

RESULTS OF THE QUESTIONNAIRES
ON THE
DISTANCE COLLABORATION EXPERIMENT
“BOEING VERSUS AIRBUS INDUSTRIES”

Summary of the results
Maastricht McLuhan Institute Learning Lab
Dr. L.A. Plugge, May 18, 2000





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1 Introduction

During the spring of 2000 the universities of Maastricht and Whitworth conducted an experiment with two groups of students on the so-called Big Block Case "Boeing versus Airbus Industries". The aim of the experiment was to have the students who participated in this block to collaborate via the computer. The main facility at their disposal was e-mail and Speakeasy. During the block the students also had the opportunity to experiment with video conferencing.

The Maastricht McLuhan Institute was asked to administer a pre and post trial questionnaire to see what the students' expectations were about these facilities, the students' attitude towards computers, their computer skills, and their attitude toward collaborative learning.

Another new aspect of this experiment is the way the results were gathered. Normally this is done with paper questionnaires. In this case the questionnaire was administered with a Web page through the Internet.

In this paper we present the preliminary results of this questionnaire.

2 Results of the Pre and Post Trial Questionnaire

To help the reader in comparing the results of the pre and post trial we discuss the two together.

2.1 Number of Respondents

As shown in Table 1 the number of respondents to the Pre Trial Questionnaire is not very high, but it became even lower at the Post Trial Questionnaire. Particularly the number of respondents from the University of Whitworth is in both cases very low. However, its number of Whitworth respondent is constant, while the number from Maastricht is less than half of the Pre Trial number.

Table 1 Number Respondents Pre and Post Trial

	Pre Trial n (%)	Post Trial n (%)
Maastricht	35 (81)	16 (64)
Whitworth	8 (19)	9 (36)
Total	43 (100)	25 (100)

Table 2 shows that there are relatively more female students from the University of Whitworth than from Maastricht.

Table 2 Number of Male and Female Pre Trial Respondents

	Pre Trial		Post Trial	
	Male n (%)	Female n (%)	Male n (%)	Female n (%)
Maastricht	28 (80)	7 (20)	15 (93.8)	1 (6.3%)
Whitworth	5 (63)	3 (37)	6 (66.7)	3 (33.3%)
Total	33 (77)	10 (23)	21 (84.0)	4 (16.0%)

2.2 Age of the respondents

Table 3 shows the mean age and std. Deviation of the Pre and Post Trial respondents from the two universities. Clearly, the students at Whitworth are older on the average. However, note that the standard deviation for Whitworth is 7 years, in contrast with the 2 years in Maastricht students. This means that the respondents from Whitworth are more heterogeneous on the variable age, with a minimum value of 26 years and a maximum value of 48 years.

**Table 3 Mean Age of the Pre and Post Trial Respondents**

	Pre Trial			Post Trial		
	Mean	N	Std. Deviation	Mean	N	Std. Deviation
Maastricht	22.20	35	1.88	22.56	16	1.93
Whitworth	38.25	8	7.55	33.56	9	7.09
Total	25.19	43	7.23	26.52	25	6.93

2.3 General results of the first questionnaire

The results of the first questionnaire showed only a few significant results. These are discussed further on in this paper. In this section we summarize the results of the multiple-choice questions 1 to 23.

2.3.1 Attitude and perceived skill

Almost all respondents (90%) have a computer at their disposal at home, and most of them (80%) use it often. Only 7% has no home computer. Only a very small number of respondents (5%) become nervous by the very idea to work with a computer. The majority of the respondents feel very skilled in using a computer (63%), while 26% feels moderately skilled, and 12% does not feel skilled. Also, about 9% often postpones working with a computer. Most respondents (79%) would like to be more skilled in using a computer. Still, about 14% of the respondents do not wish to be more skilled. The majority (70%) feels relaxed and in control (77%) while working with a computer and about 30% feels uncomfortable or not too much in control (23%).

2.3.2 Computer Use

Interestingly, the majority (67%) claims *not* to use their home computer to play games. There is also a schism between those who use their home computer to surf on the Internet (56%) and those who do not (35%). A large majority (74%) prefers searching on the Internet to searching in the library, while 14% definitely prefers the library. Almost all respondents (90%) use their computer at home for text processing.

