

UNIVERSITY OF TWENTE

Faculty of Electrical Engineering, Mathematics and Computer Science

Eva Maria Veitmaa s2132397

CASE STUDY ON NOTE-TAKING HABITS OF A STUDENT IN THE UNIVERSITY OF TWENTE

Concepts, Measures and Methods

Instructor: Jan Maarten Schraagen

Word count: 9315

Enschede

01.11.2018

Contents

1	Introduction	3
2	Participants	5
3	Methods	6
3.1	Diary study	6
3.2	Interview.....	7
3.3	Field study.....	8
3.4	Usability testing.....	8
4	Results	10
4.1	Diary study	10
4.1.1	Aspects that have an impact on understanding and focus.....	10
4.1.2	Formatting.....	11
4.2	Interview.....	13
4.2.1	Reasons for taking notes	13
4.2.2	Programs used to take notes.....	14
4.2.3	The life cycle of notes.....	15
4.2.4	Collaborating on notes	17
4.3	Field study.....	17
4.4	Usability testing.....	18
4.4.1	Unsuccessful tasks	18
4.4.2	Recommendations for improvements	20
5	Discussion.....	23
5.1	Reflection on methods.....	24
5.1.1	Reflection on the diary study	24
5.1.2	Reflection on the interview	25
5.1.3	Reflection on the field study	25
5.1.4	Reflection on the usability testing.....	26
6	Conclusion and recommendations.....	27

1 Introduction

This research is carried out as a project for the subject “Concepts, Measures and Methods”. It is a single-participant case study on note-taking habits of a student currently enrolled in the University of Twente. The goals of this study are to investigate why, when, how students take notes and whether they collaborate on them, and to analyse how Microsoft OneNote [1] and its functionality could help them in their note-taking process. The original research proposal can be seen in Appendix 1.

Research methods, such as a diary study, interview, and field study, are used to gain insight into the topic after which findings are evaluated by conducting usability testing as a rapid evaluation method [2]. The result of this study is an overview of the note-taking habits of the participant and recommendations for improving the Microsoft OneNote platform.

There are several reasons for conducting this minor-scale user research. A broader and more explorative one is to investigate the general note-taking habits of the current students of the University of Twente, including for what reasons, in what way and with whom they take notes. The goal is to analyse how students retain, share and collaborate on notes of their lectures and which digital platforms and paper-based options they use for those activities to understand what could be done to support their note-taking activities further.

Furthermore, a more specific and product-related goal is to explore how Microsoft OneNote [1], which is part of the Microsoft Office 365 suite, could help students in their note-taking and collaborating process. Microsoft OneNote can be used to write down lecture notes, share and collaborate on conspectus and organise their schoolwork into one digital notebook that enables the creation of several sections, pages and subcategories. The study wishes to analyse how difficult it is to use Microsoft OneNote for the first time, given that the user has had prior experience with similar word processors, such as Microsoft Word, LibreOffice Word and Google Docs, and to help determine how the functionality and user interface of OneNote could be improved to fit the needs of first-time student users.

In addition, a personal objective is to gain further insight into how to conduct user research the correct way by exploring and experimenting with some of the most common user research methods.

The topic was chosen because the author of this study wanted to find out more about how other students take notes, especially because in the previous university of the author, most of the

lecture slides were uploaded online before the lecture, which made it easier to add notes to slides during the lecture.

2 Participants

Due to the minor scale of this research, only one participant was recruited (hereafter referred to as the Participant). This participant was selected based on the following criteria:

- Be a student currently enrolled in at least one university course
- Take either digital or paper-based notes in lectures
- Have prior experience with a word processor, i.e. Microsoft Word, Google Docs
- Have no prior experience with Microsoft OneNote platform (important for usability testing activity only)
- Not work for any competitors of Microsoft

The recruitment was carried out via word of mouth and the Participant was an acquaintance of the conductor of this study. Initially, one other participant was considered based on the recommendation of conducting the research activities in pairs of students taking the “Concepts, Measures and Methods” course. However, since that potential participant did not meet the requirements (specifically, they did not take any notes), they were discarded from the selection.

The Participant chosen for this research is an exchange student currently enrolled in a Psychology Bachelor’s course in the University of Twente. The same participant partook in all planned research activities; thus, it is not hereafter separately explained who the participants were in the sections describing research methods, activities and results.

The Participant was asked for consent before every research activity. They were reminded of their rights to withdraw at any time with no penalties and consequences.

The Participant was not given any money as an incentive to join the research. However, they were given confectionery as a sign of gratitude.

3 Methods

Four different methods were used during the study to collect information. The methods relied on each of the previous method meaning that every additional method was used to clarify findings from the previous or to explore aspects that previous methods did not reveal.

3.1 Diary study

A diary study is a method to collect data on participant's internal and external experiences described in their own words over a period of time. The diary study was used to gather longitudinal data on the Participant's note-taking habits and frustrations and satisfactions accompanying the note-taking process over the course of four weeks (24 September - 19 October). The diary was kept digitally using a Google Docs document shared with the Participant. The use of a shared Google Drive document meant that the conductor of this study had access to the entries at all times.

The diary was kept as an incident diary, meaning that an entry was made as soon as possible after the Participant had encountered a note-taking activity either in a lecture or at home. Although the Participant was encouraged to keep their entries as free-formed as they wished, they were also provided with some focus areas they could use as guidelines for their entries:

- **Purpose** of notes (Why did you take these notes?)
- **Time** of taking notes
- **Name** of the lecture/subject/course (If applicable)
- The **amount** of notes (Number of pages)
- Which **special formatting** was used, if any? If yes, why was special formatting used?
- How did taking notes affect your **understanding of the topic**?
- How did taking notes affect you **paying attention** in the lecture? (If applicable)

Due to the scarcity of lectures and thus note-taking incidents, the Participant could write 1-2 diary entries each week. In total, seven entries were made.

