

**Influence of English on the Finnish of Information Technology  
– A Study of Contemporary Terminology**

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Tietotekniikan kielenä pidetään laajalti englantia alan kansainvälisyyden ja historian vuoksi. Tämän tutkielman tarkoitus oli selvittää, miten englanti vaikuttaa nykyaikaiseen suomenkieliseen tietotekniikkatermistöön. Työn teorian muodostavat keskeiset terminologian ja kielikontaktien teokset, ja sitä täydentää muun muassa käytettävyyteen ja kieliaseinteisiin liittyvä kirjallisuus. Työn luonteen vuoksi olennaisessa asemassa ovat myös verkkolähteet. Työ tutkii termistöä hyvän termin ominaisuuksista lähtien ja tutustuu tahoihin, joilla on erityinen vaikutus Suomessa käytettävään tietotekniikan kieleen. Se nostaa myös esiin joitakin suomenkielisen tietotekniikkatermistön ongelmia.

Käyttäjälähtöisen tutkimuksen menetelmäksi valittiin laadullinen kyselytutkimus. Tutkimusryhmän kooksi rajattiin 24 vastaajaa. Kyselyyn valittiin eritasoisia ja -taustaisia vastaajia alalla työskentelevistä ammattilaisista aina peruskäyttäjiin. Vastaajien osaamistaso määritettiin taustakysymyksillä, ja vastaajat jaettiin kahteen tasoryhmään. Kyselytutkimuksen keskeiset osiot ovat kymmenen nykyi- kaisen tietotekniikan termin tunnistusosa sekä asenteita kartoittava avoimempi osa. Tunnistusosan tarkoituksena oli selvittää, kuinka hyvin vastaajat tunnistavat viisi kantasuomalaista tietotekniikan termiä sekä viisi englannista lainattua termiä. Asenteita kartoittavassa kyselyosassa vastaajia pyy- dettiin muun muassa luettelemaan mielestään hyviä ja huonoja suomenkielisiä termejä, pohtimaan, mihin tilanteisiin suomenkielinen tai vierasperäinen sana heidän mielestään sopii parhaiten, sekä kommentoimaan vierasperäisten termien käyttöä muodollisessa asiatekstissä. Vastauksia analysoi- tiin sekä käyttäjäkohtaisesti että tasoryhmittäin.

Kokeneet käyttäjät paitsi tuntevat suomenkieliset ja vierasperäiset termit aloittelijoita paremmin myös erottavat eri rekisterit selkeämmin toisistaan. Suomenkielisten termien etu varsinkin koke- mattomien käyttäjien kannalta on niiden lähestyttävyyden, mutta vierasperäiset sanat ovat yksiselittei- sempiä. Kokonaisuutena suomenkielisen termistön kehittämiseen suhtaudutaan positiivisesti. Työ esittää ajantasaisen katsauksen suomenkieliseen tietotekniikkatermistöön loppukäyttäjien näkökul- masta, ja sitä voidaan hyödyntää teknisen kirjoittamisen tai termistötyön suunnittelussa.

Avainsanat: anglismit, terminologia, tietotekniikka

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# 1 Introduction

## 1.1 Background for the thesis

The rapid development of information technology (commonly abbreviated as IT) is changing the world in many ways and creating new concepts that were unimaginable only decades ago. English is currently the primary development language of information technology, and it is only natural that in the process it influences other languages as well. Therefore, other languages, including Finnish, need continuous and conscious efforts such as systematic terminology work for keeping up with English innovations.

I have worked in technical translation since 2006 and observed personally that there is a preference in official documentation and formal texts to make the language as accessible as possible to users of all skill levels, even though for some the contact with the technology might be intermittent and limited to fundamental features only. Nevertheless, accessibility is important. Before, just a relatively limited group of specialists was concerned with computers and information technology in general. In the modern world, however, a great deal of information is in digital form and information technology is an essential part of the everyday life for an increasing number of people. Improving the accessibility of language usually involves choosing standard, descriptive terms over opaque foreign loans and unidentifiable elements. In my experience, however, IT experts and professionals still tend to use adaptations of English terms, known as anglicisms (see section 1.2 Essential concepts), instead of the native Finnish equivalents in informal Finnish-language discussions among their peers.

In this thesis I will study the influence of English on the Finnish of information technology. Anglicisms of Finnish computer language and the development of native terminology have certainly been studied before (see e.g. Jääskeläinen 1991 and Kauranen 1994), but as the field itself changes quickly, an updated examination is relevant. Furthermore, my work will take into account the

perspective of end users and also discuss attitudes towards the English influence and the Finnish terminology work. The foundation for the empirical part of the thesis is formed by a questionnaire, the results of which will be analysed qualitatively. The research focuses on a group of 24 active computer users of 23–33 years of age with different backgrounds and levels of expertise. My research questions are:

- How well does the group of respondents identify ten current Finnish IT terms?
- What are the respondents' attitudes towards the English influence on the field and the attempts to further develop the native Finnish terminology?
- How does respondent skill level correlate with the identification of terms and the attitudes towards the terminology? My hypotheses are that more skilled respondents will identify the terms more successfully and are more accepting of English adaptations.

The thesis begins with two theoretical chapters. First, I will discuss the nature of communication related to information technology and the terminology work in Finland. Then, I will examine Finnish terms of information technology in detail. After presenting the theoretical foundation, I will introduce a questionnaire I conducted to a group of computer users in March and April of 2011 and draw conclusions about the results. My work is primarily a study of terminology and language contact with the focus on end users. The results will be relevant to translators, technical writers, and practically anyone who produces or plans Finnish-language texts related to information technology. The work may also have specific value in planning software localisation<sup>1</sup>. By identifying tendencies among experienced and inexperienced users, the thesis might provide hints as to what conventions have been adopted by the general public and what should be focused on in order to communicate ideas as accurately as possible to each specific target group.

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<sup>1</sup> *Localisation* refers to 'adapting a product for a specific language or region while taking into account the linguistic and cultural requirements and expectations of the target audience'.

## 1.2 Essential concepts

For the purposes of this work, it is necessary to define the following key concepts. They occur throughout the thesis and must be established for proper discussion of the research.

### Term

Terms are fixed, single- or multiword expressions that refer to specific concepts, and ideally one term only refers to one concept in the specific field (Suonuuti 1997, 9, 25). There are also other requirements for good terms, which will be discussed closely in section 2.3.

### Loan

*A Dictionary of Linguistics & Phonetics* (2003, hereafter *DLP*) defines *loan* as “a linguistic unit ... used in a language ... other than the one where it originated” and presents a distinction of loan types – loanwords, loanblends, loanshifts<sup>2</sup> and loan translations – which will be discussed in more detail in section 3.4. Haspelmath (2009, 43–44) argues that it is difficult to prove without any doubt that a word is a loan, but it is possible to make plausible assumptions if a possible donor language and a source word can be identified based on the shared shape and meaning of equivalent words in two languages.

### Native word

According to Haspelmath (2009, 38) loans, as defined above, are discussed in relation to *native words*, which can be traced “to the earliest known stages of a language”, but he notes that it is not possible to absolutely determine that a word has not been borrowed at some point. By Haspelmath’s (2009, 38) definition, native words are words which have not been identified as loanwords by contemporary linguists.

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<sup>2</sup> There is some variation in the spelling conventions of loanwords, loanblends and loanshifts, and they can be spelt spaced, hyphenated or unspaced. In this thesis I will use the unspaced spelling.

## **Anglicism**

The *Oxford English Dictionary* (hereafter *OED*) defines *an anglicism* as a ‘characteristically English word, phrase, or idiom, esp. one introduced into a sentence in another language’ (s.v., sense 1a). In his introduction to *A Dictionary of European Anglicisms* (hereafter *DEA*), Görlach explores the difficulty of determining if a word counts as an anglicism and notes that it is ultimately a subjective decision (*DEA*, p. xix). He further points out that sometimes there is not enough data available for identifying indirect transmission through another language (*DEA*, p. xx). Covington (1981, 66) argues that English computer terminology has practically no loanwords whatsoever, since the development of the technology took place primarily in English-speaking countries. English is still today the main language of information technology, and therefore it is assumed in this work that if a Finnish term is close in form to an English one, its original source is English, from which it has been borrowed.

## **Attitude**

Linguistic attitudes refer to favourable or unfavourable views towards languages, and they may promote or suppress the use of a language either generally or in specific contexts (Martí et al. 2005, 214). They involve instrumental and integrating motivation; instrumental motivation is connected to pragmatic goals, such as communication needs or economic advantage, and integrating motivation relates to social integration and identification with the linguistic community (Martí et al. 2005, 214). However, Korth (2005, 26) notes that it is sometimes difficult to differentiate between the two and that they both may occur at the same time.

## **2 The language of information technology**

In this chapter I will discuss the nature of the language related to information technology and examine the theoretical view on specialist language. Then, I will explore how the theories are actually realised in Finland and examine the parties that influence the Finnish IT terminology. In addition, I will briefly comment on the position of English in Finland.

### **2.1 Specialist language and the development towards accessibility**

The language of information technology is a language for special purposes, LSP. It is defined as a concise and precise variety for communicating specialist information on various levels of complexity (Picht and Draskau 1985, 3). LSP is at its most complex in communication between experts, and this specialisation is a matter of degree influenced by both how abstract the field is and how extensively the parties involved know it (Picht and Draskau 1985, 3). The basis of LSP is LGP, language for general purposes, i.e. standard language, and the two have a dynamic relationship: LGP elements may obtain new LSP meanings through terminologisation, and LGP may be supplemented through the determinologisation of LSP terms that enter into general usage (Nash 1993, 4; Picht and Draskau 1985, 3–4). Goldbort (2006, 2) argues that in scientific contexts words are used free of all subjective interpretation as objective tools of communication. However, the scientific requirement of objectivity does not mean that technical language is supposed to be cold and artificial. Innovative and creative language has a place not only in literary art but also in explaining complex concepts or new theories (Goldbort 2006, 14).

According to Picht and Draskau (1985, 15), a specific LSP variety is essential for the professional discourse of a specific group. As the group under examination is narrowed down, the variety of the language the group uses also becomes more specialised. The more specialised the discourse, the higher the level of knowledge the participants are expected to have (Goldbort 2006,



4–6; Picht and Draskau 1985, 5). One variety of LSP, such as highly technical jargon<sup>3</sup>, may be perfectly suited for a group of experienced professionals who work regularly together but counterproductive for beginners, and it does not do justice to the different varieties to simply discuss them as one. The purpose of any language is to make information transfer possible within a specific group or community, and the assumed recipients must be considered in each communication situation (Yli-Jokipii 2006, 97). It is important to ask, as Picht and Draskau (1985, 158) put it, “for whom is the terminology work being done”.

Picht and Draskau (1985, 14) note that specialist language is usually adopted subconsciously, while Korth (2005, 24) points out that the linguistic attitudes of individuals are often influenced by group attitudes. Nash (1993, 6, 77) suggests that the use of specialist language is motivated by efficiency; since the specific terms and phrases, although not transparent to non-specialists, are known well by the group of professionals, it is easier for the group to use the existing terms than to make up new ones. However, although technical writing strives to be direct and objective and avoid subjective interpretation, the same concepts need to be discussed on a less specialised level at times (Estrin and Elliot 1990, 64).

Usability expert Jakob Nielsen (1993, 8) writes how, now that the use of computers has expanded beyond just a limited group of experts, the requirement of a high degree of learning is no longer sensible and development efforts should focus on making the systems easier for users. Similarly, modern technical writing must be able to transfer information in a clear and readable form, and the demand for reader-friendly communication will only increase (Goldbort 2006, 6–10). Still, not all user groups have the same background knowledge, and therefore their interpretations of on-screen messages, for instance, may differ (Nielsen 1993, 13). However, Nash (1993, 79) argues that the language of technology is open in the respect that it follows general patterns and

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<sup>3</sup> *jargon* ‘any mode of speech abounding in unfamiliar terms, or peculiar to a particular set of persons, as ... the terminology of a science or art ... trade, or profession’ (*OED* s.v. *jargon* n.1, sense 6).

conventions, which allows understanding the nature of unfamiliar words even if their specific meanings were unclear.

In her 1996 article, Nyman discussed technical writing and noted that the concept was relatively new and often lacking formal training at the time, and the whole notion of mediating technical texts between specialists and non-specialists had been recognised not that long ago. However, she pointed out that the task of achieving a mutual language was already then important because companies wanted to design the rapidly advancing technology and the accompanying materials to be understandable by as wide an audience as possible (Nyman 1996, 120). This is referred to as accessibility, and the efforts to find a mutual language have only grown stronger. In the context of language, accessibility can be synonymous with readability, or “ease of understanding or comprehension due to the style of writing” (Lassen 2003, xv). Despite the growing need for accessibility, the language of information technology is still an LSP with its requirements of precision and brevity. The language published for the general public, however, must distance itself from the jargonistic computer talk of the experts and, therefore, the LSP used in widely available resources, such as documentation and user interfaces, needs to remain at the low-complexity end of the specialisation spectrum. Lassen (2003, xiii–xv) points out that terminology is only one aspect of effective communication. Indeed, overall clarity of style and fundamentally good user-centered design are also significant.

Due to the limited scope of this thesis, I will focus on terminology instead of readability in general. The LSP discussed in this thesis is not the most specialised form, a jargon of profession. Instead, this thesis is concerned with the LSP variant that reaches the largest user base and is intended to suit beginners and experts alike, which is used, for example, in official Finnish software translations and documentation.

