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Using OpenOffice.org in an educational environment

A feasibility study

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Using OpenOffice.org in an educational environment: a feasibility study

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ABSTRACT

There is a need to migrate to a new productivity suite within the primary education of Lilla Edet. The license fees for productivity suites are sky high and the administration seeks for a cheaper productivity suite of equal or greater quality as the current. In this paper, we show that OpenOffice.org would fill the shoes of Microsoft Office within the primary education.

Keywords OpenOffice.org, education, FOSS

I INTRODUCTION

OFFICE SUITES ARE KEY COMPONENTS in most Swedish schools[3][11]. Students as well as teachers use word processors and presentation applications as an aid in the education[11]. Several different alternatives exists, but the most common is Microsoft Office[1][11]. All software grows old and new versions arise constantly, meaning upgrades are needed[18]. This usually implies new license fees and additional costs. When an upgrade of this kind is needed, we see four different alternatives to choose from. The first alternative is the short term cheap way out, do nothing and keep using an outdated version of a certain application. The second alternative is to pay for new licenses and acquire a newer version of the same software. Alternative number three is to acquire an equivalent proprietary system. The fourth alternative is the one we are going to evaluate; to exchange a system with a equivalent Free/Open Source Software system.

Free/Open Source Software is a term describing software that is often available at no cost. Although there is a distinction between Free Software and Open Source Software[22], the common denominator is that the underlying source code is available to the user. This implies that the user is able to study and if necessary modify the source code so that it fits any specific needs. The user is not limited by any restrictions and may use the software for any pur-

[1] http://office.microsoft.com

pose and to any extent. The user is also allowed to alter as well as redistribute the modified version of the software to other users. Proprietary software is on the other hand sold or licensed to the user at a fee. The source code to proprietary software usually belongs to a company or organisation and is kept secret from users. It is often illegal to manufacture copies of proprietary software and redistribute them.

As mentioned, there is a difference between Free Software and Open Source Software. While the Open Source movement is more practical in its approach, the Free Software movement focuses on ethics and morals related to the users freedom to use, study, modify and redistribute software at will[22]. In the context of this paper, we consider Free Software and Open Source Software to be homogeneous and they will henceforth be referred to as FOSS (Free/Open Source Software).

FOSS is often considered to be a solution to widespread piracy[20][27][28]. If there are fully compatible and equivalent alternatives to proprietary software, committing a crime to acquire an illegal copy of proprietary software should seem less attractive than using a FOSS alternative. This becomes especially important in an educational environment. If an educational institute uses proprietary software as a basis for education, students have little choice but to use the same or equivalent software on their personal computers[27]. If students or their families cannot afford to acquire a personal license of a proprietary application, we see that the student must either use a pirated copy, a FOSS alternative or choose not to use the application at home at all.

This research is conducted in primary schools within the municipality of Lilla Edet. Lilla Edet is a municipality on the west coast of Sweden with approximately 13.000 inhabitants (2008)[2]. There are seven primary schools in Lilla Edet ranging from 25 to ca. 500 students. Today, both the hardware and the software is relatively old and the administration of Lilla Edet has identified the need for updating the software used in the schools. Many applications used in the education today are not supported by modern operating systems according to the administration. Thus, the administration has seen the need for upgrading both hardware and software. Approximately one hundred new computers are planned to be acquired during the next year. In an attempt to save money, the administration decided to look into acquiring FOSS instead of renewing existing licenses or upgrading to newer versions of already used software.

During the preparatory process, a complexity vs. cost analysis was made on a number of systems that the administration had identified as desirable to replace or update. Each system's current annual cost was weighted against the probable complexity involved in replacing the system.

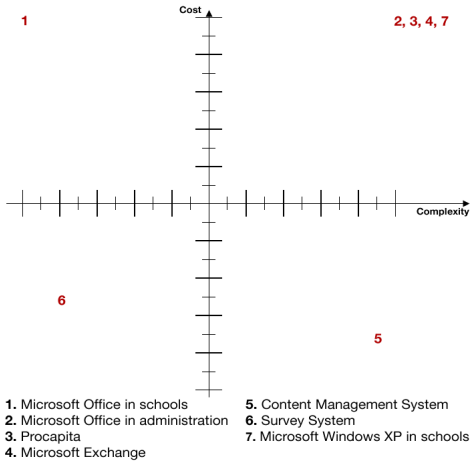

Figure 1: Cost vs. Complexity analysis

As visualised in figure 1, seven systems were topical for replacement. Of these, four (Microsoft Office in the administration, Procapita[3], Microsoft Exchange[4] and Microsoft Windows XP[5]) were ranked as very expensive and thus interesting from an economical perspective but

[2]http://www.ssd.scb.se/databaser/makro/start.asp

[3]http://www.tieto.se

[4]http://www.microsoft.com/exchange

[5]http://www.microsoft.com/windows/windows-XP

very complex to replace due to coupling to other systems, criticality or training costs. For the municipality's webpage and Intranet, a proprietary Content Management System (CMS) is used. Replacing this was deemed both fairly complex due to the vast amount of existing content as well as custom-built functionality that would bring additional costs to a migration. Replacing the CMS was also considered to little economic gain. For collecting information about satisfaction and opinions from the municipality's inhabitants, an on-line survey system is used. Replacing this system was deemed fairly easy, but to little economic gain. The last system, and the one that was eventually chosen for this feasibility study was Microsoft Office in schools. It is not coupled to any other systems and the annual cost of licenses is stated by the administration to alone generate 2/3 of the total license cost for all primary schools within the municipality. Also, other municipalities had successfully replaced Microsoft Office with FOSS alternatives[30].

The goal of this study is to evaluate the feasibility of using another productivity suite than the current suite within an educational environment, more specifically replacing Microsoft Office to OpenOffice.org[6]. The research question that follows is thus:

Is OpenOffice.org a feasible alternative to Microsoft Office within the educational environment of Lilla Edet?

