DEVELOPING LANGUAGE PROFICIENCY THROUGH MULTIMODAL LEARNING ENVIRONMENTS

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Viestinnällisen suullisen kielitaidon harjoittaminen, viestinnällinen kieltenopetus sekä suullisen kielitaidon arviointi ovat pitkään tarjonneet haasteita kieltenopetuksen luokkahuonekäytänteille. Alati kansainvälistyvässä maailmassa monikielisyys, monikulttuurisuus ja viestinnällisyys ovat entisestään korostuneet, jolloin monipuolisen kieltenosaamisen tarve on huomattavasti kasvanut. Samanaikaisesti vieraskielinen opetus (CLIL) on kasvattanut suosiotaan maailmanlaajuisesti kielen ja aineen yhdistävänä oppimismenetelmänä. Kasvava tarve uudistaa kieltenopetusta on näkynyt myös opetussuunnitelmatyössä ja CLIL-opetusmenetelmiä on haluttu integroida myös formaaliin kieltenopetukseen esimerkiksi oppiainerajoja ylittävän oppimisen ja opetuksen myötä. Lisäksi uusia teknologiapohjaisia työvälineitä on kehitetty ja tuotu opetukseen, sekä niiden mahdollisuuksia uusina oppimisympäristöinä on tutkittu vaihtoehtona perinteiselle luokkahuoneopetukselle.

Tässä työssä tarkastelin CLIL-oppilaiden ja englantia vieraana kielenä opiskelevien suullista viestinnällistä kielitaitoa PROFICOM-projektin yhteydessä tuotetun LangPerform-tietokonesimulaation avulla. Kielisimulaatio on ensisijaisesti tuotettu kaksikielisen sisällönopetuksen oppilaiden (CLIL-oppilaiden) kielitaidon harjoittamiseen ja testaamiseen, mutta yksi projektin tavoitteista oli testata ja tutkia simulaation soveltuvuutta formaalin kieltenopetuksen puolelle. Tutkimukseni tavoitteena oli kuvailla, vertailla ja arvioida CLIL-oppilaiden ja englantia vieraana kielenä opiskelevien oppilaiden suullista kielitaitoa, sekä samalla arvioida LangPerform-simulaatiokonseptia ja PROFICOM-simulaatioiden soveltuvuutta ja soveltamismahdollisuuksia formaalin kieltenopetuksen puolella.

Tutkielman teoriaosassa käsittelin suulliseen kielitaitoon ja viestinnälliseen kielikompetenssiin vaikuttavia tekijöitä, sekä loin katsauksen kansalliseen ja kansainväliseen kielipolitiikkaan erityisesti eurooppalaisen viitekehyksen näkökulmasta, joka toimii pohjana simulaation arvioinnissa. Teoriaosan lopuksi käsittelin tietokonesimulaatiota kieltenoppimisen oppimisympäristönä. Tutkimuksen empiirinen aineisto koostui yhteensä 20 6-luokkalaisen

simulaatiosuorituksesta (10 CLIL- ja 10 formaalin oppilaan suorituksesta) kolmessa eri suullista kielitaitoa harjoittavasta tehtävässä, jotka analysoin ja arvioin.

Tutkimuksessa kävi ilmi, että CLIL-oppilaiden ja formaalin kieltenopetuksen oppilaiden suullisessa kielitaidossa ja kielenkäytössä oli huomattavia eroja. CLIL-oppilaat osoittivat oletetusti sujuvampaa suullista kielitaitoa, mutta myös monipuolisempaa ongelmanratkaisukykyä kielellisissä ilmaisuissa, sekä kykyä soveltaa kielitaitoaan simulaation tosielämää vastaavissa vuorovaikutustilanteissa, joista monet osoittautuivat haasteellisiksi formaalin kieltenopetuksen oppilaille. Tutkimuksessa havaitsin myös LangPerform-tietokonesimulaatioiden soveltuvan hyvin kielitaidon harjoittamisen ja arvioinnin välineeksi. Myös PROFICOM-simulaatio on pienin muutoksin hyvin sovellettavissa formaalin kieltenopetuksen puolelle.

Tutkimus osoitti, että kielisimulaatio ei ainoastaan tarjoa uutta ja mielenkiintoista oppimisalustaa vieraiden kielten opetuksessa, vaan tarjoaa myös välineen objektiiviseen arviointiin, dokumentointiin ja seuraamiseen. Lisäksi oppilaat kokivat kielisimulaation mielenkiintoisena, uutena ja motivoivana tapana oppia kieltä. CLIL-opetusmentelmien innovatiivista integrointia formaalin kieltenopetuksen piiriin tulisi tutkia ja kehittää entisestään, sekä oppiainerajat ylittävään opetusyhteistyöhön tulisi kannustaa.

Avainsanat: suullinen kielitaito, viestinnällinen kielitaito, englannin kieli, vieraskielinen opetus, uudet oppimisympäristöt, kielisimulaatio

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1. Introduction

Communicative oral language proficiency, communicative language teaching and oral language assessment have long been central goals in developing classroom practices as well as in national language educational policies (cf. Harjanne 2008, 111). With the ever-increasing international connections and challenges of multicultural and diverse work environments good communicative oral competencies in various foreign languages is now greater than ever. At the same time there is a concern about diminishing language skills and the influence of English over less-learned languages. The recent lack of interest in learning various languages could be linked to different attitudes and beliefs related to challenges involving (traditional and formal) language learning and teaching. However, even though oral language skills are promoted to a great extent in classroom language, teaching the ways of bringing this principle into practice may remain obscure and language teaching still seeks comfort in traditional ways of teaching.

Content and language integrated learning (CLIL), a dual-focused educational method that includes an additional language as medium as well as content, has gained popularity throughout Europe and in Finland (Maljers, Marsh & Wolff 2007, 7–9). Proponents of CLIL argue that it builds competence in languages and communication while it also develops acquisition of knowledge and skills. In spite of CLIL's popularity and increasing variety of target languages, CLIL has also grown in diversity of implementation, which has arisen confusion over what its effects really are and how it benefits the learning process (cf. Wewer 2013, 78).

The use of technology in learning in general and in foreign languages has expanded during the last few decades (Yang & Chen 2007, 861). Computers, the Internet and tablets have been included in various forms of teaching. The growing need to reform language teaching and learning into more applied solutions and systems has also been taken into account in planning the new Finnish National Core Curriculum to be implemented in August 2016. Emphasis is now put on developing new ways of learning a language in multidimensional learning environments, which also use technology-based solutions. Moreover, different projects have been launched to promote language diversity and applied ways of learning and teaching languages, also including ways of integrating principles of CLIL teaching and bringing language closer to the content being studied.

In this minor thesis I will focus on (communicative) oral language proficiency in CLIL environment and in English as Foreign Language. My incentive to study these contexts and new learning

methods evolved through my involvement in a project called PROFICOM (Profiling Learning Progression in CLIL Environments through Computer Simulations), initiated and carried out by the Research and Development Unit for Languages in Education (University of Tampere) and funded by the Finnish National Board of Education in 2013. The aim of the project was to develop various technology-based simulation approaches in order to create practical applications especially for purposes of interdisciplinary education of language, culture and internationality but also to see whether the simulation application could be utilized in the context of "more traditional" language education. The project included experimenting film-based language simulations based on the LangPerform concept created by Haataja (2010).

Since EFL-learners' input of English is much lower, they are not expected to perform as well as CLIL-learners. However, the aim of this study is to closer describe oral language proficiency as it shows in simulation performances of the two groups and whether the web-based, game-like simulation especially designed for the purposes of CLIL-education could be adapted in the contexts of "more traditional" learning contexts.

My two study questions are as follows:

1) What similarities and differences there are in oral language proficiency in the simulation performances of CLIL learners and EFL learners?
2) Could simulations (especially PROFICOM-simulation) be applied to EFL teaching?

To gather data, a PROFICOM-simulation is tested with a CLIL-group and EFL group of 6th-graders (11-13-year-olds). Altogether three simulations have been created in the project, two of which have already been tested in CLIL environments. However, the simulations have not yet been tested with EFL-learners, which makes this topic particularly timely and relevant. Also, the testing of the simulation with different learners leaves a wide collection of oral language performances that have not yet been analyzed, which is why it is important to look into the applicability of the simulation as an assessment tool.

Finally, a great deal of research has already been done by various scholars on textbook materials related to topics of building communicative language competence. The importance of textbooks in framing language teaching and the strong reliance teachers have on them is a solid argument for conducting research on more varied solutions of learning materials. As new learning methods and materials involve more and more technology-based solutions it is clear that research on new learning environments and other applied solutions (such as simulations) should be studied.

In the theory of this study I will introduce the most important concepts for this study. Notions on CLIL and communicative language teaching are given in section 2. In section 3 I will discuss language politics and have a closer look into the Common European Framework of Reference (CEFR), the basis for assessing language proficiency in the simulations. In the last theory section (4) I will introduce the LangPerform-concept and the project PROFICOM in the light of new learning environments. In the empirical part of the study I will analyze the performances of the two learner groups in three different simulation exercises, discuss the findings and provide some ideas for future development.

2. Theoretical framework

In this section I will discuss the most important concepts for this study, especially those related to communicative oral language competence (section 2.1.). CLIL teaching as basis and in relation to EFL-teaching is also discussed (see section 2.3. and 2.4.) in the theory of this study. In section 3 I will discuss language educational policies by presenting international guidelines that affect the Finnish National Core Curriculum. Additionally, I will discuss the newest fields of development and language educational policies internationally and in relation to national educational policies.

2.1 Language proficiency and communicative competence

Generally speaking, language use is always related to communication or dialog in different contexts, which sets the foundation for the human world. Learning takes place in interaction and interaction occurs through a language (cf. Aro 2006, 89). *Language proficiency* (knowledge of the structure and use of a language) can thus be viewed and argued to be much more than a combination of skills of grammar and lexis in the target language. Language serves a functional way of conveying messages in different contexts as well as in organizing thoughts, which contributes to the whole of oral language competence. In linguistics, *communicative competence* is a term used to refer to grammatical knowledge of language (morphology, syntax and phonology), but also how and when to use the language in social contexts (cf. Purpura 2008, 55–59). The concept of communicative competence was introduced in Hymes (1979) as a counterargument to Chomsky's (1965) distinction between *competence* (knowledge of the ideal speaker-listener operating) and *performance* (actual use of language in concrete situations) (cf. Adegbile & Alabi 2005, 32; Hymes 1979, 7-18). Hymes (1979, 7-18) highlights that competence is much more than an idealization that performance predicts: an underlying competence vs. the actual performance should be observed in actual use in concrete real-life situations.

One year later, Canale and Swain (1980) provided the most comprehensive conceptualization of language ability that includes language learner's knowledge along with the topical knowledge and personal characteristics combined with the strategic competence that affect the language use situations (Purpura 2008, 57). According to the theory of Canale & Swain (1980) the components of communicative competence can be divided into four different levels of competence: 1) *sociolinguistic competence*, referring to knowledge required to understand language use in social contexts, roles of the participants (sex, class, politeness etc.), and the function as well as meaning of

information of the interaction, 2) *grammatical competence* that includes knowledge of the correctness of the language, 3) *strategic competence* referring to the mastery and use of different verbal and non-verbal strategies to enhance effectiveness of communication and to compensate for breakdowns, and 4) *discourse competence* comprising of managing turn-taking and turning utterances and into a meaningful whole (cf. Chapelle, Grabe & Berns 1997, 2–3).

The previously mentioned theorists can all be considered the major contributors to the conception of communicative competence. Later on, The European Commission (2001, 22) has settled in using three components of competence: 1) linguistic, 2) sociolinguistic, and 3) pragmatic, in which pragmatic competence connects to the functional use of linguistic resources in drawing scenarios, or scripts of interactional exchanges. Pragmatic competence also includes recognition of irony and mastery of discourse cohesively and coherently.

Building communicative competence and language proficiency in language teaching comprises learned skills at school that could be taught on a *formal* level for example through commonly used phrases or *informally* in face-to-face interactions with different encounters. However, the goal is to teach children to interact at different levels of language use, in particular the skills, knowledge and know-how of how and when to interact in a certain way (cf. Tuuna-Kyllönen 2011, 17). In everyday communications we need routinized speech acts as well as skills to freely produce improvised speech. We use (linguistically and culturally) bound phrases when shopping at the grocery store or ordering at a restaurant but also when we communicate freely in everyday encounters with people or react to surprising situations.

The shift of needs associated with globalization, change in working as well as personal life and the era of Knowledge Age has changed views about what is a learning society and how learners engage in school (cf. Coyle, Hood & Marsh 2010, 153). The emphasis has shifted from knowledge transmission towards knowledge management and knowledge creation in multilingual settings, which sets challenges for future learners to build competencies in constructing meanings, creating strategies and transmitting them further in a foreign language (cf. Coyle & et al. 2010, 153; Haataja 2011, 149). This is why education and particularly in this perspective language learning should continue to be developed into a more interdisciplinary direction. In the next section I will introduce a learning approach that contributes to the ideas presented in this study.

2.2 Notions on Content and Language Integrated Learning

Content and Language Integrated Learning (henceforth CLIL) combines together learning and teaching of a foreign language and subject content. The language being used thus works simultaneously as the target and medium of learning (cf. Maljers, Marsh & Wolff: 2007, 8; Wever: 2013, 76). CLIL started to spread across Europe since 1994 and has become a major educational innovation, which involves competence-building in languages and communication while also developing acquisition of knowledge and skills.

