esim. SMART boardissa on paljon alakoululaisille sopivaa valmista innostavaa materiaalia

Enliven, animate, images, music, snacks in the midst of teaching. Games, own materials. I've understood that for example SMART Board has a lot of inspiring ready materials suitable for primary schools. (Teacher No.2)

However, teacher No. 2, in her response seems to indicate that she perceives the IWB as something extra, an additional spice to lessons, rather than an integral part of the lessons and something that might actual have an effect on the way she teaches; A common perception discussed also by Taalas (2007), who had noted that the use of technology tended to remain merely an additional spice to the lessons or an aid to practising a single area of language through mechanical repetition and that new electronic materials often only replaced a task previously done in class. Whereas according to Iiskala and Hurme (2006), technology could further learning by making it possible to turn learning environments into ones where learners have the possibility to influence task difficulty, acquiring and receiving additional information and the duration of tasks, thus helping the student to create their own solutions to tasks and problems. This view of technology eliminating obstacles was also shared by teacher No.1 who reported that her first impression of the IWB was that even the students who normally by no means would voluntarily come up to the board were eager to come to the front. She saw students being interested in technology and enjoying the moments when they got the opportunity to be the 'expert' and tell the teacher how something works when the teacher would make mistakes. She thought that it made the students more aware as the lesson activities were suddenly more interesting to them due to this new technology.

Because of its potential as a tool for taking into consideration different types of learners and the fact that this was an issue that did not really show any prominence in the questionnaire responses, I wanted to specifically ask the interviewees what their views were on the IWB and how it could take different types of learners into account. Looking at the response of teacher No.1 (example 46), it seems to be a feature that is also marketed to teachers by manufacturers and trainers. Hopefully they are also instructing teachers on how to use it to that purpose, since judging by teacher No.1, she more or less agreed with what the trainer had marketed to them, yet could not really give a concrete example of how it could be achieved.

(46) H: Kuinka älytauluteknologia voi auttaa erilaisia oppijoita?
O: Kouluttajakin ainakin markkinoi tosi kovasti sitä, että tää olisi juuri siihen hyvä. Ja kyllä miekin sen allekirjoittaisin, että varmaan se on näin. En osaa vielä oikein sanoa vähäisen kokemukseni vuoksi. Meille on esimerkiksi ensi vuonna tulossa sokea oppilas, niin hänen tapauksessaan en esim. sitten tiedä kuinka tullaan toimimaan tai että tuleeko hän saamaan älytaulusta mitään erityistä irti. Mutta tää on tietysti ääritapaus. Kinesteettiset, visuaaliset ja auditiiviset oppijat varmasti kaikki hyötyvät älytaulusta. Kyllä mä uskon, että asiat jäävät paremmin mieleen kun niitä itse pääsee tekemään ja kokemaan.

H: How can the IWB technology aid different learners?
O: The trainer at least was greatly marketing that this would be great for just that. And I too would say that it probably is so. I can't really say yet because of the little experience I have. For example, we're getting a blind student next year, so in that case I don't for instance know how we'll be operating or that will they be able to get anything particular out of the IWB. But this is an extreme case of course. Kinaesthetic, visual and auditory learners would surely all benefit from the IWB. I do believe that things will be remembered well when you get to do and experience them yourself. (Teacher No.1)

However, although teachers No.1 and No.2 had little or no experience in using the IWB, they both credited that the possibilities of exemplifying, illustrating and students experiencing and trying things out themselves could only be a beneficial factor (examples 46 and 47).

(47) Havainnollistamista, uusia mahdollisuuksia se varmasti antaa. Mutta en oo sitä vielä käyttänyt niin en osaa sanoa. Ei siitä varmasti haittaakaan ole.

Exemplifying, it will surely present new possibilities. But I have not used it yet so I can't say. I'm sure it won't hurt. (Teacher No. 2)

And judging by teacher No.3 (example 48), it is exactly so for many different types of learners. She acclaims it helping students who have various problems with their perceptive skills, students who have problems with their ability to concentrate, students with confidence issues and also gifted students, whose problem might be getting bored or being ignored in the Finnish classroom that does not traditionally highlight talent.

(48) Ää. Just tämmösiä joilla on hahmottamisen kanssa ongelmia. Sää pystyt konkreettisesti näkemään, siirtämään asioita. Sää pystyt sen kautta toistamaan samoja asioita miljoona kertaa, kone ei väsy, ope väsyy. Sä voit laittaa tallenteen päälle. Esim. lapselle jolla on sanahahmon kanssa ongelmaa, sä pystyt laittamaan sen saman sanan välkähtämään kymmenen kertaa sinne taululle, jotta se jää verkkokalvolle kiinni lapselle. Sellaiselle jolle kirjaimet ei luonnistu, niin kone se ei väsy. Mää pystyn opettamaan asiat todella helposti. Ylivilkkaat lapset, jotka ei meinaa malttaa keskittyä. Niin nehän on aika intopiukkana. Ne pääsee irti sieltä pulpetista, pääsee luokan eteen, kokee onnistumista. Hiljaset oppilaat, arat, uskaltaa tulla paremmin mukaan tuohon toimintaan, ei tarvitse puhua luokan edessä, voi siirtää sanoja. Ja lahjakkaille lapsille se on vaan ihan pirun hauskaa. Musta siitä on apua niinkun ihan hirveän monelle erilaiselle oppijalle. Eli aina kun asiaan saa useamman aistikanavan, siihen saa sen näön, kuulon, tekemisen, kokemisen, niin se opitaan paljon paremmin minun mielestä kuin silloin jos opettaja vaan papattaa sieltä edestä ja sä vaan kuulet sen. Jokainen me opitaan eritavalla. Ja älytaululla mä opettajana otan huomioon sen.

Umm. Exactly these who have trouble with conceptualisation. You can concretely see, move things. You can repeat things with it a million times, the machine doesn't get tired,

> the teacher does. You can put on a record. E.g. for a child that has difficulties with the word form, you can make the same word flash ten times on the board so that it stays on the child's retina. To someone who has troubles with letters, the machine doesn't tire. I can teach things really easily. Hyperactive children who can't concentrate. Well they are really excited. They get out of their seats, get in front of the class, experience success. Silent students, timid ones, have the courage to get involved in the action better, without having to speak in front of the class, they can move words. And for the gifted children it is just darn good fun. I feel it helps so many different types of learners. I mean, whenever you can incorporate more than one sensory channel, there you get the seeing, hearing, doing, experiencing, you learn it much better I think than when the teacher just gabbles at the front and you just hear it. We all learn differently. And with the IWB, I as a teacher take that into account. (Teacher No. 3)

Technology and in this case the IWB can help students to process information in their own way, furthering their learning. Hopefully bringing with it new possibilities and practices so that students would not be restricted to using only specific ways of learning defined by the traditional school environment. Especially learners with attention difficulties and kinaesthetic and tactual learners need alternative and more flexible ways of studying due to their difficulties of staying in one place for longer periods of time. Nevertheless, as expressed by teacher No.3 in example 48, teaching that engages more than one sensory channel to learn would surely be beneficial in any case and that is what the teacher can easily do with the IWB.

However, when asked how they perceived the IWB in relation to previous equipment (examples 49, 50 and 51), none of the teachers seemed too eager to quickly cast aside all that came before but were more on the lines of Taalas (2007) that new innovations do not mean discarding everything in the way of new but rather using the old and the new together to achieve the best possible results and providing different learning paths to students. In example 49, teacher No.2 questions whether the IWB is merely the latest craze or whether it brings lasting practices.

> (49) Silloin kun ite opiskelin, niin ei ollut edes tietokoneita että. Aika näyttää, onko kyseessä vaan hetken muoti-ilmiö vai vakiintuuko älytaulu pysyväksi käytännöksi. Se jää nähtäväksi sitten vielä miten sen kanssa käy.
>
> When I was studying, we didn't have computers so. Time will tell whether it's a moment's fashion or will the IWB establish itself as a lasting practice. We'll have to see what happens with it. (Teacher no.2)

Teacher No.3, on the other hand sees the IWB as a natural continuum that was to be expected (see example 50). She credits that it is of course very useful but just another tool among others. After all, as noted several times before in this study, it is not the actual technology and equipment itself that is to determine its effects on learning and teaching but the way it is used.

(50) Musta se on vaan jatkumoa vanhoille välineille, piirtoheitin, yms. Musta se oli vaan ajan kysymys milloin sellainen tulee. Onhan se tietysti erilainen, kun se havainnollistaa niin paljon. Se on vaan se iso tietokoneen näyttö, joka on siirretty niin että kaikki näkee ja saa tehdä, eikä vain yksi oppilas.

I feel that it is just a continuum to old equipment, overhead projector etc. I felt that it was just a matter of time when something like that would come. Yes, it is different as it illustrates so much. It is just a computer screen that's been moved so that everyone can see and do, and not just one student. (Teacher No.3)

Nevertheless, no matter how great the IWB would turn out to be, teacher no.1 states not seeing her giving up other equipment altogether (see example 51). As seen also in the questionnaire responses of teachers, technology can fail and as teacher No.1 expresses, it is always useful to have a plan B.

(51) Emmie luopuis muista välineistä. Mutta onhan se todella hyvä, että ne kaikki on samassa paikassa, yhdessä välineessä. Esimerkiksi ylioppilaskokeissakin täytyy olla varavaihtoehto, jos yksi laite ei toimikaan. En luopuis siis muista välineistä.

I wouldn't give up other equipment. But it really is awfully good that they're all in the same place, in one tool. For example in the matriculation examination you have to have an option if one device doesn't work. So I wouldn't give up other equipment. (Teacher No.1)

As stated by teacher No.1 in example 49, time will tell what will happen with the IWB and how it will affect the current practices of teachers and schools. In the following subchapters we will nevertheless take a look at what the interviewees perceived at the moment to be the strengths, weaknesses, possibilities and disadvantages or possible negative effect of the IWB.

5.2.3.1 Strengths

As earlier in the questionnaire, teachers were asked to give their views on what they perceived to be the strengths of IWB technology. The interviewees complimented similar factors as the respondents in the questionnaire. These included factors such as versatility and combinability, both the use of the equipment and the materials, illustrating and exemplifying, the possibility to store and recapitulate information and motivating students.