A. Research Limitations

Although there is a need for upgrading both hardware and software in several different areas of Lilla Edet, we have decided to focus solely on the usage of office suites within the primary education of Lilla Edet. This paper describes the research conducted in order to assess the feasibility of successfully using OpenOffice.org in a Microsoft Windows environment. Furthermore, the cost aspects of replacing a proprietary product with FOSS are beyond the scope of this paper.

[6]http://www.openoffice.org

B. Related Work

According to the Actuate Annual Open Source Survey for 2008[4], FOSS is becoming more common in companies and organisations worldwide and the knowledge about FOSS is increasingly becoming greater. Although the aforementioned survey is mainly focused on corporate software usage, we intend to research if the same tendencies exists at the research site.

Aboubekr and Rivard[1] conclude a list of key success factors to take into consideration when migrating to OpenOffice.org within a public administration in Quebec, Canada. Although there are vast differences between a public administration and an educational environment, some of the risks mentioned are relevant also in this context.

Rossi et. al.[24] conducted a study in which the usage of Microsoft Office is compared to OpenOffice.org. One of the conclusions of Rossi et. al.[24] is that the impact on productivity was minimal due to the similarities of the two productivity suites. Rossi et. al.[23] also reports that a partial migration to FOSS is possible and that proprietary software and FOSS can coexist. Thus, using OpenOffice.org in a Microsoft Windows environment should according to Rossi et. al.[23] not present any problems.

Nichols and Twidale[16], inspired by the work of Nielsen[17], argues that:

"Developers are not typical end-users"[16]

They continue to claim that:

"The [FOSS] approach fails for end user usability because there are 'the wrong kind of eyeballs' looking at, but failing to see, usability issues."[16]

...in an attempt to angle "Linus' Law" as

Variable	Spearman Rho
Technological benefits of OSS outweigh its disadvantages (e.g. ability to tailor to precise needs, transparency)	.382**
Availability of OSS-literate IT personnel	.363**
Top management support for OSS adoption	.332**
Personal support for OSS ideology	.332**
Network externality benefits from OSS (e.g. availability of extra functionality developed, or support from other OSS users of the same products)	.327**
Existence of a committed and respected OSS champion in-house	.324**
Limited financial resources ensure OSS a consideration	.155
Sense of shared adventure between IT staff and end users embarking on a high profile radical initiative	.017
OSS adoption is easier due to large organisational size (e.g. greater savings possible)	-.121

**Correlation is significant at the 0.01 level (2-tailed).

Table 1: Influence of Facilitators on OSS Assimilation[9]

described by Raymond[22]:

"Given enough eyeballs, all bugs are shallow"[22]

Other work in the area[8][26][14][21][2] argue that FOSS products in general have usability issues which are hard to overcome:

"Every contributor to the project tries to take part in the interface design, regardless of how little they know about the subject. And once you have more than one designer, you get inconsistency, both in vision and in detail. The quality of an interface design is inversely proportional to the number of designers."[26]

"If this [usability of desktop applications] were primarily a technical problem, the outcome would hardly be in doubt. But it isn't; it's a problem in ergonomic design and interface psychology, and hackers have historically been poor at it. That is, while hackers can be very good at designing interfaces for other hackers, they tend to be poor at modeling the thought processes of the other 95% of the population well enough to write interfaces that J. Random End-User and his Aunt Tillie will pay to buy." [21]

Seydel[25] on the other hand claims that OpenOffice.org and Microsoft Office are similar in terms of ease of use by saying:

"A common perception of [FOSS] products is that the [sic] require a higher level of technical expertise, both at the end-user level and at the IT support level. However, OpenOffice.org is quite user- friendly, almost to the extent as MS Office is [...]"[25]

Both Seydel, Pfaffman[19] and Tong[27] partly contradict Nichols and Twidale's arguments by claiming that there is little or no need for extra user training following a migration. We intend to ascertain if Nichols and Twidale's statements are valid in the context of this research.

In a study conducted in Finland by Välimäki, Oksanen and Laine[28], preconceptions towards FOSS were encountered that included fear of FOSS being unsafe due to its very nature of openness. It was also discovered that knowledge about FOSS was low in general, with very few respondents being able to name at least one FOSS vendor or product. Välimäki, Oksanen and Laine also state that

"[...] the fight against software piracy is most

likely speeding up the adoption [of FOSS] especially in the developing countries."[28]

Both Tong[27] and Primer[20] supports this statement and considers FOSS to be an alternative to piracy.

A study undertaken by Glynn, Fitzgerald and Exton[9] at an Irish hospital in the process of migrating several existing systems to FOSS alternatives, lists and orders a number of *'facilitators'*[7](table 1) and *'inhibitors'*[8](table 2).

Although in some cases the research environment in aforementioned studies is very different from that at hand, we intend to see if tendencies like these also exist among students and teachers in the municipality of Lilla Edet. We will especially focus on the users ideological beliefs and preconceptions towards FOSS.

As previously mentioned, several Swedish municipalities has already migrated from Microsoft Office to OpenOffice.org with success[30]. Finding research or documentation from these projects has been difficult. Apart from research publications and journals, several less formal sources exist, such as newspaper articles about similar projects and success stories from different vendors. Since it is impossible to verify whether or not these sources give an unbiased representation, we have decided not to use them to frame this study. Although not verifiable from a research perspective, they nevertheless indicate that there is indeed an increasing interest in FOSS.

II Research Approach

The results in this paper will be based on a multi-methodological[15] (mixed-method) study conducted in two steps as suggested by Creswell[5].

The initial step will be a quantitative study based on a questionnaire (see appendix A and B). The questionnaire will be given to both students and teachers at all primary schools in Lilla Edet. The questionnaire will show what type of applications are used by students and teachers to perform school-related work as well as what the applications are used for. Aboubekr and Rivard[1] state that compatibility issues with file formats, document templates and macros between Microsoft Office and OpenOffice.org is an important factor to take into consideration. Thus, computer knowledge in general, specific knowledge about different file formats, usage of document templates and macros and the frequency of which students and teachers send documents to for example administrative staff outside the school will be investigated.