2.3.3 Collaboration

Most respondents tell their fellow students how they solved some problem (74%) and 21% now and then. About the same percentage is true for asking fellow students for advice and for believing that they learn from conversations with other students. However, only 60% agree to the statement "studying in collaboration is important to me". This same percentage holds for solving problems with fellow students. Also, approximately 56% likes to collaborate with others by means of the computer, while 26% does not. About 40% think collaboration is not, or not very important. Additionally, 58% prefers to solve things on their own than asking a teacher. Only 30% often study with fellow students, while 47% does not, and 23% now and then. About 54% prefers studying alone.



2.4 Facilities: expectancies and use

Figure 1 shows the expectancy of the participants about the facilities they will likely use. Figure 2 shows what they really did use. Interestingly, the percentage of participant who used e-mail is higher than expected. The percentages for Maastricht did not change much. However, for Whitworth there is a drop of approximately 17% for Speakeasy and a 30% increase for e-mail.

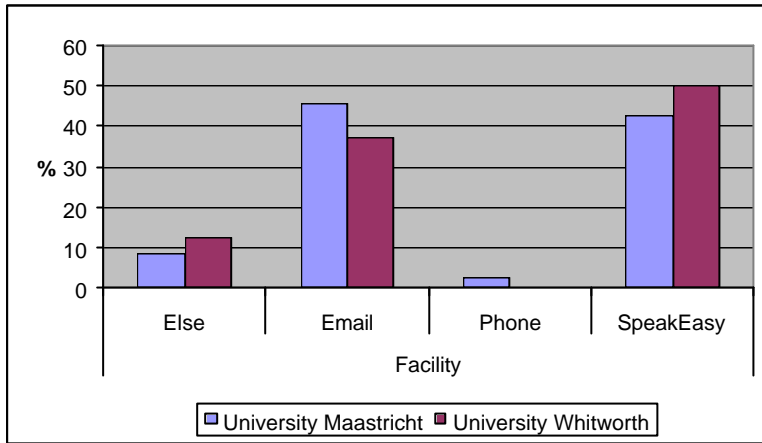


Figure 1 Facility expected to be used most

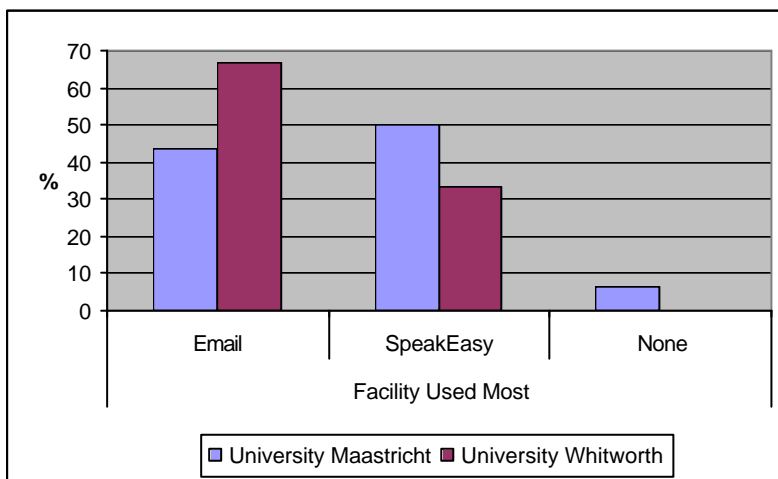


Figure 2 Facility used most during the trial

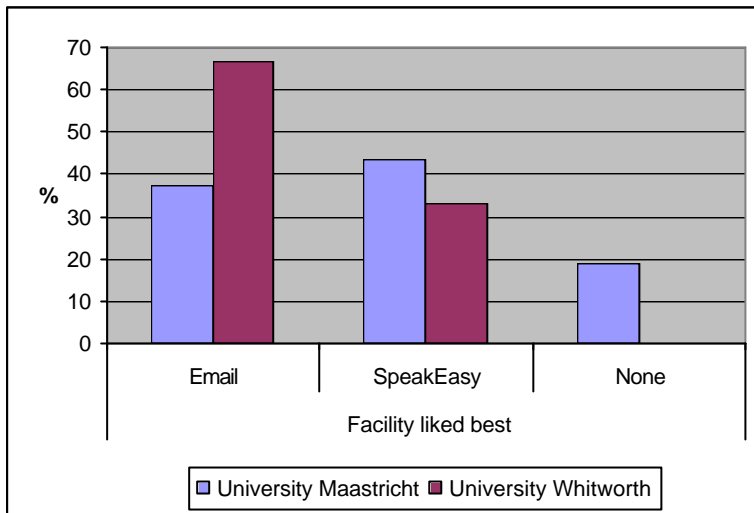


Figure 3 Facility liked best during the trial

Figure 3 shows that the facility liked best is the facility used most. However, the percentage of participants who did not like any of the facilities rose to 20% (=3).