The gathered data was mostly qualitative. It was read and analysed manually without the help of any software. Information from all the entries was grouped together based on the topics they handled.

3.2 Interview

An individual in-person interview was conducted with the Participant on 10 October to look further into their views on note-taking in general, digital conspectus use, note sharing, and collaboration. The interview was semi-structured, meaning that although questions for the interview were prepared in advance, the participant was asked to elaborate on other relevant and interesting aspects that arose during the interview given that there was enough time to deviate from the predetermined course.

Some of the prepared questions that were either asked in the original or slightly modified format in the interview:

- In which situations (when) do you take notes?
- Why do you take notes?
- How do you take notes? (Note-taking techniques, special formatting)
- What happens with the notes afterwards (after having taken them)?
- Could notes be used collectively?
- How do you feel about collaborating on notes, taking notes together?
- What do you use to take notes?
- What is your experience with {{what is used to take notes}}?
- What could be different with {{what is used to take notes}}?

The face-to-face interview was conducted at the home of the Participant for reasons of convenience and comfort and lasted for approximately one hour. During the interview, notes were taken on a laptop computer using Microsoft OneNote program and, after having received permission from the Participant, a recording of the interview using a mobile phone was started. The purpose of the audio recording was to enable the clarification of anything said during the interview later. The notes contained important keywords and some shortened forms were used for faster typing (i.e. ‘w’ instead of ‘with’ or loss of vocals in a word).

At the beginning of the interview, the Participant was also reminded of the purpose of the interview and that they may refrain from answering any questions they wish and can stop the interview completely at any time.

3.3 Field study

The field study was conducted on 15 October 2018 from 10:40-11:20 in one of the lecture halls in the University of Twente. During the field study, the participant was observed while attending one academic lecture of their study programme offered by the University of Twente to determine their note-taking habits in a real-life situation. Notes on the used platform and functionality were marked down using a laptop and Microsoft OneNote program. For privacy reasons, no screen- and video-recording solutions were used to capture the note-taking process.

The participant could not be disturbed during the field study and think-aloud protocol could not be used due to it being distracting for both the Participant and everybody else attending the lecture, meaning that the field study was carried out as pure observation only. This part of the study was largely exploratory, and the goal was to see the Participant in action.

The Participant was asked to send in the notes taken immediately after the field study and during the lecture break to avoid the original notes being modified and reformatted afterwards. The Participant also shared lecture slides with the conductor of the study as soon as they were uploaded by the lecturer. Three days after the field study the Participant was asked to share their notes again to compare whether and how they had been reformatted in the meanwhile.

After the field study, the Participant was asked to clarify the confusing aspects the conductor noticed during the observation to find out the reason behind some of the actions of the Participant.

3.4 Usability testing

The in-person usability test was conducted on 21 October 2018 to analyse how easy it is for a first-time user to find the different functionalities that OneNote offers. For this reason, it was important that the Participant had not had any experience with OneNote before. The usability test was a summative evaluation, meaning that the final, launched product was evaluated.

The user was orally presented with a list of tasks (see Appendix 2) containing both basic and advanced operations of taking, formatting and sharing notes. For each task, the success rate (whether the task was completed successfully or not) and time spent on task were measured. All in all, conducting the usability test took around 45 minutes.

The activity was carried out at the Participant's home using their personal computer with OneNote version 1809 (from Microsoft Office Professional Plus 2016 package) installed.

Participant's laptop was used to reduce the number of mistakes caused by unfamiliar hardware (i.e. different keyboard layout) and to make the usability testing more convenient for the Participant. Due to this being a single-participant case study on a software solution in which hardware was considered less significant and inter-participant statistical analysis was not made, this could be allowed.

The Participant was asked to apply the think-aloud protocol meaning that during the task completion they were continuously vocalising their thoughts and feelings. If the Participant stayed quiet for too long, the test administrator reminded them to continue to think aloud. After the test, the Participant was asked to briefly and retrospectively reflect on their activities and the difficulty of completing them.

During the activity, the audio was recorded using a mobile phone and notes were taken on the laptop of the test administrator. The notes contained a description of how the task was carried out and additional comments on the process from the participant. Shortened forms (i.e. 'bc' instead of 'because') were used to take notes faster. Due to the Participant's wish not to install any additional software on their laptop that was communicated immediately before the start of the activity, the screen was not recorded during the usability test. However, audio recording and observation of the Participant gave enough information to analyse the activity.

4 Results

Due to this being a single-participant case study, it ought to be said that the results presented here are not generalisable and may not give an adequate overview of the note-taking habits of all students in the University of Twente. In order to make any statistically relevant conclusions, more participants need to be examined.

However, the following results thoroughly describe the habits of the Participant observed and give some insight into the note-taking process of students.

4.1 Diary study

Results from the diary study cover findings over a longer period of time. The diary entries revealed that notes are taken either **in a lecture** or **at home as paper summaries** to prepare for an upcoming lecture. Most of the notes were taken in a morning lecture (10:45-12:20), although paper summaries were mainly done in the evenings. Length of the notes varied from **one to ten pages**.

4.1.1 Aspects that have an impact on understanding and focus

The ability to pay attention in the lecture was reported to have been affected by a variety of external and internal factors which can be divided by the positivity of the impact on the Participant.