## 2.2 IT terminology as evidence of the changing world

The distribution and development of high-speed data transfer networks and other new technologies is reflected on the vocabulary, and words such as *remote monitoring* do not just refer to new concepts – they mark how the world is changing (Länsimäki 2003, 159). *CD-Perussanakirja* (*CD-ROM Basic Dictionary of the Finnish Language*) published in 1997 includes around thirty compound words with the initial morpheme *verkko* ‘net, grid’, but those words refer to concepts of fishing and electricity supply instead of the information network (Eronen 2005, 3). *Kielitoimiston sanakirja* (*The New Dictionary of Modern Finnish*) published seven years later in 2004 nearly doubled the number of words beginning with *verkko* and introduced a shift into the virtual world – instead of fishing nets or power grids the new words denote services and actions that take place on the Internet (Eronen 2005, 3).

Nash (1993, 77–78) argues that jargon is always closely connected to the contemporary group of users, as it is made by and for them and related to their interests of the time, and it becomes very quickly outdated. Furthermore, Lehiste (1988, 21) notes that a language might lose old words, for instance, when a piece of technology becomes obsolete. Today, punch cards only come up in historical contexts and floppy disks, too, have started to fade away from discussion after being surpassed by newer data storage media. The development is especially quick in computer technology with new words and concepts entering the language and pushing old ones out.

Stenvall (1999, 59) argues that since loanwords keep entering Finnish, there must exist a need for them, and especially technical Finnish is to some extent dependent on the international lexicon. Specialist terminology adopts large numbers of loanwords that never enter the general vocabulary, usually for the purposes of maintaining precision and making international communication easier, and the smaller the group of specialists, the more acceptable the use of such specialist loans is considered (Stenvall 1999, 59–60). Nevertheless, according to Stenvall (1999, 60), fields that affect the general public should primarily utilise native resources in lexical expansion, which has been a

guiding principle of lexical work in Finland for more than a century. Native words facilitate learning (Stenvall 1999, 60) because then users will have a ready framework to which they can relate the new concepts.

### 2.3 Requirements for a good term

Understanding the terms of a specialised field always requires some background information. LGP, standard language, is by definition completely unspecialised, but the more terminological a word or a phrase is, the more information is required to understand it (Picht and Draskau 1985, 5–6, 97). Preferably, terms would be monosemous, i.e. referring to a single concept only, but this ideal is not only very rare but also unstable because it is impossible to prevent terms from gaining additional meanings (Picht and Draskau 1985, 98; Suonuuti 1997, 25). A recent example of a monosemous term becoming polysemous comes from the domain of computer peripherals. Originally, *dongle* referred to ‘a security device connected to an input/output port to permit the use of a particular software package on that computer’ (Microsoft 2010). However, with the popularisation of USB peripherals that are, like dongles, small external devices plugged into the computer, the word has obtained a more general meaning. For instance, today a simple online search for *3G dongle* yields approximately 224,000 search results (Google 2011). Perhaps this suggests that the opaque neologism<sup>4</sup> *dongle* has undergone some level of determinologisation, and its meaning has expanded to other peripherals, such as USB 3G modems, as well.

Picht and Draskau (1985, 114–116) have set the following criteria for ideal terms but they note that the criteria are not applicable all at once or in every combination (bold type mine):

- The **motivation** of the term should be logical and self-explanatory.
- The term should be **systematic** in that it fits the system of other similar terms.
- The term should follow the **syntactic** rules of the language and allow **derivations**.

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<sup>4</sup> *neologism* ‘a word or phrase which is new to the language; one which is newly coined’ (*OED* s.v., sense 1a).

- The term should avoid **pleonasm**<sup>5</sup> and **superfluous elements**.
- The term should be **concise** without compromising the clarity.
- The term should be **monosemous** and have **no synonyms** or **homonyms**.
- The term should not have **orthographical** or **morphological** variations.

Nielsen (1993, 26) presents three attributes of usability applicable to terminology: *learnability*, *efficiency* and *memorability*, which are compatible with the criteria presented by Picht and Draskau. In line with Yli-Jokipii (2006, 97) and Picht and Draskau (1985, 158), Nielsen (1993, 27, 123) notes that usability is always measured relative to certain users and tasks, and in user-centered design the terminology of user interfaces should be based on language understood and actually used by the target group. Nielsen (1993, 123) also recommends that the users' native language should be used and non-standard meanings avoided wherever possible. However, if a certain field has its own specialised terminology used by the language community, that terminology should be used because non-specialists, too, benefit from specific terms with a precise meaning instead of ambiguous everyday language (Nielsen 1993, 124). In addition, abstract concepts can be made more comprehensible with metaphors (Covington 1981, 67; Nielsen 1993, 127). Perhaps one of the most well-known computer metaphors is organising virtual data into files and folders – a perfectly normal real-world arrangement for information stored in paper form – which is even represented in the operating system with images of paper documents and cardboard folders.

## 2.4 Finnish as a language of technology

Finnish language planners have been carrying out conscious lexical work and creating native terms for centuries, with the main objective of facilitating communication for non-specialists (Maamies

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<sup>5</sup> *pleonasm* 'the use of more words in a sentence or clause than are necessary to express the meaning' (*OED* s.v., sense 1a). Picht and Draskau (1985, 115) give *guerrilla warfare* as an example of pleonasm as *guerrilla* already means a kind of warfare.

2008, 3). In the 19<sup>th</sup> century, language planning focused on making Finnish into an all-purpose language fit for communication in every field, and its current challenges include reacting to the technical terminology constantly pouring in from English (Maamies 2008, 3). However, only a few decades ago it was claimed that Finnish is not a language suitable for technical communication (Maamies 2009, 3). While language planning and terminology work in Finland always try to utilise native resources in information technology and other fields involving the general public, only time will tell whether the native equivalents ever establish a fixed position (Sunnari 2006, 31). Language planners can only provide guidelines and suggestions but it is the language community that ultimately controls standard language, and sometimes foreign words just cannot be replaced even by perfectly good native equivalents (Korhonen 2008, 32; Maamies 1999, 3; Sunnari 2006, 31).

It is not always clear whether there is motivation to try to replace foreign words. According to a national survey on English in Finland carried out in 2007, the great majority of Finns do not see English as a threat – only 18% of the respondents think English threatens the Finnish national languages (Leppänen et al. 2009, 66). Instead, English is considered an essential resource whose importance is only growing and, likewise, the Finns' overall attitude towards English is positive and pragmatic (Leppänen et al. 2009, v). Many Finnish companies use English as the internal company language, and for instance Nokia (2011) recommends that job applications are submitted in English because the recruitment personnel processing them might be foreign. Although the attitude towards English is positive and English expressions are quite a natural part of the everyday language, English is still considered a foreign language (Leppänen et al. 2009, 115). In general, the use of English in Finland is instrumentally motivated (Martí et al. 2005, 214) with specific practical objectives. English is used and needed especially by young people on the Internet (Leppänen et al. 2009, 113), and for experts and managers professional communication or special terminology motivated using English more often than for other groups (Leppänen et al. 2009, 126–128, 147–148).

Moore and Varantola (2005, 135–137) argue that the information age has created a generation distinction in Finland; IT English is an insider language necessary for global communication, which has resulted in adopting English IT vocabulary into Finnish. Furthermore, Moore and Varantola (2005, 137) claim that localisation and nationalisation are only beginning in this sector, which is not entirely the case. Although Nyman (1996, 119) noted that technical writing for the public was at the time a relatively new development, Finnish language planning has been actively involved in information technology for decades – the Finnish Terminology Centre TSK has operated since 1974 – and Microsoft has been translating the Windows operating system consistently into Finnish since as early as 1990 (Microsoft Corporation 2010).

## 2.5 Sources of IT terms

The purpose of normative terminology work is to facilitate specialist communication through guidelines that aim for ambiguity and consistency (Sunnari 2006, 29). However, Picht and Draskau (1985, 16) note that, apart from systematic terminology work by authorities and organisations, creation of new terms is not always an explicit process at all and takes place much more frequently than generally assumed. New concepts are born and named all the time, and if a language has not yet named a concept that needs to be referred to, the language user, such as a technical professional or a translator, simply must create the new term. New words may also spawn further innovations through antonyms, for instance (Covington 1981, 67). Therefore, for example *uploading* means ‘transferring data to a location’ whereas *downloading* means ‘retrieving data from a location’. The *OED* records the earliest citation for *upload* v. in this sense in 1977 (s.v., sense 2) and for *download* v. (s.v.) in 1980.

Picht and Draskau (1985, 16–17) point out that creation of terms is easy enough, but only the reaction by the language community will decide whether each new term is assimilated or rejected. New expressions must be sensible and survive peer scrutiny (Goldbort 2006, 13). Standardisation of

terms is important for maintaining the level of professional communication and keeping it free of subjective interpretation (Picht and Draskau 1985, 181), but if a newly created term is standardised but not accepted and adopted by the language community, the standardisation will only burden the terminology and reduce its transparency by adding up to the list of synonyms (Picht and Draskau 1985, 17). Indeed, occasionally norms fail to reflect practice. According to Korpela (2011), for a long time, *cookie* was translated as *kuitti*, but only in the computer dictionary, while in actual usage the translation was practically non-existent. Furthermore, if an established term does not meet the requirements for a good term, terminology work must still take into account its fixed position (Ilomäki 1999, 123) because replacing fixed terms with theoretically more functional new terms might only increase confusion among people used to the current practice.

The significance of language planning authorities is especially evident when dealing with terminologies that do not yet exist in a language. Picht and Draskau (1985, 18) state that if a language lacks relevant terminology, it is quite usual for it to resort to English in scientific and technical subjects, for instance. In Finland, however, using only English is not the case, and Finnish is continuously being maintained as a language versatile enough for professional communication. Although English terms initially seep into the Finnish technical terminology, new Finnish-language terms are being actively created. This is in line with Picht and Draskau's (1985, 18) remark that a language needs to change with the times to be able to fulfil the communicative requirements of the modern world and avoid becoming a second-class language.

One of the most important Finnish authorities providing guidelines on terminology use is the Finnish Terminology Centre TSK, which was founded based on the tradition of Finnish terminology work that focused on certain technical fields (Nykänen 1999, 6). Today, one of the core services of the Terminology Centre is the *Tietotekniikan termitalkoot* project (referred to in English as “voluntary team work on IT terminology” by TSK itself), which brings together specialists of



information technology, language and media for providing recommendations on Finnish IT terms (Tietotekniikan termitalkoiden koordinoitiryhmä ja Sanastokeskus TSK ry 2011).

Some of Covington's (1981) observations on computer terminology are somewhat valid even today. He argues that new terms start to be used in a specific group, such as by a particular vendor, and only later they might enter general usage (Covington 1981, 64). Along the same lines, Nielsen (1993, 244) notes that common terms should follow the standards of major vendors. The Finnish of information technology is still quite recent, and there is variation between the translations used by different parties. In any case, the significance of localised software in establishing standards should not be underestimated. Microsoft Windows, for instance, is the most commonly used operating system in the world, and like other Microsoft software, it is fully localised into Finnish. Rollason (2005, 47) discusses a similar situation in France where Windows is also completely translated and notes that it is the translated native terms that the users of the localised version see while the original English terms remain hidden. When users consistently meet the localised terminology alone, it is bound to affect the language of the users.

Currently, the results of some parties' terminology work are made publicly available in online databases. The recommendations by the Finnish Terminology Centre TSK are collected and published in the freely accessible TEPA Term Bank (<http://www.tsk.fi/tepa/netmot.exe?UI=enfr>) maintained by the Terminology Centre. Similarly, Microsoft manages Microsoft Language Portal (<http://www.microsoft.com/language>), which is a comprehensive database of the terms and translations used in localised Microsoft products, including the Windows operating system.

## **2.6 Current issues with Finnish IT terms**

Ilomäki (1999, 122–123) presents two reasons why terminology work should avoid synonymy and strive for standardisation: first, overlapping terms might confuse recipients who do not recognise them as synonyms, and second, as the development of technology introduces new terms all the time,

good available vocabulary should not be wasted on overlapping terms. Standardisation aims for brevity and precision in professional discourse even on complex subjects, and Ilomäki (1999, 124) argues that standardisation is a possible objective, provided that it relies on mutually agreed guidelines and only includes professional discourse. Despite Ilomäki's claim, standardisation is arguably important also in situations in which the professionals must communicate with less experienced people. The most counterproductive situation would be one in which the two groups would have their own separate languages – the precise specialised terminology for the professionals and the more ambiguous general variant, rich with synonyms, for everyone else.

According to Nielsen (1993, 132) one of the key usability principles is consistency because it allows users to rely on previous knowledge, and inconsistent and conflicting terms are especially harmful. However, inconsistency and conflicts are real issues especially among competing systems. As of early 2011, different versions of Apple's Mac OS operating system have a total global marketshare of less than 10%, whereas Microsoft Windows covers more than 80% (Awio Web Services LLC 2011, StatCounter 2011) of the market. Still, the Finnish translations of Mac OS have not conformed to the standards established by Microsoft and, therefore, we have a situation in which the different systems are not entirely compatible with regard to terminology. Microsoft translates *pasting* as *liittää* and Apple as *sijoittaa*. Likewise, *clicking* has two Finnish equivalents: Microsoft's *napsauttaa* 'to snap/click' and Apple's *osoittaa* 'to point'. Sometimes the terms overlap: *osoittaminen* 'pointing' is in a Finnish Windows system an action completely different from clicking; instead, it refers to moving the pointer to a particular position on the screen without clicking (Microsoft 2010). Furthermore, a person used to the Windows standard might have trouble finding the equivalent of the file menu on a Finnish Mac system because instead of *tiedosto* the person would have to look for *arkisto*. The differences between Microsoft and Apple are numerous and unpredictable. Interestingly, these terms are identical in the original English-language systems, and it is the Finnish translations that cannot agree on such very basic terminology. However,

inconsistencies and overlaps within one system are not unheard of either. For example, Windows uses the same Finnish word *poista* as a command for both deleting files or folders and ejecting removable storage devices, such as USB flash drives, from the system (see Figure 1). The overlapping practice may be very confusing for inexperienced users who have to rely heavily on the user interface for clues on how to use the computer, and if the users have already associated the word *poista* with file deletion, they might not even consider that it might also refer to something else, such as device removal.