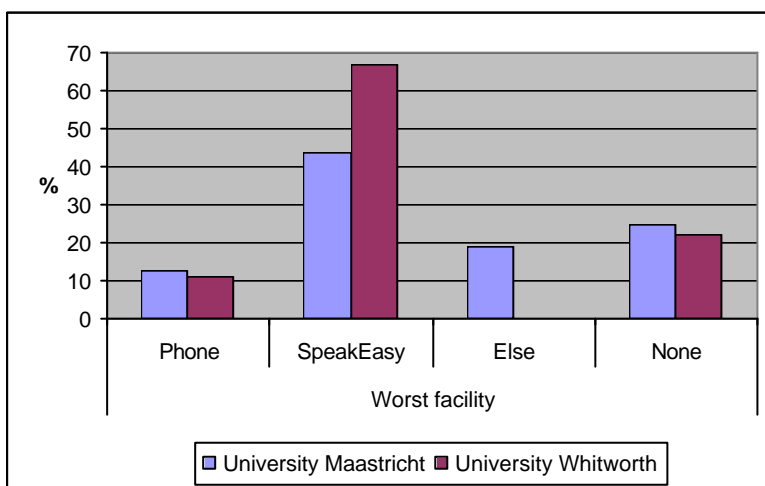


Figure 4 The facility considered worst by respondents

The results shown in Figure 4 are remarkable firstly because some respondents mention the Phone as worst facility. Secondly, the fact that the respondents mention Speakeasy as the worst facility, even though it is the second mostly used facility. The respondents from Whitworth dislike Speakeasy more in comparison with those from Maastricht.

Figure 5 and Figure 6 show the facilities used for the first time by the respondents for Whitworth and Maastricht respectively. (Please note that the respondents were able to select more than one answer)

From Whitworth 7 out of 9 respondents, and from Maastricht 13 out of 16, had never worked with Speakeasy before. From Maastricht, 14 out of 16 respondents had never used Video Conferencing. The Maastricht respondents seem more familiar with chatting, while more Whitworth respondents have worked a Whiteboard and Video Conferencing before.