Positive impact

- + Slides provided before the lecture
- + Active listening in the lecture
- + Having time to both listen to the lecturer, copy the slides and add their own notes
- + Clarifying and explaining vaguely written slides
- + Lecturer taking time to explain everything thoroughly
- + Broad and general easy-to-understand topic
- + Short paper with vaguely connected paragraphs (understanding of the current paragraph is not affected by the ability to remember the previous one)

Negative impact

- Slides seen for the first time in the lecture, not provided beforehand
- No time to think about the content before having to add their own notes
- Focusing on copying the slides instead of adding notes
- Sharing attention between copying the slides and adding notes
- Slides clustered with a lot of information
- Graphs without legends
- Fast pace of the lecture
- Worrying about missing anything important
- Not being able to understand the paper due to the specificity of the topic
- Badly written or illogical paper
- Frustration
- Fatigue
- Boring content

4.1.2 Formatting

Formatting differs a bit depending on whether the notes are taken for a lecture or to summarise a paper. For both of these, **size 11 Calibri** font with **1.15 spacing** is used. All notes are taken using indented **bullet-pointed lists** (either dots or dashes).

For lecture notes (see Figure 1), the following formatting guidelines emerge:

- Main, first-level headings **underlined**
- Sub-level headings in **bold**
- **No numbering** for headings
- Most important keywords in **red colour**

- **Colour-coding** to group notes together or divide them by concepts
- Arrows (→) to separate text copied from slides from personal notes

The Participant said that for lecture notes, correct formatting is very important because it gives them a general clean overlook of what has been written down. This makes it easier to study the material. Having enough space between lines of text is also essential because it makes the notes easier to read and for the brain to grasp the information, as reported by the Participant.

Contact Hypothesis

- Mixed results: positive and negative consequence intergroup contact for intergroup attitudes
 - Some people found proof, some found opposite effects, some found non
 - Not following certain rules (selection bias, rules, etc.)
- Meta-analysis: 515 studies (following the rules and corrected for bias)
 - found that contact hypothesis in average improve attitudes
 - Mean $r = -.21$

Does this contact effect transcend race?

- Like sexual orientation, physical ability, race/ethnicity, mental disability, mentally ill, elderly
- **It does generalise!**
- The strongest effect of contact hypothesis is in sexual orientation, then physical disability, then race

Figure 1. Excerpt from formatted lecture notes.

A quote from the Participant explaining why they use such clear formatting style for their lecture notes: “Just like it’s easier to study at a clean desk than at a cluttered one, so I’m very peculiar with my notes”.

Formatting for paper summaries differs slightly:

- Headings copied from paper
- Headings written in **bold**
- **Numbering** for headings

For paper summaries, the Participant stated that formatting matters less and can be sloppier due to them not wanting to study the paper by heart afterwards.

For handwritten notes, formatting matters the least because they are mostly temporary and will either be converted into a digital format or thrown away later.

In general, the Participant reported that having a well-established system is a great way to stay organised because it makes it easier to find the information no matter which document created by the Participant they are presented with.

4.2 Interview

Conducting the interview gave further insights into the reasons behind and tools used for taking notes, as well as the general life cycle of notes.

4.2.1 Reasons for taking notes

The Participant takes notes either in lectures or at home to summarize papers which are mandatory to read before the lectures. In general, notes are taken to prepare for an upcoming event (including marking down questions on the topic), to remember important information, to summarise material, and to understand the topic better.

The Participant brought out the following reasons for taking notes in lectures:

- To **explain** bullet points on lecture slides in case there is a possibility of not understanding them by just reading the slides, i.e. the wording on slides is vague, abstract, too specialised/professional or otherwise difficult to decipher.
- To describe graphs on lecture slides in order to **remember** what they were about (*“Psychologists don’t really believe in naming the graphs or the axis, so you’re not really sure what the graph is telling you.”* - quote from the Participant).
- To write down examples and additional information that is **mentioned orally, but not written** anywhere (also known as transcribing).
- To define concepts (i.e. psychological theories) in their own words in order to **understand** them better.
- To mark down the connection between information on slides and the topic being addressed.
- To write down items they want to look up afterwards.

The Participant brought out these reasons for writing their paper summaries:

- To **prepare** for the lecture.
- To **shorten** it down to 2-3 pages with the main message and methods, theories etc.
- To **study** the scientific articles more easily before an exam.
- To focus on **summarising** instead of understanding, thus focusing on individual sentences instead of the big picture:
 1. The paper is read one sentence at a time.
 2. For every sentence, it is contemplated whether the sentence is needed or not.

3. Important sentences are included in the summary.

- To “cut away useless fat” (information) from the original paper in order to **bring out the most important** information and findings.
- To **understand** what the paper is about.
- To help **recall** what the paper was about afterwards.

4.2.2 Programs used to take notes

The Participant uses mainly two programs to take their notes. Both of these programs have some good and bad aspects in the eyes of the Participant (see Table 1).

Foxit Reader [3] is used to take notes in the lecture if slides have been made available immediately before the lecture. Foxit Reader is a free PDF program similar in functionality to Adobe Acrobat Reader DC [4]. In Foxit Reader, “sticky notes” with comments can be added to PDF-files and later reviewed. When using Foxit Reader, the Participant does not have to retype the slides while taking the notes. However, they do retype the slides with added comments after the lecture to have them in the same format as everything else.

Microsoft Word [5] is used in other cases: to copy the slides either in lecture or at home (when Foxit Reader was used during the lecture) or to summarise papers.

Table 1. Participant's view on Foxit Reader and Microsoft Word.

	Positive	Negative	User-recommended improvements
Foxit Reader	+ Note placement shows where the note belongs to (position)	- Froze once	None
Microsoft Word	+ Partial reconstruction of the saved document in case the program shut down unexpectedly	- Freezes often - The document does not save automatically - Easy to forget to save the document at the beginning (when created) - Automatic correction mistakes take time to fix	Automatic correction based on repeated activities is annoying when it does not match the user's note-taking system and should be removed as a feature.