Teacher No. 2 who, for the time being, had not had other experience using the IWB than briefly testing it in the teachers' lounge remained sceptical towards the equipment. She

commented it being merely one device amongst others, saying she did not think it could perform miracles. Teacher No. 1, although she had only had the IWB in her class for two weeks, could already begin to imagine what might be done with the board. On the other hand she had had the chance of testing the IWB during teacher training and had received some training when the IWBs had been acquired to her workplace. She was also an active user of technology both in her work time and free time. Therefore, I believe that her activeness in using technology and the little prior knowledge she had of the IWB helped her to imagine what could be done with the IWB. She admitted not being fully aware of all the possibilities of the IWB, yet, but imagined that once one learns how to use it, it will become easily operated. She even predicted that once one becomes accustomed to using the IWB and realises what can be done with it, one will not want to be without it.

On the technological side, as the teachers in the questionnaire responses, teacher No.1 acclaimed the IWB for its diversity as all-in-one equipment that combines various devices and makes having several different appliances, such as a separate PA system, redundant. She also credited the size and clarity of the IWB, stating that it enables even the students in the back row to see everything. A matter that to a couple of teachers in the questionnaire seemed to be a negative point, as they had the opposite experience of the board being too small and visibility being weaker than with the blackboard for instance. She also thought that the IWB showed colours more vividly than the video-projector.

Teacher No.1 also thought that one of the absolute strong points of the IWB was that students could experiment with it. She imagined using the board would come naturally to them as they are already used to operating similar technology on their smartphones for example. On the pedagogical side, teacher No.3 saw it as a fantastic tool for activating all students and for instance helping them to conceptualise, especially kinaesthetic students (see example 52).

> (52) Se aktivoi. Saan lapset ihan erilailla tunnilla mukaan. Ja kinesteettiset lapset, joilla on ongelmia kirjoittamisen tai hahmottamisen kanssa. Niin kun käytetään älytaulua, ne on ensimmäisenä siellä. Kun muistaa ite kuinka kivaa oli päästä kirjoittamaan taululle, liitutaululle, niin se lumo siitä ei hävinny ees lukioon mennessä. Niin saatika sit tommonen vempain missä on väriä, ääntä, liikkuvaa kuvaa. Niin se aktivoi niin hurjalla tavalla. Mulla oli kolmosluokkalaisia jotka on siis nyt kutosella, jotka edelleen kysyvät heti kun tulevat luokkaan, että ootko tehnyt älytauluharjotuksia? Ja ovat ihan että jes, kun kuulevat että oon.

> It activates. I can get children involved in the lesson in a completely different way. And kinaesthetic children who have difficulties with writing or conceptualisation. So, when we use the IWB they are the first ones there. When you remember how fun it was to get to write on the board, the blackboard, the charm of it didn't fade even by upper secondary school. Let alone a contraption like that, which has colour, sound, moving images. Yes, it activates in a terrific way. I had third graders, who are now on the sixth grade, who still ask right away when stepping into the classroom, that have you made IWB exercises? And when learn that I have they are like jeah. (Teacher No.3)

She also comments on the enthusiasm that working with the board generates in students, motivating them to take active part in lessons. This was also noticed by teacher No.1 who proclaimed her secondary school students being thrilled particularly about working with the IWB, marvelling it but showing no timidity. She professed that even the most 'phlegmatic' cases were now eager to participate in class.

Teacher No.1 presented also another useful point for the students and for teachers as well. She noted that with the IWB it is easy to save the contents of a lesson and send the information to an absent student via e-mail or other means, thus making sure that they know what has been discussed in class (see example 53).

> (53) [...]Se kouluttajakin puhui, että esim. hän kokoaa tunneilla tehdyn aina älytaululla PowerPointiksi, jonka voi esim. sairastavalle opiskelijalle lähettää sit suoraan s-postiin niin kaikkihan nuo on vaan uusia ja hienoja juttuja oppilaan kannalta. [...]
>
> […]The trainer too was speaking of how they for example gathers what was discussed in class to a PowerPoint on the IWB that can be sent for a sick student straight to e-mail so all that is just new and great for the student. […] (Teacher No.1)

She also noted that it made it easy to also improvise according to situation and also save for example students' work on the board, returning to it later on.

5.2.3.2 Weaknesses

The interviewees did not seem to share most of the concerns of the teachers' who completed the questionnaire. In fact, they found very few weaknesses regarding the IWB. Teacher No.3 had only one weakness in mind and it concerned the actual technology as she had one of the older models in her classroom. The board in her classroom could only be operated one person at a time, which was a drawback. She was however, already aware that newer models had multi-touch functionality and could be operated by several persons simultaneously. Therefore she remained positive, knowing that the technology was evolving. Teacher No.1 noted one other technical drawback that

made using the IWB quite laborious, at least in the beginning. She stated that since the IWBs software is not compatible with other operating systems than *Microsoft Windows*, it was very time consuming converting each of her existing files to the correct format. This is at least the case with two of the largest manufacturers *SmartBoard* and *Promethean*.

Yet, having a handy all-in-one tool to help make teaching and planning easier may prove to be also a downside of the IWB. Teacher No.1 commented that teaching might become too easy and teachers might become so dependent on the IWB that they cannot function without it. There are already teachers who are already so taken with the IWB that they would not consider teaching without it, as proclaimed by Setälä (2012). But is it really a weakness of the IWB or more to do with the person using it?

Teacher No.1 also pointed out that for students who are not that interested in technology or have a hard time understanding technology it might cause problems with comprehension in the beginning. This view was also shared by teachers in the questionnaire who were worried that bringing even more technology into the classroom does not take into consideration those who are not technology enthusiasts and might therefore even hinder learning for them. However, teacher No.1 thought it might only be a problem in the beginning and beyond that she saw no real weaknesses.

5.2.3.3 Possibilities

Teacher No.2 shared the views of the questionnaire respondents' who felt that the IWB presented possibilities to make teaching more interesting for the student, making use of varied resources and materials, combining and modifying them to suit specific needs of the teacher or of the students. She stated that the IWB had made tailoring lessons easy. She felt that with the IWB the teacher was able to connect new and different things to lessons and personalising them.

Usually anything new and different to normal classroom actions seems to excite and intrigue students. Teacher No.1 raised the question of motivation, indicating that in her mind the IWB could motivate and inspire students that are interested in technology. However, as previously shown in example 52, teacher No.3 depicted how she had had

the experience of students of all kinds being excited to work with the board. Contrary to some of the teachers' concerns in the questionnaire responses, the students' enthusiasm had not faded even after three years.

In the questionnaire, a third of the teachers perceived the IWB as a fruitful tool for illustrating and exemplifying. For example, they thought it brought further visual elements and comprehensibility to teaching whether it was by using colours, different fonts and font sizes, underlining or zooming in etc., the IWB presented multiple options for teachers to clarify and emphasize important and difficult things. This thought was also shared by teachers No.1 and No.3. Teacher No.1 pondered the possibilities of matters making a more lasting mark on students' memory when they are able to participate themselves and involve their body in the process as shown in example 54.

> (54) [...] Esim. viime viikolla tehtiin kakkosluokkalaisten kanssa ruumiin kehoon liittyvä tehtävä, jossa lapset sai yhdistellä oikeita sanoja oikeisiin kehon kohtiin vetämällä niitä älytaululla. Just silleen niinkun on ihanaa, kun sillä pystyy havainnollistamaan niin paljon paremmin. Ehkä se on kuitenkin mieleenpainuvampaa kuin se että pelkkä opettaja vain tekee edessä jotain.
>
> […] For example last week we did an exercise concerning the body with the second graders where the children were able to connect the right names to body parts by dragging them on the board. It's wonderful just the way that you can illustrate so much better with it. Maybe it is more memorable though than just the teacher doing something in the front. (Teacher No.1)

Over the years she had been using the board, teacher No. 3 had discovered its possibilities in making things concrete for her students as expressed in example 55.

> (55) Konkreettisen havainnollistamisen. Sen, mitä ennen teit aina paperilla, esim. joku sanajärjestys. Teit niitä pirun lippulappusia paperille ja lapset sitten siirteli niitä ees taas taululla. Nyt se kaikki tehdään älytaululla ja lapset tulee siirtelemään ne sormineen sinne. Eli opettajan illat säästyy.
>
> Tangible illustrating. What you used to do on paper, e.g. word order or something. You made those little darn paper clippings and then children moved them around on the board. Now all that is done with the IWB and children come move them with their fingers there. Meaning that the teacher's evenings are saved. (Teacher No.3)

The tactile features of the board can help illustrating even the more abstract features of language, such as grammar. As teacher No.3 points out in example 55, the days of teachers spending their nights doing actual cutting and pasting could be freed as teachers are able to do the same with the IWB and save them to be used innumerable

times. And it is the possibility to save the work done by teacher or especially by students that also teacher No.2 credits as a definite upside of the IWB.

5.2.3.4 Disadvantages or negative effects

Time is always a factor, and teachers' time is consumed by many things outside the actual act of teaching. It is no wonder than that time, which was seen as an issue in the questionnaire, was also seen as a possible disadvantage by one of the interviewees. Teacher No.1 in example 56, describes how learning to use the IWB may feel challenging as it does take time, especially in the beginning.

> (56) Kyllähän se vie aikaa. Että osaisi opettaa sen kanssa, niin pitäisi käyttää siihen aikaa. Ainakin alkuun työtunteja tulee varmasti paljon. Eli mielenkiintoa tarvitaan kyllä. Enemmän työtä. Mutta ehkä se sitten palkitsee myöhemmin kun ne materiaalit on siellä.
>
> It does take time. To know how to teach with it, you would have to spend time on it. At least in the beginning there will surely be a lot of working hours. So it does take interest. More work. But maybe it will reward you later once you have the materials there.

Motivation is indeed required, as teacher No.1 describes in example 56. The time-consuming nature of learning to operate something new that has so many features to learn may seem daunting and discouraging. Therefore teacher's own attitude and motivation to learning new is essential, but training is also important, especially as a majority of teachers belong to a generation or generations before 'digital natives' who seem almost fearless in their attitude to new technologies and learning them as shown in Tapscott (2009). For others than those who possess the natural aptitude to using technology, learning may be arduous and time-consuming at first but teacher No.1 states it will be rewarding after a while.