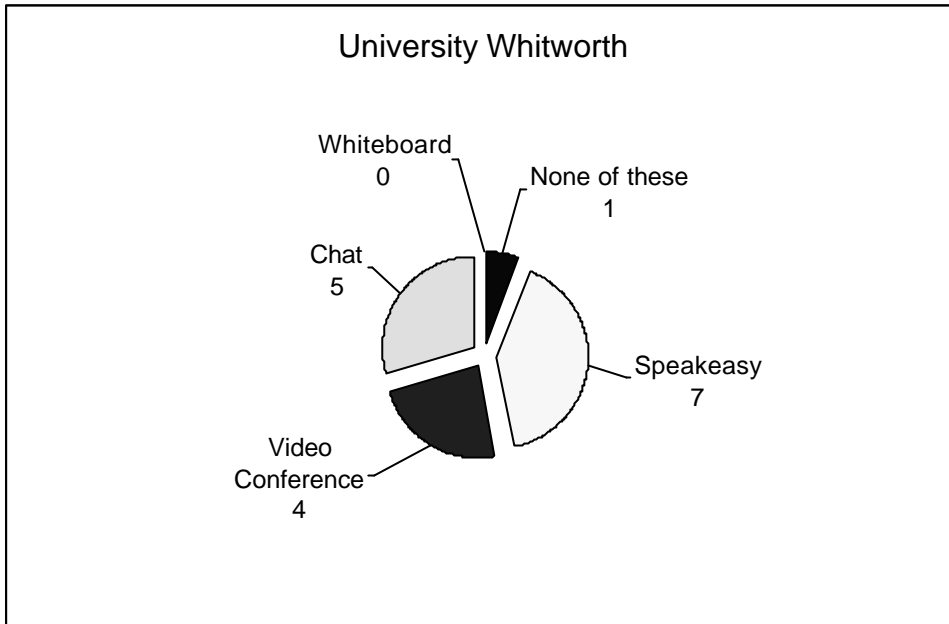


Figure 5 Facilities used for the first time by Whitworth respondents

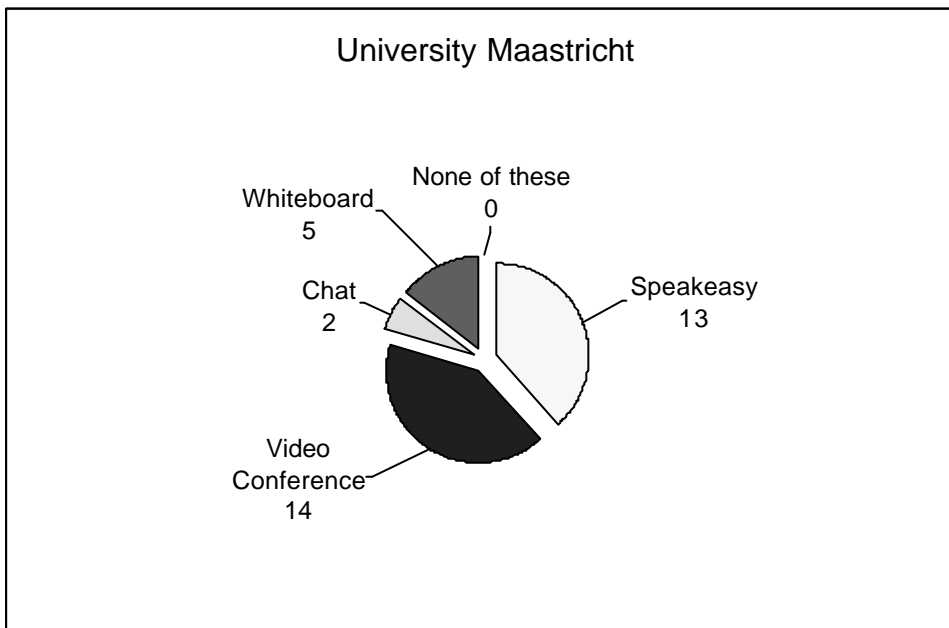


Figure 6 Facilities used for the first time by Maastricht respondents

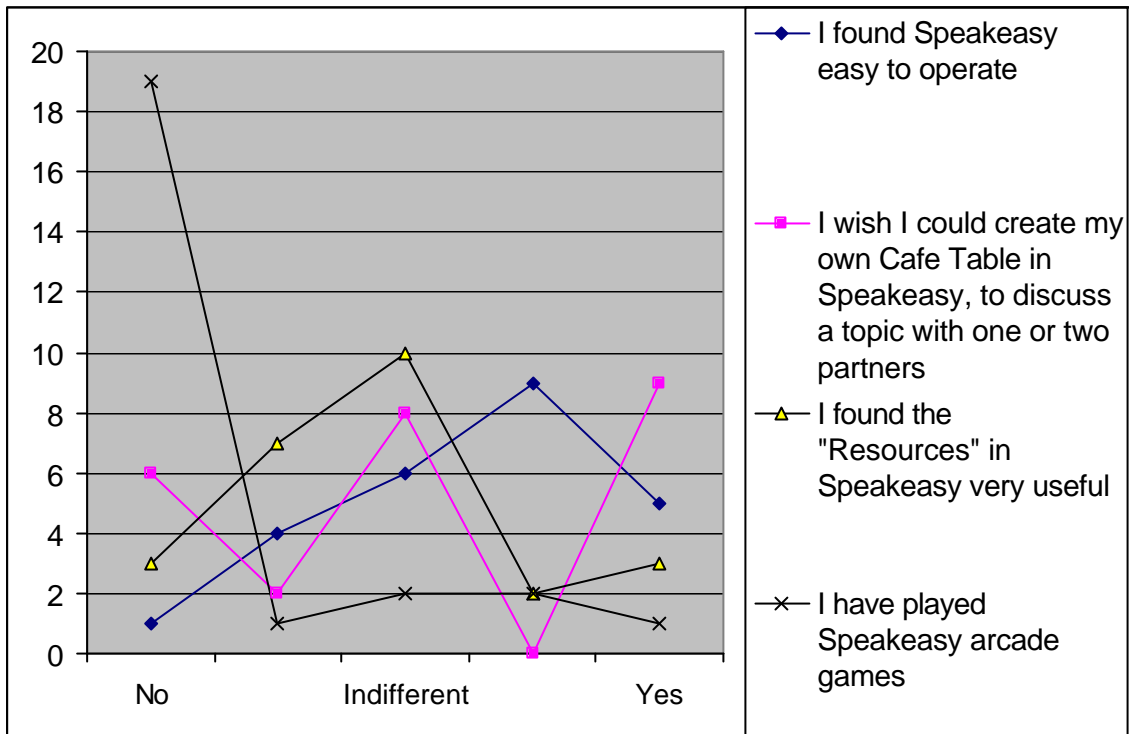


Figure 7 Opinions on Speakeasy

Figure 7 shows that 14 respondents found Speakeasy easy to operate, while 11 thought it was average or not so easy. The answers about creating a separate Café Table are also relatively even distributed: some wish they could, others do not care, and some do not need such a feature. The respondents were more outspoken about the usefulness of the resources in Speakeasy: only 5 think it is useful. Finally, only 3 people played the Speakeasy arcade games. The majority knew Speakeasy well enough to know that the games exist, since 19 respondents answered "No".

2.5 Student Cooperation