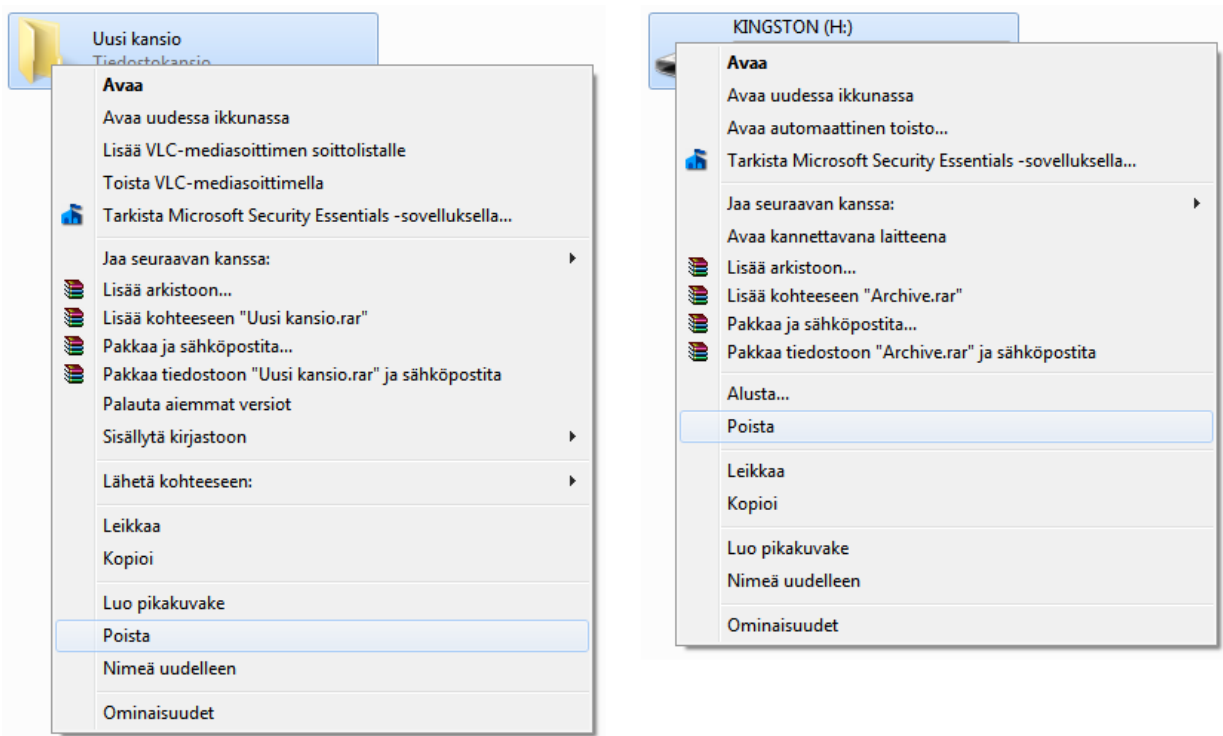


Figure 1: User interface element *poista* referring to folder deletion (left) and device removal (right).

One of the major problems of the Finnish IT terminology is the fragmentation of the field, which stems from the lack of one, uniform standard for each technical writer, translator and ordinary language user to abide by. Other issues are caused by the tendency to favour familiar everyday language, which ironically is supposed to only simplify communication. The problem is the ambiguity of these transparent ordinary words, which by themselves have a multitude of

justifiable interpretations. Standardised terms are also slow to react to changes. The computing-related sense of *spam* ‘unsolicited bulk messages’ is commonly associated with e-mail, and the concept was adopted into Finnish as *roskaposti*, literally ‘junk mail’. The original term, however, is not limited to e-mail but can include all kinds of junk messages, for instance on discussion forums and blog comments. To communicate this extended meaning, a relatively recent Finnish development *roskasisältö* ‘junk content’ has emerged. In April 2011, Microsoft Language Portal included *roskaposti* ‘spam’ as well as *pikaviestihjelmistojen roskaviestit* ‘spam on IM (instant messaging)’, the latter of which reflects the wider sense.

## 2.7 A case example of the difficulty of issuing a new term

*Tablet computers*, or simply *tablets*, ‘portable computers that allow you to write on or interact with the screen’ (Microsoft 2010), are not a new concept. In fact, they were introduced in the early 2000s, but a widespread need for a Finnish equivalent emerged only in 2010 as Apple published the iPad, the first tablet device to achieve mainstream commercial success. There are several Finnish terms for tablet computers, none of which have unfortunately become adopted extensively by the Finnish language community. Some advocate using the loanword *tabletti* while others resist it due to overlapping meanings, as the word can also refer to a place mat or a pill in Finnish. Other suggestions include *lehtiö-PC* ‘notepad PC’ by Microsoft (2010), *paneelitietokone* ‘panel computer’, and *taulutietokone* ‘flat-panel computer’, but there is no consensus on the most appropriate name. The newly published *IT-englannin sanakirja (Dictionary of IT English)* (Tirronen 2011) tries to avoid the problem by not taking sides in the argument and leaving the concept out altogether.

In December 2010, *Helsingin Sanomat*, the largest national newspaper in Finland, organised a competition for naming this newly re-emerged piece of technology (Helsingin Sanomat 2010). A panel of judges chose the neologism *sormitietokone*, literally ‘finger computer’, as the best

suggestion (Koistinen 2010). The amount of backlash from the IT community was simply stunning. Some editors of computer magazines wrote articles condemning the unfortunate coinage or simply forecasting a short life for it, but the opposition was at its fiercest in user comments. When *Helsingin Sanomat* published a news report about the next iteration of the iPad on 2 March at 8:20 p.m. referring to the device as *sormitietokone*, by 8:51 a.m. on 3 March the article had received 46 comments, more than half of which criticised the term, some even quite harshly (Moisio 2011). Furthermore, the comment section of *Helsingin Sanomat* is moderated, so if some of the criticism had been presented in an inappropriate manner, such messages may never have been published. It is perhaps also noteworthy that the resistance continued to be high although the unfortunate neologism had already been in use for nearly three months.

It would be interesting to find out why the reaction was so extreme and what actually is wrong with the term. If we approach the question according to the requirements for a good term presented by Picht and Draskau (1985, 114–116), the only identifiable problems seem to be related to the motivation of the term and its length. The major issue is the ambiguity of what could be considered a *finger computer*. Presumably a *finger computer* is a computer operated mainly with fingers, but this definition would cover practically all ordinary computer systems. Further questions arise from potentially applying the term to desktop or laptop computers with a touchscreen or using a tablet with a stylus instead of fingers. The second issue relates to the length of the term. The 14-character compound word *sormitietokone* is hardly concise, but the length does not make it any more descriptive. Perhaps this double foul in word-formation is the main reason why the suggestion is shunned.

### **3 English borrowings in the Finnish of information technology**

In this chapter I will discuss borrowing as a phenomenon with regard to Finnish IT terminology. I will start with a discussion of reasons for borrowing. Then, I will present a classification of types of loans and illuminate some of the problems of the classification. First, however, it is important to examine the difference between the concepts of borrowing and code-switching.

#### **3.1 Borrowing or code-switching?**

This thesis focuses on how English influences specifically the Finnish terminology of information technology. An essential part of this influence is borrowing – introducing foreign elements into a language as syntactically equal to the native elements, resulting in loans. Borrowing, however, is closely connected to the concept of code-switching. Code-switching occurs when one speaker alternates between two languages within one speech event, for instance by embedding an English-language interjection in an otherwise Finnish sentence, and ideally all aspects of language are switched at the same time (Lehiste 1988, 2, 21). Code-switching is always marked and does not in itself introduce changes to a language, and therefore it will not be discussed closely in this thesis. The difference between the two concepts, however, is important to understand.

Code-switching often takes place virtually unnoticed by the speaker without any apparent reason (Leppänen et al. 2009, 124, 148). Haspelmath (2009, 40–42) points out that although borrowing is independent of code-switching, it may be difficult to distinguish a loanword from a single-word switch – especially if the loanword has not yet gained an established position. Clyne (2003, 71) goes further in suggesting that the two phenomena form a continuum, but he remarks that integration, either phonological or morphological, is likely in borrowing but not in code-switching – an idea shared by Haspelmath (2009, 41) as well. According to this additional

specification, the technical anglicisms adopted into Finnish fall under borrowing as they are adapted into the language both phonetically and morphologically.

### 3.2 Reasons for borrowing

Grzega (2003, 23) lists several reasons that have been suggested to motivate lexical borrowing, including the need to differentiate nuances or to introduce a new conceptual field. Both of these are valid in technical Finnish. Professionals already familiar with English terminology will probably understand anglicisms as well, but the essential shortcoming of borrowing is that it entirely rules out the monolingual native speakers. In order to make language more accessible, language planners make suggestions for native terms but sometimes their suggestions might be rejected because they are not considered precise enough (Korhonen 2008, 33). The native Finnish equivalents often try to be descriptive, but some precision is likely to be lost when specialised concepts are explained in everyday words. Creating widely comprehensible and accepted terms, however, takes time and effort (Maamies 1999, 3), and the motivation to use English is greater still if equivalent Finnish terms are not comfortable to use or do not have a well-established position, or if the assumed recipient is a professional who is expected to understand the English terminology anyway (Yli-Jokipii 2004, 90).

Yli-Jokipii (2004, 90) and Maamies (1999, 3) note that resorting to anglicisms may often be very tempting in technical contexts, especially if English is the primary language used in the field. New concepts may be initially introduced into Finnish with loanwords, and the native equivalents follow afterwards, if at all. A fixed terminology may prove to be difficult to alter afterwards, but creating a native equivalent is not always an easy task even if there is time (Stenvall 1999, 60). A current example of the difficulty of finding a good and accepted native term is the search for the Finnish equivalent for *tablet* discussed in detail in section 2.7.

Borrowing is more common in the specialist language of professionals, and Haugen (1950, 216) argues that one possible explanation is that the learning process changes the speakers' view on language. When speakers become more familiar with a foreign language, which is often English in the case of information technology, their need to interpret the foreign elements through their mother tongue decreases, which then allows adopting features of the foreign language that are not incompatible with the mother tongue (Haugen 1950, 216). Furthermore, Moore and Varantola (2005, 140) argue that Finnish equivalents do exist for many recent loans, but they often sound artificial. However, perhaps the people uncomfortable with using the native equivalents are mostly those who have grown accustomed to the English terminology and not so much beginners who learn to use the native equivalents from the start. Anderman and Rogers (2005, 10) raise an interesting question: with the ubiquity of English, is it possible or even desirable to avoid anglicisms in discussion of the contemporary world? Haspelmath (2009, 47) suggests, along the lines of Nielsen (1993, 124), that when a group knows a concept by a certain word, albeit a foreign one, it is sensible and efficient to use that well-known word. Haspelmath (2009, 47) calls this "reasonably widespread bilingualism".

Specialist language uses non-transparent loanwords that cannot be understood without knowing the special field, and often the use of jargon has a function of indicating a group (Nash 1993, 98; Sunnari 2006, 30–31). Attitudes help predict what kind of reactions the language choices evoke in others, and the style of language used can be adjusted according to the desired response (Garrett 2010, 21). Therefore, the usage of specialised terms can either show that the speaker is a member of a certain group or that the recipients of the message are considered part of that group (Stenvall 1999, 61). Still, this is not always a conscious decision with an objective to include or exclude (Nash 1993, 99), and while attitudes lead to intended behaviour it can be prevented from realising by many factors (Garrett 2010, 27) such as an unexpected interruption of the speech event. Perhaps more importantly, specialist language is motivated by the verbal accuracy of the



terminology, as the readily understood elements reduce subjective interpretation to the minimum and communicate the message precisely as intended (Nash 1993, 100).

### 3.3 Types of words borrowed

Kolehmainen (2002, 151) has observed the Finnish of Canadian Finns and notes that borrowing a foreign word rarely stems from the native language lacking an equivalent word. Instead, as also pointed out by Grzega (2003, 23), loanwords are used for expressing subtle differences in concepts; sometimes the equivalent Finnish word just is not specific enough (Kolehmainen 2002, 152). Haspelmath (2009, 47) and Jakobson (1959, 56) agree that borrowing is hardly absolutely necessary, because every language has the resources to form words for all new concepts. Borrowing may not be necessary, but it is the most important way to expand a vocabulary, and Finnish has a considerable amount of foreign influences, especially in special fields such as technology (Stenvall 1999, 58). Munday (2005, 61) notes the growing use and borrowing of technological English also in Spanish, and he claims that each year 1,000 new words related to information technology are created.