It is important to point out that the questionnaire does not only focus on software used in schools, but at home as well. This will help us to conclude to what extent students and teachers perform school-related work outside of the school. To conclude what type of knowledge students and teachers have about free/open source software and if a negative or positive attitude towards FOSS exists, a series of questions about FOSS is included in the questionnaire. The results from the questionnaire will also show to what extent FOSS is already being used by teachers and students in school and at home as well as teachers' and students' expectations towards an actual migration.

For the qualitative research, interviews structured as usability tests as suggested by Lausen[12] and Dumas and Redish[7] will be held with both teachers and students as the second step of the multi-methodological study. The results from the questionnaire study will provide valuable information regarding the usage of productivity suites which will form the basis of these usability tests. During these usability tests, we hope to find out more details about how teachers and students use their productivity suite. Focus will be put on day-to-day tasks using a productivity suite. A comparison between the productivity suite currently being

[7]Factors likely to simplify the adoption of FOSS
[8]Factors likely to hinder the adoption of FOSS

Variable	Spearman Rho
Perception of work under-valued if using 'cheap' OSS products	.573**
Changing operating model to OSS might be problematic (e.g. no contracted maintenance support)	.525**
Staff resistance due to fear of being deskilled if using OSS instead of commercial packages	.498**
No other successful OSS examples in the industry sector	.446**
Staff unwilling to tolerate 'teething problem' with OSS products	.380**
Organisation has a favourable arrangement with a proprietary vendor (e.g. bulk purchasing discount)	.374**
Current IT infrastructure coherent and based on proprietary software	.317**
Organisation in a risk averse industry sector	.089

**Correlation is significant at the 0.01 level (2-tailed).

Table 2: Influence of Inhibitors on OSS Assimilation[9]

used and the latest version of OpenOffice.org (3.0) will be conducted. A test subject will be asked to perform a number of operations using both the current and the alternative productivity suite. The usability tests conducted will show differences in complexity and line of action to perform a certain task between the compared productivity suites. The conclusions from these interviews will provide information regarding the need for education when the migration is to be performed as well as the feasibility of the migration itself.

The result from the multi-methodological study will be the foundation on which conclusions will be based.

III Findings

A. Survey

Of the 100 student surveys handed out, 27 were returned to us. As we expected to get approximately 30 to 40% of the surveys back, 27% is an acceptable answering frequency. We see three main reasons for this low number; the student was not allowed by their parents to answer, the student forgot the survey in school or at home or that the student did not have the energy or commitment to fill out the survey. All of the ten teacher surveys were returned.

The participants were asked to specify both age and gender. As the results were juxtaposed, no clear trends based on either age or gender were visible. Therefore, the results are only presented in two groups; teachers and students. For a complete list of the survey results for the selected questions, see Appendix C.

The main questions we sought to answer were those about the usage of productivity suites. We immediately saw that the application that gained most usage was Microsoft Word. Both Microsoft PowerPoint and Excel had a very small amount of users. Thus, the questions we chose to present are focused on two main subjects; how Microsoft Word is being used and to what extent, and what type of attitude teachers and students have towards FOSS.

The figures 2 and 3 show that there is a gap between students and teachers usage of Microsoft Word. While most teachers claim to use Microsoft Word on a daily basis, a majority (70%) of the students claim to use Word on a monthly basis or more seldom.

Aboubekr and Rivard[1] state compatibility between different productivity suites as an important issue when considering a migration. We saw that the interaction between school staff

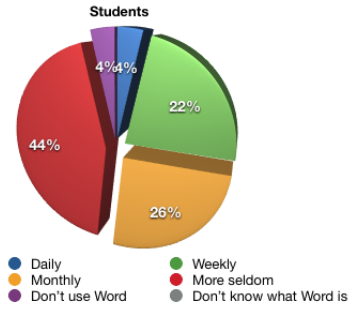

Figure 2: Microsoft Word usage by students

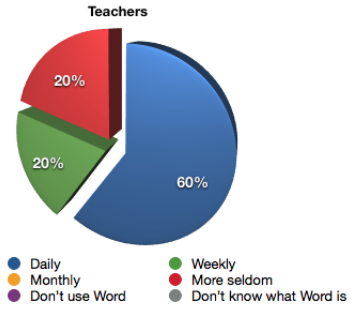

Figure 3: Microsoft Word usage by teachers

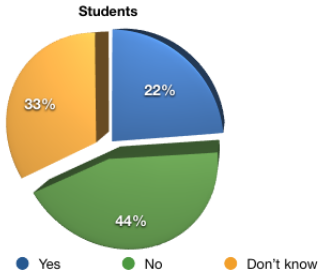

Figure 4: Microsoft Word template usage by students

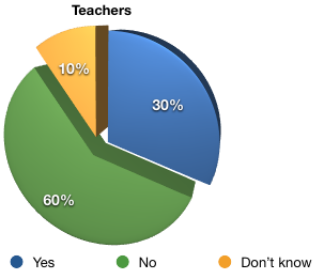

Figure 5: Microsoft Word template usage by teachers

and persons outside the school is relatively uncommon; only 30% of the teachers claim to send documents or other artefacts to persons outside the school. As it is possible to open, edit and save Microsoft Office files in OpenOffice.org but not the other way around, compatibility issues are more likely to occur when OpenOffice.org users sends documents to Microsoft Office users. The results of the questionnaire study showed that 80% of the teachers claim to know what a file format is, indicating that only a minimum amount of training is needed to prevent compatibility issues.

The results from the questionnaire also showed that the usage of Word templates (figures 4 and 5) and Excel macros is quite uncommon among both students and teachers.