Figure 8 shows that 19 out of 25 respondents enjoyed working together via the computer, as opposed to 6 who did not care or did not like it.

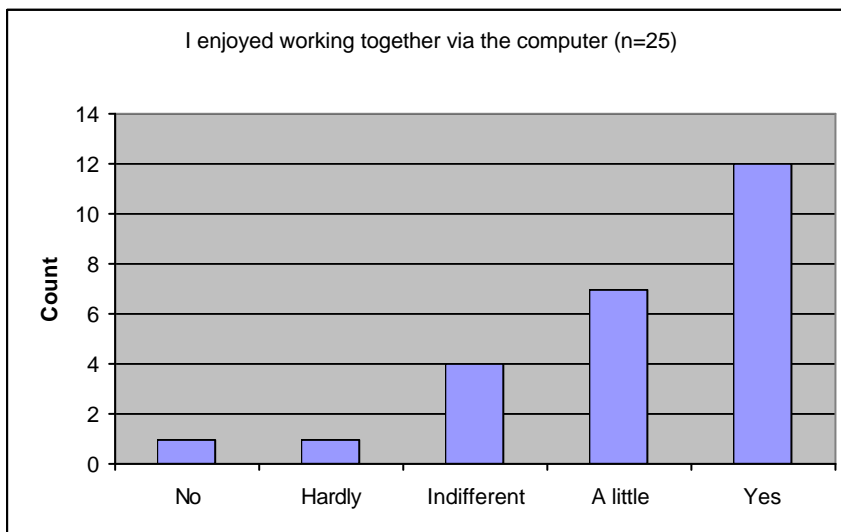


Figure 8 Degree to which the respondents enjoyed working together via computer



Although not significant (Pearson Chi-square=5.455, $p=0.065$, 2-sided)¹, the data showed a difference between the Maastricht and the Whitworth respondents. The Whitworth respondents are more inclined to prefer studying alone.

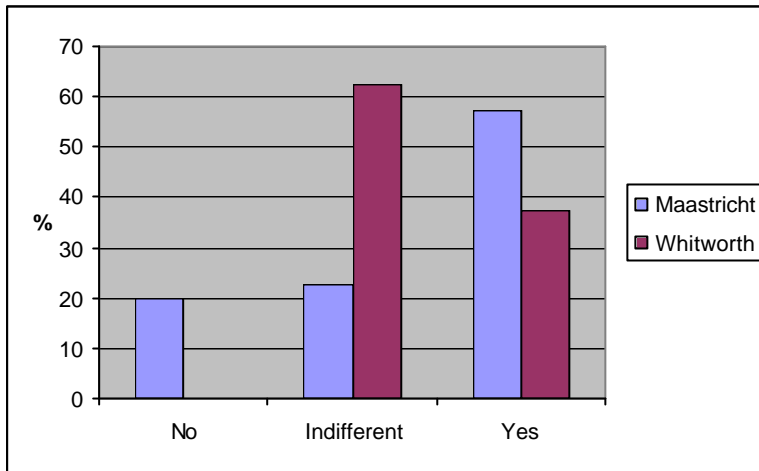


Figure 9 I prefer studying alone

The composite Figure 10 shows that the respondents are not very enthusiastic about the technology for collaboration. Most of them are indifferent, or maybe did not even bother trying it.

Among the facilities, chatting software scores best. Interesting is the respondents' opinion on video conferencing. On the one hand, they did not think it was very useful, but on the other hand, most of them they would certainly use it if they had it at home.