Using Foxit Reader is preferred because it enables the Participant to focus on paying attention, not on retyping the slides during the lecture. However, they stated that using Foxit Reader means having to do more work in the end due to having to convert the notes to a suitable Word document format which would fit with the system the Participant has for taking notes. Therefore, the ideal course of action is to have slides available and copied to a Word document before the lecture and adding personal notes to those during the class.

In addition, the Participant stressed that any handwritten notes taken during the lecture will be converted to a digital format afterwards.

4.2.3 The life cycle of notes

For this Participant, the note-taking process is quite specific. They do not copy and paste the information but instead retype the lecture slides word-by-word - a process which they refer to

as “**copying the slides**”. Because of that, their notes look almost identical to the slides (see Appendix 5). After retyping the slides, they add their own comments and format the document. The finished document is printed, highlighted, and studied carefully. When notes are not needed anymore (i.e. the subject has been passed), the digital versions are kept indefinitely, but physical copies are first archived and then discarded.

Therefore, the general life cycle of the notes is as follows (also see Figure 2):

1. Retyping text from presentation slides to a Word document prior to or during a lecture
2. Adding personal notes to copied text in the Word document during the lecture
3. Re-reading notes after the lecture. If necessary, any missing information is added.
4. Formatting the notes (see Chapter 0)
5. Printing out the document
6. Colour-coding the printed out document using highlighters (see Appendix 3 and Appendix 4)
 - **Pink** for first-level headings
 - **Green** for sub-level headings
 - **Yellow** for bullet points
7. Rewriting the most important parts of the notes by hand on a separate paper (see Appendix 6)
8. Archiving notes after the exam
9. Throwing away paper-based notes if certain they are not needed anymore

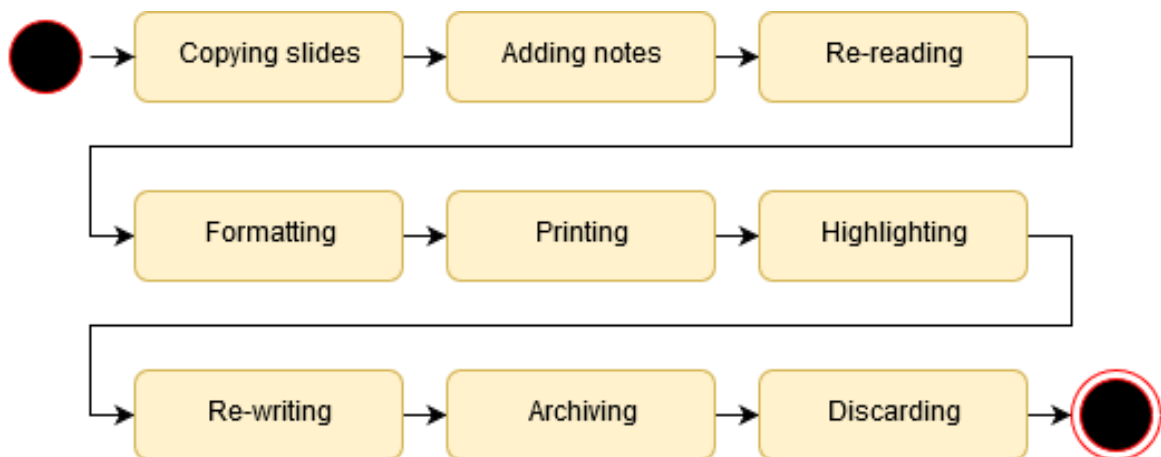


Figure 2. A diagram on the life cycle of notes.

Thus, it can be seen that there is a clear system of taking, keeping and discarding notes.

4.2.4 Collaborating on notes

The Participant of this study is not keen on collaborating with others when taking notes. They explained that multiple people working on their notes would **confuse** and **distract** them. Therefore, they prefer to take notes on their own with the exception of sharing notes among their group of friends in case somebody was unable to attend the lecture or wishes to compare their notes.

The Participant is not opposed to sharing their notes with other students and has even considered **selling their paper summaries** on the online platform Athena [6] (Quote from the Participant: *“I’m going to take notes anyway, so why not earn money with them?”*). However, the Participant usually politely refuses to share their notes if it is clear that the person asking for the document is taking advantage of them and freeloading.

The Participant occasionally accepts notes from others but must transform those notes to match their well-established system in this case.

All in all, the Participant considers it a good idea to collaborate on notes but admits that this process is not well suited for their system.

4.3 Field study

The field study relieved the Participant’s systematisation preferences even further by enabling to have a look at how systematically the files on their computer are organised. For every subject, there is a separate folder in which documents (slides, notes, papers) are organised by subjects, assignments, exams, lectures and literature.

During the session, it became clear that when the lecturer moved over slides quickly, the Participant did not have enough time to retype everything. However, because they were listening to the lecturer, they were often able to **paraphrase** the content. Graphs and figures on slides were described via the use of text. Occasionally the Participant went back to a previous section to edit either the content or formatting of the notes. Most important general concepts were bolded and marked in red colour, while lower-level, more specific concepts were marked in italics and red.

Typing was done in a fast way and often mistakes occurred. In addition to correcting them manually, Microsoft Word’s correction recommendations and **automatic correction** were used. Word processor also learned from the Participant’s formatting style (see Chapter 0) and

started to **automatically format** notes in a similar way. Furthermore, adding a new hyphen converted it to an unordered list and the first letter of each phrase in those lists was capitalised automatically.