Even though there have been forms of bilingual education in Europe and elsewhere in the world such as in Canada, the specific methodology known today as CLIL started to gain ground across Europe in 1994. Coyle, Hood & Marsh (2010, 1) also argue that CLIL is not a new form of subject education but an innovative fusion of both language and content. However, as CLIL has spread across nations it has been influenced by a range of new educational practices and ways of enriching language learning, which is why it could be described as an "umbrella term" that covers various approaches and dual-focused implementation of content and language depending on national educational systems and school curricula in different countries and learning contexts. The different methods and practices, however, share certain common methodologies, which all contribute to CLIL (Maljers & et al. 2007, 8).

The origins of CLIL in Finland date back to the late 1980's as a growing interest started to emerge especially in Canadian methodologies in the training and use of immersion education and language-supportive approaches that could be developed in the Finnish educational system, at first especially in Swedish-Finnish bilingual regions. Afterwards forms of immersion education have been incorporated into other languages (cf. Maljers & co. 2007, 64–65). Today the scale of CLIL programs varies from very small-scale implementations, such as a theme or project taught using a foreign language to large-scale implementations, in which most of the school subjects are taught in the target language. In 2011 more than 41 municipalities in Finland organized some variety of CLIL teaching, of which 16 provided teaching in English (Kangasvieri, Miettinen, Palviainen, Saarinen & Ala-Vähälä 2011, 24).

The benefits of CLIL are argued to be both cognitive and motivational. CLIL environments can provide a context for meaningful and concrete communication, which supports linguistic (and communicative) competence and stimulates cognitive flexibility (Coyle & co. 2010, 10–11). Additionally, when learners have the opportunity to experience a real-life situation, for example

through a topic from geography, a greater sense of authenticity and successful language learning can be achieved. Together with effective constructivist educational practice CLIL can also have an impact on conceptualization and enrich understanding through better association of different concepts and thus lead to a more advanced level of learning in general. Another important factor is that CLIL increases interest in learning foreign languages, promotes internalization and prepares intercultural communication skills for future studies and working life (Maljers & et al. 2007, 67; Terlevic Johansson 2013, 24). Finally, CLIL does not only benefit the individual, but can have a major impact on improving the image of the school and community.

CLIL has been criticized for its ineffectiveness in both language and content (Ioannou Georgiou 2012, 502). There is a concern, whether the reality of CLIL classroom matches the positive picture of CLIL that is put forward in the academic field (Ioannou-Georgiou 2012, 501). Wewer (2013, 78) also argues that there is vagueness and variation in how CLIL is implied in municipalities, which creates inconsistent educational CLIL models and inequality of outcomes among the students. Additionally, Antila (2012, 79–80) argues that there can be great differences among the levels of skill also within CLIL-groups, which can cause tension, unwillingness to participate or code-mixing for students who are unsecure about their language skills in communicating in the foreign language. However, in perspectives of this study it is interesting to find out, how the CLIL-learners are equipped to cope with e.g. problem-solving tasks in English compared to English as foreign language-learners.

2.3 EFL, communicative language teaching and development

As already discussed before, the concept of language proficiency has widened during the last few decades. Whereas before language was considered to be more of a skills subject, now the shift is moving towards language as a knowledge and cultural subject with even more emphasis on communicational aspects (cf. Harjanne 2008, 112-113). This broader perspective should also be considered in *English as Foreign Language teaching* (hereafter referred to as EFL). While CLIL is about using language in subject study, EFL is traditionally mostly teaching about the language and learning to communicate in everyday situations (Wewer 2014, 207).

Even though these two teaching and learning methods differ greatly in matters of volume of English used as well as skills, common grounds can still be found in the use of language. Along with the shift towards viewing language from communicative perspective, EFL is becoming more influenced

by applied ways (like CLIL), through which language teaching would not only involve language as a code or formal system but as an enabling medium to extend student's contacts to foreign languages and cultures and also in the way that they intertwine in ways of using language in real life situations.

The perception above can be described as being holistic by nature for it takes into consideration language learner's and user's general competences, communicative language competences, and strategic competences, in which all the knowledge and skills influence the ability to interact in the foreign language (Harjanne 2008, 114). Harjanne argues that in language teaching, in which language proficiency is not limited to linguistic knowledge and skills, more attention is given to language learners and their *awareness* of their knowledge and skills that contribute to communicative language proficiency. Coyle & et al. (2010, 41) sum up the holistic view into a 4Cs Framework: content, cognition, culture and context that form a symbiotic conceptual map combined with the Language triptych (2010, 36). In the following figure I have combined the two figures provided by Coyle & et al. (pp. 36 and 46) into a new whole:
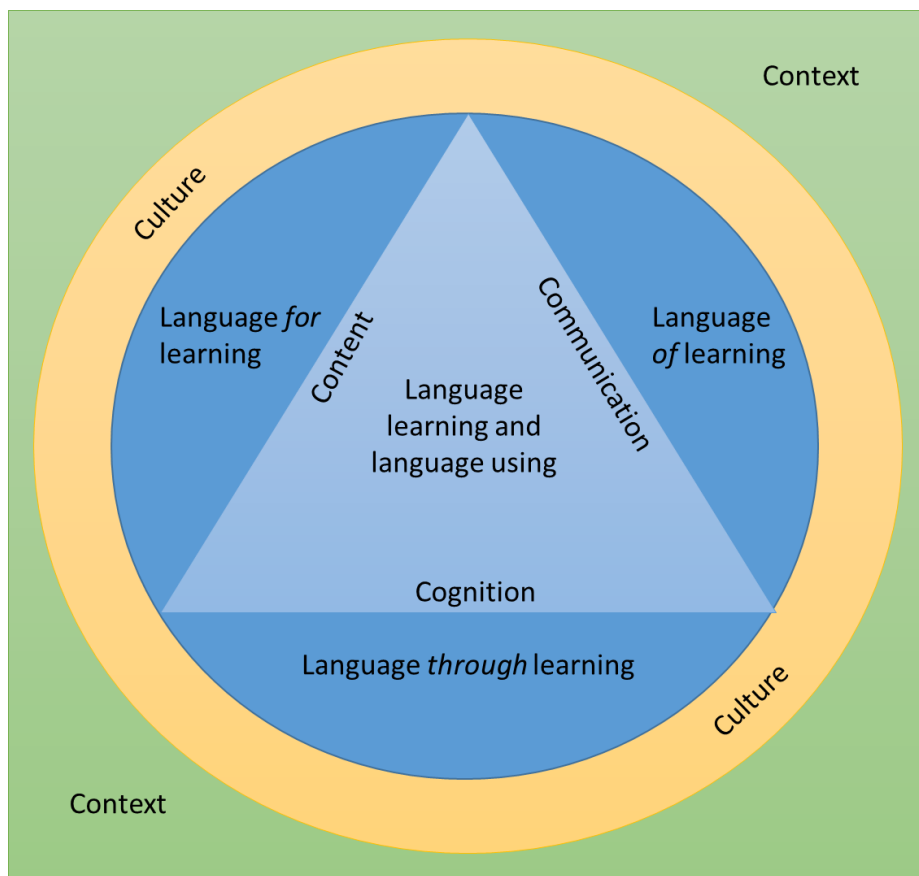

Figure 1: 4Cs framework and language triptych combined (cf. Coyle & et al.)

In the figure, *language of learning* means knowledge of language needed for learning, *language for*

learning focuses on the kind of language needed to operate in a foreign language environment and *language through learning* is connected to the idea that learning takes place in active involvement of language and thinking, which are all constructed in the four building blocks of communication, content, cognition and culture in different contexts (Coyle & co. 2010, 36; 46).

Communicative language teaching uses interactive, cooperative, experiential and context-bound processes, through the idea of learning by doing (e.g. Harjanne 2008, 122). Usually exercises include working in pairs as well as group work, situations that require language using outside the classroom and are connected to student's authentic environment, in which interaction occurs. Howatt (1984, 279) further divides communicative language teaching into the weak version and the strong version of language teaching. In the weak version students are enabled through methodological means to activate their knowledge of language after having been taught and practiced words and structures in a traditional way. In the strong version students use the foreign language in order to learn it, which is why the method is entirely built on communicative tasks. As Howatt (1984, 279) sums it up *"If the former could be described as 'learning to use' English, the latter entails 'using English to learn it'"*. In this way, the learners are brought to the center of the learning event and interaction occurs more on a learner-learner-level compared to the traditional teacher-learner-level (cf. Haataja 2011, 149; Howatt 1984, 277). However, it should also be noted that alongside of communicative oral tasks other parts of the language, i.e. listening, reading and writing should be practiced.

Testing and assessing communicative language skills set challenges and opportunities to communicative language teaching and CLIL (cf. Coyle & co. 2010, 112; Harjanne 2008, 122). It is difficult to create authentic real-life environments in classroom teaching and practicing of communication with non-native speakers can understandably feel unnatural. Communication is also most often practiced with the help of written texts, for example through written dialogues or other formative exercises found on books. As in teaching, the same problem is faced with testing. Even though a conversational setup can be created in the classroom, the test situation can create extra tension, is time consuming, and the conversation partners vary in every encounter, which decreases the objectivity, reliability and replicability of the test. Also questions such as "Do we assess language or content first?", and "Who assesses?" are relevant. Coyle & co. (2010, 120–129) suggest that tests that require information processing through both receptive and productive ways in all areas of learning, such as matching information or descriptions based on information collected, set a good example for testing. The holistic view also promotes methods of peer- and self-assessment to

be explored. Finally, Wewer (2014, 200) argues that curricular objectives set grounds for instruction and assessment and thus need to be taken into consideration. The curricula are further discussed in the next section.

Because various challenges to teaching and assessing communicative language skills are faced in classrooms every day, it is relevant to study and develop ways in which language learning and assessment could support learning processes in real-life situations as well as enhance the motivation to learn more languages. An interesting direction of development in education is the implementation and use of technology and technology-based learning and test materials, which will be further discussed in section 4.

3. Shaping language education– outlook on language policies

The European language policies result from the common European values of *multilingualism* and *plurilingualism*. Multilingualism as a concept refers to knowledge of different languages whereas plurilingualism combines knowledge of languages in contrast to mother tongue and the building of experiences of languages as well as language and communication competence (Council of Europe 2001, 23). From this perspective language learning and proficiency in a number of languages are of great importance to personal development, social cohesion, economic performance and sustainable employability. Foundations for lifelong language learning are created through motivation, highly motivated teachers and quality materials (Egger & Lechner 2012, 13-18). In this section I will discuss language policies on international and national level in regards to definition, goals and assessment of language skills. First, an overview is given on a common assessment tool, *the Common European Framework of Reference* (in short CEFR) with special attention to spoken language skills and production. Also language educational policies are discussed on a more general level to support the relevance to conduct this research.

3.1 The Common European Framework of Reference

The Common European Framework of Reference (hereafter CEFR) was designed by the Council of Europe to provide guidelines to describe achievements of learners of foreign languages throughout Europe but it is an accepted standard within the European community. CEFR is also used as the basis of foreign language teaching in the Finnish National Core Curriculum (in short FNCC). The CEFR is the product of research conducted over almost two decades and was finally published in 2001 with the aim of providing a method of learning, teaching and assessing which would apply to all languages in Europe; a system to validate language ability. Since then the six levels of reference (Table 1) have become widely accepted as the European standard to assess language ability (Council of Europe 2001, 23).

Table 1: Language Proficiency Levels according to the CEFR

Level group	Basic User (A)		Independent User (B)		Proficient User (C)	
Group name	Break through, Beginner (A1)	Elementary (A2)	Threshold or Intermediate (B1)	Upper Intermediate (B2)	Advanced (C1)	Mastery (C2)
Description	-Understanding and use of very basic phrases and everyday expressions	- Understanding and use of frequently used expressions - Ability to simple conversations related to background or immediate environment	- Can deal with most situations likely to arise while travelling in an are where the language is spoken - Production of simple coherent texts, description of events, dreams and hopes	- Understanding and production of concrete and abstract texts - Fluency and spontaneity in interaction	- Use of language flexibly and effectively for social, academic and professional purposes	- Expertise and fluency in every area of language production and understanding

As Table 1 shows, the language abilities can be divided into three proficiency levels (A = basic, B = intermediate and C = advanced), each of which into two sub levels (A1, A2, B1, B2, C1 and C2). The short descriptions show what a language learner is supposed to be able to do in terms reading, listening, reading and writing at each level. The CEFR system also presents "Can Do" descriptions for communicative activities and strategies for learners' self-assessment purposes as well as for helping teachers to assess their students' skills (CEFR 2001, 37–38).

More specifically, when it comes to communication skills, the CEFR also introduces descriptions for qualitative aspects for spoken language. The reference table consists of descriptions for five aspects: 1) range, 2) coherence, 3) fluency, 4) accuracy, and 5) interactivity (Council of Europe 2001, 28–29). In Appendix 1a short descriptions for qualitative aspects for spoken language are listed.

On the basic level (A) spoken language consists of the very relevant expressions and phrases of a language. In terms of accuracy the learner knows very simple grammatical structures. On level A the learner cannot really be considered to be fluent in the language and there can be a lot of pauses, search for words or false starts and code mixing is common. The utterances are usually short and a great deal of memorized structures and simple expressions are used, although simple linking words like *and* and *but* may appear. The learner should, however, be able to express themselves in simple everyday situations related to family, hobbies, interests, school or work. The spoken production on level B can be classified as more conversational and masters a more accurate use or vocabulary repertoire. The learner has a stronger command of longer stretches of (free) speech, initiate and maintain a conversation and use more complex structure and a broader variety of linking words.