One interesting aspect of a migration from a proprietary to a free or open environment is the attitude that users have towards FOSS and to what extent FOSS is already being used, either in school or at home. Although a large portion of similar studies are centred around corporate usage of FOSS, trends that indicate a more widespread usage and a more positive attitude towards FOSS[13][10][29][4] are visible. The results from the questionnaire provides the same indications with 59% of the students (figure 6) and 50% of the teachers (figure 7) claiming to already use FOSS. To validate the claims, respondents were asked to also give examples of FOSS being used. Of those who claimed to know what FOSS is or that already use FOSS, the most common examples of FOSS products are Mozilla Firefox[9], VLC[10] and OpenOffice.org. Although mentioned, OpenOffice.org is less common than that of FOSS in general and other FOSS applications, with 16% of the questioned claiming to use OpenOffice.org either at home or in school. The mistrust mentioned by Välimäki, Oksanen and Laine[28] was virtually non-existent, with only a very small number of respondents claiming not to trust FOSS due to

[9]http://www.firefox.com
[10]http://www.videolan.org

its open nature or belief in the TANSTAAFL[11] concept.

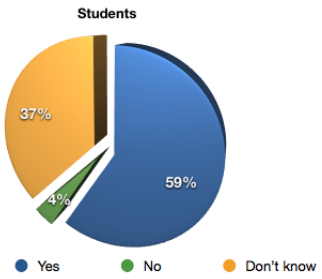

Figure 6: FOSS usage by students

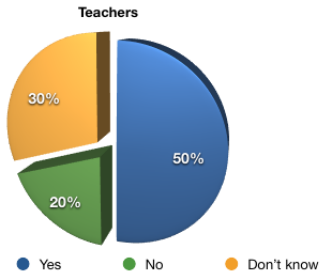

Figure 7: FOSS usage by teachers

It should be noted that the survey results indicated a varied knowledge of what FOSS actually is. Although presented with a brief explanation of the concept, several participants answered that they did use FOSS but in fact gave examples of proprietary software. Examples of proprietary software given as examples are Microsoft PowerPoint, Microsoft Internet Explorer[12] and Microsoft Messenger[13]. Although some examples indeed are *"free as in free beer"*[14], they do not qualify as FOSS. These participants have therefore been assumed to not use FOSS at all and have been included as having a neutral standpoint towards FOSS.

When asked about the willingness to replace existing, proprietary software with a free or open alternative, approximately 50% of both teachers and students showed a positive attitude towards making a switch. It should be noted that 26% of the students and 40% of the teachers did not take a standpoint on this issue, claiming to not know whether or not they were willing to migrate. As indicated by Glynn, Fitzgerald and Exton[9], there is a small portion of the participants that are unwilling to switch to FOSS, and these users might seriously impact the success of a migration[6].

Although FOSS is often considered to be an alternative to pirated software[20][27][28], we can still see that 26% of the students would prefer to use pirated software instead of a FOSS alternative (figure 8). All teachers were positive towards using FOSS instead of pirated software.

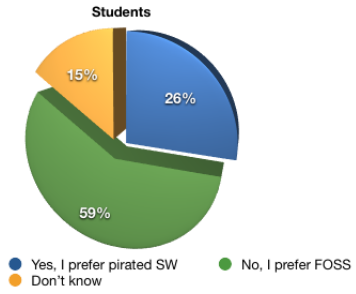

Figure 8: FOSS vs. piracy by students

B. Usability test

The initial plan was to conduct the usability tests at the research site. When the tests were to be conducted, the administrative staff as well as the teachers were in a very busy period, and the tests were therefore conducted at another location. As the questionnaire study showed little to no usage of other applications than Microsoft Word (figures 9 and 10), we decided to focus solely on a usability test comparing Microsoft Word and OpenOffice.org Writer.

Five persons from different backgrounds and with varying computer knowledge were asked to perform the test which consisted of ten different tasks (see Appendix D). The tasks ranged

[11] There Ain't No Such Thing As A Free Lunch
[12] http://www.microsoft.com/windows/internet-explorer
[13] http://messenger.live.com/
[14] http://www.gnu.org/philosophy/free-sw.html

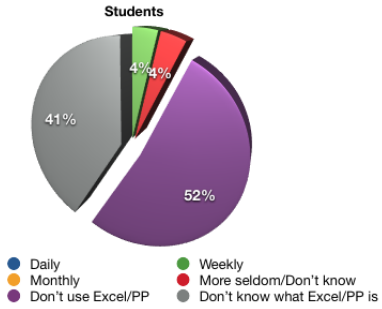

Figure 9: Excel/Powerpoint usage by students

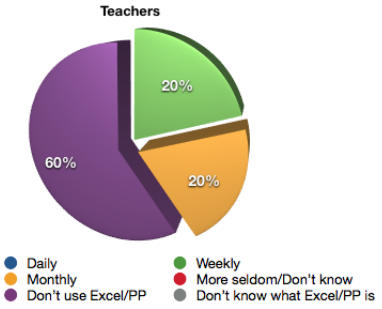

Figure 10: Excel/Powerpoint usage by teachers

from formatting a text in different ways to inserting an image and a table into a document. As suggested by Dumas and Redish[7], the time to complete a task as well as the number of mouse clicks necessary was recorded (figure 11, Appendix E).