Hyphens (-) were used for listing items written on slides, and **arrows** (→) for adding additional info and summarising the content of a section at the bottom. Sometimes, the **ordering** of items in the Participant's notes differed from the one on lecture slides.

The document was first saved 15 minutes after the start of the lecture.

Comparing the original document obtained immediately after the field study with a version of the same document sent in 3 days later, no changes to content or formatting were observed, meaning that the Participant did not do any **corrections** to the file after the lecture.

4.4 Usability testing

The detailed findings of the usability testing activity are presented in Appendix 7. Time spent on task varied from 5 seconds to over 4 minutes. The **average time spent on task** was **1 minute and 14 seconds**. Out of the 20 tasks, 15 were carried out successfully, causing a **success rate of 75%**.

4.4.1 Unsuccessful tasks

The following tasks could not be completed due to the reasons presented below.

Changing the location of the notebook

The Participant explored the Quick Access menu bar and File submenu thoroughly but did not come across the notebook properties section which can be opened by right-clicking on the title of the notebook (see Figure 3). The participant was confused by the save icon, exporting submenu, and send option.

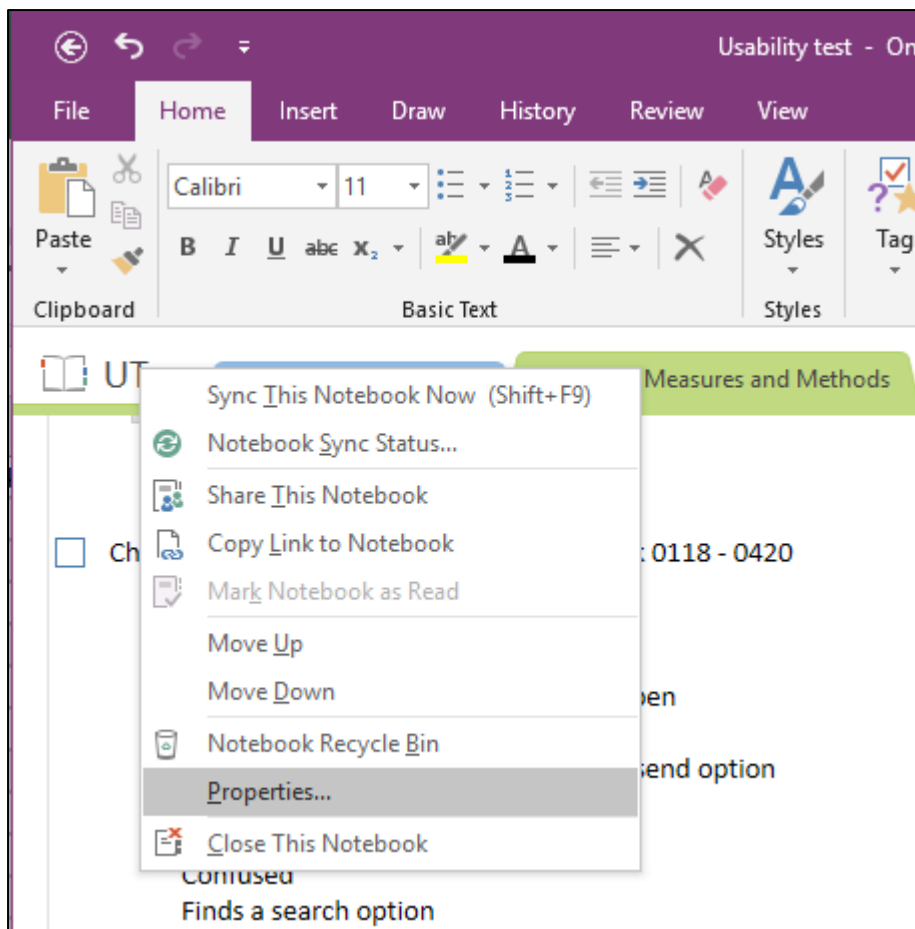


Figure 3. Notebook properties location.

Write a word in your native language and translate it to English using OneNote tools

The Participant did not know where this option could be located and started to browse through menus one by one until they found the translation option in the Review submenu. By clicking on the translate button they were presented with an error dialogue informing them about the translated text being forwarded to third parties.

It was not intuitive that the word had to be selected before clicking on the translate button.

The translation was difficult to notice because it was written in a fine cursive print in the lower part of the section (see Appendix 8). Instead, the Participant stopped on the definition presented in the original language (German).

The Participant was unable to find a button which would replace the original word with the translation.

Insert a screen clipping

The Participant did not find the right option in menus (Insert -> Images -> Screen Clipping) and tried using the lasso select tool instead. They managed to cut and paste existing text in the notebook with that one, but during the process original formatting (spacing, indents) was lost.

Share the notebook with a friend via e-mail

The Participant did not have Outlook installed correctly and was presented with an error message.

Share the notebook with a friend via link

The Participant started by looking through menus on the Quick Access bar before moving to the File menu where sharing options are located.

The Participant did not have OneDrive connected to OneNote correctly and was presented with an error message.

4.4.2 Recommendations for improvements

In order to make OneNote easier to grasp and more suitable for first-time users, the following recommendations for improvements are proposed:

- Providing clear descriptive error messages with possible solutions to inform the user about what went wrong and what can be done to recover from the error.
- Directing the user to a specific, corresponding help page when the help button is pressed during an action instead of presenting them with a general one containing unnecessary and unhelpful off-topic information.

- Having a search box similar to the one in Microsoft Word (see Figure 4) will make it easier for people to find the option they are looking for by typing it in the search box instead of browsing through menus to find the right one.