The learner on mastery level C is close to a native-like language usage that includes a broad vocabulary, use of idioms, fluency of expression, well-structured sentences and can thematically address issues and express their opinions on topics that do not necessarily involve their lives. Level C requires a learned outlook on language that can be pursued through (long-lasting) education and learning of languages including the native language. The basic learner of foreign language education in primary school (up to 6th grade in Finland) can be expected to accomplish a level of A1.3 (FNCC 2004, 140), however in CLIL-education the target level is not set.

Even though more than a decade has passed since the Common European Framework of Reference was established, it is still one of the most recent descriptions of communicative language proficiency, which considers language learner's general competences, communicative language competences, and strategic competences (Harjanne 2008, 114–124). The CEFR also encourages pedagogics into a more communicative direction through authentic tasks that require understanding, negotiation of meaning and expression of thoughts to reach a communicative goal. Next I will introduce how the Finnish educational system is applied to the European guidelines along with new trends of development.

3.2 The Finnish National Core Curriculum and curriculum reform

Language teaching in Finland follows *the Finnish National Core Curriculum for Basic Education* (shortly FNCC). The Curriculum sets objectives, guidelines and framework to be followed in local curricula and in school specific curricula in comprehensive education (classes 1-9 and pupils from 7-16 years old). The Finnish National Board of Education established the current curriculum in 2004. However, the New National Core Curriculum is currently under development, which will be established in 2014 and put into use by the end of 2016. In foreign language teaching the guidelines in the National Core Curriculum are largely based on guidelines of CEFR set by the European Union.

According to FNCC 2004 foreign languages function as media for communication and as a subject aims to supply language learners with skills to cope in various real life communication situations. The curriculum also states that foreign languages are skills subjects as well as cultural subjects with the objective to teach language learners to understand and appreciate different cultures and requires diverse and persistent practicing (FNCC 2004, 138).

Practicing oral language skills is especially highlighted in the early stages of learning the first foreign language. The focus should be first on listening comprehension, repetition and other applications of learning communicative skills. The goal is to make language learners *aware* of languages and their meaning, encourage them to try to communicate in a foreign language and thus create the foundation and motivation for further language learning. The central subjects in foreign language learning in classes 1-6 include for the most part life and the immediate environment relevant to the learner, such as school, home, hobbies, family etc. The pupils should also learn to cope with simple every day communication situations in relation to the culture specific ways. Finally, the pupils should learn different learning strategies for learning languages and be able to recognize and assess their own strengths and weaknesses as language learners (FNCC 2004, 139).

The FNCC 2004 also states that teaching in general can be organized in a foreign language, where the foreign language does not serve entirely as the object of teaching and learning but as a medium (cf. CLIL in section 3.2). The organization of CLIL and the amount of the target language can be to a great extent defined by the municipalities and schools and is set on local teaching plans. Therefore the implementation of CLIL in forms of teaching and terms used for the method vary greatly in the local systems. For example the proportion of foreign language instruction and objectives language learning vary according to each local school curriculum. Regardless of the percentage of the target language used in teaching the subject matters and the learning goals of school subjects are the same in the national curriculum (FNCC 2004, 272).

FNCC 2004 gives great freedom for local educators in terms of organizing teaching in a foreign language and does not set goals for a target level in language skills. Therefore, it also sets challenges to fulfill the goals of the curriculum, which is why the teachers should be able to accommodate their teaching and assessment but also in terms of searching and creating materials for teaching. There is also great variation in students' language skills as it is common in CLIL classes to have students who have had different chances to acquire language skills abroad, are native speakers of English or bilingual. The vagueness of FNCC 2004 in CLIL makes a reform especially in regards of language education relevant but at the same time makes the mapping and research of ways or organizing as well as teaching contents and materials intriguing.

At the moment, the current teaching and schooling practices are going through a reviewing and renewing process in Finland. As the way of viewing learning has slowly shifted away from traditional classroom teaching, more emphasis is placed on applied ways of learning. In reforming language education, directions are set towards a more functional and interdisciplinary direction.

Also, CLIL is more strongly considered and reviewed in the new curricula planning. The New Finnish National Core Curriculum of Basic Education (in short NFNCC 2016) pays stronger attention to a more varied language program and the state is willing to support municipalities in organizing extra language studies. Improvements have already been made in the planning: the process of drafting the new curriculum is highly future-oriented, public, and participatory (Wewer 2014, 202). Especially the NFNCC puts more emphasis on cooperation across school subjects, which sets possibilities of integrating language teaching into contents (FRNCC draft 2014).

The objective for renewing language education is to build broad-based competence in creating better thinking and meaningful learning. Also the importance of *language awareness* (consciousness and sensitivity of learning languages) and *multiculturalism* should be emphasized foreign language teaching. The NFNCC 2016 promotes new ways of learning that include e.g. pupil assessment as an integral part in the learning process working through interaction and involvement or language portfolios. Finally, the use of information technology especially in creating new learning environments should be taken into account (e.g. Hämäläinen & Välijärvi 2008, 32–35). In the next section I will discuss information technology and the simulation concept more precisely.

4. New learning environments and technology-based solutions

The term *learning environment* refers to a context in which learning takes place and which facilitates learning processes, e.g., in classrooms or at home (cf. Phillips, MacNaught & Kennedy 2012, 27). Hämäläinen & Välijärvi (2008, 33) argue that technology per se is no longer an obstacle and with wireless technology becoming more commonplace and the costs falling, new opportunities and innovative combinations (e.g. through game-like solutions) are being created for updating learning environments and taking them outside the traditional classroom teaching.

As new technology-based learning tools are constantly developed, they also naturally require human-technology-based research. Saarenkunnas (2006, 200) argues that computer games provide a rich resource for learning foreign languages, and when the children enter formal foreign language education at the age of nine in Finland, many of them are already capable of acting in a foreign language environment and use the language creatively in different problem-solving tasks. In perspective of this study, it is interesting to find out, if the EFL-learners are able to cope with exercises that require more advanced language ability than originally expected from them.

The use of computer-mediated learning tools can provide empowering experiences for students to learn foreign languages and create feelings of success and motivate them into deepening their language as well as communication skills (cf. Egger & Lechner 2012, 17; Koivistoinen, 2008, 240; Yang & Chen 2007, 861). Next I will introduce simulations as learning tool.

4.1 LangPerform-simulations as a tool for training, documentation and assessment of language performance

Computer game simulations provide real life-like activities that can be experienced on the computer and are used for different purposes, such as training or entertainment. *The LangPerform concept*[1] (founded by Kim Haataja) is based on computer simulations that are developed for language training, documentation and evaluation of language performance, especially in terms of oral language skills and cross-curricular language education and use (cf. CLIL). The background of the concept derives from the concerns and needs of the European language policies, the rise of information technology and interest in CLIL and other innovative ways of enabling building communicative oral language skills (cf. Haataja 2005; 2009; 2010, 183–187). The concept is based

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[1] The LangPerform concept and the instruments provided through LangPerformLab are copyright of Crealang Research & Innovation, a Finnish company specialized in supporting language education and training through research-based concepts, innovations and technology solutions.

on 4 steps: 1) creation of a learner-specific acquisition profile, that includes information about the learner's language heritage, language learning events and activities, 2) participation in the simulation, 3) self-assessment, and 4) external assessment through teacher, language trainer or other external expert as well as peers, all of which occur in an online learning environment called *LangPerform-Lab* (cf. Haataja & Wewer 2013, 1–5). Since the creation of the concept, tailor-made simulations have been produced for different projects and tested in schools with groups of students and in in-service teacher trainings in national and international contexts (cf. Haataja 2009; Haataja & Wicke 2014).

The idea of the LangPerform-simulation is in combining real-life situations and tasks that require interaction through a film and a story, in which a language learner participates by listening, speaking, reading, and writing (cf. Haataja 2010, 188–189). By creating a profile the language learner becomes aware of their language heritage and language learning history by filling out relevant information about their everyday language use and through evaluation of their language skills based on CEFR. The participation in a simulation occurs via a computer and a headset, after which the learner can listen and evaluate their performance. The performance can also be evaluated by other learners or by an expert e.g. a teacher or other language professional. In principle, simulations can be run and performances can be assessed any place and any time with access to internet and the equipment needed (cf. Haataja & Wewer 2013).

Some of the LangPerform-simulations have already been tested with the interest for scientific research by Hasan (2011), Tuuna-Kyllönen (2011), Ilkankoski (2012), Wewer (2013; 2014), Haataja & Wicke, 2014, and Salo (forthcoming). The benefits of the LangPerform concept arguably come from bringing an authentic environment on the screen, which allows the learners to immerse in practicing their language skills in real-life language usage encounters, and thus motivates and makes them more aware of the necessity of learning languages as well as their personal language skills. On the other hand, the concept still is not able to bring total authenticity into interaction, e.g. in the simulation it is not possible to repeat a question or use non-verbal language, such as gestures or facial expressions to communicate. Wewer (2013, 81) also describes the simulations as *semi-authentic* and *semi-interactive* due to this fact. In regards of language testing and assessment the simulation provides an environment that stays the same for every participant and therefore adds reliability and validity to the assessment (cf. Tuuna-Kyllönen 2011, 62–63). Since the evaluation is based on CEFR ratings the simulation performances are comparable on an international level as well.

4.2 The project PROFICOM

PROFICOM (Profiling Learning Progression in CLIL Environments through Computer Simulations) is one of the projects that were designed to use LangPerform-Lab services for training, testing and assessment of cross-curricular knowledge and skills (Haataja & Wewer 2013, 1; Internet 2). The goals of the project was to support the acquisition of teaching of linguistic and cultural competences in interdisciplinary settings by putting simulation applications into practice in different affiliate schools. Altogether three PROFICOM-simulations were created especially for CLIL-environments. However, the interests of the project were also extended to seeing whether the simulations could be applied on a larger scale in education of language, culture and internationality, e.g. in EFL-education.

Wewer (2013, 2014) conducted a study on language assessment in CLIL environment, in which she tested the first two PROFICOM simulations and was also involved in scriptwriting. Wever (2013, 85) concludes that a simulation appears to be a valuable assessment tool for various reasons: first it helps students to put their language skills into proper use in a short amount of time, second it offers opportunities to step out of the classroom contexts and encounter native speakers of the target language, and finally it makes demonstration of the language skills students possess meaningful by bringing quasi-authentic experiences, which are hard to fulfill by doing book exercises in classroom.

Whereas Wewer only concentrated on CLIL environments in her studies, in this study, I will focus on analyzing oral language competence and proficiency of CLIL-learners and of EFL-learners with the emphasis of finding out, whether the first PROFICOM-simulation could be applied in the context of formal language education.

5. Empirical part

5.1 Research material and methods

5.1.1 Material and informants

In this study I will use a simulation designed and produced for the PROFICOM-project. During the first phase of the project the simulation application was implemented in some test schools providing CLIL education in Tampere and Turku in the spring of 2013. For this study I tested the first PROFICOM-simulation with altogether 5 groups of 6th graders (11 to 13-year-olds) of EFL-learners and CLIL-learners in the spring of 2014. The material selected for this study comprises of 20 performances (10 CLIL-learners and 10 EFL-learners). The performances were randomly selected out of 30 CLIL-performances and 46 EFL-learner-performances). However, from the selection I have only selected performances of learners with Finnish as native language-background. The gender distribution included 10 boys and 10 girls out of both groups. However, while analyzing the performances, gender did not play a role in the performances, which is why the issue is not discussed in the analysis.

The participation in the simulation was entirely voluntary for the students, and a permission letter (see Appendix 2) was sent to the guardians in regards of filming, using simulation performances, and interviewing the students about their experiences. Also, the materials collected will remain in the possession of the LangPerform team after my thesis is project is over. The materials of the EFL-learners were gathered during one day in the computer classrooms of the schools. Altogether one hour was reserved for a simulation test with each group. For running the simulation, the computers and their equipment were checked beforehand. For participating in the simulation, however, the learners only need a headset for the recording of their oral language production and in some tasks they needed to use the mouse and the keyboard (e.g. drag-and-drop, writing a postcard). During the first 15 minutes instructions were given on how to work with the simulation and what to expect, after which the students were guided through initial steps of creating a language profile in the online language lab-environment, in which also the simulation participation and evaluation of own performances took place. After this the students started with the film-like simulation at the same time, the duration of which varies within 25 to 35 minutes depending on how much time the simulation participant spends time on each task. The simulation test situations were filmed and help was provided to the students if necessary. After having participated in the simulation the students

had the possibility to answer a structured set of questions in groups of 2 or 3 about their experiences and opinions about the simulation participation. However, since this study focuses on simulation performances, the simulation experiences will only be discussed very briefly in the discussion section.

The storyline of the simulation is set in Michigan, where the participant (9-12-year-old student) visits an American host family, gets to have talks with them and help out their granddaughter with her school work. The simulation thus comprises of different real-life contexts in which the participant has to react and interact according to the situation by using his/hers skills of listening, speaking, reading, and writing. Altogether the simulation can be divided into seven tasks as follows (the task type is written in the brackets), which were designed to test different aspects of language skills:

1. Meeting the family (Reacting in a situation)
2. USA and Michigan (Reading the text out loud)
3. Drag and Drop (Matching the correct picture and word by using the mouse)
4. Introducing Finland (Picture-based narrative)
5. Black Bears (Reading comprehension and translating the following words in Finnish: bear species, male, senses, omnivore, den, hibernation, mammal, cub, female, home range)
6. Mathematics (Solving the problem and invoicing the calculation)
7. Writing a Postcard (Written assignment)

Since this study is focused on assessing communicative oral language skills I have selected three different tasks with the focus of oral language production: *1) Meeting the family, 4) Introducing Finland,* and *6) Mathematics*. The selection of these tasks is based on their varying emphasis on different areas of oral language proficiency. In the first task the participant is expected to use their knowledge and skills of small talk with the American family and reacting in a situation, the second task is a monologue based on pictures that includes themes that are also relevant for the students of formal language education. The third task, however, includes specific content-based knowledge of vocabulary related to mathematics, and thus is expected to be somewhat more challenging for the learners of formal language groups.