Nevertheless, learning to properly use the IWB not only the technical side of it but more importantly, learning to use it pedagogically is vital to achieving maximum benefits from the technology. Thus far, as pointed out by Taalas (2007), teaching is greatly teacher-oriented, giving students little opportunities for individual learning or taking an active role in their learning. As teacher No. 3 states in example 57, if the IWB is used in a wrong way, its fundamental purpose is reduced to something completely else and will not bring anything more to teaching and learning.

> (57) Väärinkäytettynähän se on yksipuolinen. Jos sitä edelleen käytetään opettajajohtoiseen opetukseen, vain opettajan välineenä niinkuin liitutaulua ennen. Silloin se ei aktivoi, silloin se on vain liitutaulu. Tai että opettajajohtoisesti vedetään asioita. Mutta jos sitä käytetään ryhmän aktivoimiseen, että ne lapset itse pääsee kokeilemaan ja käyttämään sitä niin en nää haittapuolia.
>
> Wrongly used it is one-sided. If it is still used to teach in a teacher-led manner, only as the teacher's tool like the blackboard used to be. Then it doesn't activate, then it is just a blackboard. Or that things are teacher-led. But if it is used to activate the group, that the children get to experiment and use it then I don't see any disadvantages. (Teacher No.3)

The IWB is not the teachers' tool; it is for the whole classroom. It is not meant to be just another blackboard or ordinary whiteboard. Moreover, it is not meant to be only operated by the teacher in a teacher-led environment. Already, the word *interactive* in the beginning of the name IWB should give inkling as to what purpose the board is for. Yet it would be a tall order for teachers to figure out its use completely on their own. Training is therefore essential in ensuring pedagogical use of the equipment that would further learning. I do not doubt that learning and teaching the technical aspects of the IWB or other equipment would present any problems as long as teachers are willing to learn. However changing longstanding practices that may have been learned already in teacher training may be more difficult as, shown in Taalas and Aalto (2007), a majority of the teaching performed by teacher trainees during practical training is teacher-led classroom work even though teaching methods have significantly diversified. Not training teachers in using new equipment such as the IWB could undoubtedly result into such rather simplified reactions to problems as expressed by teacher No.2 when presented the question concerning her views on the disadvantages or possible negative effects of the IWB: "*one can always turn it off*". When faced with difficulties with the equipment and its use or learning how to use it, teachers could then simply choose to turn their backs at the problem and plainly turn it off, reducing the IWB to some very expensive piece of equipment sitting in the corner or being used only as a reflective surface.

5.2.2 Views on technology

In the questionnaire, teachers were asked to respond to statements about technology on a four point Likert-scale that was intended to reveal their attitudes and views. In the interview some of these statements were slipped in with the interview questions. The interview began, as did the questionnaire, with questions relating to the teachers' views

on technology in general, technology in teaching and how they themselves were using technology in and off work.

All three seemed to hold technology in a positive light, as something that can really be of help not only to teachers but students too. As Teacher No.1 expresses in example and as explained by, for instance, Tapscott (2009) technology is part of the everyday of today's students and as such it would seem natural that it would also be a natural part of education as well.

(58) H: [...] mitä sä aattelet teknologian käytöstä opetuksessa yleisesti ottaen?
O: No mun mielestä se on hyvä, koska se tekee siitä sillein monipuolista, ja jotenkin tuntuu et nykyajan nuorille helpommin lähestyttävää, koska ne itekin aika paljon tekee kaikkee tämmösten vempaimien kaa kotona, tieskareitten ja näitten kanssa niin sit se on niille silleen arkipäivästä myös siellä, mikä on silleen luonnollista et sitä ois myös siellä koulussa.

H: [...] what do think about the use of technology in teaching, generally speaking?
O: Well I feel that it is good, since it makes it versatile and somehow I feel that more easily accessible to today's youth, since they themselves do quite a lot with these kinds of gadgets at home, computers and such, so it is everyday to them there, which would make it natural to have in school as well. (Teacher No.1)

Teacher No.2 agrees with it, proclaiming that technology has become an important part of schools and education today. Yet in her response there can be seen the generation gap described by Tapscott (2009): learning to use this new technology does not come that naturally to the previous generations and there is a lot to be learned (see example 59). Luckily for those who have the courage to ask, there is help to be had from the digital natives, as described by teacher No.2 in example 59.

(59) Kyllä se on tärkeää, sitä nykyisin tarvitaan. Mitä paremmin osaa sitä parempi. Opeteltavaa kyllä riittää, että paljon joutuu omilta lapsilta kyselemään neuvoja ja apua. Opeteltavaa kyllä riittäis.

It is important, it is needed today. The better you know it the better. There's a lot to learn though, so I have to ask my children advice and help. A lot to be learned truly. (Teacher No.2)

As discussed earlier in chapter 3.3.2, it is the pedagogical use of the equipment that determines its effects on learning. This is an issue that was also acknowledged by teacher No.3. She notes in example 60, that while all the latest equipment and materials are a very welcome help, it needs to be well thought out where and how it is used and specifically how it is pedagogically used. She also addresses the concerns of a quarter of the questionnaire respondents, stating that the value does not lie in the equipment but what is done with it.

(60) O: Öö. Hyvä apuväline, kunhan pedagogiset ratkaisut sen (teknologian) hyödyntämiseen on tarkkaan mietitty. Eli älytaulut, tietokoneet, ja kaikki netistä löytyvä materiaali, ja tietysti tabletti opetuskäyttöön olis ihana. Eli on hyviä. Edun huomaa ihan selvästi kaikkien oppilaiden kohalla. Mutta se pitää tosiaan tarkkaan miettiä että missä sitä käytetään.
O: Se ei oo niinkun itseisarvo se väline.
H: [...] No mitä sää oot mieltä teknologian käytöstä opetuksessa nykypäivänä?
O: Äämmm (.) Voitais käyttää enemmänkin. Varmaankin. Riippuu tietysti oppiaineesta, mutta jos puhun omasta aineestani, englannista, niin vois käyttää varmaan enemmänkin. Mutta sitten taas toisaalta niin kieli on semmonen, kun sitä, se on sosiaalisen kanssakäymisen väline, niin sitten taas ei se voi täysin olla sitä koneella istumista. Mutta kaikkea kivaahan teknologian kanssa pystyy saamaan aikaiseksi. [...] Ja teknologiaan nyt siis varmaan liittyy kaikki siis tämmönen öö laitteisto, äänityslaitteisto, niin sehän auttaa ihan hirveästi suullisissa kokeissa ja kaikissa tämmösissä.

O: Umm. A good tool, as long as the pedagogical solutions to using it (the technology) are carefully considered. So, IWBs, computers and all the materials found online, and of course the tablet would be amazing. So they are good. You can see the benefit clearly with every student. But it does need to be carefully thought to where use it.
O: It's not an absolute value the tool itself.
H: […] Well, what do you think about the use of technology in teaching today?
O: Umm (.) Could be used more. I think. Depends on the subject of course but if I speak of my own subject English, it could be used more I guess. But then again language is the kind that when it's, it's a tool of social interaction, then it can't be completely sitting on the computer. But all kinds of fun can be done with technology. […] And technology does I suppose include all this kind of umm equipment, recording equipment, then that helps enormously with oral exams and all that. (Teacher No.3)

She continues that in her view technology could even be used more extensively in teaching today, but points out that teachers need to of course evaluate to what degree and to what purposes technology is used in each subject (see example 60).

Next the interviewees were asked to describe how then the use of technology had changed during their careers. The longest standing of the three, teacher No.2, reported it having changed extensively. She described how during her practical training in teacher training, a tape recorder was the only device. She recollected that in her experience technology had never really been prominent and the equipment tended to be quite poor. She thought that such fancy equipment as the IWB could spark up language classes. During her time, her school had always had a language laboratory and they did have a document camera there but in her view it served no purpose in the language laboratory.
Teacher No.3 who was of a little later generation recollected a classic *Commodore 64* standing in the corner of the classroom during her teacher training but stated that they did not exactly use it for anything. Since she had been working as a qualified teacher her use of technology had progressed immensely each year and every year she was discovering new ways of using it. She confessed that she felt a need to find new ways of working and utilising technology when getting tired of old ways. Times as a teacher

trainee were not far away with teacher No.1 and she herself might be considered to be more or less part of the 'Internet generation' but even during her years as a teacher trainee and recently as a teacher herself, technology and its use had developed greatly. Thinking of her school years, she could remember the overhead-projector and the blackboard being generally the only equipment used by her teachers. When she started her practical training in teacher training she was introduced for the first time to document cameras, which marvel her; not to mention the IWB. She felt that the development had been quite rapid, the time between computers and document cameras relatively short and new developments were being made all the time.

All three interviewees had a very positive outlook to using technology in their work and learning new technology skills although the equipment they were using and what they were using it for at the time differed greatly. Teacher No.2 was using quite traditional equipment such as the CD-player and a laptop but this could have been also due to the fact that her school was operating in temporary barrack while their school was under a complete renovation. The new school was going to have IWBs in every classroom. Teacher No. 1 had been using the IWB in her classroom for a couple of weeks and had begun exploring it little by little. At the moment she had resorted to using it mainly as a screen for the document camera but had done a few exercises on it with her students. The document camera and a computer were used daily and she had gotten rid of the overhead-projector for over a year ago. Although having a positive attitude towards technology and already using quite a few devices, as well as the IWB, teacher No.1 had some apprehensions towards technology (example 61). She seemed to feel slightly intimidated with the IWB but had clearly decided to learn to use it, since her classroom already had one. She had wisely chosen to slowly acquaint herself with the IWB, taking her time to learn its use. Her approach to learning would no doubt save her from the stress and pressure teachers might tend to put on themselves of having to know everything. Her response shows also that it does not matter which generation the teacher belongs to, they may still feel nervous and unsure learning new skills.