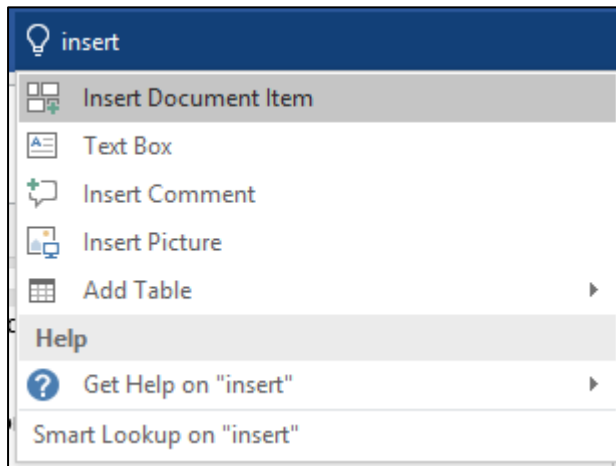


Figure 4. Smart search box in Microsoft Word.

- Adding the Share button to the menu bar as it is in Microsoft Word (see Figure 5) will make sharing and collaborating easier by not having to look through menus to find the sharing option. Furthermore, it will homogenize the user interfaces of Word and OneNote to make switching between those programs simpler.

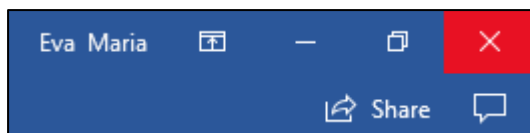


Figure 5. Sharing button in Microsoft Word.

- Converting online images to a correct format automatically when they are inserted into the notebook instead of presenting the user with a list of unfamiliar format options which do not work and produce a vague, uninformative error message.
- Making translated words in the translation window (see Appendix 8) pop out from surrounding text using colours and removing unnecessary extra information.
- Adding a button in the translation window to replace the word being translated faster (with a click of a button) and without having to copy-paste the translation manually.
- Automatically detecting the language of the word being translated and the language of the document, so that the user does not have to choose the right ones again every time they want to translate a word.

- Adding the option to turn off automatic formula completion (OneNote entering the answer when space is inserted after equation mark).

Implementing those recommendations would make OneNote easier for first-time users familiar with other similar word processors. Furthermore, keeping the user interface and layout as similar as possible across Microsoft Office solutions is great for the brand and will make adopting additional software in the suite more intuitive because users already know where to find most of the common functionality. Currently, OneNote differs slightly from Word which makes it more difficult to use.

5 Discussion

Due to this being a single-participant study, the results may just be a deviation from the norm and cannot be generalised to describe the note-taking habits of the whole population of students in the University of Twente. However, they give a thorough overview of one particular student who was studied during the research via the use of a variety of methods.

During this user research, it was found out that the Participant has a clear system for formatting, taking, retaining and discarding their notes. There are several aspects affecting the ability to pay attention during the note-taking process and multiple reasons for taking notes. It was discovered that this participant is not keen on sharing and collaborating on their notes. Common programs used to take notes are Microsoft Word and Foxit Reader.

The system the Participant uses to take notes has most likely been established over time to fit the particular needs of the Participant. This may also explain why it is so difficult for them to work on their notes together with others who have developed a different system of taking notes.

In order to help this Participant in their note-taking process, lecturers should start uploading slides before the lecture. This would give the student enough time to familiarise themselves with the slides and copy them to their conspectus document for easier note-taking during class. Currently, the Participant must focus on listening to what the lecturer is saying, retyping the presentation slides and adding their own notes which has an effect on attention.

It was expected that the Participant goes over their notes after a lecture and makes major changes in both content and formatting. However, results from the field study revealed that no corrections were made to the original document over a course of 3 days. The reason for that might be that in this case, the Participant had enough time during class to focus on those aspects. It is unclear whether this is the norm based on a single field study session.

Furthermore, although the Participant was impressed with the functionality offered by Microsoft OneNote, the usability testing revealed several aspects of the program that can be improved further. The problematic areas may be caused either by the Participant's level of technical expertise or by general flaws in the design of the program. To verify this, additional testing with other users ought to be carried out.

5.1 Reflection on methods

Using all of those user research methods was redundant because most of the information was communicated during the interview. Therefore, a single interview or a combination of field study and interview could have been conducted instead of having a separate diary study, interview and field study.

While diary study, interview and field study gave information on the note-taking habits of a particular participant, the usability test focused on analysing a specific program, how easy it is to use and what could be improved further.

However, the success of all of those methods was largely due to having a dutiful participant who needed no reminders on filling in the diary and was very talkative during the interview and usability testing activities. In case of a less dutiful participant, the diary study would not have been as effective and would have had to be replaced with another activity (i.e. interview) to obtain the same amount of data.

5.1.1 Reflection on the diary study

The process of this research activity went smoothly, mostly because the Participant was dutiful and did not need any reminders on writing new entries. Keeping the diary digitally in a shared document enabled to review the Participant's entries whenever it was needed and give feedback or guidelines to the Participant, if necessary, to improve the entries even further. For example, the first diary entry was rather vague and general due to a minor misinterpretation of the activity description I wrote. However, after reminding the participant to focus on specific incidents and how they made them feel, the quality of entries improved drastically. Thus, I concluded that it is very important to be as thorough in activity descriptions presented to participants as possible and to observe at least a couple of initial entries to ensure they contain appropriate information and, if necessary and possible, reach out to the participant to correct the entries.

I debated whether to make the diary in a text editor based document or in the form of a survey depending on whether I should let the participants review their writings. Being able to read and edit former entries may tempt the participants to change them at a later point in time. However, seeing their previous diary entries may inspire them to write more and help remember what to write. In this study, I used the text editor based format and my Participant said that they preferred seeing previous entries. However, I would like to compare it to a format in which participant can only enter text, not view previous entries.