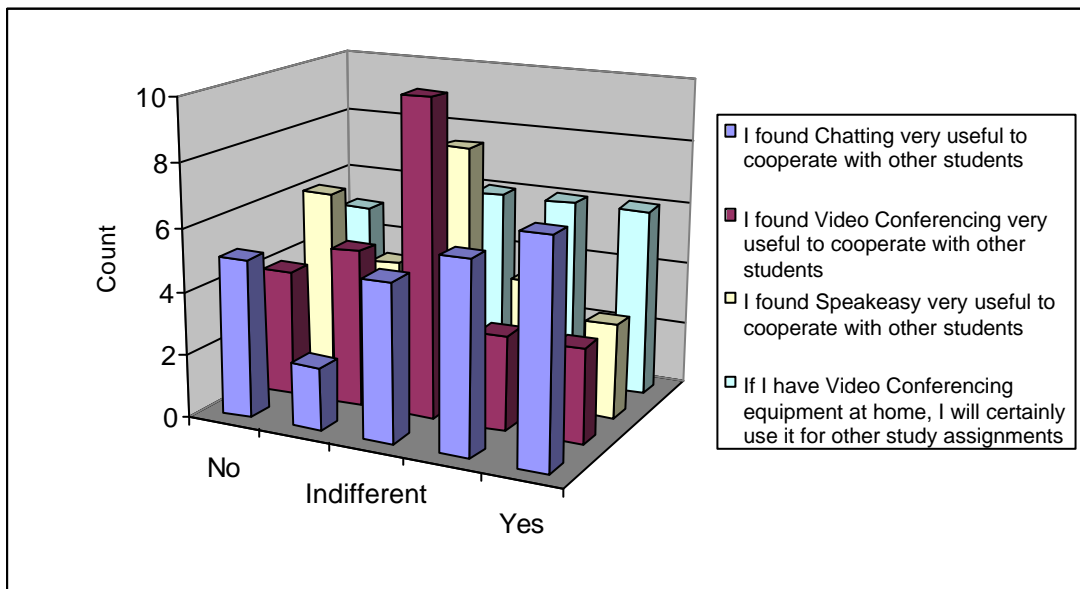


Figure 10 Facilities and their perceived usefulness for cooperation

2.6 Respondents' attitude toward computers

Although not significant in this case, the difference shown in Figure 11 between male and female respondents resembles other results found in earlier research. Males tend to have a more positive view of their computer skills than females.

¹ The Pearson Chi-square test is not completely reliable due to violation of the minimum cell frequency rule.

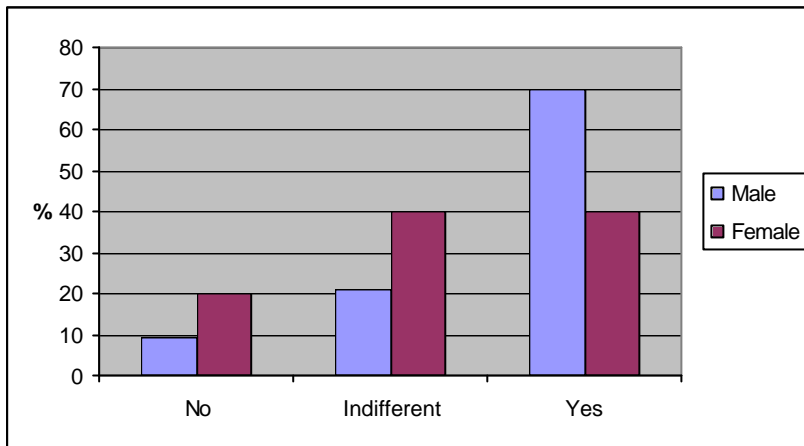


Figure 11 “I am very skilled in using the computer”

In a related question, “The very idea to work with a computer makes me nervous”, the difference between male and female respondents was much smaller. Furthermore, more than 90% does not agree with this statement. However, this still means that the chances are 1 in 10 that a respondent feels uneasy when working with a computer.

The same results hold for the question “I often try to postpone working with the computer”. Of the respondents, 80% answers with a definite “No”, 10% with a definite “Yes”, and the remaining 10% partly agrees with the statement.