Stenvall (1999, 58) presents three categories for words borrowed into Finnish, which have been used for around a century: citation loans that have maintained their original spelling and pronunciation (e.g. *franchising*), partially adapted loanwords that are still identified as foreign (e.g. *brändi* ‘brand’), and fully adapted loanwords that the entire language community has adopted (e.g. *majakka* ‘lighthouse’, a borrowing from Russian<sup>6</sup>). This classification matches quite closely the degrees of lexical interference presented by Lehiste (1988, 2), where maximal interference occurs when a bilingual speaker introduces an unadapted loanword into the language; on the medium level other speakers start to use the word in a form partially adapted into the borrowing language; and finally minimal interference occurs when monolinguals learn the word in a practically fully adapted

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<sup>6</sup> *Nykysuomen etymologinen sanakirja (The Etymological Dictionary of Contemporary Finnish)* s.v. *majakka*.

form and integrate it into grammar as well. However, Finnish makes one important exception to Lehiste's classification: even the citation loans, such as the Finnish *franchising*, are adapted into the language syntactically and thus we have inflected forms like the genitive *franchisingin*.

Stenvall (1999, 59) notes that Finnish vocabulary expansion has primarily utilised native resources while avoiding and – and to some extent opposing – foreign words and influences. In software localisation, not all localised variants gain an established position: practical usage may vary between the original English term and its localised equivalent, and at times English terms may also occur in place of native terms that are considered successfully accepted by the language community (Rollason 2005, 47). Rollason (2005, 53) argues that the English “contamination” undermines the capacities of French, but the situation in Finland is only somewhat comparable. Loanwords tend to evoke emotions in especially the general public more than among language planners, and at the moment English is even seen as a threat by some (Korhonen 2008, 33; Stenvall 1999, 59). However, as the survey by Leppänen et al. (2009, v) shows, Finns in general are not afraid of English corrupting the Finnish national languages.

According to the principles of technical writing, synonymy should be avoided. In practice, however, synonymy of a loanword and its native equivalent is accepted at the stage when a fixed term has not yet been established for the concept (Stenvall 1999, 60; Sunnari 2006, 30), and often a loanword has several native equivalents with stylistic variation. Although borrowing nouns is more common, loanwords can also include verbs and adjectives, and Stenvall (1999, 59) argues that borrowed verbs especially are mostly used in non-standard professional talk. Sometimes Finnish does not borrow verbs but copies the English pattern of forming verbs based on nouns, which has resulted in such appropriate standard verbs as *varmuuskopioida* ‘to back up’ and *esikatsella* ‘to preview’. However, such formations are not new to Finnish, and although there has been a tendency to avoid them, standard Finnish includes numerous examples of derivative verbs with a well-established position such as *valokuvata* ‘to photograph’ and *allekirjoittaa* ‘to sign’ (Eronen 2010).

Although new technical verbs may be the result of English influence, the pattern itself is independent of English: for instance, Finnish has the noun *uutinen* ‘news’ and the verb *uutisoida* ‘to write news’, whereas English does not have a comparable conversion *\*to news* ‘to write news’.

### 3.4 Classification of loans

Grzega presents the following system for classifying types of borrowing, which was originally introduced in 1949 by Betz and amended in 1977 by Duckworth (Betz, Duckworth, referred to in Grzega 2003, 26): *foreign word*, *loan word*, *loan blend*, *loan translation*, *loan rendering*, *loan creation* and *loan meaning*. All of these categories, however, are not applicable in this thesis. Foreign words (referred to as *foreignisms* by Haspelmath 2009, 43) and loan words respectively refer to unadapted and adapted loanwords, and their distinction in Finnish is not relevant because every word borrowed into Finnish is at least adapted to fit the inflectional system. Loan translations differ from loan renderings in that in the latter only part of the elements of a foreign word are translated (Betz 1949, Duckworth 1977, referred to in Grzega 2003, 26–27). However, Grzega (2003, 28) questions this distinction and points out that loan translations and loan renderings have not always been separated consistently. Loan creation is a word created as a replacement for a foreign word, while loan meaning refers to a foreign word influencing the meaning of a native word (Betz 1949, Duckworth 1977, referred to in Grzega 2003, 26), but Betz and Duckworth’s example word for loan creation is quite contradictory. They present *brandy* as a creation to replace the French *cognac*, but *brandy* itself is of Dutch origin (*OED* s.v. *brandy*, *n.*), which seems odd if the word has indeed been motivated by the desire to avoid a foreign word. If we assume that all concepts of information technology originate and are first named in English, then everything except for borrowings falls potentially under loan creation. Furthermore, Grzega (2003, 29) notes that it is difficult to ascertain whether supposed loan meanings have actually had any kind of foreign influence.

Based on these observations, I present a simplified version of the classification in which foreign words and loan words are combined under loanwords; loan blends will be discussed as such but under the variant loanblends; loan translations and loan renderings are discussed under loan translations; and loan creations are left out because of the ambiguous nature of the category. Although there is some ambiguity in loan meanings as well, they are perhaps somewhat easier to justify as we can look for parallel changes in two languages. I will include loan meanings in the classification under loanshift, another term for the phenomenon. Therefore, the classification of loans in this thesis is as follows:

### **Loanwords**

Haspelmath (2008, 46–47) defines loanwords as “words ... transferred from a donor language to a recipient language” and comments that a distinction between cultural borrowings and core borrowings has been suggested. Cultural borrowings introduce new concepts and usually emerge rather quickly, whereas core borrowings appear alongside native words, often as a result of code-switching (Haspelmath 2008, 47). In Finnish, IT loanwords include such terms as *resoluutio* ‘resolution’, *phishing* ‘phishing’ and *roaming* ‘roaming’.

### **Loanblends**

Loanblends are hybrid borrowings combining borrowed and native elements (Haspelmath 2009, 39). Grzega (2003, 28) extends the definition also to tautological compounds, in which a foreign word is combined with a native word that includes the sense of the foreign word. An example of a Finnish tautological compound is *tablet-laite* ‘tablet device’, in which the first element is a type of device and the second element is a Finnish word *laite* ‘device’.

Tautological compounds are common in Finnish especially when referring to concepts that do not have well-established native equivalents, and the tautology is not always explicit. For instance,

Microsoft defines *CAPTCHA* (see Figure 2) as ‘a challenge meant to be easily solved by humans, while remaining too hard to be economically solved by computers’ (Microsoft 2010) and translates it into Finnish as *CAPTCHA-toiminto* ‘CAPTCHA operation’. In this case the tautology is not as apparent as with *tablet-laite*, but the term can still be arguably classified as a tautological compound.

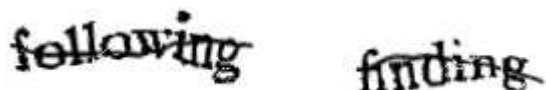


Figure 2: An example of a CAPTCHA.

Tautological compounds may seem to be in conflict with Picht and Draskau’s requirement of avoiding pleonasm (see section 2.3). However, they should probably be considered an exception to the rule, as the structure only occurs with borrowings.

### Loan translations

When a foreign word is borrowed with its morphemes individually translated, the borrowing is called a loan translation. Lehiste (1988, 20–21) points out that it is not always necessary to borrow the exact morphemes but it is also possible for a loan translation to only borrow the model. Examples of loan translations in the Finnish IT terminology include *kiintolevy* ‘hard disk’ and *kompaktilevy* ‘compact disc’<sup>7</sup>.

### Loanshifts

A loanshift is a structural borrowing in which the meaning pattern of a foreign language is copied into a native word (*DLP* s.v. *loan*; Lehiste 1988, 20). Loanshifts are difficult to identify with

<sup>7</sup> The two variations of spelling, *disk* and *disc*, actually carry a distinction. *Disk* refers to magnetic media whereas *disc* to optical media (Apple Inc. 2009).

absolute certainty, but it is very probable that, for instance, the Finnish *hiiri* ‘mouse’ in the sense of a pointing device is a loanshift of the English *mouse*.

### 3.5 Problems of classification

There is a surprising amount of disagreement among different theorists on the classification of loans. Interestingly, they seem to agree on the types but disagree on the names. Some, such as Haspelmath (2008, 47) and Haugen (1950, 230–231) use *loanshift* as an umbrella term for loan translations and loan meaning extension, but what Lehiste (1988, 20) calls a *loanshift* is for Haspelmath a *loan meaning extension* and for Haugen a *semantic loan*. In any event, the classification presented in the section above is relevant and used, for instance, in *A Dictionary of Linguistics and Phonetics* (Crystal 2003).

Due to the lack of data, it is impossible to follow the development of all individual words from their introduction, and therefore all theories on what has supposedly motivated the form of words are, though well-founded at best, still only speculation (Haugen 1950, 216). However, as making these kinds of justifiable assumptions is the best method available, such theories are worth exploring. Due to historical and synchronic difficulties, Haugen (1950, 226–229) questions whether loanwords can be identified reliably without knowing the previous stages of the language in question and mentions that monolinguals tend to be unaware of loans whereas polylinguals “suspect them anywhere”. Identifying borrowings involves comparing different stages of a language, and it requires knowledge not only about the history but also about other languages that could have possibly provided the influence (Haugen 1950, 227).

Even relatively new loanwords may have several possible donor languages, which makes it impossible to say definitely from which language a word has originally been borrowed (Haspelmath 2009, 45). Microsoft (2010) defines *use license* as ‘the license that enables end users to consume protected content’ and translates it as *käyttöoikeus* ‘usage right’. According to *Nykysuomen*

*etymologinen sanakirja* (*The Etymological Dictionary of Contemporary Finnish*, hereafter *NES*), the Finnish *lisenssi* ‘licence’ is an early 20<sup>th</sup> century borrowing from Swedish (*NES* s.v.). Now, if users refer to a *use license* with *lisenssi*, it is impossible to say with absolute certainty whether they are simply using the old Swedish loan in an extended sense or re-borrowing the word from English. It is also questionable whether *lisenssi* would be used in this sense if the original English term was not *use license* but instead something such as *usage right*. The same kinds of problems apply to other words as well. Another early 20<sup>th</sup> century loan from Swedish is *tabletti* ‘place mat, pill’ (*NES* s.v.), and when an IT professional uses the word to refer to a tablet computer, it is again very difficult to determine whether the word is a loanshift or a loanword independent of the previously borrowed meaning.

## 4 Questionnaire on the usage of Finnish IT terminology

Between March and April of 2011, I conducted a questionnaire to examine the usage of Finnish IT terminology with the focus on anglicisms and their native Finnish counterparts. The full questionnaire is available in Appendix 1. I carried out the questionnaire by creating an online form with the Google Docs service (<http://docs.google.com>), which provided a good solution for both hosting the questionnaire and collecting the results automatically in an easily processable spreadsheet format. Initially, I was planning to carry out a multiple-choice questionnaire that I would have distributed to a large number of respondents, but this was prevented by two major issues. I wanted to investigate differences between user groups with different computer skills, but formulating the multiple-choice questions in a way which would have considered every relevant aspect of respondent background turned out to be impossible. Even in the best-case scenario, if I had been able to create a perfect multiple-choice question, the simple answers of predetermined options would have left out too many important and interesting details to be informative enough for this study. Another issue was that if I had tried to collect data reliably from all user groups, I would have needed a truly random sample of respondents and simply did not have the means to reach one. Therefore, I chose to conduct the questionnaire with neutrally formulated open questions, which would allow a detailed qualitative analysis of the results and furthermore reduce acquiescence bias<sup>8</sup>. As I wanted to learn about the users' own detailed experiences, this seemed like a natural solution.

### 4.1 Respondents

Due to the limited scope of my work, I wanted to keep the amount of data manageable, but at the same time I wanted to gather information from different user groups. A small, truly random sample

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<sup>8</sup> A "presumed tendency for respondents to agree with attitude statements presented to them" (Schuman and Presser 1996, 203), which would guide the answers significantly and reduce their reliability.



would have been not only difficult to obtain but also potentially homogeneous. Thus, in order to collect a reasonable amount of relevant data, I sent the link to the questionnaire to people I knew. A hand-picked sample is not as objective as a random sample would have been, but this way I could have some control over the respondents' background and distribute the questionnaire more evenly to different types of users. I intentionally involved technically inclined people as well as people whom I knew to be basic computer users.

Self-evaluation of personal skills can be very inaccurate. For example, inexperienced computer users may underestimate how little they know of the subject and, conversely, experts may know well how limited their knowledge of the field is. This might lead to both groups assessing their skills as three on a scale of one to five, for instance. For eliminating this cognitive bias and determining the skill level of the respondents more reliably, I created a set of six skills assessment questions and assigned up to seven points to each respondent according to their answers. The assessment questions were concerned, among other things, with the frequency of computer use, installing components and setting up a new computer system. A total of 24 respondents completed the questionnaire. For the purposes of this study, respondents with six to seven skills assessment points are considered specialists, and respondents with one to four points are considered non-specialists. In order to identify individual respondents, the 17 specialists are referred to with codes from S1 to S17, whereas the remaining seven non-specialists have codes from N18 to N24. The full list of respondents and their background information is listed in Appendix 2.

The frequency of computer use has perhaps been a differentiating factor between specialists and non-specialists in the past but not so much today with the technology becoming increasingly ubiquitous. This is reflected in the respondents' answers to a question on the frequency of computer use: only one respondent (N19) of the total 24 chose the option "almost every day", whereas the other 23 answered "every day". Overall, the uses of computer listed by the respondents include working or studying (writing documents, creating and editing multimedia content, searching for

information online), communication (IRC, social media, instant messaging) and recreation (reading news, playing games, watching videos, consuming pornography), which means that for the group examined here computers are an essential part of the everyday life. The responses to this question also show how inseparable from computers the Internet has become. Almost every respondent mentioned Internet directly or indirectly, and today a computer without an Internet connection would be considered almost useless, which certainly was not the case less than 20 years ago.