> (61) [...] Mulla on aina pikkasen semmonen ollu itelläni että tekniset vehkeet ja mie ei olla ihan parhaita ystäviä, mutta tota sitten koska jotenkin aattelee et haluu kuitenkin oppii uutta [...] ja jotenkin tuntuu ihan typerälle, että sit ne olis ne vehkeet siellä luokassa [...] ja piirtoheittimen kanssa tekis vaan töitä. [...] et vähän silleen varovaisesti alkuun. [...] et ehkä nyt en ihan ekalla rykäyksellä et noniin nyt mä piän kaikki täs älytaululla nyt tästä lähtien ja tälleen [...] mut joo, kyllä mie ihan silleen positiivisesti suhtaudun ja innolla otan vastaan näitä uusia.

> [...] I've always been somewhat like me and technological devices are not the best of friends. But then since I think that I want to learn new [...] and it feels so stupid now, that since I have those fancy equipment in the classroom [...] to be just working with the overhead-projector then. [...] so carefully in the beginning. [...] that I don't think I'll be doing everything with the IWB from now on. [...] but yes, I regard it positively and eagerly take on board these new ones. (Teacher No.1)

Teacher No.3 also had an IWB in her classroom and had been using it for a few years. She was using it all the time and in her own words for *everything*. She was also using the document camera and the computer, listening music, watching videos etc. She had laptops in her classroom and she was using them to write blogs with her students, an online magazine and writing their own little stories. Teacher No.1 also noted that most of the administrative work of the teacher had been moved online to services such as the *Wilma*-school administration system.

Teacher No.3, as well as the other two interviewees, was using technology actively on her free time too. She revealed having some piece of equipment on at all times whether it was watching the television, listening to the radio or CDs, working on her laptop or other. Teacher No.1 also was very active in her daily use of technology (mobile phone, computer, television, DVD-player etc.). On her free time she used technology mainly to keeping contact with friends and family, entertainment purposes and searching information. Teacher No.2 also expressed using technology for contacting people, running errands, banking and booking travels. However, she professed not being too eager to use technology on her free time. Teacher No.1 expressed often having similar feelings of too much being too much and needing to just read a book and listen to music from time to time. She expressed being interested in learning about new technologies but sometimes being not bothered with technology at all, especially on her free time. Teacher No.2 was also interested in learning new but wanting to get actual training for it, saying that in her age learning took a little more time. Teacher No.3 was very interested in finding out about latest developments and using her free time to searching for new ways of working and new equipment, so much so that it took up a lot of her free time (see example 62).

> (62) Koko ajan on semmonen olo että tästä pitää tietää enemmän. Että välillä menee kaks tai kolme tuntia illasta siihen että istuu tietokoneella ja löytyy joku ihana väline ja on ihan että ”Ai tämmönen!” ja sitten alkaa miettiä että miten mä voin tätä hyödyntää. Et kun siellä on ilmaismateriaalia netissä niin tolkuttomasti mitä vois hyödyntää.
>
> I always feel that I need to know more about this. That sometimes it takes two or three hours of the night to just sit on the computer and find some great equipment and think that

> ‘Oh! This sort!’ and then start to think how could I use it. As there are so much free materials online to use. (Teacher No.3)

There is a risk of becoming too engulfed by the interest or the feeling of having to know and learn more as technology develops in such a fast pace. There is nothing the matter with it if is also a hobby and not only for work purposes. Yet in order not to blur the lines between work and home-life too much, sometimes it may just be needed to do as teachers No.1 and 2, handling only the necessary matters and then perhaps picking up a book.

5.2.3 Views on technology training

The interviewees all thought technology important and useful. Teacher No.1 especially credited technology’s usefulness in searching for information whereas teacher No.2 saw its possibilities in and outside work but also admitted that utilizing them would require willingness and above all time. Nevertheless, teacher No.1 reminded that trusting too much on technology can create difficulties as problems with technology and electricity that it needs to function are quite common. She noted that for those situations, when nothing works, it would be good to still have the traditional blackboard in the classroom. She remarked that if the lesson plan is completely reliant on the IWB, the teacher will need a lot of creativity to help solve the problem when technology or their ‘plan A’ might fail.

Training could certainly help teachers resolve technical difficulties and think creatively in difficult situations. However, as expressed before by Taalas and Aalto (2007) the number of teachers participating training has decreased and it seems that teachers are not neither pursuing their right nor adhering to their responsibility to continuing training. There were however many obstacles to teachers participating continuing training, such as availability, attainability, resources and attitudinal or motivational issues, and that continuing education was not seen adequately supporting teachers’ work as previously explained by Piesanen et al. (2006). Moreover, by Taalas and Aalto (2007) teachers in the South of Finland were in an advantage over teachers in Eastern Finland to being able to attend continuing education. Also, they reported that training usually was situated in Southern Finland, thus making it difficult for teachers from other regions to participate, especially if the employer was not willing to support it, even

though the actual training were free. Furthermore, larger cities and schools were also in a far better position compared to smaller ones. In addition, they found that teachers had little say in their own further training, as it was normally decided by the head teachers or the municipality and teachers were rarely consulted on their needs. Also, training was usually short-term and there did not seem to be a continuum between teacher training and later continuing training. Additionally, teachers rarely had the possibility of choosing training that would be relevant to their previous learning history or that the different career stages of teachers would be taken into consideration in the supply of continuing training. Teacher No.1 reported that in her city often the problem with teachers participating training was that it was usually held during the day and getting a substitute teacher for the day was difficult and all the preparations needed to attend training probably discouraged most teachers. Nevertheless, which ever difficulties there might be, municipalities and employers have the responsibility to train their employees and teachers to seek further training. This view of responsibility was also shared by teacher No.3 who aptly noted that if it is supposed in the curriculum that teachers of various subjects are proficient in using technology and are expected to teach their students in using it, then the employer should ensure that that is the case (see example 63).

> (63) Sekä että. Mun mielestä se on työnantajan velvollisuus jos kerta opsissa oletetaan että me pystytään tällaista opetusta pitämään, että se menee läpi tämä oppiaineiden, vaikka kielten, tvt-vaatimus. Sillon pitää työnantajan pitää järjestää koulutusta. Mutta mun mielestä myös opettajan itse pitää olla aktiivinen. Et jos se haluaa jotain ottaa käyttöön niin menee sitten opettelemaan sen ite. Että mun mielestä tarvitaan semmosta opettajaa, ai kauheeta sanoo, mutta että ei sais enää olla silleen ”en halua, ei kiinnosta”. Koska heti sun oppilaat on huonommassa asemassa kun ne joille niitten opettaja on opettanut ne asiat.
>
> Both and. I feel that it is the employer’s responsibility if our curriculum supposes that we’ll be able to offer this form of teaching and that the demands of IT-knowledge are met, for instance in languages. Then the employer needs to arrange training. But I also feel that the teacher needs to be active. That if they want to start using something they need to go and learn it themselves. That we need that kind of a teacher, oh it’s awful to say, but they should no longer be like ‘I don’t want to, I’m not interested’. Because, immediately your students are in a worse position than those whose teacher has taught them those things. (Teacher No.3)

Teachers No.1 and 2 were also in concurrence, teacher No.1 stating that the educating and training of their employees was undoubtedly the employers’ responsibility, since if new equipment and technology are acquired to the workplace they also need to make sure that the personnel knows how to use them. She further notes that many teachers are not aware of what training is available, where to get it or that they may not even have any knowledge of where to start looking for information about training. The internet

would be the obvious choice to start looking, and as teacher No.2 stated there would no doubt be an abundance to be found, but as with choosing which materials to use in teaching, here too would teachers need to exercise their judgement in an effort to find suitable training for themselves. Teacher No.1 reported that there had been quite a lot of technology courses offered by the city but the problem with those had been cancellations due to the small number of participants. In her city they also had a website called *Kontti* where teachers could go and see what training was on offer by the city.

> (64) Ehdottomasti. Monella ei ole tietoa, mistä koulutusta voisi edes saada, ja siihenkin menee aikaa jos opettaja itse lähtee googlailemaan. Mun mielestä se on ehdottomasti työnantajan homma tarjota sitä. Et jos kerran tuuaan tommosia välineitä kouluun, niin sitten on myös katottava että henkilökuntakin osaa käyttää niitä (teacher No.1)
>
> Absolutely. A lot of the people don't have the information where to even get training and even that would take time if the teacher starts googling by themselves. I think that it is definitely the employers job to offer it. For if those sort of gadgets are brought to schools then they need to see that their personnel knows how to use them.

The lack of knowledge might certainly be discouraging but nonetheless, notes teacher No.3 in example 63, teachers themselves need also to be active in pursuing further training. She expresses how in this age of lifelong learning presented by Tapscott (2009), teachers should not regard learning new skills negatively or reluctantly.

All three interviewees themselves seemed very interested in participating technology training, concerning the IWB and any other that would be available. In fact, teacher No.3 expressed her desire to start learning computer programming as she continuously found materials on the internet to be lacking in some ways. She toyed with the idea of having at the school an IT-intern who could create all types of exercises etc. on teachers demand and according to their specifications. She knew a colleague who had in fact been able to utilise a person undergoing non-military service in their school to do exactly that. Teachers No.2 and 3 had not really received technological training previously. This was especially surprising in the case of teacher No.3 who was very active in using technology and was in fact training her colleagues in the use of the IWB. Rather, she was self-taught. Teacher No.1 on the other hand had first received training on the use of the document camera and some training on the IWB during her teacher training. At her workplace she had so far participated in two IWB-trainings: one on the technical features of the IWB and one on the interactive features and using the IWB. Teacher No.2 expected that there would be training to come in the future, since her school was under complete renovation and the new school was to have IWBs in every

classroom. Teacher No.1 had just participated in IWB-training and reported there to be a second run in the spring. She had also received instructions from her school on where to independently search information about how to use the IWB, such as the *KouluOn.fi*-internet site or *You Tube*. She also disclosed that her employer had proclaimed that further training would be provided for all who wished for it. She only hoped now that she would be able to put those lessons into practice as soon as possible so as not to forget them. That would only demand more time from lessons to familiarise herself properly with the IWB. Here she expresses the problem noted also by Taalas (2007) that the lessons acquired in training are rarely effectively translated into practice. For teachers to be able to have proper benefits from training, the training itself needs to be suitable for teachers' needs but also teachers need to have enough support from the working environment that they have the chance to implement those lessons into practice.