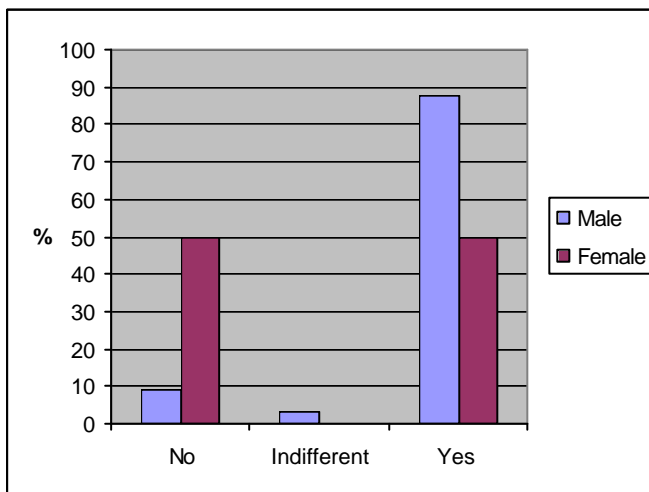


Figure 12 “I often use my computer at home”

The answers to the statement “I often use my computer at home” (Figure 12) were significantly different between males and females. (Pearson Chi-square=8.599, $p=0.014$ 2-sided)¹

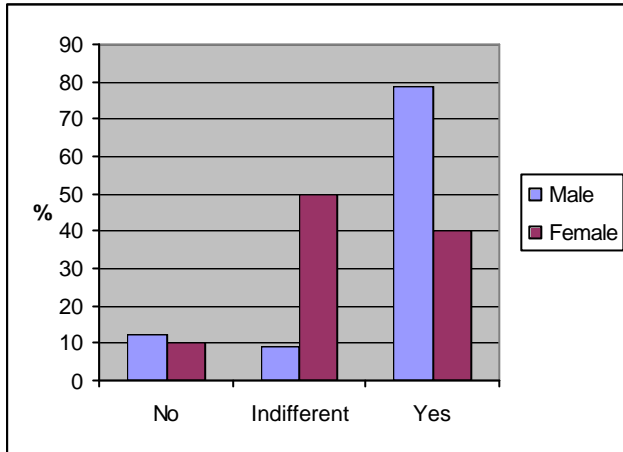


Figure 13 “I feel relaxed while working with a computer”

Figure 13 show that there is a remarkable difference between males and females in their sense of feeling relaxed while working with a computer. Half of the females do not feel very relaxed. (Pearson Chi-square=8.588, p=0.014 2-sided)¹

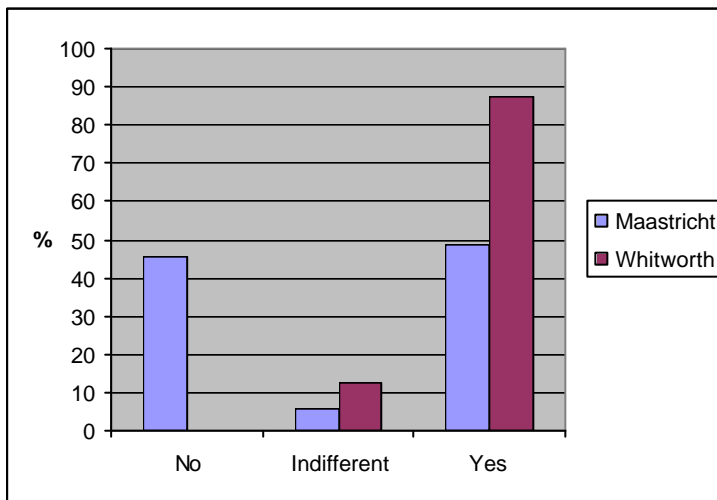


Figure 14 “I use my computer at home for e-mail”

The respondents of Whitworth, compared to those from Maastricht, answer the statement “I use my computer at home for e-mail” significantly different. (Pearson Chi-square=5.855, p=0.014 2-sided)¹

Given the fact that there was no difference between the respondents in having access to a computer at home, we conclude that the difference is caused by a lack of network access at home for the Maastricht respondents.



3 Conclusions

Before we start drawing conclusions we must point out that we cannot be absolutely certain about the validity of the results. Validity is affected by two problems in this experiment: 1) does manner data collection, and 2) the low response on the second questionnaire.

Administering questionnaires over the Internet is convenient for both experimenter and subjects, but we do not know how many students had technical or even personal difficulties in filling-in an electronic form. However, we do know that some students with computer skill problems did fill-in the questionnaire. (See Figure 11) This makes it likely that we did reach a cross section of all students.