Other background information collected from the respondents included their year of birth, mother tongue and occupation or field of study. In addition, I asked what language the respondents prefer when using different devices, software and websites. The distribution of respondent skill assessment and language preference is presented in Figure 3.

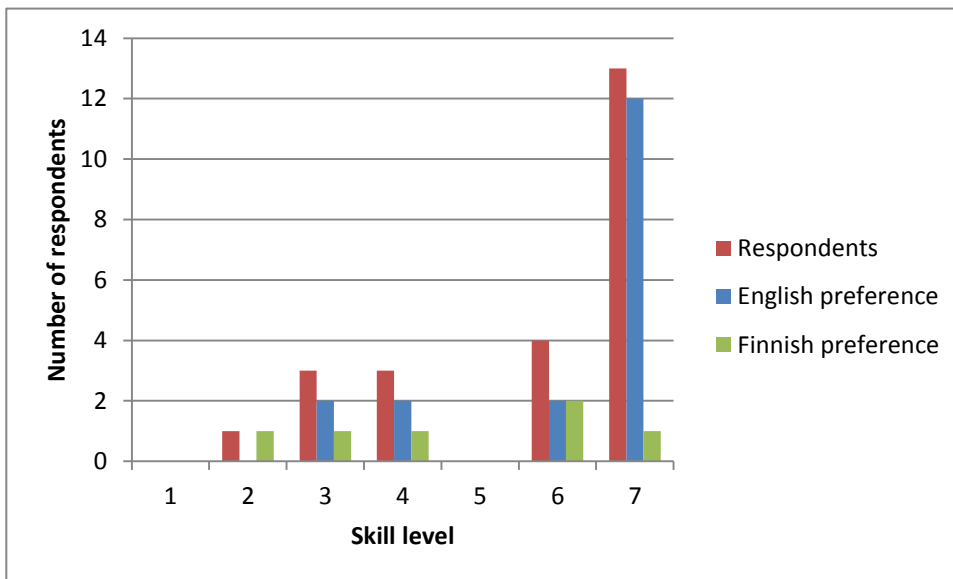


Figure 3: Representation of user skills and language preference

Of the 24 respondents, 18 reported English as their preferred language, and the correlation of proficiency and preference of English is especially clear at the most skilled level, where 12 out of 13 respondents chose English. With other skill levels, the number of respondents is so low that it is impossible to draw conclusions, but the correlation definitely occurs among the most skilled respondents. Even the middle and lower end of the graph are being used, which suggests that the

skill assessment questions have been somewhat successful in showing differences between respondent skills. The heavy emphasis of the full score of seven points shows that the higher end of the questions was not specialised enough to distinguish skill levels after a certain point, but there is necessarily no need for that. Once respondents pass a certain degree of proficiency, the internal differences within that group become irrelevant and they can all be considered specialists of roughly the same level. After the initial questions for collecting the respondents' background information and determining the skill groups, I presented the actual sections of the questionnaire. In the following sections I will introduce each question and discuss the relevant answers in detail.

#### **4.2 Identification of Finnish IT terms**

The first major part of the questionnaire explored how well the respondents could identify ten terms of information technology – five native Finnish terms and five anglicisms – which I thought would provide interesting answers. For the Finnish terms, I chose common but specialised terms as well as more rarely encountered ambiguous ones. For the English terms, I chose current anglicisms with more or less established Finnish equivalents. I presented the terms and asked the respondents to do one of the following: write a brief definition of the term, give an example of the concept, or name the English or Finnish equivalent, depending on whether explaining a Finnish term or an anglicism. I also encouraged the respondents to write whatever the terms bring to mind even if they were not familiar with the terms in question. However, some respondents did not follow the instructions precisely and instead wrote an equivalent term as well as an explanation. In some cases only one of these was correct. For instance, a respondent could identify the corresponding English term correctly but provide an inaccurate definition. In such cases, I still marked the term as identified, as the respondent had clearly made a connection between the English term and the Finnish equivalent or the term and the concept.

I interpreted the answers against the definitions in Microsoft Language Portal to determine whether the respondents can position the terms correctly in the system of concepts instead of expecting detailed technical definitions of the concepts denoted by the terms. All quotations are my translations of the Finnish-language responses, and in situations in which marked or figurative language would warrant various interpretations, I have presented the original passage in parentheses. The Finnish terms requiring definition were *palvelin* ‘server’, *verkkovierailu* ‘roaming’, *eväste* ‘cookie’, *kuvapiste* ‘pixel’ and *laiteohjelmisto* ‘firmware’.

Of the 24 respondents, 20 identified *palvelin* correctly<sup>9</sup>, and only N22 and N24 did not. Two respondents identified the field: “something to do with the Internet” (N20) and “neural centre of data transmission” (S7). The latter could perhaps be interpreted as an attempt to define the concept, but due to its ambiguity I did not count it as a correct answer. Interestingly, N24 at least guessed at the right direction by suggesting that *palvelin* means “Internet connection”. Another interesting detail is that of the 20 correct answers, 19 mentioned the word *server* or the adapted loan *serveri*. However, of them N19 mentioned that the term “has something to do with hosting websites” and N18 thinks of the concept as “the large unit the computer connects to when you use the Internet”, which suggests that specific details of the underlying concept are not required to make a link between Finnish *palvelin* and English *server*. It is also highly probable that S6, the 20<sup>th</sup> respondent who identified the term correctly, knows the word *server* and for some reason just did not happen to mention it. He is a student of communication systems who “dislikes Finnish terms”, thinks that anglicisms “sound more natural”, and uses in his definition the informal verb *hostaaminen* ‘hosting’. Furthermore, in his definitions of the five Finnish terms, S6 only uses the equivalent anglicism once and elsewhere provides a detailed definition of the concept.

The compound *verkkovierailu* ‘roaming’ originally refers to ‘the process of maintaining connectivity outside of one's usual service or coverage area’ (Microsoft 2010), but only eight

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<sup>9</sup> *server* ‘on the Internet or other network, a computer or program that hosts web pages and responds to commands from a client’ (Microsoft 2010).

respondents identified it according to this definition. Furthermore, seven of them (S2, S3, S4, S9, S11, S14 and N21) actually mentioned *roaming* in the definition. *Verkkovierailu* consists of two common words which allow another completely different interpretation: in contemporary Finnish, the initial element *verkko* ‘network’ has gained another meaning of ‘online, Internet’, which occurs in words such as *verkkopankki* ‘online banking’ and *verkkosivu* ‘webpage’, and the latter element *vierailu* ‘visit’ can be interpreted in different ways depending on the context. S2 suggested that *verkkovierailu* means ‘using personal credentials for logging into a new network’ and for 12 respondents the word means ‘visiting a webpage’ (S5, S7, S10, S13, S15, S17, N18, N19, N20, N22, N23 and N24). Furthermore, S9 actually mentioned that the word has two possible interpretations and wrote down both of them.

Of the eight correct answers for *verkkovierailu*, seven were by specialists. The remaining non-specialist was N21, a translator, who commented that she does not like the Finnish term despite it being descriptive. This might suggest that due to several possible interpretations, once the connection between the English word and the equivalent is made, only then does the Finnish compound become descriptive to the user. Similarly, I had only seen the Finnish term in formal contexts and was well aware of its normative meaning, but I did not expect that the word could mean ‘visiting a webpage’. The overlap of meaning is not a recent phenomenon but an inherent shortcoming of using LGP terminology in specialised contexts, and the non-standard interpretation by half of the respondents is fully understandable. This is not to say that the non-standard interpretation is incorrect in itself. Instead, such consistency among the respondents only shows that the term has gained another meaning among the group under examination.

*Eväste* ‘cookie’ was another word identified by almost each respondent. N24 did not identify it at all and N22 recognised the context (“it has something to do with webpages”). The other respondents identified the word correctly<sup>10</sup> and, apart from S6, all of them mentioned *cookie*.

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<sup>10</sup> *cookie* ‘on the World Wide Web, a block of data that a Web server stores on a client system’ and used for administrative purposes (Microsoft 2010).

Similarly to *palvelin* and *server*, the link between the English term and the Finnish equivalent is strong regardless of whether or not the respondents know the concept in detail. N18 suggested that “perhaps it is a trace left by a webpage on a computer”, N19 mentioned that the concept “comes up when watching videos if the computer is missing something relevant”, and N23 also suggests that the word means “a trace that shows which webpage has been visited”.

Another word well identified by both groups was *kuvapiste* ‘pixel’. Out of the 24 respondents, only N20 and S16 did not identify the word. Interestingly, in spite of the option to describe the term, each respondent who identified the term mentioned in his or her answer either the English *pixel* or the adapted form *pixeli* or *pikseli*. It is possible that the anglicism would not be so well rooted into the minds of the respondents if the original English term was not the compact abbreviation *pixel* but the full form *picture element*. *Pixel* and *pikseli*, however, can be understood simply as abstract neologisms which fit the Finnish sound system perfectly. Some respondents are apparently more familiar with *pikseli* than with *kuvapiste*. S15 and N22 answered “pikseli?” indicating uncertainty, while N19 wrote “another term for pikseli?”. Furthermore, *pikseli* was for a long time the only available term, and even today advertisements use *megapikseli* ‘megapixel’ with reference to the technical specifications of digital cameras, for instance. Another way to refer to megapixels is *miljoonaa pikseliä* ‘millions of pixels’, but *megakuvapiste* is a non-existent formation.

Similar to *verkkovierailu*, *laiteohjelmisto* ‘firmware’ is a compound that consists of two less specialised elements: *laite* ‘device’ and *ohjelmisto* ‘software’. The standard meaning of *firmware* is ‘the software that is embedded in a hardware device and controls how the device interacts with the operating system’ (Microsoft 2010), but due to ambiguity of the Finnish term, the respondents often confused it with *ohjain* ‘driver’<sup>11</sup>. Other misinterpretations include software accompanying a peripheral, such as management software for a mobile phone (S6), and the operating system (N24).

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<sup>11</sup> *driver* ‘software that enables hardware or peripherals (such as a printer, mouse, or keyboard) to work with your computer or mobile device’ (Microsoft 2010). The difference between driver and firmware is that firmware is installed on a device or a peripheral, even one working independently of a computer, such as a mobile phone.

Furthermore, N23 wrote that *laiteohjelmisto* “is required for installing and using a program”, presumably confusing the term with *wizard* ‘an interactive utility that guides users through a multi-step, infrequently performed task’ (Microsoft 2010). Another interpretation of *laiteohjelmisto* was ‘software run on a device’: S3 and S8 answered simply “software”, while S11 answered “Software. A program run on a computer.” S13 thought the term meant “all programs installed on a computer”. Indeed, the Finnish suffix *-sto* can refer to a whole comprising several instances of an element, such as in *näppäin* ‘key’ – *näppäimistö* ‘keyboard’ and *laite* ‘device’ – *laitteisto* ‘hardware’ in the sense of ‘all elements of a computer system’.

*Laiteohjelmisto* ‘firmware’ was the most poorly identified of the five Finnish terms. Only five specialists (S5, S9, S10, S14 and S15) and one non-specialist translator (N21) identified it correctly. Additionally, N19 apparently guessed the normative definition: “software used in a device?”. For the majority, the term remains vague and even misinformative, as it can lead to incorrect and overlapping interpretations. However, since the term *laiteohjelmisto* consists of transparent LGP elements, every one of the 23 respondents who tried to explain it, including the least experienced users, mentioned some type of software in their answer. This means that the term was actually successful in making the concept somewhat transparent and pointing the users in the right direction. It is probable that this would not have been the case with a non-transparent loanword such as *firmware*.

This section focused only on the identification of Finnish IT terms, but the influence of English is clearly visible. For the lack of a better definition, almost all respondents resorted to the English loanword with *pixel*, *server* and *cookie*, which suggests that the respondents are very familiar with these loans. LGP elements do make the terminology more transparent to some extent, but at the more specialised and precise level they may hinder communication. In general, all respondents including the specialist group had the most trouble with *verkkovierailu* and *laiteohjelmisto*, which are not surprisingly the two terms most open to interpretations due to non-

specific LGP elements. Still, experience clearly correlates with the ability to identify terms in that more experienced respondents identified the Finnish terms better.

### 4.3 Identification of anglicisms

Next, the respondents were asked to identify five anglicisms according to the same instructions as the Finnish terms. The native terms and anglicisms were intentionally not counterparts of each other so as not to give away any correct answers. The anglicisms were *tabletti* ‘tablet’, *streamaus* ‘streaming’, *resoluutio* ‘resolution’, *phishing* ‘phishing’ and *spam/spämmi* ‘spam’. Furthermore, I included a label after *tabletti* in parentheses specifying that the term means a device to differentiate it from the original Swedish borrowing.

The respondents’ answers consistently reflect the problems regarding the concept of *tabletti* listed in section 2.7. The native Finnish equivalents listed include *taulutietokone* ‘flat-panel computer’ – a development that has likely taken place along the lines of *taulutelevisio* ‘flat panel TV’ – *kämmenietokone* ‘palm computer’ and *lukulaite* ‘reader’. Similarly, different respondents provided different definitions for the concept. The definitions had in common the idea of a touchscreen, but some respondents described the concept as “a device with just a touchscreen” (S4), “a magazine reader with a touchscreen” (N20), “a touchscreen device larger than a smartphone” (N21), “a laptop with a touchscreen” (S6), “a small computer with a touchscreen” (S7) and “a touchscreen computer without a physical keyboard” (S11).