5.1.2 Methods

As already mentioned, the simulation performances can be listened and evaluated and rated by the student themselves, by their peers, and by their teachers. The evaluation takes place in *LangPerform Lab*, an online environment in which each simulation performance is saved after completing a

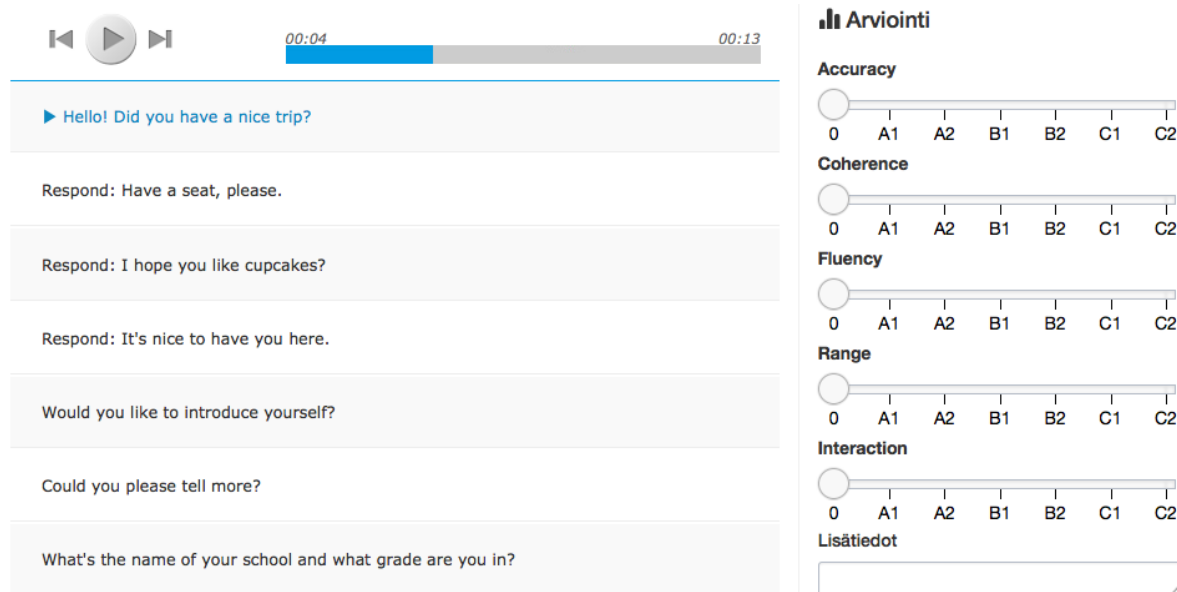simulation. The evaluation overview (Figure 2) is divided in sections according to the tasks and their rating.

Figure 2: Screen capture of evaluation overview

The rating scale uses the above-mentioned descriptive rating types of CEFR: accuracy, coherence, range, fluency, and interactivity. In addition, the difficulties in expressing communicative intentions make the learners adopt different communication strategies in an attempt to pass through their message, which is why following communication strategies in second language production are considered in the assessment.

According to Littlewood (1984, 84–86) language learners use following communication strategies when coping with difficulties in language production:

1. Avoiding communication. The language learner may refuse to talk in the situations in which they know they lack necessary vocabulary.

2. Adjusting the message. The language learner may alter the meaning which they intent to communicate, omit some items of information, simplify or say something slightly different or off topic.

3. Paraphrasing. The language learner may use paraphrase, circumlocution or description to express the meaning.

4. Approximating. The language learner uses a word or words, which express the meaning as closely as possible to intended meaning.

5. Creating new words. The language learner creates new words (usually applying elements

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from the native language), which they hope will express the meaning intended.

6. Switching to the native language. The language learner may decide to lift a word or a sentence rather than attempt to create a new word.

7. Using non-linguistic resources. The language learner uses paralinguistic gestures (e.g. mime, gesture imitation) to make meanings clearer.

Also according to Littlewood (1984, 86), the learner may also use non-linguistic recourse (e.g. mime or gesture imitation). However, since it is not possible to analyze the non-verbal language in this study, this strategy is not included in the analysis. The analysis of the performances is descriptive by nature and based on selected feature on each task. Also, to ease the analysis of the performances I conducted the following sets of helping features (indicators based on CEFR, see Appendix 1) that I took into account in the analysis of the performances (Table 2):

Table 2: Features for rating

Rating type	Features
Accuracy	Pronounces words completely. Gives correct response. Uses grammatically correct structures.
Fluency	Responds are with hesitation. Needs little prompting. Speaks in complete sentences. Speech is clear and comprehensible.
Coherence	The speech is presented in logical sequences. Can link words with a variety of connectors.
Range	Speaks only in English. Uses Finnish words. Uses adequate range of vocabulary and structures.
Interactivity	Conveys meaning with little difficulty. Speech is expressive and there's appropriate use of intonation. Displays confidence in interaction. Can keep a conversation going on.

As already mentioned before, in this study I have randomly selected a sample of a total 20 performances. Since the amount of performances analyzed is rather small, the quantitative findings are difficult to establish, and the findings should be regarded as directional. To support the findings, from a descriptive point of view is provided, which is why I will use examples to indicate phenomena found in the analysis. For ethical reasons and since this study is related to working with children, the examples selected are anonymized as EFL1, 2, 3 etc. and CL1, 2, 3, respectively and in

case there were names mentioned, they were also altered. Also, even though the simulation participations and interviews were filmed and recorded, no materials are presented in this study, from which the identities of the participants could be recognized.

5.2 Evaluation of the simulation performances

5.3.1 EXERCISE 1: Meeting the family

Meeting the family is the first simulation task, in which the participant goes to the door of the family, rings the doorbell by clicking on the right button named by the family's surname *Cunningham* out of a couple of misleading options, such as *Gunningham* or *Cuffman*. The door is opened by Mr. Cunningham who invites the participant in and leads them into the living room of the house. There the participant meets Mrs. Cunningham and their 10-year-old granddaughter Fredrica, gets to tell about themselves and have a little small talk in the living room (see Figure 3).

Figure 3: Screenshot from the simulation part: Meeting the Family

The purpose of the exercise is to introduce the participant with the frame story, warm up with some basic small talk chatting with the family members, react to situations appropriately, and tell some basic information about themselves. In this exercise the participant thus gets to use their interpersonal (informal) language skills based on how they react to the following set of questions and utterances according to situational cues by using phrases they have learned in English:

(a) Hello! We're so happy you'll be staying with us for a few days. I hope you had a good trip? (How was your trip?)
(b) Have a seat, please.
(c) You know, I love to bake cupcakes and I hope you like them as well!
(d) It's really nice to have you here.
(e) Would you like to introduce yourself? (For example: Name, Age, Hometown, Hobbies)
(f) Could you please tell use some more? (For example: Family, Friends, Freetime, Favourite things)
(g) What school do you go to and what class are you in? (School, Grade)
(h) What school subjects do you like the best?
(i) Ok. Why do you like those subjects?
(j) What are you good at?

On the upper bar instructions are given to the participant on how to react in the situation e.g. "Respond" or "Tell about yourself". On the lower part of the screen, there is a time bar indicating how much time the participant has to speak, read or write. In some cases a post-it note is shown on the screen to give the participant additional information, some ideas to talk about or help them out with some key words. In cases (a), (e), (f), and (g) additional information was given (see the information inside the brackets). The first four (a, b, c, d) utterances require only a short answer and in the second set (e, f, g) the participant is asked to tell just the very basic information about themselves. However, the third set of utterances (h, i, j) already requires more ability to express opinions and give reasons to them, which already requires more advanced language skills. The performances were rated according to the previously shown features on Table 2. The following Table 3 shows the deviation of the performances of the two groups in this task (EFL bolded and CLIL italicized):

Table 3: Deviation of the performances on exercise 1 (EFL bolded and *CLIL italicized*)

Rating type	Features	A1	A2	B1	B2
Accuracy	Pronounces words completely. Gives correct response. Uses grammatically correct structures.	**7**	**3**	*8*	*2*
Fluency	Responds are with hesitation. Needs little prompting. Speaks in complete sentences. Speech is clear and comprehensible.	**6**	**4** *2*	*6*	*2*
Coherence	The speech is presented in logical sequences. Can link words with a variety of connectors.	**8**	**2** *7*	*3*	
Range	Speaks only in English. Uses Finnish words. Uses adequate range of vocabulary and structures.	**7**	**3** *3*	*7*	
Interactivity	Conveys meaning with little difficulty. Speech is expressive and there's appropriate use of intonation. Displays confidence in interaction. Can keep a conversation going on.	**6**	**4** *5*	*5*	

As the table shows, the majority of the learners are placed on both sides of A2 on their language level skills. However, whereas CLIL learners showed in general a more advanced level of English proficiency B1 the learners of EFL learners were mostly placed under the level of A1. The similarities and differences are discussed closer in the following sections.

5.3.1.1 EFL- learners

As mentioned before, the first task was intended to be a warm-up for the simulation, which is why it consisted of situation-bound interactive situations, in which the participant is supposed to react accordingly. Even though the first set of utterances (a-d) did not require complex answers it is possible to express good language skills. Most of the EFL-learners were able to produce utterances according to the situation and be understood. However, in half of the analyzed performances the learners used Finnish already during the first set of questions, even though in many cases the correct answer could be expressed with very basic use of English. Also, many of the learners were not were able to compose an adequate response to all utterances in the first set as listed in the following example.

(a) Hello! We're so happy you'll be staying with us for a few days. I hope you had a good trip?
    EFL1: Hi!
    EFL2: Yeahhh! (starts laughing)
    EFL3: Hi, and nice to see you too.

EFL4: Hello guy! How are you?
EFL5: Yeah, I have a good trip.
EFL6: Hello! Yes, it was great yeah. Nice to meet you too.

Mostly the participants responded with just a very simple expression "Hi", "Yeah" or "Good". The example also shows that even though in cases EFL3, EFL4 and EFL5 the learners were able to say more than one word, EFL3 and EFL4 do not give an entirely correct answer, since they did not comment in any way on the utterance "I hope you had a good trip" and EFL5 uses the wrong tense. EFL6 sets an example of a full, correct response.

In the second set of utterances (e-g) an (h-j) almost every learner was able to say at least something about themselves, such as name, age and hometown (see the following example below). However, the utterances followed a certain sentence pattern and in many cases the learners needed to rephrase due to pronunciation errors or wrong choice of vocabulary, which instantly made the speech harder to understand.

My name is Liisa. My Age is öhmm twelve. My home town is Tampere. My hobbies is öhm öhm what is this... I play the piano. This is myself. Hmh…Öhm my I have family and my families have two bigbrother one sister and mom and dad. I have so much friends…Freetime I don't have. Favourite things. I don't I don't know.

The last set of utterances (g-j) required already a bit more advanced level of language production. The learners had to tell, which school they go to and what grade they are in, but also spontaneously express their thoughts about favorite school subjects and give reasons to their opinions. In this set of utterances great variation among the learners in overall language proficiency was found:

EFL7:
(g) My school is (name of the school). I go… sixth grade.
(h) Well. I love English and Biology. It's nice and I hate hate hate math.
(i) Because I love learning, speaking English, it's really nice and biology is easy and it's very interesting to hear about nature and animals so it's nice.
(j) I don't know actually, I'm not good at anything but I can do things. Well, I can't play piano like you but...

EFL8:
(g) My school is (name of the school) and what is carby- öhm I don't know. Mhh sorry.
(h) Öhh yeees maybe sure. I don't understand, what is your guestion. (question pronounced with a g)
(i) I don't understand again, sorry! It is so hard, but I hmm nothing. I visiting, so so happy here. Happy family.
(j) I good to (10 seconds of pause) for piano and I love computing games.

EFL9:
(g) My school is in the Tampere. En mä osaa.
(h) I like P.E and math.
(i) I like P.E. Emmää tajuu tää kysymys olis.. Ooks sä vähä hikari englannissa.
(j) I'm good play floorball.

In example cases EFL7 and EFL8 the students clearly make a connection with their speech partner on the screen and use communicative strategies in English, even though their competence in linguistic knowledge is on a lower level. EFL7 shows more advanced language skills and adds more advanced communicative elements through small connecting words like *well*, *but*, and *because* and shows understanding through comparison to the speech partner *"Well I can't play the piano like you, but…"*. In case of EFL8 the learner has difficulties in understanding the meaning of the words *grade*, and *subject*, which immediately shows in her performance. The example also shows one disadvantage of the simulation, because the participant cannot ask the speech partner to rephrase their expression again in case they did not understand or hear the question. EFL8, however shows willingness to cooperation by communicating that they did not understand the question and apologizing for it. EFL9 on the other hand seems to get frustrated, which immediately triggers somewhat snappy comments in Finnish. In a couple of cases the learners used Finnish to comment on the simulation, probably due to frustration or because they had time for it:

EFL10: Maths. Because it's easy. Kuka vastaa puoli minuuttia tohon?
EFL11: Oh my god, mun pitäis kertoo mun familysta. My little sister and my mother and my friends is Anni and Elisa ja sit my my...
EFL12: Öhm. I don't know. Tää on ihan outoo. Noi on ihan himoärsyttäviä.