Learning these new skills did not seem too difficult for the interviewees but they expressed that the time it took to learn how to use technology made it challenging. Teachers No.2 and 3 professed that once it became a routine it would become faster and easier, as teachers could use their prior knowledge of one equipment or software etc. to learn the use of new ones. Teacher No.3 added that motivation and interest were also needed but that she herself had not yet encountered any form of technology that she would not have learned to use.

Teacher No.3 had participated in one IWB-course where she thought the only things she was taught were how to turn it on and how to write on it. Everything else she had taught herself. In example 65 she estimates that support from her colleagues who had already been using the board would most likely been available, had there been time to ask for it.

> (65) H: Saiks sää työkaverilta apua sillon? Kun hänellä kerta oli puol vuotta aikasemmin jo se ollut. Että teittekö yhteistyötä sitten?
> O: Hyvin vähän kun ei me keritä näkemään edes. Joskus aamulla sanotaan huomenta. Että sitten niinku. Eli ei, en saanut. Tai sitten niinkun tai oisin saanu apua ihan varmasti mutta en kerennyt kysyä.
>
> H: Did you receive help from your colleague then? As they had been using for six months prior to you. So did you collaborate then?
> O: Very little since we hardly get to see each other. Sometimes we say good morning. So then like. As in no I didn't get. Or that I would have most certainly but I didn't have the time to ask. (Teacher No. 3)

She could probably be described as a so called ‘innovator’-teacher who by Norrena et al. (2011) are teachers that combine more traditional ways of teaching with innovative ones and who are instrumental in bringing new practices to their work environment by their own actions. Furthermore they also sadly stated that often there was not enough support resources available for these innovators to implement new practices to their schools regardless that often they were made responsible for the regeneration of the entire school. Here the teacher suggests that she simply did not have enough time to ask for help but that is a no better situation. Teachers who are motivated and willing to learn new things and develop their knowledge should, in my view, be supported and given time to do so. This teacher had to do a mountain of work to learn for herself before beginning to train other teachers when her school acquired more IWBs.

(66) H: No sitten kun nää tuli, niin koulutettiinko teitä siihen?
O: Joo, allekirjoittanut koulutti. Mää tarjoon aina koulutusaikoja ja opetuspäiviä millon mää sitten oon tai voin tulla kouluttamaan ja sitten se on sellasta hands-on-koulutusta (.)
[...]
O: Mää meen sinne luokkaan ja sitten me otetaan jotakin juttuja mitä se on miettinyt että haluais tehä ja sitten me käydään ne kaikki vempaimet siellä läpi ja aletaan miettimään että mitä tehdään että miten me saatais ratkaistua tää että harjoitukset sais tehtyä. Ja sitten meen takaisin myöhemmin jos tarvitaan tai tulee lisäongelmia. Et ihan sellasia tunnin paketteja pitäny siellä.

H: Well, when these came, were you trained for it?
O: Yeah, yours truly did. I always offer training times and days when I’m there or can come and train and then it’s that kind of hands-on-training (.)
[…]
O: I go there in the classroom and then me look at some things they have thought they’d like to be able to do and then we go through all the gadgets there and start thinking what to do and how we could solve this to do the exercises. And then I go back later if needed of ir there are any further problems. So these one hour packages I’ve done there.

The type of training teacher No.3 is offering (see example 66) would seem to be the perfect answer to the concerns of Taalas and Aalto (2007) who stated that teachers rarely had the possibility to choose training that would be relevant to their previous learning history and that the different career stages of teachers were not taken into consideration in the supply of continuing training although it is evident that the needs of a teacher just starting their career and one who has been working for over a decade are very different. They also noted that training offered at the moment appeared fragmented to teachers, because of its usually short-term nature and the lack of a clear continuum between teacher training and later continuing training. Taalas and Aalto (2007) were worried over the fact that the number of teachers who have never participated in continuing education or refresher courses had continuously increased. Due to the many obstacles to continuing training, presented by Piesanen et al. (2006), this type of

training or near mentoring as shown by teacher No.3 in example 66 would present a low-threshold option that would not only make training more accessible to teachers, that was within their own working environment and would most likely save costs for the employer as well. Teachers' individual needs could be taken into consideration and the training be more targeted. This of course would need support and resources from the employer but, I feel, would in the end be more cost effective and efficient in implementing the lessons of training into practice.

Teacher No.3 herself, who was shortly to attend IT-training, expressed wanting training that would make the complex technological features of equipment easily understandable for teachers, the kind that would approach the subject from a more simplified, practical and common sense point of view. Teacher No.1 had had a positive experience of a well thought out and directed IWB-training where, she reported, the trainer was a fellow teacher, who had been teaching with the board since 2008 and was able to recount personal authentic examples of how to utilise the IWB and how to include students in the process (see example 67).

> (67) Toi koulutus oli tosi selkeä, kouluttaja oli ite käyttänyt älytaulua tyyliiin vuodesta 2008 asti kun näitä alkoi tulla kouluihin. Ja tää henkilö oli yrityksen ja edehdyksen kautta lähtenyt opettelemaan ja pitämään heti tunteja. Eli oli tosi hyvä että tää kouluttaja oli itte työskennellyt taulun kanssa ja aidosti osasi kertoa tilanteita ja esimerkkejä, kuinka taulua voi hyödyntää ja kuinka vaikka oppilaat voi ottaa mukaan tunnilla. Et jos se olis ollut vaikka joku taulun kehittäjä, niin koulutus olis voinut mennä liian tekniseksi. Että siitä mää tykkäsin kyllä siitä puolesta. Koin hyödylliseksi. Jos on liikaa nappuloiden kertausta niin siitä ei olisi ollut niin paljon hyötyä.
>
> That was a really explicit training, the trainer himself had been using the IWB since 2008 when they started to come to schools. And this person had by trial and error started learning and giving lessons straight away. So it was really good that this trainer had personally worked with the board and could truly give situations and examples of how to use the board and how to for instance involve students in the lessons. If it had for example been some inventor of the board, the training could have gotten too technical. So that is what I liked. Felt useful. If there is too much revision of buttons then that would not have been so useful. (Teacher No.1)

Like one of the respondents of the questionnaire, she too agreed that training would be better given by teachers to teachers, rather than technicians training teachers to using individual technology and concentrating on the mechanics and technical side of each individual equipment, software, etc. Thus, giving teachers the tools to apply the acquired information into practice according to their specific needs as affirmed by Levy (2012), who expressed that teachers need to be able to comprehend and evaluate the

effects of training by learning how to use different technologies and how to combine them to acquire effective results.

Teachers No.2 and 3 who had had little or no technology training, were viewing it little apprehensively. Especially teacher No.3 felt she had not really achieved much use of the training she had received. Teacher No.2 who was looking forward to receiving training as her school acquired IWBs, was hoping that the training would prove to be useful. She had heard from her colleagues that they felt IWB-training should be focused on specific subjects, for example mathematics teachers would have their own, to get the maximum benefit. Teacher No.1 on the other hand had had a very positive experience and even recalled the participants being asked to give feedback to find out what teachers felt was useful and how to develop training further.

And it seems that in her school the teachers had already begun to think of ways of how to develop collaboration and training in their own workplace (see example 68).

> (68) Et meidän uskonnon ja psykan opettaja on myös meidän tän hetkinen tvt-tukihenkilö, et hän on kaikessa hirveen edellä ja antaa tietoa ja neuvoa ja auttaa ongelmissa. Se on tosi hyvä, että henkilökunnassa on joku joka osaa auttaa. On hauskaa muutenkin, että töissä jaetaan tietoa tosi hyvin. Aina kun joku keksii uuden tavan käyttää taulua, niin siitä kerrotaan ja puhutaan opettajainhuoneessa, mikä on tosi hyvä juttu. Ja nyt meillä ollaan lanseerattu tällainen uusi ”Pedagoginen kahvila”, jossa voi keskustella ongelmista tai mistä vain ja jakaa tietoa. Ja nyt onkin seuraavaksi tulossa just aiheeksi teknologinen puoli opetuksessa. Että siellä sitten varmasti opitaan lisää älytaulustakin ja saadaan vertaistukea sen kanssa jatkuvalle mokailulle!
>
> Our teacher of religion and psychology is also our current It-support person and they are so much ahead at everything and give information and advice and help with problems. It is really good that there is someone on the personnel who know how to help. It is also fun that information is well shared at work. Whenever someone comes up a new way of using the board, then it is told and discussed in the teachers' lounge, which is really a good thing. And now we have launched this new 'Pedagogical café' where you can discuss your problems or whatever and share information. And next topic will be the technological side of teaching. So I'm sure we'll learn more about the IWB and get per support to making mistakes with it! (Teacher No.1)

Collaboration and networking are a significant factor influencing teachers' professional development as presented by Norrena et al. (2011) and this kind of peer support and mentoring described by teacher No.1 in example 68, provides a substantial pool of resources that can be found already on the workplace. After all, it only makes sense to take advantage on the knowledge shared by colleagues with different backgrounds, experiences and interests.

5.3 Summary of findings

On the whole teachers' responses both in the questionnaire and the interview showed a quite positive outlook towards new educational technologies, indicating that given the time, training and support teachers would be most willing and able to learn their use. However, on the basis of the teachers' answers there still seems to be significant variation in the accessibility and aptness of technology training and the support teachers are getting to acquire training as presented by Taalas and Aalto already in 2007.

The IWB, although a relative novelty, seemed to have reached teachers quite extensively as with the exception of three questionnaire respondents all participants had been acquainted with the IWB and a majority stated that their workplace had already acquired or was in the process of acquiring IWB-technology. Nevertheless, it was found that regardless of the schools acquiring IWBs, a small number of the participants had in fact used the board. This was in some cases due to the lack of resources to acquire more than a few IWBs to the school. In these cases teachers of other subjects had taken precedence. As the respondents were foreign language teachers, one might speculate whether within schools the possibilities of the IWB for language learning were not acknowledged.