When *Helsingin Sanomat* started to use the term *sormitietokone*, it was met with surprising hostility (as discussed in section 2.7), but the concept still remains without a better established Finnish equivalent. In fact, *sormitietokone* was the most common individual term to come up in the responses for *tabletti*. It was mentioned by eight respondents but often with apparent criticism or some other way of distancing from the term. For instance, some responses presented the word in quotation marks as if to belittle it (S4 and S15), S5 specifically mentioned “a term issued by HS



[Helsingin Sanomat]”, and S3 wrote “anything-but-sormitietokone” (“ei-ainakaan-sormitietokone”) as the equivalent for *tablet*. Nine respondents (S2, S4, S8, S12, S13, S14, S15, N21 and N23) listed iPad as an instance of the concept, which gives further grounds to the assumption that it is indeed the mainstream success of the Apple iPad that has prompted the need for a current term of the concept. New technologies are, unsurprisingly, more familiar to the experienced users, and all specialists apart from S16 identified *tabletti* correctly. Relevant incorrect definitions by non-specialists include “platform which the operating system is built on” (N18), “something to write on” (N22) and simply “machine” (“kone”) (N24), which may very well be meant as an abbreviation for *tietokone* ‘computer’.

The second English-influenced word to be identified was the adapted loan *streamaus* ‘streaming<sup>12</sup>’. Like *pixel* or *pikseli*, this is a relatively common word, and only two respondents (N19 and N24) did not identify it at all. Some answers only mentioned the transmission of audio or video over a network connection without the notion of playback of media as it is received, but I considered this not a shortcoming of a definition but an instance of the concept. S9 answered *taustalataus* ‘background loading’, which I also considered correct as the media is being streamed on the background as it is being watched. Thus, the term was identified correctly by 19 respondents, while three non-specialist respondents only recognised the context in which the term is used. N18 thought that streaming is “watching videos online but not legally” (“Videoita striimataan, eli katsotaan netissä mutta ei laillisesti tms.”) N22 recognised that it has something to do with sharing data, while N23 also thought that it meant sharing but mentioned that the term comes up “when waiting for something to load” and that it is related to listening to Internet radio broadcasts.

*Resoluutio* ‘resolution<sup>13</sup>’ is a term related to *kuvapiste* ‘pixel’ and, similarly, it was very well identified by less experienced users as well. A total of 22 respondents identified the term accurately,

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<sup>12</sup> *streaming* ‘a method of delivering digital media across a network in a continuous flow. The digital media is played by client software as it is received’ (Microsoft 2010).

<sup>13</sup> *resolution* ‘a measure of the fineness of detail in an image or text, usually as produced by a monitor or printer’ (Microsoft 2010).

while the remaining two were correct about the context in which it is used. Both of them (S15 and N18) thought that the word means ‘the aspect ratio’, i.e. the ratio of width to height of the screen. Overall, the word is very well identified in spite of it being a loanword with no identifiable Finnish elements to guide the interpretation. One possible explanation for this is, of course, that it is an essential term that each of the respondents has come across often enough to associate it with the correct meaning or at least the context. Furthermore, like *pikseli*, *resoluutio* is also a word still used by specialists and non-specialists alike, although there is a perfectly usable Finnish equivalent *tarkkuus* ‘sharpness’ available.

*Phishing* is an interesting neologism in English that denotes ‘a technique used to trick computer users into revealing personal or financial information’ (Microsoft 2010). The word has developed a native Finnish equivalent *tietojen kalastelu* ‘fishing for information’, but the English loanword is widely understood and still in use (Nordea 2011). Only one respondent (N22) did not identify the term at all, and three respondents guessed at the right direction: S2 suggested “conning” (“huijarointi”), N19 proposed “some shady business” (“jotain kepulipeliä”), and N20 wrote “virus that steals passwords” (“salasanoja onkiva virus”). Fourteen respondents included in their answer some form of *kalastelu* ‘fishing’, such as “käyttäjätunnusten kalastelu” (“fishing for user credentials”) (S1). Two respondents (S8 and N24) wrote only “kalastelu” (“fishing”), but I considered them correct as well because had they meant ordinary fishing, they would have been more likely to use the basic form *kalastus* instead of the conjugation *kalastelu*, which occurs in the phrase *tietojen kalastelu*. S4 mentioned “khalastelu” in addition to “tietojen kalastelu”. This non-standard variation of the standard Finnish word mimics the spelling of the English term. S4 also distanced himself from the variant by writing it in quotation marks, and I interpreted “khalastelu” not as a serious answer but more as a curiosity worth mentioning.

The last word to be identified was *spam/spämmi* ‘spam’, for which I listed both the adapted and unadapted form. Perhaps surprisingly, the word was identified by all respondents, most of

whom listed the Finnish equivalent *roskaposti* ‘junk mail’ in their answer. However, as mentioned in section 2.6, *spam* covers also other types of unwanted content outside junk e-mail, and this development is actually reflected in the answers. Some of such answers include “content with no true value” (S1), “*roskaposti* or other unwanted messaging” (S3), “junk e-mail, inappropriate advertisements and fraudulent messages” (S7), and “*roskaposti*, i.e. usually advertising by e-mail” (S11). Interestingly, this was mostly the case with specialists and N21, who answered with just *roskaposti* but criticised the limited meaning of the word in her later comments. In addition, Swedish-speaking N22 answered “received without asking” and N24 only wrote “junk message” without further commenting on the means of communication in question.

This section focused on the identification of five English-influenced loanwords. The specialists had little trouble identifying the terms. In fact, the group was more consistent with anglicisms than with the Finnish terms *verkkovierailu* and *laiteohjelmisto*, whose ambiguity allowed misinterpretations. Although theory suggests that, in general, native words should be used whenever possible to facilitate learning and include less experienced users (Nielsen 1993, 123; Stenvall 1999, 60), the power of non-transparent terms lies in their specificity and lack of subjective interpretation. Thus, if users are familiar with the opaque anglicisms, they actually benefit from the increased precision despite lacking a detailed understanding of the concepts denoted by the terms (Nielsen 1993, 124). Indeed, non-specialists were approximately equally successful in identifying the terms in both sections. However, this may also suggest that the questionnaire included mostly relevant and contemporary concepts which the respondents were already familiar with, and more specialised terms could have affected the results significantly.

#### **4.4 Good and poor Finnish IT terms**

The other major part of the questionnaire focused on the respondents’ preferences towards the terminology. I asked them to name some Finnish IT terms that they find good, and some that they

find poor. This was an open question, but I recommended that the respondents list between three and five terms in both cases. Nielsen (1993, 12, 125) notes that due to the high amount of common synonyms it is very unlikely that two people will mention the same name for a concept; in fact, according to studies on naming conventions cited by Nielsen, the probability is only 7–18% depending on the phenomenon being named. The high dispersion of the answers suggests that this behaviour is carried over to what terms the users find successful and unsuccessful: the respondents listed 46 good and 47 poor terms, of which 36 good and 44 poor ones were mentioned only by one or two respondents. The data is too limited to warrant definite conclusions, but I will present individual observations about the answers.

The good Finnish IT terms listed by the respondents include words such as *hiiri* ‘mouse’ (S1, S2, S3, S4, S6, S13, S17 and N19) and *näyttö* ‘monitor’ (S2, S8, S9, S12, S13 and N19). These are basic computer terms that have a natural and well-established position in the language. Incidentally, they could be the first words to come to mind when asked to name any IT terms, whereas the poor terms mentioned include suggestions that have struck out as odd and not gained widespread popularity, such as *heittovaihtotiedosto* ‘swap file<sup>14</sup>’ (S3) and *ikikieriö* ‘infinite loop’ (S17). *Sormitietokone* also occurred frequently on the list of poor Finnish IT terms, and of the nine respondents (S1, S2, S4, S5, S7, S10, S15, S17 and N23) who listed *sormitietokone* as a poor term seven had previously mentioned it as an equivalent for *tabletti* for the lack of a better term (S1, S4, S5, S10, S15, S17 and N23). Furthermore, although S3 did not explicitly list *sormitietokone* as a poor term, his definition of *tabletti*, “anything-but-sormitietokone”, can be interpreted as discontent with the coinage.

Some terms occur on both lists depending on the respondents. Two respondents (S14 and N21) consider *eväste* ‘cookie’ a good and three (S2, S10 and S12) a poor term. As expected, there is some controversy also among informal terms: *läppäri* ‘laptop’ is listed as a good term by three

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<sup>14</sup> *swap file* ‘a hidden file on the hard disk that Windows uses to hold parts of programs and data files that do not fit in memory’ (Microsoft 2010).

respondents (S7, S13 and N23) and a poor term by one (N19). The neologism *mokkula* ‘3G dongle’ divides opinions as well, with one respondent (S5) for and two (S9, S16) against it. Of course, it is possible that the respondents interpreted the question differently. *Läppäri* and *mokkula* are both compact words comparable to the widely used *kännykkä* ‘mobile phone’, which was listed as a good term by S13. Despite its popularity, *kännykkä* occurs quite rarely outside informal communication. Similarly, it is possible that most respondents do not mind the use of *läppäri* and *mokkula* in spoken language but would not want to see them in official documentation, and therefore did not list them as good IT terms.

The respondents mentioned mainly formal variants of terms. Since formal terminology tends to utilise native resources, a great deal of the terms had no identifiable loan influence. Loan translations were the dominant category for good and poor terms for which a likely loan type could be identified. Good loan translations include basic, essential terms such as *sähköposti* ‘e-mail’ (S7), *levytila* ‘disk space’ (N24) and *käyttöjärjestelmä* ‘operating system’ (S11). Poor loan translations, however, may not immediately give the correct association, such as *peukalonkynsikuva* ‘thumbnail image’ (S10), or they might utilise native elements for some transparency but without making the concept any less understandable, such as *aliverkon peite* ‘subnet mask’ (S6). Still, personal preferences can be very unpredictable. Surprising loan translations on the list of poor terms include *vakoiluohjelma* ‘spyware’ (S6), *optinen asema* ‘optical drive’ (S7) and *verkkoavain* ‘network key’ (N18). There seems to be no explicit reason to resist any of these terms as none of them are overly long and they are arguably no more ambiguous than their English counterparts. However, the respondents do not necessarily represent the preference of the majority, and a more extensive study would be needed to determine whether such terms are widely resisted.

Other types of loans had few occurrences on either list. Good terms did not include identifiable loanwords, whereas poor terms had three of them: *konfigurointi* ‘configuration’ (S9), *konsoli* ‘console’ (N18) and *tabletti* ‘tablet’ (S2 and N19). However, the low number of loanwords

in the answers is perhaps largely explained by the formulation of the question, which specifically asked the respondents to name “Finnish-language IT terms”. Loanshifts appear three times on the list of good terms: *palomuuri* ‘firewall’ (S1, S6, S10 and N24), *hiiri* ‘mouse’ (S1, S2, S3, S4, S6, S13, S17 and N19) and *sovellus* ‘application’ (S3). Furthermore, they occur five times on the list of poor terms: *palomuuri* ‘firewall’ (S16 and N18), *ladata* ‘(down-/up)load’ (S5), *kytkin* ‘switch’<sup>15</sup> (S8), *jakelu* ‘distribution’ (S10) and *ajuri* ‘driver’ (S12). The only loanblend was *USB-modeemi* ‘USB modem’ listed as a good term by S9, who presented it as a more appropriate alternative to *mokkula* ‘3G dongle’. Still, it is possible that the word would not have been worth mentioning by itself without comparison to the term to be avoided. None of the respondents listed any tautological compounds such as *tablet-laite* or *CAPTCHA-toiminto* as good or poor terms. This perhaps suggests that such tautological compounds are seen not as a permanent addition to the terminology but as a temporary solution for introducing an emerging concept into the language before an appropriate equivalent is coined.

Unfortunately, I did not take the opportunity to ask the respondents to comment on their choices for good or poor IT terms, but luckily some of them had utilised the free text field in that regard as well. S2 dislikes *tabletti* because of the overlap with existing lexicon (“It is a pill”), while S9 mentions that *tietokone* ‘computer, literally knowledge/knowning machine’ is “pointless mystification of technology”. In some cases, foreign words are preferred due to their specific nature and, for instance, the translations *askelpalautin* ‘backspace’ and *vaihto-näppäin* ‘shift key’ are seen as unnecessary and only confusing by S4 and S9, respectively. Sometimes it is merely a matter of opinion whether a word is considered good or poor. N21 mentioned that she prefers *prosessori* ‘processor’ and *formatointi* ‘formatting’ over *suoritin* and *alustus*, but she stated that there is no specific reason other than her personal preference.

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<sup>15</sup> *switch* ‘a device used to connect computers on a network that forwards packets to specific ports rather than broadcasting every packet to every port’ (Microsoft 2010).

For many, it is perhaps difficult to list good and poor terms right away, and I can now see that this is not something the average user consciously thinks about. It is also probable that the current resistance of *sormitietokone* is just a temporary phase resulting from the recent use of the term in the media, and it might well fade away as quickly as it grew. These findings are only applicable to this limited group of respondents and do not necessarily offer a reliable representation of Finnish computer terminology in general. With such a limited data sample, simple coincidences are impossible to rule out. Overall, not many clear patterns can be identified with regard to good or poor terms, but the answers certainly support Nielsen's (1993, 12, 125) view on the difficulty of creating widely accepted names. Terminological choices seem to be nearly always compromises, which please everyone very rarely, if at all.