Analysing the entries manually was doable for a single-participant study. However, with a diary study lasting longer or including more participants, special programmes should be used to analyse the data.

5.1.2 Reflection on the interview

Conducting the interview and taking notes at the same time was bothersome, which is why I completely understand why it is recommended to have two persons at an interview - one to talk to the participant and another to write down what was said. Since I recorded the interview, transcribing it afterwards would have been another option. However, I felt more confident knowing that I also took notes in case something went wrong with the recording. Since transcribing everything would be quite time-consuming, I only brought out the general ideas and most important quotes to present in the results. Mostly, I relied upon my notes. I used a lot of shortened forms for writing, but it was still difficult to keep up with the interviewee at one point. Language barrier posed a problem for both of us. It was nothing major, all thoughts could be communicated, but occasionally I found myself writing down words in my native language when I could not recall the correct word in English.

Although I was acquainted with the Participant beforehand, conducting the interview according to the “rules” made it feel very formal to both me and the Participant. However, we did not let that stop us from developing rapport.

I was constantly analysing my behaviour, facial expressions and questions so that they were not biased in any way. I tried to refrain from formulating leading and loaded questions which could affect the Participant’s answers. Normally, I preferred open-ended questions. I would like to think that I managed that quite well considering it was my first time conducting such an interview.

5.1.3 Reflection on the field study

It was good to see the Participant in action. However, since note-taking is a rather basic and repetitive activity, I felt that observing the Participant for nearly 30 minutes might have been too much. The field study gave me little to no new information due to the interview carried out beforehand being so thorough. It might have been more interesting to start with the field study and then conduct the interview afterwards. Due to the clarification questions, it can be said that

there even was a tiny interview after the observation, but most of the information had already been gathered before.

It would have been better to conduct additional field studies to compare how the Participant acts when slides are uploaded before the lecture or how they take notes for a preparatory reading task at home. However, due to time limitations and because it is hard to predict whether slides will be uploaded before the lecture, additional field studies were not done.

5.1.4 Reflection on the usability testing

It would have been great to be able to capture the screen during the usability testing or at least know the Participant's preferences beforehand. In this case, the wish to not share the screen was not communicated before the activity. Thus, next time, screen capturing could be made a prerequisite or the devices (in this case, a laptop) of the conductor could be used instead. Fortunately, audio recording combined with the observation notes were sufficient this time.

Applying the think-aloud protocol was a bit complicated because I was not sure how often I should remind the participant to speak their mind when they were not vocalising their thoughts. Luckily, they rarely trailed off. Furthermore, speaking aloud made it easier to connect the comments on the ongoing task to corresponding notes when listening to the audio recording afterwards.

Although this activity was conducted using the Participant's personal computer, I think it would have been better to do it in a "lab" setting with one dedicated computer which is sure to perform well and have all the appropriate software on it already. This is especially important when there is more than one participant so as to reduce the variability between participants caused by skills and the familiarity of their own hardware.

6 Conclusion and recommendations

This user research gives insights into the note-taking habits of one individual student. During the study, note-taking habits of an individual were observed via a diary study, an interview and a field study. A usability test was conducted to observe how easy it is to use Microsoft OneNote for the first time and what can be improved to make the program simpler.

The study reveals that the observed Participant has a clearly established formatting style, process and reasons for taking notes. They mainly use Microsoft Word for taking their notes and do not favour collaborating on their notes.

Many functional possibilities of Microsoft OneNote are tested to find areas which can be improved further to fit the needs of first-time users. The most important recommendations include homogenizing user interfaces across different Microsoft Office applications, improving the clarity of error messages and guidelines users are presented with, directing users to a relevant help page, and adding a multifunctional search bar to make looking for the needed functionality easier.

In order to make this user research scalable and descriptive of a wider range of students, additional research ought to be carried out with more participants. This would enable to compare whether the activities observed in this study are common for all students or just this Participant.

For future research, it is recommended to use gaze tracking devices during the usability testing activity to find out where exactly participants focus when they are looking for certain functionalities. This would give information on how to organise menus in a better, more intuitive way.

An additional field study could be repeated when slides are available beforehand to compare those situations. Other sessions ought to be conducted to observe the Participant during writing paper summaries and studying based on the notes.

References

- [1] "OneNote 2016 – Digital note taking app - Office." [Online]. Available: <https://products.office.com/en-us/onenote/digital-note-taking-app>. [Accessed: 31-Oct-2018].
- [2] K. Baxter, C. Courage, and K. Caine, *Understanding Your Users. A Practical Guide to User Research Methods*. 2015.
- [3] "Free PDF Reader & PDF Viewer Download | Foxit Software." [Online]. Available: <https://www.foxitsoftware.com/pdf-reader/>. [Accessed: 22-Oct-2018].
- [4] "PDF reader, PDF viewer | Adobe Acrobat Reader DC." [Online]. Available: <https://acrobat.adobe.com/us/en/acrobat/pdf-reader.html>. [Accessed: 22-Oct-2018].
- [5] "Microsoft Word - Word Processing Software | Office." [Online]. Available: <https://products.office.com/en/word>. [Accessed: 22-Oct-2018].
- [6] "AthenaSummary." [Online]. Available: <https://athenasummary.nl/en/>. [Accessed: 30-Oct-2018].

Appendix 1- Original research proposal

Introduction and History

Microsoft OneNote is part of the Microsoft Office 365 suite and is meant for easier note-taking. It can be used by university students to write down lecture notes, share and collaborate on documents and organise their schoolwork in one digital notebook.