Although teachers saw several different advantages and possibilities to motivating students, illustrating etc., for the most part teachers who had used the IWB seemed to be using it in quite the 'traditional' ways, only replacing previous technology such as the video-projector and the document camera, in a teacher-led way. The interactive features of the board seemed to be undiscovered still. In addition, although underlined by manufacturers and trainers according to one of the interviewees, the IWBs possibilities in providing aid for different learners appeared to be almost non-existent in the teachers' minds. There seemed to be a need for training in the use of the IWB as teachers' answers indicated a certain lack of understanding as to what exactly can and cannot be done with the IWB.

6. CONCLUSION

Our society has undergone vast technological changes in the past decades. For schools this has meant facing a difficult challenge to keep up with the changes around them. Education has had to adapt to technological advancements and evolve with them. Nevertheless, the incredibly fast pace of progress in technology has meant that schools have inevitably been lagging behind, both in acquiring new equipment and training their personnel to use them. One of the recent developments in educational technology in the Finnish classroom is the emergence of the IWB into an increasing number of schools and classrooms. As our ageing schools are being renovated and brand new schools built, we are seeing the disappearance of old educational "technology" such as blackboards, overhead projectors, televisions, video recorders and even the relatively new DVD- and CD-players.

We are living in a time where a significant gap between generations of the 20th and the 21st century can be seen. The 21st century learners have grown up in an environment where internet, smart phones and interactive touch screens, etc., are ordinary. Their generation can be described as the internet- or mobile generation, 'digital native' adept at using technology already since their infancy. Whereas the 20th century generations can remember a time before mobile phones or the internet, let alone interactive technology. These earlier generations have had to adapt, and are still adapting, to the change. For them, learning to use these new technologies takes time. Meanwhile, technology keeps evolving and changing. The actual changes in society and the world around us happen more quickly than our institutions can react to the new needs and demands of society, labour market and education. Higher education and the working life require more and more varied skills from the youth today who will likely in their time be graduating to professions that do not even exist at the moment. To meet the needs of society and this new generation of learners, we must keep evolving and innovating our education. Teacher training is critical to the successful development of teaching but changing existing models takes time.

The main objective of the present study was shed light to how language teachers of FLT are adapting to welcoming and using the IWB and to find out what their views on it as teaching equipment were. Furthermore it aimed to discover how teachers were actually

using the IWB, their views on new educational technology and whether today's technology training is meeting their needs.

For this study the data was collected in two ways: first through an online questionnaire and later through a semi-structured thematic interview. This combination of a questionnaire with the interview was made in order to enrich the data of the study. Moreover, it was thought that while the results of a questionnaire could be more easily generalized, the results of the interview might on the other hand provide more comprehensive and detailed insight into teachers' experiences and perspectives. The first stage of data collection involved the online questionnaire. The objective there was to find out teachers' own experiences, attitudes and opinions about technology and the IWB in foreign language teaching. On the questionnaire language teachers were asked to respond to questions concerning their attitudes and views on new technology in general, technology training and finally how they viewed IWB-technology as a tool for teaching and learning. The questions relating to the IWB, were designed on the basis of the SWOT-analysis and divided under four categories (strengths, weaknesses, possibilities and disadvantages or negative effects) with two subcategories (for the teacher and for the pupil). The second stage of data collection entailed conducting three semi-structured thematic interviews. The objective this time was to enrich the data received via the questionnaire and to obtain a more comprehensive insight into teachers' experiences, attitudes and opinions about IWB in foreign language teaching. The interview followed the same themes as the questionnaire: teachers' attitudes and views on new technology in general, technology training and finally how they viewed IWB-technology as a tool for teaching and learning. As in the questionnaire, the questions relating to the IWB, were designed on the basis of the SWOT-analysis and were divided under four categories: strengths, weaknesses, possibilities and disadvantages or negative effects

> "A blackboard allows for an immediate presentation of ideas. There is no hooking up cables, and no orientation of software necessary. A presentation can be developed as the user speaks, and can be cleanly erased after the need has disappeared. Blackboards allow one to see the logical building and genesis of an idea; it can be an ideal problem-solving tool; it can summarize; it can be a datebook and a reminder of tasks. It can even be "interactive", as others use the board simultaneously... the board is useless until plugged into a power source (Hlynka 2012)"

So says Hlynka (2012), clearly not too impressed with this latest hype on the market that has taken the world of education by storm. I am certain that no one can deny the simple usefulness of the blackboard that has lasted in our classrooms for over a hundred years but all this, described by Hlynka, and more can be done with the interactive whiteboard. In the years of its existence, the IWB-technology has undergone many changes, such as going from boards that could only be operated by one person at a time to ones that can be used by several persons at the same time. Only time will tell how this new interactive and tactile technology will shape education. One thing is true though, as expressed by Hlynka, without power the IWB is just a blank board you cannot write on. Probably every teacher today is only too familiar with the feeling of frustration when technology does not work properly or not at all; an issue extensively presented as the downside of IWB technology by teachers in the present study. Nevertheless, as teachers, we are trained to handle those situations and always have a 'plan B' ready at hand.

With the exception of three respondents out of the 23, almost all of the respondents and all three interviewees had previously been acquainted with IWB technology. Teachers seemed to have a very positive outlook towards new technologies. Only one of the questionnaire respondents stated that they would not wish to learn to use new technologies and interestingly this individual was not as uncompromising when it came to being interested or eager to acquainting themselves with new technologies, since not a single respondent identified themselves as not being interested or eager to do so. Teachers also perceived new technologies as being useful in teaching. They also seemed to think that learning to use new technologies was quite easy but time consuming nonetheless. As a whole their responses painted a positive picture, indicating that it is not a question of new technologies being disliked or dreaded by teachers or that it would be too complicated for teachers to learn to use new technologies in teaching given the time and training. As presented by Sharma (2009), teachers' attitude is one of the major factors determining the success of training and without a positive or at least a neutral attitude towards new technologies, there cannot be a change in teacher's

teaching practices. However, looking at the teachers' responses, it seems that older technologies and more traditional equipment still have their place in the classroom and as suggested by Taalas (2007) these should then be used alongside with new technologies to provide students with different learning paths to take.

All three interviewees and approximately three in five of the questionnaire respondents stated that IWBs had already been acquired or were on the process of being acquired to their workplace. Nevertheless, regardless of the rather high number of questionnaire respondents whose workplace had acquired IWBs, over a half of them had not utilised the IWB. In three cases it was due to lack of possibilities as there were only a few boards in the school but in one case the respondent openly stated that they did not wish to use it. Of the respondents who had indeed used the IWB, one had not received any training for it and one had acquired training independently, as had one of the interviewees as well. The rest had received training provided by their employer and mostly given by the manufacturer. A common feature for all the training as presented by Taalas (2007) was that it was short-term: equivalent of one or two afternoons. There seems to be a need for further technology training in the light of the teachers' answers, as of the teachers that had actually used the IWB in their work, only four expressed that they had used the board utilising all of its features instead of using it merely to replace the document camera and the video-projector. Also, some of the teachers' comments showed their unawareness or uncertainty to what exactly can and cannot be done with the IWB.

Teachers both in the questionnaire and interview provided quite foreseeable answers when it came to the positive aspects and possible applications of the IWB. They credited its versatility with regards to the actual technology and the variety of materials available with the board's software or on the internet that could be combined in various ways. In addition they praised its possibilities in exemplifying and illustrating even the more complicated and abstract matters. They also imagined this new and exciting technology would likely motivate and inspire students; A fact that had already been noticed by two of the interviewees. It was also perceived that the IWB could encourage more student participation and activate students as, I understand, is part of the fundamental idea of the IWB. A minority of teachers also predicted that with this new technology came too new possibilities of changing existing teaching practices.

However, one the perceived downsides of the IWB was in their view that once teachers began coming too accustomed to using the IWB, they would somehow become unable to function without it. Teachers also feared that teachers getting caught up in technological gimmickry might take away from learning and teaching. They were also concerned that contrary to the basic idea of the IWB, it might in fact begin to have a passive effect on the students, as everything would be so to say readymade and almost too easily accessible. Another reoccurring point they made was that they felt the IWB did not take into consideration those students or teachers who were not that interested in technology. In the case of the teachers I understand their view on matter, as motivation is crucial in learning how to use this new technology and use it well, pedagogically. But in case of the students I find the notion slightly more difficult to comprehend, since I imagine none of the students today are particularly interested in the functioning of a blackboard for instance and yet, I do not believe that its existence in the classroom or that it is used daily hinders students' learning in any way, shape or form.

The interviewees on the other hand did not seem to share most of the concerns of the teachers' who completed the questionnaire. In fact, they found very few weaknesses regarding the IWB. Nevertheless, teachers' greatest concerns and negative thoughts concerning the IWB were to do with various technological issues and problems with functionality. Also, the IWB's downsides were considered to be that learning to use it was very time-consuming and that it demanded much from teachers' technological skills.

With the exception of teachers such as one of the interviewees who had been using the board for a while, teachers seemed to be for the moment using the IWB largely as a screen to the video-projector and the interactive features of it were treated more or less as an additional spice, something fun and different; Instead of actively using it to provide various options on how or different sensory channels through which to absorb information to their students, who we know by now consist of different types of learners. This seemed to go hand in hand with Taalas (2007), who had noted that the use of technology tended to remain merely an additional spice to the lessons or an aid to practising a single area of language through mechanical repetition and that new electronic materials often only replaced a task previously done in class. Whereas it could actually be furthering learning by making it possible to turn learning environments into ones where learners have the possibility to influence task difficulty,

acquiring and receiving additional information and the duration of tasks, thus helping the student to create their own solutions to tasks and problems, as presented by Iiskala and Hurme (2006). Technology and in this case the IWB could help students to process information in their own way, furthering their learning. Hopefully bringing with it new possibilities and practices so that students would not be restricted to using only specific ways of learning defined by the traditional school environment. Especially learners with attention difficulties and kinaesthetic and tactual learners need alternative and more flexible ways of studying due to their difficulties of staying in one place for longer periods of time. Nevertheless, as expressed by one of the interviewees, teaching that engages more than one sensory channel to learn would surely be beneficial to any student.