#### **4.5 Attitudes towards native Finnish terms and anglicisms**

The next part of the questionnaire comprised four questions on attitudes towards the terminology. According to Martí et al. (2005, 214), attitudes can be inferred from opinions. Therefore, I asked the respondents in which situations foreign-influenced terms are preferable and in which should the native Finnish terminology be used, and analysed the answers. The answers were very well in line with the theory as expected. Nielsen (1993, 124) has noted that non-specialists benefit from specific terms as well, and the less experienced respondents tend to agree. According to N24, English terms are preferable in situations in which the native Finnish alternative feels artificially contrived. However, she does mention that she prefers that Finnish terms are used whenever possible because she is not very proficient in English. The other less experienced respondents share this view and consider the established position the most important criterion for preferring any term. The use of anglicisms is also motivated by Finnish equivalents which are considered in some way inadequate. N23 prefers anglicisms if the Finnish equivalent is too clumsy or long, or if people are used to the foreign word. N19 suggests that perhaps anglicisms suit young people, many of whom are already

familiar with the English concepts. The Swedish-speaking N22 considers Finnish terms “usually clumsy and confusing” and notes that even if an official translation exists, the English word is often used in practice. She dislikes word-for-word “dictionary translations” that do not feel natural to her and thinks it is appropriate to use “Finglish” terms if they have become a part of the language, like *streamaus*.

Several respondents of the non-specialist group mentioned that anglicisms should be avoided when older users are involved, and N19, N21 and N23 think that especially computer literature for older people or for those not proficient in English should avoid anglicisms. N23 also mentioned that if an English word is difficult to pronounce, the native Finnish equivalent should be used instead. N20 mentions that there is no need to translate well-established terminology as the beginners could learn the native terms right from the start.

Many respondents of the specialist group mentioned that anglicisms are suitable for informal colloquial language and discussion among professionals. With the exception of N21, a translator, none of the non-specialists explicitly brought up professional discourse in their responses. The idea is understandably closer to the group that is actually using English for working. However, non-specialists did not even consider the aspect of colloquial versus formal language. This suggests that the specialists are perhaps to a greater extent consciously aware of the two parallel systems and can more easily differentiate between stylistic variations: anglicisms are used in professional discourse, and native Finnish terms for more accessible uses of language. One respondent (S13) specifically acknowledges the two terminologies and says that in professional discourse it is better to use just one terminology for simplicity. The specialists also mentioned the connection between the established position and usage preference of terms. N21 notes that a foreign term can remain in use until a good native term emerges and becomes well-established. Still, few respondents mentioned the development and changing of a language, and perhaps the respondents do not consider this normally. Still, non-specialists recognise the requirement for specificity of terminology. N18 says



that anglicisms should be preferred in situations where the Finnish term is not descriptive and the anglicism immediately gives the right association.

The most significant factor in the acceptance of Finnish terms among specialists is also whether they have become fixed in the language, but the attitudes of the group are also less homogeneous than those of the non-specialist group. For some specialists (S3, S5 and S17), native Finnish equivalents are perfectly acceptable if they have a well-established position in the language, and the anglicisms are just used in the meantime. S17 also notes that existing native elements should be utilised in word-formation when naming new concepts. For instance, the concept of a dedicated graphics processing unit, or GPU, could be naturally introduced into Finnish as *grafiikkasuoritin* as the individual words *grafiikka* ‘graphics’ and *suoritin* ‘processor’ were already widely used in Finnish. In such cases emerging concepts can be named quickly instead of directly borrowing the original foreign word. Furthermore, S16 thinks that anglicisms may be used in place of “uncomfortably clumsy and impractical Finnish terms” especially if the anglicism is the one always encountered in everyday language.

Other specialists (S1, S4, S9 and S10) find that anglicisms are fine in informal language but should be avoided in all formal writing. Of course, there are also those who completely resist Finnish equivalents and consider the English terminology vastly superior. One such respondent (S2) writes that anglicisms are preferable in all situations whereas Finnish terms are suitable for “pretending that [the text] is accessible and easy-to-understand”. He also notes that using *palvelin* and *välityspalvelin* instead of *serveri* and *proxy* does not make the concepts any easier to understand, though it perhaps helps reduce prejudiced attitudes towards technology. While the native terms do not make the concepts completely transparent, they give the recipient some comprehensible elements to grasp and a context for the concept. In this way the idea of familiar elements reducing prejudice and technophobia sounds actually very plausible and reasonable. Like (Stenvall 1999, 60) points out, native elements facilitate learning as they give users a ready

framework to position the new concepts in. Many specialists mentioned that the level of expertise expected from the recipient affects making the choice between anglicisms and native Finnish terms. Overall, Finnish terminology was seen as the better choice for texts aimed towards the beginners and the general public, but in professional language anglicisms are seen as the more efficient option.

The next question explored the respondents' own attitudes towards creating native Finnish equivalents alongside the adapted English borrowings, and positions that had already come up in the previous questions were to some extent reflected in these answers as well. A common view seems to be that English terminology is the ideal, and Finnish is just trying to reach the same level. The perceived inadequacy of Finnish is manifested in several comments, even by respondents who do not condemn native Finnish terms straight away. For example, S1 answered that as he is used to the English terms, many Finnish terms seem unnatural and not very informative to him and wrote that "although developing language and terminologies is important, it is unavoidable that language cannot keep up with the technology". S4 thinks that nativisation of terminology is generally a good thing "provided that the terms are not completely contrived like *sormitietokone* desperately pushed by Helsingin Sanomat". S7 mostly prefers borrowings but thinks that Finnish terms work sometimes just as well, and S8 has no problems with Finnish terms as long as they remain concise and descriptive. Likewise, S9 is for coining native terms if it makes communication easier and more understandable but against forced translations. S10 answered that in some situations the practice is good but contrived translations are irritating and that often native terms are less descriptive than borrowings. Nevertheless, S10 admits that Finglish sounds ridiculous when it goes too far. S14 has no objections to native terms as long as she can understand what they mean, and she also considers artificial-sounding terms off-putting. S15 thinks the practice is good if the terms succeed in identifying the concepts clearly, and for S17 the criterion of using native terms is that they need to be well-established in the language.

Of course, some respondents have a neutral position in the debate. S12 points out that the same phenomenon takes place in nearly all aspects of Finnish and information technology makes no exception. S13 writes that in many cases creating native terms has been very successful, for instance with *näyttö* ‘monitor’, but adds that Finnish terms should be easily adoptable on a wide scale. S5 thinks developing the native terminology is “OK”, and S3 notes that there is nothing wrong with Finnish terms in general, “although history knows some miserably failed ‘official’ translations that have been replaced in formal contexts by the ‘colloquial’ variants”. Only one specialist, S16, has an openly positive attitude towards creating native terms, and he writes that it is important to maintain the native language with pride.

Some specialists have reservations towards the practice of creating native Finnish terminology. S2 wrote that “Sure, you can try to [create native equivalents] at least for the most common concepts, but if you do not get a good and versatile term easily, forget about it.” S6 does not like Finnish terms in general and compares them with “poor and forced translations of movie titles”. Although S11 answered that he prefers to use devices, software and websites in Finnish, he does not like the practice and says that it is considerably easier to find information online with English terms for instance when troubleshooting computer problems. Overall, the specialists tend to resist native Finnish terms that are not very functional because they feel forced or just are clumsy to use, and this is something that the less experienced users share. Still, the non-specialists’ attitudes towards creating native terms are not homogeneous.

N18 writes that she does not have the need to follow the international IT world and therefore native Finnish terms help her understand the field. However, she raises an important point that terms need to be used consistently, and in a situation in which a software program is entirely in English but the documentation uses native terms, the different terminologies may only be confusing. Indeed, not all software is always translated into Finnish. N19 presents a contrary view and thinks that perhaps creating native Finnish terms is becoming somewhat pointless, as the world

is becoming linguistically more international and an increasing number of people are “in the know” with regard to the terminology of the industry (“mukana alan sanastossa”). N22 also thinks there is no point in creating native Finnish terms because the field itself is international and thus the literature is in most cases in English.

N21 has seen the both sides of coining native terms as a professional translator, and she says that while it is good that Finnish terminology is being developed, it is difficult to get it actually into use in the field. She notes that professionals and young people tend to reject the normative suggestions and use anglicisms instead, which then rules out older users. She thinks that Finnish terms should be used wherever possible because English adaptations in Finnish running text look inappropriate and irritating, although she personally prefers anglicisms in some situations. N23 says that native Finnish terms make the texts somewhat understandable, but poor translations are only confusing, especially if an English word has been in use for years. She continues that in such cases it is difficult to adopt the Finnish word into use. N24 says she is inexperienced in English and would prefer words that are understandable right away. However, she also dislikes forced coinages. Overall, non-specialists have a somewhat positive attitude towards the practice of creating Finnish terminology because it makes the language more transparent and understandable, but what is most important to them is a consistent and well-established terminology that is comfortable to use.

In the last question on attitudes, I presented a full Finnish sentence from the Windows 7 operating system documentation, in which I had replaced some key terms with their respective anglicisms: “Kun Windowsin *backuppi* on *konffattu*, voit tarkistaa *backupin* käyttämän levytilan ohjauspaneelista.” I used the forms *backuppi* and *konffattu* instead of *backup* and *konfiguroitu* intentionally, as this is closer to the language actually used by professionals, albeit only in colloquial speech or highly informal writing. I asked how the respondents would react to this passage if they encountered it, for instance, in official help content.

The vast majority of the respondents reacted very negatively to the sentence presented, and even in the expert group only a few respondents had somewhat positive comments about it: “Not very formal but feels more competent/relaxed/writer knows what they are talking about instead of painfully forced translations” (S2); “Sounds more natural to me” (S6); “I am used to this so I have no problems with it” (S11); “Sounds ridiculous at first, but since I am used to the borrowings and know their meaning in this context, it would be more difficult to think about them in Finnish” (S14).

Other respondents reacted consistently against the example sentence, and they especially disliked the colloquial forms of the terms. S16 thinks the practice is “insane” and S17 writes that he does not like the style and tries to avoid it himself. To S1, using foreign terms in official instructions often feels pointless and lazy, and he thinks that such terms might not be understandable to someone not familiar with the subject. Still, he would allow the use of anglicisms when necessary “unless they are forced into a slangy style like in the example”. S10 is not bothered by the style if it does not become excessive, but he does not comment on whether the style is excessive in the example. Furthermore, he thinks that Finnish should be used at least for the most common terms and he is also bothered by the colloquial form *konffattu*. S5 and S9 would accept anglicisms in formal instructions but only as clarification in parentheses alongside native Finnish terminology. S9 also notes that professional slang is not suitable for official instructions. S13 does not consider the style excessively bothering if the foreign terms are explained clearly, and S15 seconds this idea. S13 also points out that official language should strive for consistency. S2 and S6, who consistently opposed Finnish terminology in their answers, think the style gave the writer authority, but there were some respondents (S7, S8, S12, N19 and N21) who thought that it actually undermined the credibility of the writer. To S3, official instructions should aim to use well-established and understandable terms instead of colloquial “geeky terms”. S4 thinks the style should be avoided in instructions, advertisements and such, while S7 thinks the practice feels

uncomfortable and is bound to confuse to some users. N21 feels that the use of jargon instead of standard Finnish equivalents sounds like the writer is either trying to sound important or just is not competent in Finnish, whereas S8 suggests a physical punishment for the writer: “Tuollainen tekstin kääntäjä pitäisi antaa perussuomalaisille pahoinpideltäväksi.”

Interestingly, N18 points out that foreign terms may be more understandable than unsuccessful native terms – especially when the software is in English, as she does what is told without understanding exactly what she is doing. Her reaction to the slang is expressed well by her comment “Are you kidding me, konffata?!” (“Siis konffata?!”). The colloquial style strikes as odd to N19 as well, who points out that he does not know the meaning of *konffattu* and considers the instructions poorly written. N20 is simply irritated by the use.

N22 notes that the passage could be more detailed overall and thinks that simply replacing the anglicisms with Finnish terminology would not make the instructions any more helpful for users with poor understanding of the technology. N23 is also annoyed by the style and points out that while the instructions are basically understandable, it takes more time to fully grasp the idea. In addition, *konffattu* was unintelligible for her as well. N24 remarks that all instructions need to be understandable to everyone and notes that interpreting the obscure instructions takes too much time. She says that the style is so off-putting that she as a user would avoid a product that uses such “cryptic” language if there is an alternative product available.

Overall, while the non-specialists did note the slangy style of words such as *konffattu*, they did not make as clear a distinction between informal and formal registers as the specialist group. This suggests that non-specialists accept terms for their established status regardless of origin, whereas specialists can clearly differentiate the professional jargon from the official register and keep the two systems separate. This is well along the lines of Ilomäki’s (1999, 122) claim that some users might not recognise synonyms and be confused by overlapping systems. Furthermore, while anglicisms are sometimes seen as more effective in professional discourse, the majority of the

respondents deem them unsuitable for formal contexts. In a formal context, colloquial variants especially evoke negative reactions.