The number of respondents was reasonable for the first questionnaire, but very low for the second. This makes it difficult to draw hard statistical conclusions without violating requirements for statistical significance. However, the differences found for gender are probably true differences, since they are consistent with other research.² It is therefore plausible that the differences found between the two universities are also true differences.

From the results we can conclude that most students have a computer at their disposal at home, and most of them feel skilled in operating it. However, even though most of them have a computer at their disposal, a large minority does not use it to surf the Internet. A logical explanation is that these students do not have an Internet connection at home. Another explanation could be that students take the computer seriously: surfing the Internet is like playing games and most respondents stated that they do not play games on their home computer. (See section 2.3.2 above.

The majority of the students prefer studying alone, even though another majority agree with the statement "studying in collaboration is important to me". Interestingly, students at Whitworth have a higher preference for studying alone than the student at Maastricht. This can have two causes: 1) the students at Whitworth are older; 2) students at Maastricht are more accustomed to collaborative work. For most students collaboration seems to revolve around telling stories about solving problems, and asking fellow students for advice. Thus, students like to *communicate* about their work, but most prefer to work alone.

The facilities were a disappointment for the students. They all expected to use both e-mail and Speakeasy, but the Whitworth students in particular turned to e-mail as their main communication tool. Students from both universities agreed that Speakeasy was the worst facility. Speakeasy seems easy enough to operate, but the chat functionality seems inadequate. Additionally, the usefulness of the "resources" in Speakeasy received a low score. It should be noted, that this is the task of the teachers. Maybe the students did not make optimal use of Speakeasy due to insufficient preparation by the teachers.

Interestingly, the students did not choose video conferencing as their worst tool, even though there were several technical problems during the video conferencing sessions. Moreover, many students state that they would use video conferencing if they had it at home. It is also encouraging that most students enjoyed working together by computer.

² See the results of a GenTech survey: <http://www.educ.sfu.ca/gentech/survey.html>.



4 Appendix Student Comments

I like the way that we used lots of computers but there aren't enough pcs in the SMR

I found that going through the numerous screens to get to the Cafe Tables was a bit cumbersome. Perhaps if there was an easier and quicker format to use. While I thought the table that provided the last several communications to the Cafe Tables was help

i found the course interesting, also the ability to video conference was interesting. i disliked the time difference and the obligation to work together, also the fact that the others wre doing a different course was not helpful.

I found very interesting the video conferencing such as the presentation we did.

There were not enough computer facilities and the Withworth people did respond very well, therefore we didn't find a partner there and this certainly reduced the learning experience. Furthermore, it was a very messy and unclear assignment. On the other ha

Liked the try to use them, but unfortunately it didn't work out. I found out, cooperation via internet was very hard to realize. In my case, there was no cooperation or what so ever via the internet. Question 12 is in my case irrelevant

In general, I found the whole idea very interesting but in reality the group work turned out to be not a great success. furthermore, the videoconferencing did not work out that well (was actually the first time). I think that for the future it will be goo

Speakeasy was not very user friendly. If and when someone answered your querey, it took 12-48 hours turnaround to get an answer to your question. When we did make connections, it was easier to drop Speakeasy and use old fashion email.

Videoconferencing turned out to be rather disappointing: the visuals and sound were bad. Due to the time and age difference, we often used e-mail. This turned out to be quite productive. I enjoyed the cooperation, and I realise it is entirely up to yourse

Speakeasy was at times hard to get into. For the most part speakeasy was a useful tool in communications. I enjoyed the experience.

I liked exchanging my ideas with your institution and what I disliked was the fact that some students where just not responding on time to get the work done so it made me quit corresponding abroad in the speakeasy. I also noticed that many weren't even g

The video conferencing facilities were very nice to experiment with, hoeweever the use for this block was not very clear. Tt was a pity the US teams did not co-operate as extensively as we did, but in the end it worked out pretty well.

Better technolgy where we do not have to wait for the next frame to come into view after 2 minutes. Videoconferancing with voice, I think that would be very nice.

I did not like that the Speakeasy system did not work properly sometimes. E-mail is better suited to communicate with the foreign students

The video conferencing was brilliant. Also was the interactive contact with other students in the world. I did not like the speakeasy system very much. It is useful to post some messages. It defenitely lacks of a proper chat program. There is no use that

The quality of the video conference was very bad