However, when asked how they perceived the IWB in relation to previous equipment, none of the teachers seemed too eager to quickly cast aside all that came before but were more on the lines of Taalas (2007) that new innovations do not mean discarding everything in the way of new but rather using the old and the new together to achieve the best possible results and providing different learning paths to students. Yet, surprisingly the questionnaire responses seemed to indicate that the IWB is perceived as rather passive equipment, excluding its possibilities for the tactile and kinaesthetic learners. This appears to suggest that this equipment, that is meant to be a tool for both the teacher and especially the students, is actually being mainly used by the teacher. One respondent even stated that they could do the same with the document camera, laptop and video-projector, and do it probably even better, completely discarding the interactive and tactile applications of the board, again giving the impression that they perceived educational technology as something belonging to and operated by the teacher. And yet, as stated before, it is not the actual technology and equipment itself that is to determine its effects on learning and teaching but the way it is used.

Noted before after Hockly (2009) and Taalas (2007), there has been a multitude of several different types of technology training available for teachers but in the light of the respondents' answers one might speculate that information about these courses, workshops etc. has not effectively reached teachers in the field or that the focus of the proposed technology training is not quite suitable for language teachers. Teachers' questionnaire responses regarding technological training seemed to be quite equally divided on opposite ends, indicating that transferring what is learned into actual practice

might not be that successful as proposed by Taalas (2007). According to Taalas (2007) the problem lies in the fact that the available technology training is usually short-term, focusing on individual computer programs etc. and technology is viewed as add-on equipment rather than a resource enabling pedagogical development of teaching. As presented in Sharma (2009) the success of training could also be influenced by teachers' attitudes, subjective views on technological matters, and also that every teacher has their own views on the pedagogical issues involved with the technology. In addition, after Norrena, Kankaanranta and Nieminen (2011) one-sided training, such as taking part in formal training, individual courses or courses based on a merely technical point of view, were seen to have a lesser effect on renewing teaching practices. Overall, according to teachers' responses concerning technology training the respondents seemed to think that the training was more or less apt and current. Completely personalised training for all is understandably quite a farfetched idea but perhaps there would be need for more specialised training. Specialised in the sense that it would be targeted to teachers of certain subjects, areas of expertise, schools levels etc. Rather than training teachers to individual technology and concentrating on the mechanics and technical side of each individual equipment, software, etc., training could be more applied, combining various media but approaching them from a certain pedagogical point of view of a specific group of teachers, for instance teachers of foreign languages. Peer collaboration and mentoring that were described by two of the interviewees could turn out to be the solution for more personalised training. This is an idea that should be more developed on a larger scale, especially in these times of municipalities and schools being forced to cut their education budgets.

The responsibility of providing training, especially when new equipment was brought to the workplace, was perceived to be the employers'. Teachers also thought that the employer should train all the teachers and not just a few selected 'innovators' who would then act be passing their knowledge onto others as described in Norrena, Kankaanranta and Nieminen (2011). However, as reported by Norrena, Kankaanranta and Nieminen (2011), the phenomenon of these 'innovators' is common today and sadly, they are often quite alone in the workplace and rarely receive the needed support to implement new practices to their schools. They are also often met with resistance from their colleagues and have the pressure of being made responsible for the regeneration of the entire school. The variable amount of support given to teachers willing to train themselves was also visible in teachers' responses, as their experiences

seemed to be more or less divided to those who had received enough support and those who had not. The support of the working environment is crucial in integrating new practices into the workplace as noted by Norrena, Kankaanranta and Nieminen (2011). Therefore it would only make sense to offer that support and train the entire staff, not merely a select few to ensure that no-one is put under too much pressure and responsibility for implementing change in the workplace. When it comes to acquiring any new equipment not to mention IWBs, as asserted by Setälä (2012), schools should always acquire training when purchasing the new equipment to ensure their successful integration to the classroom practices. After all, it makes no sense to make such expensive investments in new equipment without equipping teachers to using them. Preferably, in my view, this should be done well ahead of the arrival of the equipment.

Without continuing training and educating themselves on advancements on their professional field independently or provided by their employers, teachers will have a hard time imagining how to improve or develop their teaching. In today's fast developing world where advancements and changes happen so rapidly, information quickly becomes obsolete. In any other profession neglecting to update one's knowledge would be unimaginable but according to Taalas and Aalto (2007), the number of teacher participating continuous training has decreased the past years.

When it comes to technology, or for teachers' knowhow for that matter, two respondents described it perfectly:

> (69) [...] eihän esim. piirtoheitintä ole pakko kantaa kaatopaikalle älytaulun tullessa luokkaan. [...]
>
> [...] it is not as if you are forced to carry the overhead-projector to the landfill once the IWB enters the classroom. […](Respondent 6)
>
> (70) [...] Uuden ei ole kuitenkaan tarkoitus korvata perinteisiä välineitä.
>
> [...] After all, the new is not supposed to replace traditional equipment. (Respondent 22)

As Taalas (2007) insinuates, the point of new technology and using technology is not to blindly execute 'out with the old, in with the new' ideology but carefully consider and analyse how to combine previous technology and teaching methods with newer advancements in an effort to provide different learning paths and achieve maximum results. This, in my mind, would apply to new knowledge and skills as well. As Tapscott (2009) notes, we are living in an era of lifelong learning. When developments

are made and our society changes, we adapt and acquire new information, building on our existing knowledge and modifying it accordingly. A teacher's work is never done.

Regardless of the qualitative nature of the present study that impedes the findings to be generalised, some conclusions, or at least hypothesis can be made. After teachers' responses it would seem that the IWB technology has been received positively and quite enthusiastically. In general teachers seem to regard technology in a favourable light. However, as the IWB is still a relatively new phenomenon in Finland, teachers seem to be rather unaware of all its possibilities and for the time being are resorting to using it in a traditional way not benefitting from its interactive and tactile nature. In light of this, more research on the possible applications of the IWB would benefit teachers. It would also seem that teacher themselves are in need of more training and especially more targeted training. This could be done within schools through peer collaboration and mentoring. How to organise and provide this type of training would also require more attention. Nevertheless, teachers themselves seem eager to learn, provided that learning is supported also by the employer and the working community.

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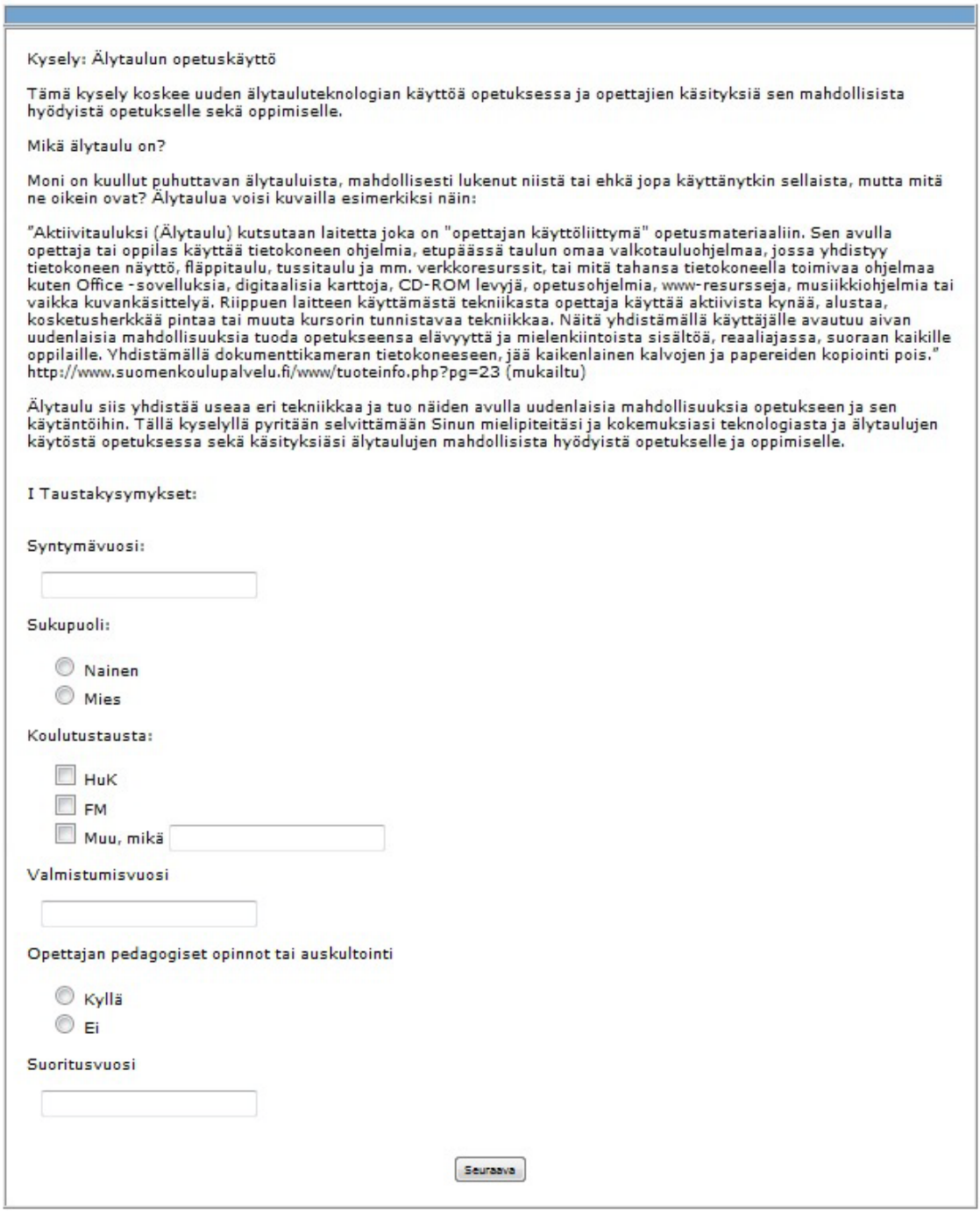
Appendix 1 The Questionnaire for Language Teachers



Kysely: Älytaulun opetuskäyttö

Tämä kysely koskee uuden älytauluteknologian käyttöä opetuksessa ja opettajien käsityksiä sen mahdollisista hyödyistä opetukselle sekä oppimiselle.

Mikä älytaulu on?