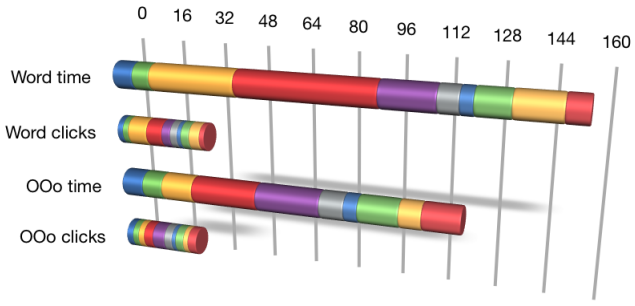

Figure 11: Usability test results

Since Pfaffman[19] claims that the differences between Microsoft Office and OpenOffice.org are so small they can be ignored, we had expected similar results between the two applications. Surprisingly, the tests shows that both the number of clicks as well as the time needed to complete a task is in general lower with OpenOffice.org than with Microsoft Office. The test persons had varying experience of word processing software, some had used none or both applications whereas some had only used Microsoft Word or OpenOffice.org Writer before. As the test subjects were asked to conduct the tasks in OpenOffice.org first, before they were conducted using Microsoft Word, one can assume that the similarities between the two applications made it easier to conduct the tasks in Microsoft Word afterwards.

All users successfully completed all tasks in both productivity suites without help or guidance from the test facilitators. A number of problems were however encountered that can be connected to inexperience with the application at hand or in one case a graphical user interface that confused the users.

Problems encountered with Microsoft Word

One of the major problems encountered when using Microsoft Word came at task no. 3. The user was asked to create a numbered list, and for unknown reasons, the button in the tool bar intended for this purpose did not work as the users expected it to. All users eventually succeeded in making a numbered list through the application menus. Another problem encountered was at task no. 9 when the user was asked to create a table. A button very similar to that used when creating tables is used when creating lines or borders. All users tried this button first, but eventually managed to create a table either by using the correct button or using the application menus.

Problems encountered with OpenOffice.org Writer

Task number ten, which consisted of saving the document in Microsoft Word format

(.doc) showed to confuse the user when using OpenOffice.org. The users often assumed that Microsoft Word would be the default output format, thus ignoring to do the necessary changes to the output format when saving the document.

IV Conclusion

The results from the surveys show that the estimated computer knowledge is good among both students and teachers. Combined with the low usage of document templates and macros we see no technical challenges to overcome. Together with the open opinion towards FOSS and already widespread usage of OpenOffice.org and other FOSS products, using OpenOffice.org throughout the whole educational environment in Lilla Edet would not interfere with ideologies or personal principles.

FOSS is often criticised for having significant usability issues compared to proprietary software[16][8][26][14][21][2]. The usability tests showed that less problems were encountered using OpenOffice.org Writer than Microsoft Word. Although it is tempting to therefore assume that OpenOffice.org should be preferred over Microsoft Office from a usability and productivity perspective, we think it is sufficient to say that the two can be considered equal in terms of functionality and ease of use. We therefore believe the claims made by Nichols and Twidale[16], Thomas[26] and others to be unsupported in this context. The results from the usability tests contradict these claims in this particular case and proves that OpenOffice.org is a mature, easy-to-use, productivity suite.

Pfaffman[19] states that there is little or no need for extra training if one already knows a similar application. Tong[27] continues with saying that the level of usage of productivity suites in educational institutes is at such a level that training is rarely needed. We see that the results from the usability test prove this, and that the similarities between Microsoft Office and OpenOffice.org is at such a large extent that very little additional training would be needed when conducting a migration.

We therefore see several of the key factors mentioned by Aboubekr and Rivard[1] as well as several of the facilitators mentioned by Glynn, Fitzgerald and Exton[9] needed for a migration already fulfilled; The knowledge is there, the mindset towards FOSS is good and there are no advanced tasks being performed today that might be hard to perform in another application. With this knowledge in mind, we conclude that using OpenOffice.org as an alternative to Microsoft Office would present no technical or philosophical difficulties within the primary education of Lilla Edet.

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APPENDIX A

IT-universitetet i Göteborg
CHALMERS | GÖTEBORGS UNIVERSITET

Hej,

Vi heter Jonas Aronsson och Marcus Bengtsson, och vi studerar till systemutvecklare på IT-universitetet i Göteborg. Vi skriver nu vårt examensarbete som går ut på att undersöka möjligheten att byta ut existerande datorprogram i grundskolorna till motsvarande fria program.

Ett fritt program är ett datorprogram som är gratis att använda, till skillnad från de vanligast förekommande programmen som är stängda och kostar pengar. Exempel på stängda program är Microsoft Windows, Microsoft Office och Adobe Photoshop. Exempel på fria program är Mozilla Firefox, OpenOffice.org och VLC.

För att undersöka vilka program som används och hur de används har vi bestämt oss för att göra en enkät där elever får svara på frågor om sin datoranvändning. Enkäten innehåller frågor om vilka program eleven använder i skolarbetet, både i skolan och hemma. Enkäten innehåller också frågor om stängda kontra fria program, för att utröna vilken kunskap som i allmänhet finns om dessa två typer av datorprogram.

Det är till väldigt stor hjälp för oss om ert barn får fylla i enkäten. Enkäten är anonym, och inga namn kommer att publiceras eller nämnas i vårt examensarbete. Att fylla i enkäten tar ungefär 10 minuter. Det är också möjligt att vi ber ert barn att ställa upp på en kort intervju för att kunna få mer detaljerade svar.

Har ni några frågor går det bra att kontakta oss på: examensarbete@lessthanthree.se

☐ Ja, vårt barn får fylla i enkäten

☐ Ja, vårt barn får också ställa upp på en kort intervju

Detta brev tillsammans med en ifylld enkät skall barnet lämna tillbaks till sin lärare senast fredagen den 3 april.

Med vänliga hälsningar,
Jonas Aronsson och Marcus Bengtsson

Enkät

Hej,
Meningen med denna enkät är att få svar på lite frågor om hur du använder datorer i skolan och hemma. Vi kommer också att ställa frågor om fria program. Vissa frågor kan vara svåra. Om du är osäker på någon fråga, svara då "vet ej". Du behöver inte skriva ditt namn någonstans. Det är bara du som vet vad du svarar.

Frågor om dig

Denna del innehåller några frågor om dig.