#### 4.6 Summary of the questionnaire results

Moore and Varantola (2005, 140) claim that many Finnish terms sound artificial to the users, and the results of this questionnaire definitely confirmed this. However, the respondents' general attitude towards the terminology is quite pragmatic. Concise and descriptive native Finnish terms are hardly resisted at all, and the results suggest that although specialists find some terms contrived, perhaps to a greater extent than non-specialists, they still consider it important to develop the native Finnish terminology, especially for common concepts. Some Finnish terms, however, seem to be considered less useful variants not on the same level with the original English terminology.

Several respondents wrote that they have no problems with Finnish terms – but with a caveat – as long as the terms are not unnatural, non-descriptive, clumsy, unfixed, impractical, and so forth. Many agree that loanwords are acceptable when it is difficult to find a good native term, and this is especially the case with abstract or complex concepts. Though native terminology is regarded as facilitating the learning process of using computers, if just understanding a concept requires a considerable level of expertise, a virtually incomprehensible native word would hardly benefit the inexperienced person in any way.

It is apparent how some of the anglicisms included in the study have been in use for so long that they have reached a very well-established position in Finnish. It could even be said that they have to some extent transitioned from LSP towards LGP. For instance, *kuvapiste* was very widely identified, and the least experienced respondents as well could produce the anglicism *pikseli* completely unprompted; the word was never mentioned on the questionnaire form. Still, some respondents were not sure whether *kuvapiste* refers to the same concept as *pikseli*, which suggests that perhaps they encountered the term *kuvapiste* for the first time ever in this questionnaire. As

suggested by Haspelmath's (2009, 47) idea of "reasonably widespread bilingualism", specialists identified especially the anglicisms better than non-specialists. Still, the ambiguity of the less specialised native Finnish compound words clearly resulted in misinterpretations of meaning in both groups. In addition to identifying the terms better, the specialist group seems to be more aware of different registers and can better separate non-standard professional talk from formal, official style.

As expected, the main background factor affecting the comprehension and attitudes proved to be the proficiency in the field instead of other properties such as gender, which had no noticeable influence on the answers. Since the questionnaire targeted a group of computer users of approximately the same age, the minor age differences between the respondents did not seem to affect the results, which was not the focus of this work. It is always problematic to determine an objectively measurable and comparable quality of something subjective such as attitude (Romaine 1995, 288). In order to minimise bias, I used open questions and formulated them as neutrally as possible. Garrett (2010, 32) rightly points out that an expressed opinion cannot be directly equated with the underlying attitude. Still, even if the results of the questionnaire are not definite, they are indicative of user attitudes.



## 5 Concluding comments

There are strong efforts to develop the Finnish language and keep it competent in the face of rapidly advancing technology, and native Finnish terms are favoured in formal and official language. At the same time, experts of information technology adopt English terms into their informal professional discourse, and sometimes these anglicisms become used extensively also by non-specialists in the field. This thesis examined the influence of English on the contemporary Finnish of information technology with the focus on terminology and the perspective of end users. The empirical part of the work presented a questionnaire conducted among a group of 24 active computer users of varying backgrounds and proficiencies. The respondents were divided into two groups, specialists and non-specialists, according to their level of expertise, which was determined with six multiple-choice background questions. The actual questions used free text fields so as not to restrict or guide the answers excessively. The questionnaire succeeded in yielding relevant and interesting data, which was analysed qualitatively. Based on the analysis of the results, the research questions of the thesis could be answered with sufficient depth.

The first major part of the questionnaire explored how well the respondents identify ten current Finnish IT terms – five native Finnish terms and five anglicisms. As expected, the specialists identified the terms overall more successfully than the non-specialists, but there were differences between the individual respondents of the same group as well. For example, in the specialist group, two respondents identified all ten terms correctly, while one specialist had six correct answers. According to the results, the use of native Finnish elements seems to make terms somewhat more accessible but at the expense of precision. Of the five native Finnish terms, both groups had difficulties with two ambiguous compound words, whereas the specialists performed better with identifying the anglicisms. The non-specialists were approximately equally successful in identifying the native Finnish terms and the anglicisms. The results suggest that although

anglicisms are opaque to users not familiar with them, even less experienced users benefit from their specificity especially with abstract or complex concepts.

The second major part of the questionnaire was concerned with the respondents' preferences and attitudes towards the English influence on the field and the attempts to further develop the native Finnish terminology. Although English is currently regarded as a foreign language in Finland, the questionnaire results suggest that, to some few specialists, Finnish occupies a second-tier position and is not considered as practical and precise as English, the original development language of the industry. In general, however, the respondents react quite positively to developing native Finnish terminology and are ready to give the terms an opportunity to prove their value. They are not comfortable using some native coinages which sound artificial to them, but concise and descriptive Finnish terms are not resisted. According to the results, the most important criteria for accepting a term are practicality, descriptiveness and an established position in the language. Still, there are great differences between individual respondents and it is very difficult to predict personal preferences. Even the perfect normative suggestions may not be able to replace the equivalent terms already extensively in use, unless they are accepted and adopted by the language community early enough.

My second hypothesis of more skilled respondents being more accepting of English adaptations was not directly confirmed by the results as the specialists, too, generally preferred using native Finnish resources and avoiding professional jargon in formal contexts. However, the results of the study show that the specialists are to a greater extent aware of the existence of several parallel registers. Therefore, they are able to keep the two terminological standards separate more easily than inexperienced users, who might be confused by the overlapping systems by not recognising synonyms, for instance.

One of the most significant challenges of the work turned out to be formulating the questionnaire. On the one hand, the questionnaire needed to direct the answers towards what I

considered as relevant issues for this thesis, but on the other hand it had to maintain a neutral and objective position and avoid leading the answers too much. Based on some of the answers, I failed to anticipate all the different ways in which people would interpret the questions, even though I had tested different iterations of the questionnaire several times in advance with small groups. Nevertheless, this limited project can be considered overall successful in exploring the initially set questions.

This thesis provides an up-to-date view of the field, which still has a great deal of possibilities for further study. The volume of a national survey has the potential to uncover data for other interesting questions such as which background factors affect user attitudes the most and what the non-native Finnish speakers' position in the discussion is. Further areas of interest include aspects of readability other than terminology. Perhaps more importantly, new concepts are constantly being developed and languages can only do their best to keep up with the technology. No-one can say today with certainty which patterns and attitudes will be emphasised or forgotten in a decade or two, and the only way to find out is an updated examination of the field.

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## Appendix 1: The full questionnaire

### Kysely tietotekniikan termien käytöstä

Hei!

Suoritan Tampereen yliopistossa maisterintutkintoa ja teen lopputyötä englannin vaikutuksesta suomen kieleen. Kerään tällä kyselyllä tietoa suomenkielisen tietotekniikkasanaston käytöstä sekä asenteista sitä kohtaan. Kyselyyn vastataan nimettömänä eikä vastauksia julkaista työn ulkopuolella. Vastaamiseen kannattaa varata aikaa noin 15–20 minuuttia.

Vastausaika päättyy sunnuntaina 10.4.2011 klo 18.00.

Kiitos jo etukäteen

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\*Pakollinen

#### Vastaajan tiedot:

##### Sukupuoli \*

- Nainen  
 Mies

##### Syntymävuosi \*

Muodossa VVVV

##### Äidinkieli \*

##### Ammatti \*

Jos opiskelija, merkitse myös pääaine/suuntautumisvaihtoehto.

**Kerro lyhyesti, mihin tarkoitukseen käytät tietokonetta töissä tai vapaa-ajalla. \***

**Tietotekniset taustatiedot:****1. Käytät tietokonetta \***

- päivittäin
- lähes päivittäin
- harvemmin

**2. Mitä osia olet joskus asentanut tietokoneeseen? \***

Anna muutama esimerkki asentamistasi osista.

**3. Seuraatko vapaa-ajalla tai työsi puolesta tietotekniikan kehitystä, kuten uusia tai tulevia laitteita ja ohjelmistoja? \***

- Kyllä
- En

**4. Hahmotatko hyvin eri tiedostokokojen suhteita (tavu, kilotavu, megatavu, gigatavu jne.)? \***

- Kyllä
- En

**5. Etsitkö ratkaisuja tietokoneongelmiin ensisijaisesti itse (esimerkiksi verkkosivuilta tai keskusteluryhmistä)? \***

- Kyllä
- En

**6. Osaatko asentaa uuden tietokoneen itse käyttökuntoon (ohjelmien asennus, virustorjunta, palomuuuri)? \***

- Kyllä
- En

**7. Millä kielellä käytät mieluiten laitteita, ohjelmistoja ja verkkosivuja, kun voit valita? \***

suomi

ruotsi

englanti

Muu:

**8. Suomenkielisten termien tuntemus**

Selitä seuraavat termit muutamalla sanalla. Selityksen sijaan voit antaa käsitteestä esimerkin tai mainita termin englanninkielisen vastineen. Vaikka et tuntisi jotain termiä, kirjoita edes mitä siitä tulee mieleen.

**Palvelin \***

**Verkkovierailu \***

**Eväste \***

**Kuvapiste \***

**Laiteohjelmisto \***

## 9. Vierasperäisten termien tuntemus

Selitä seuraavat termit muutamalla sanalla. Selityksen sijaan voit antaa käsitteestä esimerkin tai mainita termin suomenkielisen vastineen. Vaikka et tuntisi jotain termiä, kirjoita edes mitä siitä tulee mieleen.

**Tabletti (laite) \***

**Streamaus \***

**Spam/Spämmi \***

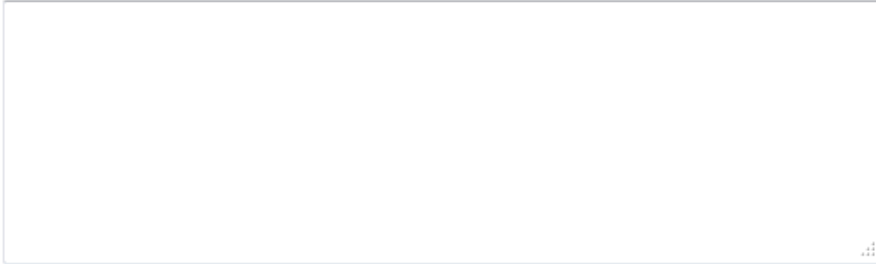
**Resoluutio \***

**Phishing \***

## Asenne tietotekniikan termejä kohtaan

**10. Mihin tilanteisiin vierasperäinen (esimerkiksi englannista johdettu) sana sopii mielestäsi paremmin kuin suomenkielinen tietotekniikan termi? \***

**11. Mihin tilanteisiin suomenkielinen sana sopii mielestäsi paremmin kuin vierasperäinen tietotekniikan termi? \***

A large, empty rectangular text box with a thin border, intended for the user to provide an answer to question 11. A small icon is visible in the bottom right corner of the box.

**12. Anna esimerkkejä mielestäsi hyvistä suomenkielisistä tietotekniikan termeistä. \***

Mieluiten 3–5 esimerkkiä.

A large, empty rectangular text box with a thin border, intended for the user to provide examples of good Finnish IT terms. A small icon is visible in the bottom right corner of the box.

**13. Anna esimerkkejä mielestäsi huonoista suomenkielisistä tietotekniikan termeistä. \***

Mieluiten 3–5 esimerkkiä.

A large, empty rectangular text box with a thin border, intended for the user to provide examples of poor Finnish IT terms. A small icon is visible in the bottom right corner of the box.

14. Miten suhtaudut siihen, että tietotekniikan käsitteille pyritään luomaan kuvaavat suomenkieliset termit sen sijaan, että käytettäisiin vierasperäisiä sanoja? \*

15. Miten suhtaudut vierasperäisten termien käyttöön esimerkiksi virallisissa ohjeissa: "Kun Windowsin backoppi on konffattu, voit tarkistaa backupin käyttämän levytilan ohjauspaneelista." \*

## Muuta

Kiitos vielä vastauksistasi. Voit halutessasi kommentoida kyselyä tai antaa siitä palautetta.

Lähetä

Palvelun tarjoaa [Google-dokumentit](#)

[Ilmoita väärinkäytöstä](#) - [Palveluehdot](#) - [Lisäehdot](#)

## Appendix 2: The respondents of the questionnaire

ID	Year of birth	Mother tongue	Occupation or field of study	Skill level	Language preference
S1	1988	Finnish	Student of physics	7	English
S2	1985	Finnish	Student of humanities	7	English
S3	1978	Finnish	Software tester	7	English
S4	1985	Finnish	Web specialist	7	English
S5	1984	Finnish	Student of English philology/International business	7	English
S6	1985	Finnish	Student of communication systems	7	English
S7	1982	Finnish	Reporter	7	English
S8	1982	Finnish	Occupational safety supervisor	7	English
S9	1981	Finnish	Product manager	7	English
S10	1986	Finnish	System specialist	7	English
S11	1985	Finnish	Conscript	7	Finnish
S12	1986	Swedish	Security guard	7	English
S13	1983	Finnish	Marketing manager	7	English
S14	1985	Finnish	Student of literature	6	Finnish
S15	1987	Finnish	Student of English philology	6	Finnish
S16	1987	Finnish	Student of English philology	6	English
S17	1984	Finnish	Software developer	6	English
N18	1982	Finnish	Student of cultural production	4	Finnish
N19	1983	Finnish	Student of English philology	4	English
N20	1987	Finnish	Classroom assistant	4	English
N21	1982	Finnish	Translator	3	English
N22	1986	Swedish	Student of international marketing	3	English
N23	1986	Finnish	Sales secretary	3	Finnish
N24	1988	Finnish	Nursing student	2	Finnish