Moni on kuullut puhuttavan älytauluista, mahdollisesti lukenut niistä tai ehkä jopa käyttänytkin sellaista, mutta mitä ne oikein ovat? Älytaulua voisi kuvailla esimerkiksi näin:

"Aktiivitauluksi (Älytaulu) kutsutaan laitetta joka on "opettajan käyttöliittymä" opetusmateriaaliin. Sen avulla opettaja tai oppilas käyttää tietokoneen ohjelmia, etupäässä taulun omaa valkotauluohjelmaa, jossa yhdistyy tietokoneen näyttö, fläppitaulu, tussitaulu ja mm. verkkoresurssit, tai mitä tahansa tietokoneella toimivaa ohjelmaa kuten Office -sovelluksia, digitaalisia karttoja, CD-ROM levyjä, opetusohjelmia, www-resursseja, musiikkiohjelmia tai vaikka kuvankäsittelyä. Riippuen laitteen käyttämästä tekniikasta opettaja käyttää aktiivista kynää, alustaa, kosketusherkkää pintaa tai muuta kursorin tunnistavaa tekniikkaa. Näitä yhdistämällä käyttäjälle avautuu aivan uudenlaisia mahdollisuuksia tuoda opetukseensa elävyyttä ja mielenkiintoista sisältöä, reaaliajassa, suoraan kaikille oppilaille. Yhdistämällä dokumenttikameran tietokoneeseen, jää kaikenlainen kalvojen ja papereiden kopiointi pois." http://www.suomenkoulupalvelu.fi/www/tuoteinfo.php?pg=23 (mukailtu)

Älytaulu siis yhdistää useaa eri tekniikkaa ja tuo näiden avulla uudenlaisia mahdollisuuksia opetukseen ja sen käytäntöihin. Tällä kyselyllä pyritään selvittämään Sinun mielipiteitäsi ja kokemuksiasi teknologiasta ja älytaulujen käytöstä opetuksessa sekä käsityksiäsi älytaulujen mahdollisista hyödyistä opetukselle ja oppimiselle.

I Taustakysymykset:

Syntymävuosi:

Sukupuoli:

- Nainen
- Mies

Koulutustausta:

- HuK
- FM
- Muu, mikä

Valmistumisvuosi

Opettajan pedagogiset opinnot tai auskultointi

- Kyllä
- Ei

Suoritusvuosi

Seuraava

II Uusi teknologia

Väittämiä uudesta teknologiasta

	Täysin samaa mieltä	Jokseenkin samaa mieltä	Jokseenkin eri mieltä	Täysin eri mieltä
Uusi teknologia ei korvaa perinteisiä välineitä.	○	○	○	○
Uutta teknologiaa on vaikea oppia käyttämään.	○	○	○	○
Teknologia on mielestäni turhaa opetuksessa.	○	○	○	○
Haluan oppia käyttämään uutta teknologiaa.	○	○	○	○
Tunnen itseni varmaksi käyttämään uutta teknologiaa opetuksessa.	○	○	○	○
Uuden teknologian opettelu sujuu nopeasti.	○	○	○	○
Uuteen teknologiaan tutustuminen ei kiinnosta minua.	○	○	○	○
Teknologia on mielestäni hyödyllistä opetuksessa.	○	○	○	○
Olen epävarma käyttämään uutta teknologiaa opetuksessa.	○	○	○	○
Uutta teknologiaa on helppo oppia käyttämään.	○	○	○	○
Uuden teknologian opettelu on aikaa vievää.	○	○	○	○
Olen innokas tutustumaan uuteen teknologiaan.	○	○	○	○
Uusi teknologia ylittää perinteiset välineet.	○	○	○	○

Edellinen Seuraava

Väittämiä koulutuksesta

	Täysin samaa mieltä	Jokseenkin samaa mieltä	Jokseenkin eri mieltä	Täysin eri mieltä
Koulutusta teknologian käyttöön omalla alallani on helppo saada.	○	○	○	○
Koulutusta teknologian käytöstä kieltenopetuksessa on runsaasti tarjolla.	○	○	○	○
Koulutus on mielestäni ajan tasalla olevaa.	○	○	○	○
Koulutus on mielestäni sisällöltään osuvaa.	○	○	○	○
Koulutuksessa opittu on helppo siirtää omaan opetukseeni.	○	○	○	○
Koulutus keskittyy paljolti vain yksittäisten asioiden opetteluun (esim. yksittäiset ohjelmistot ja Internet-sivut), eikä anna laaja-alaista tietoa ja hyötyä.	○	○	○	○
Mielestäni saan työpaikallani tarpeeksi tukea uuden teknologian opetteluun.	○	○	○	○
Kaipaisin työantajan tarjoamaa koulutusta teknologian käyttöön.	○	○	○	○
Työnantajan tulisi mielestäni tarjota koulutusta koko opettajakunnalle, eikä vain yhdelle henkilölle, joka jakaa opitun tiedon muulle opettajakunnalle.	○	○	○	○

Kerro myös lyhyesti kursseista ja/tai lisäkoulutuksesta, jota olet saanut teknologian käytössä (muun kuin älytauluteknologian parissa).

Edellinen Seuraava

III Älytaulu

Oletko tutustunut älytauluteknologiaan?

- ◯ Kyllä
- ◯ Ei

Mitä kautta olet tutustunut älytauluihin?

- ☐ Lehtiartikkeli
- ☐ Koulutus
- ☐ Messut
- ☐ Tuote-esittely
- ☐ Työkaveri
- ☐ Internet
- ☐ Muu, mikä

Ollaanko työpaikallesi hankittu/hankkimassa älytaulu/ja?

- ◯ Kyllä
- ◯ Ei

Oletko päässyt käyttämään älytaulua työssäsi? Jos, niin mihin ja millä tavoin olet sitä käyttänyt?

Oletko saanut koulutusta älytaulun käyttöön?

- ☐ En
- ☐ Kyllä, omatoimisesti hankittu
- ☐ Kyllä, työnantajan tarjoama

Millainen koulutus oli kyseessä?

Edellinen Seuraava

Mitkä ovat mielestäsi älytaulun vahvuudet opetuksessa?

a) Opettajan kannalta

b) Oppilaan kannalta

Edellinen Seuraava

Mitä heikkouksia näet älytauluteknologialla olevan?

a) Opettajan kannalta

b) Oppilaan kannalta

Edellinen Seuraava

Millaisia asioita älytauluteknologia mielestäsi mahdollistaa?

a) Opettajan kannalta

b) Oppilaan kannalta

Edellinen Seuraava

Mitä mahdollisia haittapuolia tai negatiivisia vaikutuksia älytaulujen käytöllä voi olla kieltenopetuksessa?

a) Opettajan kannalta

b) Oppilaan kannalta

Edellinen Seuraava

Miten näet älytauluteknologian suhteessa perinteisiin välineisiin?

a) Parempana, miksi?

b) Huonompana, miksi?

Edellinen Seuraava

Kysely päättyi. Kiitos osallistumisesta

Appendix 2 Interview outline for the thematic interview

Teemahaastattelu

- **Suhtautuminen teknologiaan yleisesti ottaen sekä opetuksessa käytettynä**
  - Mitä ajattelet teknologian käytöstä opetuksessa yleensä?
    Mitä mieltä olet teknologian käytöstä opetuksessa nykypäivänä?
    Miten se on muuttunut oman urasi aikana?
    - Miten itse suhtaudut teknologiaan?
      - Käytätkö työssäsi?
      - Käytätkö vapaa-ajalla?
      - Millaisiin asioihin käytät teknologiaa?
      - Tuleeko käytettyä paljon vai vähän?
    - Oletko kiinnostunut uudesta teknologiasta ja sen käyttämisestä? Työssä ja/tai vapaa-ajalla?
    - Oletko halukas ja innokas tutustumaan ja käyttämään teknologiaa työssä ja/tai vapaa-ajalla?
      Oletko jo hankkinut uusia teknologiatietoja ja taitoja?
      Oletko hankkimassa uusia tietoja ja taitoja?
    - Onko sinun mielestäsi teknologiaa helppo opetella käyttämään? Onko teknologiaa myös mielestäsi helppo vai vaikea käyttää?
    - Onko teknologia mielestäsi hyödyllistä yleensä? Entäpä opetuksen apuna?
  - Oletko saanut koulutusta erilaisten teknologioiden käyttöön opetuksessa?
    - Millaista?
    - Milloin?
  - Mitä mieltä olet teknologiakoulutuksista?
    - Sisältö? Yksittäisiin ohjelmiin ym. keskittyvää vai laaja-alaista koulutusta?
    - Käteen jäävä hyöty? Onko opittu helppo siirtää opetukseen?
    - Saatavuus? Miten koulutusta on tarjolla?
    - Kenen toimesta/vastuulla? Järjestääkö tai tarjoaako työnantaja vai onko työntekijän vastuulla hankkia koulutusta?

- **Älytaulu**

    - Oletko tutustunut älytauluteknologiaan?
    - Miten tutustuit älytauluihin?
    - Oletko päässyt käyttämään älytaulua työssäsi?
        - missä ?
        - mihin olet sitä käyttänyt?
    - Ollaanko nykyiselle työpaikallesi hankittu/hankkimassa älytaulu/ja?
    - Oletko saanut koulutusta älytaulun käyttöön?
        - Miten hankittu? Mitä kautta?
        - Millaista?
        - Miten arvioisit saamaasi koulutusta?
    - Millä tavoin/mihin älytaulua voisi käyttää kielten opetuksessa?
        - vahvuudet?
            - opettajan näkökulmasta
            - oppilaan näkökulmasta
        - heikkouksia?
            - opettajan näkökulmasta
            - oppilaan näkökulmasta
        - millaisia asioita mahdollistaa?
            - opettajan näkökulmasta
            - oppilaan näkökulmasta
        - mahdollisia haittapuolia tai negatiivisia vaikutuksia?
            - opettajan näkökulmasta
            - oppilaan näkökulmasta
    - Miten näet älytauluteknologian suhteessa perinteisiin välineisiin?
        - liitutaulu, piirtoheitin, video- ja ääninauhurit, televisio
    - Miten älytauluteknologia voi mielestäsi auttaa erilaisia oppijoita?
        - Voidaanko älytauluteknologian avulla ottaa erilaiset oppijat paremmin huomioon?
        - Voidaanko sen avulla edesauttaa tai tehostaa ymmärtämistä ja oppimista?