In half of the performances (5 out of 10) Finnish was used in the first task to compensate the lacking knowledge of English. However, there were more cases in which the answers were rather straight and short, which might be proof of the lacking ability to produce free (creative) communicative speech. Also, the first exercise introduces the learners for the first time to simulation as a working tool, which of course creates tension and nervousness especially in the learners with very basic language skills.

5.3.1.2 CLIL-learners

In the first set of expressions the CLIL-learners already showed more control over the start of the conversation compared to the EFL-learners, since 8 out of 10 evaluated performances commented specifically on the question asked in the first utterance (a), and thus showed deeper understanding, as the example below shows:

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CL1: My trip was fine thank you for asking.
CL2: Ohm my trip was fine.
CL3: Yes, I had a great trip. It was nice to come here.

Also, 7 out of 10 learners knew how to cooperate politely in the utterance of the mom "You know I love to bake cupcakes and I hope you will like them as well" by targeting cupcakes in their answer, whereas only a little less than a half (4 out of 10) of the EFL learners targeted cupcakes in their answer:

CL4: Yeah I think so, I will like them. Nice to meet you!

CL5: Thank you I'm sure I will like your cupcakes.

CL6: Sure. Cupcakes are good.

In the second set of utterances as well as in the third set CLIL-learners were able to produce more fluent and accurate speech. While in most cases the EFL learners needed 3-10 seconds time to elaborate before answering, most of the CLIL-learners started producing speech right away after having heard the question.

CL7: Yes, Hi my name is Joonas I'm ten heh I'm twelve years old. I live in Tampere. I play floorball and football. Uhm I have a dog. I also have a sister, mom and a dad… and I have friends. In my family there belongs my mom, my dad, my sister and our dog. I have many friends. On my free time I'm, I usually go to my football and floorball training. My favorite things are doing sports and so on.

Since the questions were quite specific, the CLIL-learners did not necessarily produce more speech, especially in the second set of the questions. Also, CLIL-learners produced speech that was also understandable due to the correct pronunciation and intonation of words and sentences. None of the CLIL-learners had difficulties in telling about which school they go to, what class they are in and telling something about their interests related to school and free time, even though they might not be all grammatically correct. As the case of CL1 above for example shows, an extra *there* can be found. Also repetition and self-corrections were usual:

CL8:
(g) I go to (NAME) school. I go to the sixth grade and I'm in 6A.
(h) Ahm I like music and art cause they're really… cause they're really relaxing and... I love P.E.
(i) Well, art is just really creative and in music we get to sing and play and I just. I don't know I just really love sports cause I think it's really much fun and I think I'm pretty good at sports and… yeah

CL9:

(h) Aahm I like art and Finnish and yeah... and I like woodwork and physics and chemistry.

(i) Ööh because they are interesting and they're fun to do and yeah, and they… yeah. Ahm… yeah and I like art because I have been drawing since I was little.

(j) I'm good at drawing I guess aaand and I'm good at like reading and stuff… and yeah

Even though CLIL-learners did not produce entirely correct or more profound answers, the recollection of words was quicker and they were able to express more in a shorter amount of time. CLIL-learners also used more communicative elements in their speech; expressions such as *I guess, cause, like, and stuff*. It was also noticeable that CLIL-learners used more additional small words and emphasizers, like *really* or *very*. The use of small words, especially as linking words (*…since I was little, and well etc.)* indicates a more fluent and spoken-language-like level, which reaches up to levels of B on CEFR.

5.3.2 EXERCISE 2: Introducing Finland

In this exercise Margaret, the mother of the American family has gathered some pictures of Finland in a scrapbook, which she shows to the participant and asks them to tell about their country based on pictures shown on the screen. The participant then has 1 minute and 20 seconds time to tell freely about their country. On the upper left side of the screen a post it-note with key words is shown to help the participant get started and bring ideas about topics to tell about (Figure 4).
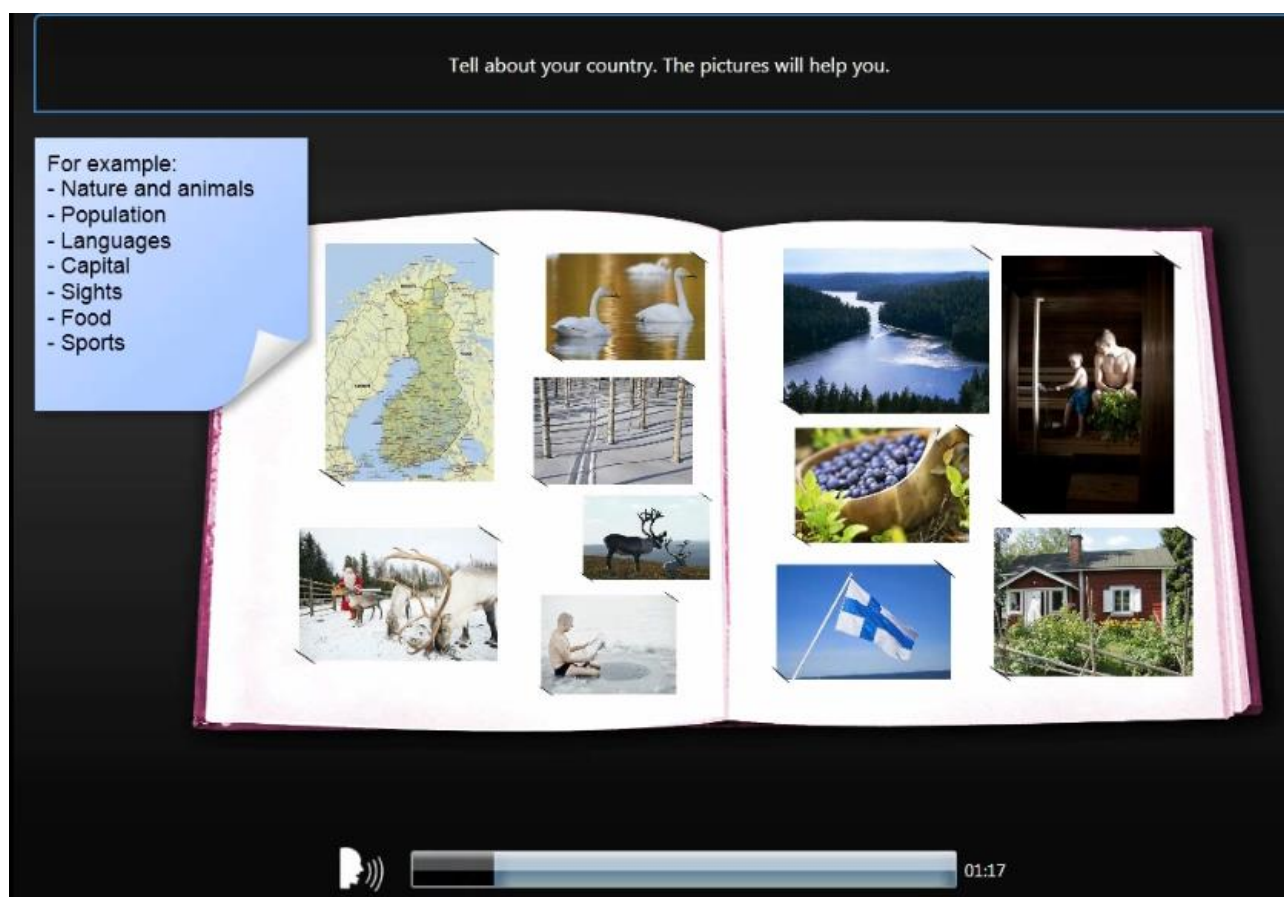
Figure 4: Telling about Finland

The exercise type is a picture-based narrative, in which the participant's skills and knowledge about telling about their home country and culture is tested but it also tests subject-related knowledge of geography. The exercise enables linguistically more advanced students the opportunity to use more complex structures and a broader set of vocabulary, and connect subject-specific elements in their performance. However, the exercise is related to topics and themes, which the EFL-learners should be familiar with. In FNCC 2004 it is stated that one of the central goals of formal English language education includes basic knowledge about the home country. Nevertheless, the overall goal in oral language skills at the end of 6th grade is still set on A1.3, at the functional elementary level of the framework (FNCC 2004, 139-140). In case of CLIL-students the scale of oral language competence could be assumed vary from a basic or conversational level to higher levels of competence. The rating of the performances at this task is summed up in Table 4 below:

Table 4: Deviation of the performances on exercise 2 (EFL bolded and *CLIL italicized*)

Rating type	Features	A1	A2	B1	B2
Accuracy	Pronounces words completely. Gives correct response. Uses grammatically correct structures.	**8**	**2**	*5*	*5*
Fluency	Responds are with hesitation. Needs little prompting. Speaks in complete sentences. Speech is clear and comprehensible.	**8**	**2**	*5*	*5*
Coherence	The speech is presented in logical sequences. Can link words with a variety of connectors.	**8**	**2**	*10*	
Range	Speaks only in English. Uses Finnish words. Uses adequate range of vocabulary and structures.	**9**	**1** *4*	*6*	
Interactivity	Conveys meaning with little difficulty. Speech is expressive and there's appropriate use of intonation. Displays confidence in interaction. Can keep a conversation going on.	**7**	**3**	*6*	*4*

As Table 4 shows, the differences in proficiency are greater in this exercise as in the first task. The CLIL-learners show altogether a stronger reliance in their language skills and are placed mostly under the levels of B1 and B2, whereas the incapability to produce longer stretches of speech shows lowering the level of proficiency in the performances of EFL learners, which is a proof of great need for helping of a speech partner. Again, the performances are discussed in more detail below.

5.3.2.1 EFL- learners

While analyzing the performances in this exercise I observed that learners had to balance between the sources of information given in the task: 1) key words on the post-it note, or 2) the pictures on the scrap book, which seemed to affect the performances. By selecting one source of information as the main source the learner was able to produce more coherent speech. On the other hand there is a danger for overflow of information, which might confuse the learner, and the production of speech becomes incoherent. More than half of the EFL-learners started talking based on no clear strategy. Mostly they produced very short and basic sentences with lots of breaks and pauses in between, like the example below shows:

> EFL1: Finland ehm… ööh. In the Finland good food is ruisleipä and karjalanpiirakka and there summer and öhm in the winter we like to play the sports, ski… is nice. We speak Finland eiku Finnish in Finland and mmh. There are ööh a lot of forest and lakes *(giggling).*

EFL2: My picture is Finland, Suomi. There's snow. Öhh…There is sauna and lunta, pilkkiä. Population is... *(silence for the rest of the time given, at least 40 seconds)*

EFL3: Ehm.. Now are a Winder and I like it but and aah there… *(6 seconds of pause)* ahh a people speak Finis and there I wait summer and öhm hmm there ther everybody blueblehdfd ähhrr (*frustration in pronunciation*) […].

The difficulty in finding the words to express oneself in English and an unclear strategy choice shows in time and coherence of expression. More time was used on thinking in between sentences and many of the sentences were not complete. It was also evident that the inability of free expression caused frustration that could be interpreted through deep sights, giggling, and even complete silence as the second and third examples (EFL2, EFL3) show. In some cases the learners focused on telling either based on pictures or key words used key words, which seemed to help them organize their thoughts:

EFL4: Ehm. In my country is very much forest and lakes. I like my my country very much because it's very nature. Nature and animals. There is very much ehm animals I like very much dogs and cats. There is horse and yeah. Population. I don't know what is population. Sorry. Languages: languages are Saame and Finnish. Capital is aah, capital is Helsinki. Helsinki is very big big city. I like it very much. I live in Tampere. Food. Food is ehmm black berries and and and cucumber. And sports. We are very very popular in the ice hockey. We like ice hockey very much and every boy play it, plays it.

In this example the learner goes through every word listed on the post-it note by saying the key word first and then whatever comes to mind about that word. The learner in this case does not really pay attention to the actual pictures on the scrap book, since there are not, for example, any cats, dogs or horses shown. However, perhaps by naming things she is able to produce more speech. She also does not get hung up on to a word she does not know (*population*), but comments on the word politely and moves on with the list. I also noticed that the learners that used pictures on basis of their narrating seemed to produce quite different kind of information:

EFL5: Uhh, I live in Finland. That's country between Sweden and Russia. There are lots of reindeers and they are really special in ehm in Finland. People like go swimming at winter making hole on ice that's called avanto. We speak Finnish and we th we ähh we eat lots of different foods. We used to... We use lots of berries in bake things and our flag is having white and blue color. Ehm we have lots of parchments [meaning *apartments*] in middle of forest and we like to go sauna. We like the really hard, hot löyly. Löyly… That's what we call it.

Whereas EFL4 produces quite fact-based and short sentences, EFL5 uses more free association and description in their speech. The sentences in EFL5 are longer and the learner uses more combining of sentences. EFL5 even creates a new word (cf. language strategies in section 6.2) and tries paraphrase the meaning of *löyly*, but is unable to find the right words for it.

In sum, this exercise proved to be more difficult for the learners of the EFL-group than the first one, as expected. Overall the EFL-learners used even more Finnish in this exercise as in the first one. The learners especially lacked the knowledge of certain cultural words related to food, animals and nature. Nevertheless, the use of Finnish seemed to help the learners through naming (*avanto, löyly, ruisleipä, karjalanpiirakka*) and help them move on with the narrating. However, in most cases the learners did not even try to find a way to paraphrase or approximate their telling to make the message they are trying to convey more understandable. There were also longer stretches of "thinking aloud" Finnish, such as expressions like *"… maybe you like mushroom, öh no eiku mikä se on"* which indicates the thinking processes trying to find corresponding English expressions for the Finnish thoughts. In some cases it was hard to tell what the learner was saying due to frequent use of Finnish, incomplete sentences and breaks, and struggling with pronunciation. Finally, in the structure of sentences common structures like *there is* and *we like* within fairly short sentences were often used.