1 Hur gammal är du?

☐ 6-10 år
☐ 11-12 år
☐ 13-14 år
☐ 15-16 år
☐ äldre än 16 år

2 Kön

☐ Pojke/Kille
☐ Flicka/Tjej

3 Hur bra är du på datorer?

☐ Mycket dålig
☐ Ganska dålig
☐ Varken bra eller dålig
☐ Ganska bra
☐ Mycket bra
☐ Vet ej

2

Appendix A

Användande

I denna del ställer vi frågor om hur du använder datorer.

4 Hur mycket använder du programmet Word i skolan?

- ☐ En eller flera gånger om dagen
- ☐ En eller flera gånger i veckan
- ☐ En eller flera gånger i månaden
- ☐ Mer sällan/Vet ej
- ☐ Jag använder inte programmet Word
- ☐ Vet ej vad programmet Word är

Om du använder Word, till vad använder du programmet?

Svar: _____

5 Hur mycket använder du programmet Excel i skolan?

- ☐ En eller flera gånger om dagen
- ☐ En eller flera gånger i veckan
- ☐ En eller flera gånger i månaden
- ☐ Mer sällan/Vet ej
- ☐ Jag använder inte programmet Excel
- ☐ Vet ej vad programmet Excel är

Om du använder Excel, till vad använder du programmet?

Svar: _____

6 Hur mycket använder du programmet Powerpoint i skolan?

- ☐ En eller flera gånger om dagen
- ☐ En eller flera gånger i veckan
- ☐ En eller flera gånger i månaden
- ☐ Mer sällan/Vet ej
- ☐ Jag använder inte programmet Powerpoint
- ☐ Vet ej vad programmet Powerpoint är

Om du använder Powerpoint, till vad använder du programmet?

Svar: _____

7 Har du tillgång till samma program hemma som i skolan? (flerval)

- ☐ Ja, jag har tillgång till Word hemma
- ☐ Ja, jag har tillgång till Excel hemma
- ☐ Ja, jag har tillgång till Powerpoint hemma
- ☐ Nej, jag använder inga av dessa program hemma
- ☐ Nej, jag har ingen dator hemma
- ☐ Vet ej

8 Använder du samma program hemma som i skolan till att göra skolarbete? (flerval)

- ☐ Ja, jag använder Word hemma
- ☐ Ja, jag använder Excel hemma
- ☐ Ja, jag använder Powerpoint hemma
- ☐ Nej, jag använder inga av dessa program hemma
- ☐ Nej, jag har ingen dator hemma
- ☐ Vet ej

9 Skickar du skolarbete i form av dokument, kalkylblad eller presentationer till andra elever eller lärare?

- ☐ Ja
- ☐ Nej
- ☐ Vet ej

10 Skickar du skolarbete i form av dokument, kalkylblad eller presentationer till personer utanför skolan?

- ☐ Ja
- ☐ Nej
- ☐ Vet ej

Tekniskt användande

Denna del innehåller tekniska frågor. Vissa frågor kan vara svåra att svara på. Om du inte förstår en fråga, välj då alternativet "vet ej".

11 Vet du vad en dokumentmall är?

- ☐ Ja
- ☐ Nej

12 Använder du dig av dokumentmallar?

- ☐ Ja
- ☐ Nej
- ☐ Vet ej

13 Har du någon gång skapat egna dokumentmallar?

- ☐ Ja
- ☐ Nej
- ☐ Vet ej

14 Vet du vad ett Excelmakro är?

- ☐ Ja
- ☐ Nej

15 Använder du dig av Excelmakron?

- ☐ Ja
- ☐ Nej
- ☐ Vet ej

16 Har du någon gång skapat egna Excelmakron?

- ☐ Ja
- ☐ Nej
- ☐ Vet ej

17 Vet du vad ett filformat är?

- ☐ Ja
- ☐ Nej

Appendix A

Fri programvara

I den här delen kommer vi ställa frågor om stängda och fria program. Stängda program är den vanligaste formen av program. Stängda program är inte gratis att använda, utan kostar pengar att köpa. Stängda program är oftast tillverkade av ett företag. Exempel på stängda program är Microsoft Windows, Internet Explorer, Microsoft Office och Adobe Photoshop. Fria program är gratis att använda och kan lagligt laddas ner från Internet. Fria program tillverkas oftast inte av ett företag, utan av en stor grupp människor som har datorer som intresse. Exempel på fria program är Linux och Ubuntu, Mozilla Firefox, OpenOffice.org och VLC.

18 Innan du läste texten ovan, visste du vad fri programvara var?

☐ Ja
☐ Nej

19 Använder du några fria program i skolan?

☐ Ja
☐ Nej
☐ Vet ej

Om ja, vilket eller vilka program?

Svar: _____

20 Använder du några fria program hemma?

☐ Ja
☐ Nej
☐ Nej, jag har ingen dator hemma
☐ Vet ej

Om ja, vilket eller vilka program?

Svar: _____

21 Skulle du vilja byta några av de program du använder idag till fria program?

☐ Ja, men bara för att de är gratis
☐ Ja, jag tror att fria program är minst lika bra
☐ Nej, jag vill inte byta
☐ Nej, jag litar inte på något som är gratis
☐ Vet ej

22 Kan du tänka dig att olagligt ladda ner ett program som annars kostar pengar (en piratkopia) istället för att använda ett fritt alternativ?

☐ Ja, jag laddar hellre ner en piratkopia
☐ Nej, jag använder hellre ett fritt alternativ än en piratkopia
☐ Vet ej

23 Om du skulle tvingas byta ut de program du använder idag till fria alternativ, hur svårt tror du att det skulle vara att lära sig?

☐ Mycket enkelt
☐ Ganska enkelt
☐ Varken svårt eller enkelt
☐ Ganska svårt
☐ Mycket svårt
☐ Vet ej

Tack!