5.3.2.2 CLIL-learners

The CLIL-learners seemed to use pictures and free association as the main source of their narrative (7 out of 10 learners), even though all of the learners were able to combine the pictures connected with the given key words, as it was meant in the exercise. On average, the CLIL-learners were able to produce longer stretches of speech with shorter breaks in between and were able to start speaking right away, whereas formal language learners needed more time at the beginning to elaborate on the instructions. The CLIL-learners also were able to produce more precise expressions about Finland:

> CL1: Ahm Finland is in the Scandinavia right by Sweden. The national bird is swan and we have lots of forests and lakes and there's snow everywhere in the winter and there are reindeer and people go people even go swimming in the winter, although it's quite cold and people say that Santa lives in Finland and we have a lot of lakes and people come picking blueberries every year and ööh sauna is a traditional thing in Finland. You know what a sauna is, it's like the room where there's a lot of heat. Our flag is blue cross with a white background and we Finns like to go to our summer cottages and the capital is Helsinki and the food is ahm, quite simple and basic stuff

and we speak Finnish and many speak ahmm.. Swedish and… yeah.. and we don't have so many people living here.

Based on the analyzed performances it was evident that CLIL learners actively used and combined their knowledge from different subjects, especially from geography and biology or even chemistry, in their telling as one learner described the concept of sauna with *"the famous sauna is, it's like a room where you heat up an oven sort of thing which has rocks on it that get heat and when you throw water on them, it evaporates and becomes warm, which helps with the ice-cold winters".* Many mentioned the location of Finland in the North of Europe or expressions like *"thousands of lakes"* and other facts and knowledge related to seasons, national animals and cultural activities came up:

> CL2: Ok so Finland is quite nord nord quite north in Europe. Did you know that the Santa Clause comes from Finland? The Finnis ööh the Finnish flag is blue eiku white with a blue cross in it. There are very much of forests and lakes in Finland. Finland's national bird is the swan. Öö did you know also that the saunas are from Finland? We have very, we have lot of saunas in Finland. Finland's neighboring countries are Sweden, Norway, and Russia. We have four seasons in Finland including winter, summer, spring and autumn. In winter we have lot of snow and we have also reindeers in Finland. Did you know that the Santa Clause comes with a reindeer? In winter we also go fishing, we do hole in the ice and fish there. It's called pilkkiminen in Finnish and our secondary language is Swedish and yes… and sports uhmm we have a lot of sports in Finland.

As the example (CL2) above shows, occasional slips and influence of Finnish language still came up in the pronunciation or word recollection in some performances, even though the occasions were rarer and did not harm understanding of the speech. For example, the *Sami* language was in every case referred to with the Finnish pronunciation *sami* (*cf. "In Finland we speak Finnish and öhm Finnish and… Swedish and in the North some people speak Saame"*). Also some expressions such as *mökki* (cottage) or *pilkkiminen* (ice hole fishing) were mentioned in a couple of performances. However, opposed to the performances of EFL-learners, the CLIL-learners have approximated the words through descriptions of the words, as the examples provided show. The CLIL-learners also used a wide selection of clause types of clauses: direct and indirect clauses, ing-clauses and wh-clauses (see the examples above); even the conjunctions *although* is used, which makes the narratives more fluent and vivid. Additionally, some grammatical mistakes occur (mainly in the use of articles and prepositions), and the learners correct themselves in speech quite often.

Nevertheless, the CLIL-learners demonstrated the ability to avoid some difficult expressions, and explain the activities vividly in English. For example ice hole swimming was easily expressed

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through explanations like *"swimming in the winter"* (CL1) and ice hole fishing with *"we do hole in the ice and fish there"* (CL2). Also, the Finnish flag got many different descriptions, as the examples below show:

> CL3: Our flag is blue cross with a white background.
> CL4: Our flag has ahm, blue cross and otherwise it's white.
> CL5: Our flag is blue-white, it has a white background and a blue cross.
> CL6: The Finnish flag is blue eiku white with a blue cross in it.
> CL7: Our flag is... I think it's nice. It has a blue cross and it's otherwise white.
> CL8: The Finland flag is uhm white and a blue cross.
> CL9: The flag of Finland has a blue cross and white base.

The Finnish flag was not mentioned in any of the narratives of the EFL learners, which might indicate lack of ability to describe the item in the foreign language, and which led to avoidance of the topic. CLIL-learners also used more interactive elements in their speech. For example questions were presented (cf. example CL2 above) and more adjectives as well as emphasizers were used as in the following example:

> Uhmm (9 seconds of pause)… there are the swan is the national bird. The swan is the national bird of the country and there's a lot of snow, almost every winter like knee-high or something. Uhmm…we have reindeers, Santa Clause, all this kind of stuff. It's really… it's kind of funny for me actually. I love reindeers they're so cute! Then there is some really crazy people for me, just go swimming in the winter yuhhh that has gotta be really cold. Uh our capital is Helsinki. It used to be Turku but now it's Helsinki ööuhm Finland is covered by lakes and the berries are strawberry and the blueberry. They are delicious! Our flag is... I think it's nice. It has a blue cross and it's otherwise white. Sauna, oooh I love it! Like on-in winter I love it and the summer cottage, we don't actually have one we go to our grandma's. I love summer cottages!

The CLIL-learner in the example uses strong verbs (such as *love*) and a variety of different adjectives (such as *crazy, delicious, cute*) in clauses that express opinion or personal interest. Emphasizers, such as *so* and *really* combined with conversational exclamations like *Yuhh* and *ooh* or spoken language expressions (*gotta, like* as an adverb) indicate a more personal level of operating with the language, which is a proof of the person's ability to think and act in the foreign language. In sum, through this exercise especially the way, in which CLIL-learners showed an advanced way of constructing knowledge from different subjects and were diversely able to express themselves using English as the medium of thinking and describing.

5.3.3 EXERCISE 3: Mathematics

The third exercise under the focus of the analysis is a problem-solving task. Fred, the granddaughter of the family asks the participant to help out with her homework. In this exercise the participant is asked to tell Fred, how to solve two mathematical problems shown on the screen (Figure 5). In other words, in this task the participant has to have knowledge of the vocabulary related to mathematics on top of actually having to solve the calculation and figure out the missing number.

Figure 5: Problem Solving

The exercise tests subject-specific knowledge in mathematics: skills to solve and verbalize a mathematical problem in English. It is thus expected that the CLIL-learners are able to cope with the exercise and explain the problems. Since EFL focuses on language as a cultural subject, mathematical vocabulary or problem solving tasks are not dealt with in EFL classes. However, some basic knowledge related to mathematics do quickly come up in EFL learning, for example numbers are one of the central topics already at the basic level of language learning. Also some loanwords, such as plus and minus are used in Finnish. However, since mathematics is not a central theme in formal language teaching, the vocabulary of EFL-learners can be expected to lack some key words in order to successfully complete the exercise. Even though this exercise is expected to

show a clear difference between the CLIL-learners and the EFL-learners, it is interesting to find out what kind of linguistic strategies the learners use while trying to solve the problem and verbalize it out loud and if especially the EFL-learners are able to use their subject-based knowledge of mathematics, even though the subject is taught in Finnish. The deviation of the performances in this task is shown in Table 5 below:

Table 5: Deviation of the performances on exercise 3 (EFL bolded and CLIL italicized)

Rating type	Features	A1	A2	B1	B2
Accuracy	Pronounces words completely. Gives correct response. Uses grammatically correct structures.	**9**	**1**	*3*	*7*
Fluency	Responds are with hesitation. Needs little prompting. Speaks in complete sentences. Speech is clear and comprehensible.	**9**	**1**	*3*	*7*
Coherence	The speech is presented in logical sequences. Can link words with a variety of connectors.	**10**		*8*	*2*
Range	Speaks only in English. Uses Finnish words. Uses adequate range of vocabulary and structures.	**9**	**1**	*2*	*8*
Interactivity	Conveys meaning with little difficulty. Speech is expressive and there's appropriate use of intonation. Displays confidence in interaction. Can keep a conversation going on.	**8**	**2**	*4*	*6*

As the exercise is strongly connected with subject-specific knowledge, the deviation between the levels of A1 and B2 are greater than in the first two tasks. CLIL learners showed great confidence in their language proficiency in subject specific matters, which raises the level of proficiency already up to B2 (or in a couple of cases even C1 could be applicable), whereas the difficulties in language in an area unknown caused more tension and difficulties in overall language production in the EFL performances. The issues are discussed with the help of examples below.

5.3.3.1 EFL-learners

In the first problem-solving task (left side of Figure 6) the learners had 30 seconds time to help Fred with the calculation. Considering the amount of time given for reading and elaboration on the problem-solving task and the time for verbalizing it, 30 seconds seems quite a short. None of the EFL-learners were able to solve the problem – give the correct answer or explain how they solved it. There was occasional attempting to explain some numbers or calculation processes, and some

students even gave an incorrect answer, but in most of the cases *"I don't know"* was a typical phrase in the performances:

> EFL1: Ok. Öhm. Two. I don't know! I don't know. (giggling) I don't know. Mitä ihmettä!
>
> EFL2: Mikä on multiply, mikä on substract? I don't know!
>
> EFL3: Ööh. Multiply by six so seven times six... okee jaa kahdeksalla.. I don't know, you do your own homework.

The examples show confusion and even some panicking. The terms *multiply* and *subtract* were expected to be unfamiliar for formal language learners, since these terms are not used in language teaching. However, in the third case EFL3 figured out the meanings of the terms (*multiply, times*). Even though the learner might not have even heard the terms before, he also used his problem solving skills by figuring out the meaning of terms shown on the screen. However, he finally gives up and tells Fred to do her own homework. Also EFL2 has gotten some idea of the meaning of multiply but gives up very quickly. In some of the cases the learners provided Fred with some kind of explanation:

> EFL4: No I can't because I'm not very good at math. Ssooo… (giggling) I don't know how to do this but... I don't know.
>
> EFL5: Omg, I don't know. I suck in Maths but uhm what is multiply by? Is multiply by like you put them together or it's like plus or?
>
> EFL6: Kuus (counts whispering in Finnish) mmh Is it… I don't know I do know ehm ehm you plus this six and eight and and you minus this forty and you have it.

EFL4 and EFL5 apologize for not knowing the answer because they are not really good at math or they do not know the words. In many cases the learners also coped by saying something in Finnish, where they lacked skills to express themselves in English, as it was expected following the example cases in exercises 1 and 2. I think that the commonly noted confusion and giving up with the problem solving had much to do with the time pressure and sudden unknown words. However, EFL6 applied the knowledge of the terms plus and minus and numbers in English, which is already a calculation, even though she does not give an answer to the problem.

The second calculation was somewhat easier for the learners, probably because it did not involve many unfamiliar words. The calculation itself was very basic, and the learners might be already more prepared for solving mathematical problems after the first problem-solving task. Additionally, more time (50 seconds) was given for the performance. However, the meaning of the *x* used in the

calculation and the word in English was not clear for everybody, which made the learners use different strategies in figuring out the calculation:

> EFL7: Ööh. Mitä x tarkoitti? Aijaa, pitäiskö mun puhuu sille, että kuusi kertaa kolme? Ehm. Six kertaa three is eighteen and six kertaa six is kertaa eteen.. six is… jotakin jotakin

> EFL8: Maybe... (deep sigh) Six times three, six times six and six times one... like that. I don't know how to do it but you can figure that out. Yeah, could you get it?

> EFL9: Ei helkkari oikeesti. Mikä on kertolasku hei? Ööh you.. this.. six in the three, six in the six and six and the one and it's sixhundred..

> EFL10: Ahm. Three x six is ouhh eighteen and ööh. Ouh. Thirty six and six. And there you can the first you can you can... ehm three x six and its 18 and next you six x six is..

The learners did not have any difficulties in recollecting the numbers in English, as they are taught in the EFL classes. As many of the examples above show, Finnish was still greatly involved in many of the performances. In FL8 the learner explained the solving of the calculation the easiest way, without giving any solutions, which is already enough considering the instructions. In cases of FL9 and FL10 the learners have found and alternative way to tell how the calculation can be done. Even though they do not use the word *times* in their answer, in real life situation the message with the help of nonverbal interaction could be transmitted. One of the learners showed good problem solving skills by figuring out the meaning of multiply in the first task (a) and using the same term in the second (b):

> EFL10: (a) Omg, I don't know. I suck in Maths but uhm what is multiply by? Is multiply by like you put them together or it's like plus or?

> (b) Ehm. You like multiply ahm six to the three and it's like 18 and this is ööh ehm. You have to put the answer upside like under the six, then you multiply six ply six. It's uhm. 36 and then you multiply six by one and then you put them under and you…

The ability to apply a learned new word in the problem-solving task and using it right away in the second calculation (combined with the examples of EFL9 and EFL10) is proof of the ability to construct knowledge and good language competencies through finding ways to go round the limitations of their language skills. I think that probably with a few key words (such as translations or descriptions given for subtract and multiply) on a post-it note in the upper corner, more time or the possibility to stop the time and move on when ready with a continue-button would make a difference and at least most of the panicking could be avoided. Additionally, the order of the

calculations could be changed to make a softer landing for the learners, since the EFL-learners coped with the second task with more success.

5.3.3.2 CLIL-learners

Although a difference was expected already expected between EFL- and CLIL-performances in this exercise, the CLIL-learners were still able to surprise me with their quick problem-solving skills and especially their skills in explaining and transforming the calculation into descriptive language. Even though the groups have had different subject teachers in mathematics, which could also potentially explain capability of solving the mathematical problem itself, the exercise also assesses coping with descriptive language. All of the CLIL-learners assessed came up with some kind of explanation and 8 out of 10 also new how to solve the problem, from which the following examples have been gathered:

> CL1: Uhm. Plus eight to forty and then divide it by six and that's the answer.
>
> CL 2: First, it's easiest if you like first plus eight to forty and divide that by six and then the missing numbers are the answer. So the answer… is eight.
>
> CL3: Ah so you need to mul- ahm plus eight to forty and then divide it by six and then you got the answer there and you can check it by doing the calculation the correct way around so you just do it negatively.
>
> CL4: Just forty... just, just do the opposite way instead of su- subtracting add, instead of multiplying divide, so forty plus eight divided by six. That's how simple it is… so yeah.

The examples above show in how many different ways the problem can be solved and explained. CL1 provided the most direct and simple explanation for the task, and it took only 12 seconds to give it, also in the second case (CL2) it took only 23 seconds to explain how the calculation is done and give the right answer. The next two examples (CL3 and CL4) indicate two different and smart ways to construct information, as CL3 provides Fred with an explanation on how to check the calculation and CL4 shows an even deeper way of understanding the problem. CL4 also uses synonyms (*add, plus, subtract, divide*).

Also in the second calculation the CLIL-learners were more apt in providing a solution or even the correct answer in varied ways. Some explanations included more diverse language than others:

> CL5: First you times three by six and then you put the answer here, and then you put the answer here and then you do six times six, which is thirty-six and then you put the

answer here and then you times one by six and that is six and then you put then answer here.

CL6: So first you multiply three by six and then you multiply si ahm first you multiply three by six. There comes eighteen, you put the one to the right side and then you multiply six times six, it's thirty-six, you put the six here next to the eight, put the three here in the side and take the one like add the one to the six so it's seven, and then one times six, you add there three in the side and it's nine… Ninehundred-and öhss… yes.

CL7: First you multiply six by three. It's eighteen. You put the eight to the grid then you put the one to memory. Then you multiply six by six, is thirty-six. Then you add to that number the one you have in memory, then it's thirty-seven. Then you multiply six by one and add the memory number and just put it down there. Ehm, that way you get the answer.

The examples above show different ways of coping with the exercise and word choice. The first (CL5) learner gives a very simple answer by using the same pattern in every phase of the calculation, and possibly goes around the lack of ability to explain more precisely. With the help of some nonverbal gestures the messages the learner tries to convey could be easily understood. The second and third learners (CL6 and CL7) show lexically more diverse explanations. CL6 for example specifies the explanation with more precise descriptions of where to mark the numbers on the calculation (*"you put the one to the right side"*). CL7 uses the word *memory* for the marking, for which CL5 and CL6 give only equivalents of *here* and *to the side*. In most cases the CLIL-learners managed to explain the calculations within the time given and in case of CL7 it took 33 seconds. Only in a couple of cases the learner ran out of time, while trying to come up with the correct numbers. Many of the explanations include some grammatical mistakes, but they do not affect understanding the explanation. In general, all of the CLIL-learners used English fluently, naturally, and creatively, even in cases where they did not know how to solve the problem:

CL9: Well… you need to think first. You, you actually can think about numbers that might fit and so, then you just multiply it by six and try and then you subtract it by eight and it's forty but if it's not then you have to try some other numbers. I'm actually not that good at math either.

Well, now you just do three times six then you put the answer. Then you do six times six, which is thirty-six by the way and three times six, well that's eighteen and then you do one time six and that's six and it's easy. Then you just put the answers down and that's it. It's actually not that complicated. You just have to get it. I'm not that good at math either but, well I'm on sixth grade, this is fourth grade stuff. I'm willing to help you any day. But I'm warning you. I'm not that good at math either.

In the example above the learner does not know how to solve the first mathematical problem but tries to help Fred nevertheless by going through the thinking processes that might come to mind while trying to solve the problem. The example thus shows that the learner probably might think mathematical problems in English or at least is able to verbalize thinking processes in English. The learner also interacts very naturally and with native-like language in the situation as in really helping Fred with the problem e.g. by using expressions such as *"Well… you need to think first"* or *"I'm willing to help you any day"*.

In sum, the CLIL-learners in this task were able to perform skillfully in problem solving, and also were able to verbalize their thinking processes and express them vividly in English, also including the social context, in which they are helping another person. The fluency of thought and language are a great proof of English used as medium and as target of learning, as the learners did not use any Finnish in this task.

6. Discussion on findings

In this study I have discussed communicative language competence and language proficiency with groups of EFL-learners and CLIL-learners at the age of 11 to 13. The aim of this study was to describe the language performances of the two groups and find out whether and how a technology-based simulation especially designed for purposes of interdisciplinary education of language, culture and internationality could be applied in the contexts of EFL-learning and how they could benefit oral language learning processes.

At the beginning of this study I presented two study questions:

1) What similarities and differences there are in oral language proficiency in the simulation performances of CLIL learners and EFL learners?
2) Could simulations (especially PROFICOM-simulation) be applied to EFL teaching?

In this discussion section I will summarize the central findings of the study regarding communicative competence and oral language proficiency based on the three selected exercises for spoken production, discuss them in the light of assessment according to the CEFR and with the help of communicative strategies for second language production by Littlewood (see section 5.1.2). Finally, I will present some ideas of the simulation as a working tool for future development.

Performances in relation to the CEFR

The LangPerform-concept uses the CEFR system as the basis for the assessment of language proficiency in the simulation exercises. The performances can thus be analyzed and assessed with the help of the five qualitative aspects of spoken language (range, accuracy, fluency, interaction, and coherence) presented earlier in section 4.1 (see also Appendix 1). According to the goals set for language skills in English in the FNCC, the level of proficiency for EFL-learners is set on the basic level A, whereas no goal level for CLIL-learners was set in the curriculum. However, as already expressed in the hypothesis, the language proficiency level of CLIL-learners was expected to be higher and thus vary on the conversational level B (B1–B2). The mastery level C already requires fairly advanced language skills and almost native-like proficiency, which is why reaching this level without any connections or background in using the English language at the age of 11 to 13 would be unusual.

As the (subjective) ratings given on Tables 3, 4 and 5 in each exercise summed with further analysis on similarities and differences in language proficiency show, the range of the EFL-learners varied on the level of basic language use A. The learners mainly used very basic, short and memorized phrases or groups of words in order to communicate quite a limited amount of information related to everyday life. The limits of their *range* of language was especially visible in the first two exercises, in which almost every one of the learners was able to tell the very basic details about themselves, but some already had difficulties in giving reasons for why they liked a specific subject or what they were good at, which could draw a line in between the learners on A1 and A2-levels. The lack of vocabulary was also evident in the second exercise, as the learners had more difficulties in expressing themselves with sentences that had variation in structure. The use of Finnish language increased in the second exercise, which indicates a more limited range in vocabulary related to personal themes as the time for speech production increased. Many basic mistakes occurred for example in the use of tense or inflection (*accuracy*) and some of the learners had difficulties in responding the correct way according to the situation already in the first exercise. The learners also struggled with the pronunciation of the words, which did not only show in the influence of Finnish pronunciation, but also in incomplete words, repetition and short breaks, which also affected the *fluency* of the speech. On average, the EFL-learners needed some time at the beginning of their turn to elaborate the information and build a strategy for answering. *Coherence* could be analyzed especially in exercise 2, in which the learners had to build a monologue based on the pictures and key words. Many of the EFL-learners did not use coherent strategies in their narratives, which influenced the logical sequences of their speech. However, as can be seen in the examples presented in the analysis, there was also variation within the level of performances in the task. In *interaction*, many of the EFL-learners gladly showed some capability to follow through the conversation in the first task, make contact and be polite with the conversation partners through intonation and other paralinguistic cues in all of the exercises. However, it must also be noted that EFL-learners seemed to have a stronger need for mutuality and helping of the speech partner in interaction, which might have shown in frustration in interaction, because they could not get help from their conversation partner by asking them to repeat or rephrase the question.

The CLIL-learners did not seem to be bothered too much by the lack of not being able to get a response from the speech partners, since none of the CLIL-learners commented on the authenticity of the communication in the simulation, and played along. In general they showed confidence in *interaction* and expressed themselves mostly using the English intonation and pronunciation patterns, even though some occasional slips and influence of Finnish were noted. The *range* of the

vocabulary was especially notable in expression of viewpoints (exercise 1) and descriptions (exercise 2 and 3), exemplified e.g. through the use of synonyms and variation in sentence patterns as well as the use of connectors in the structure. A couple of the CLIL-learners even managed to intertwine some fairly subject-specific words in their speech, such as *evaporate* etc. In these kinds of spontaneous descriptions that require expertise and knowledge of a specific subject matter, the level of language proficiency could actually rise up even to the level CEFR level C in a couple of cases. Nevertheless, mistakes in grammar (*accuracy*) and other kind of slips were also in general noted, but they did not cause any misunderstandings of the speech. On the other side many of the learners provided a fairly precise answer in the problem-solving task. The CLIL-learners also corrected their speech more, in case of false starts, wrong pronunciation or incorrect grammatical form. On average, the CLIL-learners were capable of producing long stretches of (*fluent*) speech in a shorter amount of time (cf. exercise 2). Even though there was occasional search for words and hesitation, it must also be noted that these kinds of features are included in spontaneous spoken language and also occur in native language production. Finally, the CLIL-learners showed quite good control of the *coherence* of their speech, especially in exercise 2, in which they clearly followed a strategy in the construction of their monologue. As Tables 3, 4 and 5 show, the level in language proficiency of CLIL-learners vary mostly on the levels of B1 and B2.

In the analysis of the simulation performances I noted some variation in the use of communication strategies (cf. Littlewood 1984) when facing complications in language production. Out of the six strategies the EFL-learners used the first two strategies (*avoiding communication and adjusting the message*) and the sixth strategy (*switching to native language*) the most. In many cases EFL-learners used very simple phrases and there were times where the learner clearly wanted to express something but was not able to, so the message was just left unsaid, such as in *"Ehm ok. Can i ööh, nothing!"*. Also, in many cases the EFL-learners stayed silent, even though they still had time to speak and in some cases the learners refused to say anything. The CLIL-learners on the other hand used the strategies 3 and 4 more, (*paraphrasing and approximating*). In many cases, in which the CLIL-learners had difficulties in expressing themselves, they provided a description or another word (synonym or a word close to the meaning) to explain the meaning of the word they were searching for (cf. the case of *löyly* in section 5.3.2). The learners clearly showed competence in finding a way in the target language to express themselves and not get caught up with words they did not know. In this way the CLIL-learners also showed good abilities in constructing information and expressing it. Examples out of creation of new words were not very evident in the examples that I analyzed (except for *parchments*, p. 32), which is why no conclusions can be drawn.

While analyzing the performances, I observed that language proficiency and communicative competence varied to a great extend within the same groups of language learners. According to Adegbile & Alabi (2005, 31) the variability is most often linked to confidence and familiarity with the structural elements and conventions of the target language. However, factors such as motivation, language heritage and social or cultural distance to the target language should also be taken into account. Since this second subject thesis study focused only on the performances in the selected exercises, it was not possible to also include factors, such as language learner profile. As mentioned in section 4.1 the LangPerform-concept puts a lot of emphasis on the learners becoming aware of their language heritage through their Lab-profile. The differences in language proficiency within the CLIL-group might be explained through time spent abroad with the family or other family relations. In a couple of EFL-performances especially motivation and interest towards the language through pastime activities, like computer games or music, were mentioned, which understandably can explain better language competences and increase the willingness to learn and speak the language (cf. Saarenkunnas p. 17). These cases, however, were rare.

Other notions on the performances and evaluation of the simulation as a working tool

As mentioned earlier in the study, I also conducted short interviews with the group of EFL-learners to hear how they found working with the simulation. In short, the learners found working with the exercises challenging but fun. Many of the learners said that the working method needed some adjusting at first, but once they understood what the simulation was about, it was easy to become immersed in the story. However, as the examples given in the analysis show, the EFL-learners seemed to have more difficulties in adjusting with the story and the tasks, probably because of the uncertainty of coping with the foreign language as the language for instructions as well as using it. Also, the fact of not being able to ask the speech partner to rephrase or repeat in case the learner did not understand caused long pauses of silence. During that time the learners had to watch the faces of the actors listening (and understanding them), which lowered the authentic feeling of interaction and might have made them feel embarrassed. Also the time given for the performances was criticized: sometimes there was too much time, which made the silence somewhat embarrassing and sometimes there was too little of time to give a full response or even gather thoughts, which also might have also caused some panicking in the performances. However, all in all the learners enjoyed participating in the simulation and would do it again.

When thinking about the applicability of the simulation for formal language educational contexts, some minor adjustments could be made, to make it easier to cope with the simulation exercises. For example, in some exercises by adjusting a continue-button on the screen after a certain amount of time, and already in the first exercise, would allow the learners to move on with the simulation, if they do not have anything more to say. Also the upper-bar instructions or some key words in Finnish on the post-it notes might help some learners to do better in some exercises (especially mathematics). In some exercises, especially in the ones that require reading long texts or content knowledge (Black Bears, mathematics), the tasks could be easier accomplished if the learners had the possibility to stop the time for a while and move on when they are ready for it. Since the frame story was enjoyable for all, the homework exercises, in which the learner helps Fredrica out, could be easily be changed to match the expected subject knowledge of English. With just some adjustments difference in the coping of the EFL-learners could already be improved and the materials could be applied in English as second language learning.