Vi uppskattar verkligen att du tog dig tid att svara på dessa frågor. Det betyder jättemycket för oss.
Jonas och Marcus

5

Appendix B

Enkät - Lärare

Hej,
denna enkätundersökning behandlar användandet av ordbehandlingsprogram och liknande program inom skolan och hemma. Undersökningen avser också att undersöka individens attityd gentemot fria/öppna program. Vissa frågor är indikerade som flervalsfrågor med texten (flerval), här får man välja alla de alternativ som passar. Om du är osäker på någon fråga, välj alternativ "vet ej". Enkäten är anonym.

Frågor om dig

Denna del innehåller kortfattade frågor om dig som person. Syftet med dessa frågor är att gruppera svaren för att förenkla den statistiska analysen.

1 Vilket år är du född?

19___

2 Kön

☐ Man
☐ Kvinna

3 På vilken nivå uppskattar du din datorkunskap?

☐ Mycket dålig
☐ Ganska dålig
☐ Varken bra eller dålig
☐ Ganska bra
☐ Mycket bra
☐ Vet ej

Användande

Denna del behandlar ditt vardagliga användande av ordbehandlingsprogram och liknande program.

4 Hur mycket använder du programmet Word i arbetet?

☐ En eller flera gånger om dagen
☐ En eller flera gånger i veckan
☐ En eller flera gånger i månaden
☐ Mer sällan/Vet ej
☐ Vet ej vad programmet Word är
☐ Jag använder inte programmet Word

Om du använder Word, till vad använder du programmet?

Svar: _____

5 Hur mycket använder du programmet Excel i arbetet?

☐ En eller flera gånger om dagen
☐ En eller flera gånger i veckan
☐ En eller flera gånger i månaden
☐ Mer sällan/Vet ej
☐ Nej, jag har ingen dator hemma
☐ Vet ej vad programmet Excel är
☐ Jag använder inte programmet Excel

Om du använder Excel, till vad använder du programmet?

Svar: _____

6 Hur mycket använder du programmet Powerpoint i arbetet?

☐ En eller flera gånger om dagen
☐ En eller flera gånger i veckan
☐ En eller flera gånger i månaden
☐ Mer sällan/Vet ej
☐ Vet ej vad programmet Powerpoint är
☐ Jag använder inte programmet Powerpoint

Om du använder Powepoint, till vad använder du programmet?

Svar: _____

7 Har du tillgång till samma program hemma som i arbetet? (flerval)

☐ Ja, jag har tillgång till Word hemma
☐ Ja, jag har tillgång till Excel hemma
☐ Ja, jag har tillgång till Powerpoint hemma
☐ Nej, jag har inte tillgång till dessa program hemma
☐ Nej, jag har ingen dator hemma
☐ Vet ej

8 Använder du samma program hemma som i arbetet till att göra skolmaterial? (flerval)

☐ Ja, jag använder Word hemma
☐ Ja, jag använder Excel hemma
☐ Ja, jag använder Powerpoint hemma
☐ Nej, jag använder inte dessa program hemma
☐ Nej, jag har ingen dator hemma
☐ Vet ej

Appendix B

9 Skickar du skolmaterial i form av dokument, kalkylblad eller presentationer till elever eller andra lärare?

☐ Ja
☐ Nej
☐ Vet ej

10 Skickar du skolmaterial i form av dokument, kalkylblad eller presentationer till personer utanför skolan?

☐ Ja
☐ Nej
☐ Vet ej

Tekniskt användande

Denna del behandlar frågor av en mer teknisk natur.

11 Vet du vad en dokumentmall är?

☐ Ja
☐ Nej

12 Använder du dig av dokumentmallar?

☐ Ja
☐ Nej
☐ Vet ej

13 Har du någon gång skapat egna dokumentmallar?

☐ Ja
☐ Nej
☐ Vet ej

14 Vet du vad ett Excelmakro är?

☐ Ja
☐ Nej

15 Använder du dig av Excelmakron?

☐ Ja
☐ Nej
☐ Vet ej

16 Har du någon gång skapat egna Excelmakron?

☐ Ja
☐ Nej
☐ Vet ej

17 Vet du vad ett filformat är?

☐ Ja
☐ Nej

Fri programvara

I den här delen följer några frågor om stängda och fria program. Stängda program är den vanligaste formen av program. Stängda program är oftast inte gratis att använda, utan kostar pengar att köpa. Stängda program är oftast tillverkade av ett företag. Exempel på stängda program är: Microsoft Windows, Internet Explorer, Microsoft Office och Adobe Photoshop. Fria program är gratis att använda och de kan lagligt laddas ner från Internet. Fria program tillverkas sällan av ett företag, utan av en stor grupp människor som har datorer som intresse. Exempel på fria program är: Linux och Ubuntu, Mozilla Firefox, OpenOffice.org och VLC.

18 Visste du innan du läste texten ovan vad fri programvara var?

☐ Ja
☐ Nej

19 Använder du dig av några fria program i arbetet?

☐ Ja
☐ Nej
☐ Vet ej

Om ja, vilket eller vilka program?

Svar: _____

20 Använder du dig av några fria program hemma?

☐ Ja
☐ Nej
☐ Vet ej
☐ Nej, jag har ingen dator hemma

Om ja, vilket eller vilka program?

Svar: _____

21 Kan du tänka dig att byta ut något eller några av de program du idag använder till motsvarande fria program?

☐ Ja, men bara för att de är gratis
☐ Ja, jag tror att fria program är minst lika bra
☐ Nej, jag vill inte byta
☐ Nej, jag litar inte på något som är gratis
☐ Vet ej

22 Kan du tänka dig att olagligt ladda ner ett program som annars kostar pengar (en piratkopia), istället för att använda ett fritt alternativ?

☐ Ja, jag laddar hellre ner en piratkopia
☐ Nej, jag använder hellre ett fritt alternativ än en piratkopia
☐ Vet ej

23 Om du skulle tvingas byta ut de program du använder idag till fria alternativ, hur svårt tror du att det skulle vara att lära sig?