On the other side, some of the simulation exercises might have even been too easy for learners of the 6th grade, since the PROFICOM-simulations have been applied from 4 to 6-graders. With that said, some of the tasks could be changed depending on the grade and expected subject knowledge. Nevertheless, the first PROFICOM-simulation was also intended to be handling easier content materials and changes have already been made to the second and third simulation and the variation as well as new subject content has been integrated. However, the assessment practices could be developed further. Wewer (2014, 208) argues that subject-based knowledge and language use in that matter require different assessment practices, as in mathematics, the pupils should learn to "*speak mathematics*". I also noticed that in some exercises it was challenging to assess the language being used. Since the simulations have only been tested in some schools, deeper thought in planning of the tasks as well as the evaluation overview and more precise task-based assessment should be considered, before simulation assessment methods can be introduced on a larger scale. Also training should be provided for the teachers beforehand.

In this study, I subjectively rated the performances. Even though guidelines are provided for each level of mastery (A1-C2), I noticed difficulties in assessing individual performances in different tasks, especially in boundary cases when choosing between the levels. Following this notion, using the rating scale of CEFR in every task might be time consuming and to some extent confusing, which is why the assessment methods and rating scales should be further studied, and perhaps made easier, especially from perspectives of teachers and students, as peer and self-assessment is also used. As the ratings in this study based on my personal assessment, and the amount of material was

limited, the findings of this study can only be considered suggestive and no direct conclusions can be drawn.

As Wewer (2014, 207) points out, EFL is mostly teaching *about* the language and learning to communicate in everyday situations, whereas CLIL primarily is learning *how* to use the language in subject study. Wewer thus argues that in this matter the learners also learn two different Englishes or "*two different sides of the same coin*", as later on the language needed for study in CLIL-education becomes increasingly subject-specific, and EFL-type English and English in CLIL start to diverge from each other, which is why these groups are not comparable. Even though there were clear differences in the language use especially in the exercises that included subject content I want to point out that the sides are, nevertheless, sides of the same coin, and contribute to building competencies in English. Therefore, as subject-specific English is more needed nowadays, and commonly used in further studies, work, and travelling, also education should be developed into a more functional and interdisciplinary direction. The idea is also supported by Coyle et al. (2010, 7) who argue that considering European mobility as well as other international and national language issues, competence-building in languages is critical for the social and economic development of any country, which is why language pragmatism at grass roots level should be implemented. Developing language skills through e.g. common interdisciplinary projects and cooperation projects between partner schools from different countries would increase motivation and challenge into a more varied way of constructing information. One step forward is the new curriculum reform (see section 3.2), in which bilingual learning has gained even more ground. Finally, I think it is important to introduce CLIL and other interdisciplinary working methods into the teaching curricular programs of student teachers to establish new approaches in their teaching practice (see also Egger & Lechner 2012, 12).

LangPerform-Lab provides an interesting solution to computer-assigned language learning and building up communicative competence. Winke & Fei (2008, 360) argue that many of the problems and difficulties with computer-assisted language assessment suffer from lack of validity and reliability. Since the test and speech partners are the same to every participant, the recordings can be listened and evaluated online by the peers, teachers and colleagues, the platform for assessment serves the purposes of valid and reliable assessment. Winke & Fei (2008, 361) also point out that expenses are a major setback for these types of computer-administered tests of speaking ability. As schools and other educational organizations are under stress of cutting expenses, the production as well as other processes (e.g. updating computer programs or headsets) might influence their willingness of using LangPerform-services. It is therefore important to investigate, whether there is

a chance to cut down on expenses with some changes e.g. in the duration of the simulation, tasks, or how effectively the simulation could be tailored to fit the purposes of educational systems. Also, possibilities in international cooperation in funding and production of simulations, as well as testing should be considered. Finally, LangPerform should also consider working with publishing companies to produce materials for exercises in the simulations.

According to Koivistoinen (2008, 239) one of the purposes of language teaching is to create a learning environment, which provides pupils with a consciously structured set of opportunities to grow in language usage and to teach the essence and importance of language in human social interaction and how it serves as a mediating element in cultures and societies. As one of the EFL-learners interviewed noted: *"Now I understand why people want to learn languages"*, interdisciplinary working methods and simulations such as LangPerform provide an authentic viewpoint and motivator for learning languages.

Conclusion

This study focused on looking into communicative competence and oral language proficiency with groups of EFL-learners and CLIL-learners in the light of working with LangPerform computer simulations. The purpose of the analysis was to see how their language skills differed in the tasks selected and how they coped with spoken production of English. Also the simulation as a working tool was discussed and suggestions for development were addressed.

In this study I learned that EFL-English and CLIL-English represent different sides of learning and using English, which showed in the simulation performances of the learners. Even though the EFL-learners lacked central subject-specific vocabulary in some exercises, the overall impression of working with simulation was positive. Following this idea, CLIL and simulation as a learning tool has potential in bringing new dimensions into learning and testing foreign language proficiency and building communicative competence. It also increases personal language awareness – knowledge of using and mastering languages in different environments and areas of knowledge. The PROFICOM simulation could thus be applied to promote interdisciplinary language learning in even wider contexts of foreign language education. Also, the practices of CLIL need to be further developed, especially in local and national curricular work. To create bridges into applied solutions of learning and teaching of language and content, other forms of cooperation and networks between CLIL-and EFL-teachers, as well as teachers of other subjects should be established.

The LangPerform concept serves an interesting basis to practice and investigate different areas of language proficiency, but it also requires future development in regards of adaptability for different users of the LangPerform-Lab environment. As technology increases in meaning in education, development and research of the simulations, the language learner profile, and assessment should be further studied. Also, it is important that all the simulations produced should be tested with different groups of learners and gather feedback about their experiences. Finally, for future research the PROFICOM-project serves an interesting field to study development of language proficiency within a two or three years-time span with the same groups of language learners, throughout the grades of 4-6.

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Appendix 1: Qualitative aspects of spoken language use

Common European Framework of Reference for Languages

Qualitative aspects of spoken language use

	RANGE	ACCURACY	FLUENCY	INTERACTION	COHERENCE
C2	Shows great flexibility reformulating ideas in differing linguistic forms to convey finer shades of meaning precisely, to give emphasis, to differentiate and to eliminate ambiguity. Also has a good command of idiomatic expressions and colloquialisms.	Maintains consistent grammatical control of complex language, even while attention is otherwise engaged (e.g. in forward planning, in monitoring others' reactions).	Can express him/herself spontaneously at length with a natural colloquial flow, avoiding or backtracking around any difficulty so smoothly that the interlocutor is hardly aware of it.	Can interact with ease and skill, picking up and using non-verbal and intonational cues apparently effortlessly. Can interweave his/her contribution into the joint discourse with fully natural turntaking, referencing, allusion making etc.	Can create coherent and cohesive discourse making full and appropriate use of a variety of organisational patterns and a wide range of connectors and other cohesive devices.
C1	Has a good command of a broad range of language allowing him/her to select a formulation to express him/herself clearly in an appropriate style on a wide range of general, academic, professional or leisure topics without having to restrict what he/she wants to say.	Consistently maintains a high degree of grammatical accuracy; errors are rare, difficult to spot and generally corrected when they do occur.	Can express him/herself fluently and spontaneously, almost effortlessly. Only a conceptually difficult subject can hinder a natural, smooth flow of language.	Can select a suitable phrase from a readily available range of discourse functions to preface his remarks in order to get or to keep the floor and to relate his/her own contributions skilfully to those of other speakers.	Can produce clear, smoothly flowing, well-structured speech, showing controlled use of organisational patterns, connectors and cohesive devices.
B2	Has a sufficient range of language to be able to give clear descriptions, express viewpoints on most general topics, without much conspicuous searching for words, using some complex sentence forms to do so.	Shows a relatively high degree of grammatical control. Does not make errors which cause misunderstanding, and can correct most of his/her mistakes.	Can produce stretches of language with a fairly even tempo; although he/she can be hesitant as he or she searches for patterns and expressions, there are few noticeably long pauses.	Can initiate discourse, take his/her turn when appropriate and end conversation when he / she needs to, though he /she may not always do this elegantly. Can help the discussion along on familiar ground confirming comprehension, inviting others in, etc.	Can use a limited number of cohesive devices to link his/her utterances into clear, coherent discourse, though there may be some "jumpiness" in a long contribution.
B1	Has enough language to get by, with sufficient vocabulary to express him/herself with some hesitation and circumlocutions on topics such as family, hobbies and interests, work, travel, and current events.	Uses reasonably accurately a repertoire of frequently used "routines" and patterns associated with more predictable situations.	Can keep going comprehensibly, even though pausing for grammatical and lexical planning and repair is very evident, especially in longer stretches of free production.	Can initiate, maintain and close simple face-to-face conversation on topics that are familiar or of personal interest. Can repeat back part of what someone has said to confirm mutual understanding.	Can link a series of shorter, discrete simple elements into a connected, linear sequence of points.
A2	Uses basic sentence patterns with memorised phrases, groups of a few words and formulae in order to communicate limited information in simple everyday situations.	Uses some simple structures correctly, but still systematically makes basic mistakes.	Can make him/herself understood in very short utterances, even though pauses, false starts and reformulation are very evident.	Can answer questions and respond to simple statements. Can indicate when he/she is following but is rarely able to understand enough to keep conversation going of his/her own accord.	Can link groups of words with simple connectors like "and", "but" and "because".
A1	Has a very basic repertoire of words and simple phrases related to personal details and particular concrete situations.	Shows only limited control of a few simple grammatical structures and sentence patterns in a memorised repertoire.	Can manage very short, isolated, mainly pre-packaged utterances, with much pausing to search for expressions, to articulate less familiar words, and to repair communication.	Can ask and answer questions about personal details. Can interact in a simple way but communication is totally dependent on repetition, rephrasing and repair.	Can link words or groups of words with very basic linear connectors like "and" or "then".

Appendix 2: Letter of Approval

TUTKIMUS- JA DOKUMENTOINTILUPA
HUOLTAJILTA

Hei kotiväki,

Tampereen yliopiston kieli-, käännös- ja kirjallisuustieteen tieteenalayksikössä toimiva kielikasvatuksen tutkimus- ja kehitysyksikkö RULE (Research and Development Unit for Languages in Education) toteuttaa parhaillaan yhteistyössä Tampereen kaupungin perusopetuksen kanssa PROFICOM-projektin, jonka tarkoituksena on kehittää ja soveltaa käytäntöön videopohjaisia tietokonesimulaatioita kielikasvatuksen sekä kielitaidon testauksen ja arvioinnin tueksi. Pyydämme lupaa saada kuvata ja tutkia lastanne, kun hän kokeilee nyt pilottivaiheessa olevia, alakoulun kielikasvatukseen suunnattuja simulaatiosovelluksia. Tutkimukseen osallistuvat lapsesi koulusta 6. luokan A1- ja A2-englannin opetuksessa olevat oppilaat.

Käyttämällä henkilökohtaista profiilia tietokonesimulaatiossa oppilaat voivat harjoitella englanniksi toimimista erilaisissa tilanteissa eri tehtävien avulla. He saavat mahdollisuuden käyttää sekä sanastoa että tietoja, joita he ovat oppineet englannin ja muiden oppiaineiden tunneilla. Kokeilun jälkeen he voivat myös tarkastella omaa suoritustansa ja arvioida omaa osaamistaan tietokoneavusteisesti, vaikka kotoa käsin ja erityisen mielellään yhdessä vanhempiensa kanssa.

Tutkimuksessa lapsenne tekee erilaisia tehtäviä englanniksi videopohjaisessa simulaatiossa ja kuvaamme häntä hänen suorituksensa aikana. Ennen simulaatioon osallistumista lapsi saa täytettäväksi lyhyen kyselylomakkeen sekä hänellä on mahdollisuus ilmaista mielipiteensä ja vaikutelmansa simulaatiosta lyhyessä ryhmähaastattelussa osallistumisen jälkeen. Lapsenne osallistuisi tutkimukseen XX.XX.2014 koulupäivän aikana.

Osallistuminen tutkimukseen on lapsellenne täysin vapaaehtoista. Myös ne oppilaat, jotka ovat saaneet vanhemmiltaan luvan osallistua tutkimukseen, saavat mahdollisuuden kieltäytyä osallistumasta. Tutkimukseen osallistuminen ei vaikuta lapsenne arviointiin.

Tutkimuksen aikana kerätty aineisto on luottamuksellista, eikä lapsenne henkilötietoja julkaista missään tutkimustuloksissa. Häntä ei myöskään voida yhdistää mihinkään yksittäisiin tuloksiin. Pyydämme kuitenkin lupaanne hyödyntää kuvaamaamme materiaalia tutkimus- ja koulutuskäytössä.

Pyytäisimmekin teitä ystävällisesti täyttämään alla olevan lupalapun ja palauttamaan sen lapsesi opettajalle XX.XX.2014 mennessä.

Odotamme innolla mahdollisuutta työskennellä lapsenne kanssa. Uskomme, että kaikki projektiin osallistuvat lapset saavat hienon mahdollisuuden kokeilla, mihin heidän englanninkielentaidot riittävät mukavassa ja uudenlaisessa oppimisympäristössä ilman epäonnistumisen pelkoa.

Ystävällisin terveisin koko tutkimusryhmän puolesta

Kim Haataja, FT
Soveltavan kielitieteen, erityisesti kielikasvatuksen dosentti
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Annan / En anna (ympyröi oikea vaihtoehto) _____ (lapsen nimi) lupaa osallistua Proficom-tutkimusprojektiin.

_____
vanhemman nimi

Päivämäärä: _____   Allekirjoitus: _____