☐ Mycket svårt
☐ Ganska svårt
☐ Varken svårt eller enkelt
☐ Ganska enkelt
☐ Mycket enkelt
☐ Vet ej

Tack!

Vi uppskattar verkligen att du tog dig tid att svara på dessa frågor. Det betyder jättemycket för oss.
Jonas & Marcus

APPENDIX C

Computer Knowledge	Very bad	Quite bad	Neither bad or good	Quite good	Very good	Don't know
Tingberg boys				7	1	1
Tingberg girls		1	4	2		
Ström boys			2	4		
Ström girls			2	3		
Tingberg teachers		1		4		
Ström teachers			4		1	
Students	0	1	8	16	1	1
Teachers	0	1	4	4	1	0

Word Usage	Daily	Weekly	Monthly	More seldom	Don't use Word	Don't know what Word is
Tingberg boys		4	2	2	1	
Tingberg girls	1	2		4		
Ström boys			3	3		
Ström girls			2	3		
Tingberg teachers	4			1		
Ström teachers	2	2		1		
Students	1	6	7	12	1	0
Teachers	6	2	0	2	0	0

APPENDIX C

Send Internal	Yes	No	Don't know
Tingberg boys	4	4	1
Tingberg girls	1	5	1
Ström boys	1	5	
Ström girls		5	
Tingberg teachers	4	1	
Ström teachers	2	3	
Students	6	19	2
Teachers	6	4	0

Document Templates	Yes	No	Don't know
Tingberg boys	4	4	1
Tingberg girls	2	1	4
Ström boys		4	2
Ström girls		3	2
Tingberg teachers	2	3	
Ström teachers	1	3	1
Students	6	12	9
Teachers	3	6	1

APPENDIX C

File Formats	Yes	No
Tingberg boys	8	1
Tingberg girls	4	3
Ström boys	5	1
Ström girls	3	2
Tingberg teachers	4	1
Ström teachers	4	1
Students	20	7
Teachers	8	2

FOSS knowledge	Yes	No	Don't know
Tingberg boys	9		
Tingberg girls	1	1	5
Ström boys	3		3
Ström girls	3		2
Tingberg teachers	3	1	1
Ström teachers	2	1	2
Students	16	1	10
Teachers	5	2	3

APPENDIX C

Switch to FOSS	Yes, because it is free	Yes, they are equally good	No, I don't want to	No, I don't trust FOSS	Don't know
Tingberg boys	1	4	2		2
Tingberg girls	1	1	2		3
Ström boys	1	1	2		2
Ström girls		3	2		
Tingberg teachers		3	1		1
Ström teachers	1	1			3
Students	3	9	8	0	7
Teachers	1	4	1	0	4

Piracy vs. FOSS	Yes, I prefer pirated SW	No, I prefer FOSS	Don't know
Tingberg boys	2	6	1
Tingberg girls	2	4	1
Ström boys	3	2	1
Ström girls		4	1
Tingberg teachers		5	
Ström teachers		5	
Students	7	16	4
Teachers	0	10	0

APPENDIX C

How hard to switch	Very easy	Quite easy	Neither easy nor hard	Quite hard	Very hard	Don't know
Tingberg boys	1	4	2		1	1
Tingberg girls	1	1		1	1	3
Ström boys		2	2			2
Ström girls		2	2			1
Tingberg teachers		3	1		1	
Ström teachers		1	1	1		2
Students	2	9	6	1	2	7
Teachers	0	4	2	1	1	2

Macro Usage	Yes	No	Don't know
Tingberg boys		5	4
Tingberg girls		2	5
Ström boys		1	5
Ström girls		4	1
Tingberg teachers		5	
Ström teachers	1	3	1
Students	0	12	15
Teachers	1	8	1

APPENDIX D

Task 1 - format headlines

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 2 - create bulleted list

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 3 - create numbered list

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 4 - add page header

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 5 - replace all "ipsum" with "lorem"

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 6 - make text larger

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 7 - make text right adjusted

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 8 - insert image

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 9 - create table

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

Task 10 - save as .doc

Time MS Word:

Clicks MS Word:

Time OOo:

Clicks OOo:

APPENDIX E

	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8	Task 9	Task 10
MS Word time	6	4	30	98	8	5	4	8	18	5
MS Word clicks	2	2	10	10	5	3	2	3	10	3
OO time	8	4	2	26	7	7	3	5	6	13
OO clicks	2	2	2	5	4	3	2	3	1	4
MS Word time	10	10	25	80	40	7	4	15	4	15
MS Word clicks	2	2	5	10	3	2	1	3	2	3
OO time	8	17	39	34	60	9	6	23	3	22
OO clicks	4	3	3	5	10	3	1	3	2	3
MS Word time	11	7	60	15	23	10	5	14	30	10
MS Word clicks	2	2	4	1	2	2	1	3	3	1
OO time	12	5	7	40	23	15	6	20	15	15
OO clicks	2	2	2	3	3	3	1	3	2	3
MS Word time	4	4	16	15	10	6	4	9	9	2
MS Word clicks	2	2	8	4	3	3	2	3	2	1
OO time	5	4	4	6	10	5	4	8	6	3
OO clicks	2	2	2	2	3	3	2	3	2	3
MS Word time	5	6	21	32	11	6	4	10	14	4
MS Word clicks	2	2	8	4	3	3	1	3	2	1
OO time	6	7	5	11	12	6	4	12	7	10
OO clicks	2	2	2	2	3	3	1	3	2	3
Totals										
Word time	7.2	6.2	30.4	48	18.4	6.8	4.2	11.2	15	7.2
Word clicks	2	2	7	5.8	3.2	2.6	1.4	3	3.8	1.8
OOo time	7.8	7.4	11.4	23.4	22.4	8.4	4.6	13.6	7.4	12.6
OOo clicks	2.4	2.2	2.2	3.4	4.6	3	1.4	3	1.8	3.2