This document is a proposal for a research which will be conducted as part of the “Concepts, Measures and Methods” course. The research looks into how current students of the University of Twente retain, share and collaborate on notes of their lectures. The study also analyses how difficult it is to use Microsoft OneNote for the first time, given that the user has had prior experience with similar word processors. Research methods, such as a diary study, interview, and field study, are used to gain insight into the topic after which findings are evaluated by conducting usability testing as a rapid evaluation method. The result of this study is a proposal for improvements to the OneNote platform.

Objectives, Measures, and Scope of the Study

Four main techniques will be used during this research. A diary study is a method to collect data of participant’s internal and external experiences described in their own words over a period of time. The diary can be kept either digitally or on paper. An interview is a structured informative conversation with the participant. During a field study, participants are being observed carrying out tasks in their natural environments. Usability testing helps to analyse how easy it is for participants to use OneNote for note-taking and collaboration.

The objectives of these activities are as follows:

- To find out which platforms and functionalities students currently use to take lecture notes;
- To help determine how the functionality and user interface of OneNote could be improved for first-time student users.

During the activities the following data will be collected:

- Demographic information of each participant (e.g., university, study programme)
- Note-taking habits of participants
- Note collaboration habits of participants

- The difficulty level of carrying out basic note-taking, formatting, and collaboration tasks on the OneNote platform

The information collected from these activities will be used to improve Microsoft OneNote with focus on university students.

Methods

Prior to all activities, consent and nondisclosure agreements will have to be signed. The data collected by applying the following methods will be analysed and presented to the product team alongside with suggestions for improvements.

Diary study

The participant is asked to keep a free-form diary for four weeks. The diary can be either digital or on paper depending on the participant's preferences. The activity will be carried out over the course of four weeks from 21 September to 19 October. The participant will write down their weekly experience with their current note-taking platform. They will be given some bullet points on which they ought to focus when writing the diary.

Interview

An individual interview will be conducted with the participant between 28 September and 12 October. The participant will be asked questions regarding note-taking in general, digital conspectus use, note sharing, and collaboration. Although questions for the interview will be prepared in advance, the participant is asked to elaborate on other relevant and interesting aspects that may arise during the interview given that there is enough time to deviate from the predetermined course. The maximum length of the interview will be one hour.

Field study

During the field study, the participant will be observed while attending one academic lecture in the University of Twente to determine their note-taking habits in a real-life situation. Notes on the most commonly used platform and functionality will be marked down. The participant will not be disturbed during the field study meaning that this part is carried out as pure observation only. However, immediately after the lecture, the user will be asked to reflect briefly on what happened in order to gain further insight on their note-taking experience. Three days after the field study the user will be asked to share their notes again. If they have been

formatted in the meantime, the user will be asked to reflect on changes made and the reason behind it. The field study will be conducted between 12 October and 19 October.

Usability testing

In usability testing activity, the participant is presented with a task to carry out using Microsoft OneNote. The task contains basic operations of taking, formatting and sharing notes.

- The participant will first read the task and make sure they understand it. The test administrator will clarify any parts that are unclear.
- The participant will carry out the given task while applying the think-aloud protocol, meaning that they continuously vocalise their thoughts during the task completion.
- If the participant stays quiet for too long, the test administrator will remind them to continue to think aloud.
- After completing the task, the participant is asked to retrospectively reflect on their activities and the difficulty of completing them.

For this activity, it is important that that participant has had no prior experience with OneNote before to determine the problematic areas of first-time use. Usability testing will be performed between 19 October and 26 October.

Participants

Participants must meet the following criteria in order to participate in the research:

- Be a student currently enrolled in at least one university course
- Have prior experience with a word processor, i.e. Microsoft Word, Google Docs
- Have no prior experience with Microsoft OneNote platform (for usability testing activity only)
- Not work for any competitors of Microsoft

Recruitment

The conductor of this study, Eva Maria Veitmaa, will perform recruiting for all activities. Suitable participants will be selected amongst students of the course “Concepts, Measures and Methods”. A minimum of one participant is required.

Incentives

The participants will not receive any monetary compensation. Instead, they have the option of using the author of this study as a participant in their research in turn.

Responsibilities and Proposed Schedule

The conductor of this study, Eva Maria Veitmaa, is responsible for the detailed study plan, recruitment, carrying out all aforementioned research activities, collecting and analysing the data, and presenting final results both orally and in the form of a written report with recommendations.

The lecturer of this course, professor Jan Maarten Schraagen, is responsible for reviewing and approving the study proposal (this document).

Preparation Timeline

Work package	Owner	Estimated time to complete	Date forecast	Status
Recruit participants	EMV	30 minutes	22 September	TBD
Prepare diary study	EMV	30 minutes	21 September	TBD
Communicate diary study to the participant	EMV	10 minutes	22 September	TBD
Analyse data from the diary study	EMV	2 days	24 October	TBD
Prepare interview questions	EMV	2 hours	27 September	TBD
Conduct the interview session	EMV	1 hour	5 October	TBD
Analyse data from the interview session	EMV	2 days	12 October	TBD
Conduct the field study session	EMV	2 hours	17 October	TBD
Analyse data from the field study session	EMV	2 days	19 October	TBD
Prepare the usability testing session	EMV	2 hours	26 October	TBD
Conduct the usability testing session	EMV	1 hour	22 October	TBD

Analyse data from the usability testing session	EMV	2 days	24 October	TBD
Create a draft report	EMV	1 week	24 October	TBD
Review and comment on the report	EMV	2 days	26 October	TBD
Submit final report	EMV	1 day	26 October	TBD

Appendix 2- Usability testing tasks

During the usability testing activity, the Participant was presented with the following tasks:

- Create a new notebook
- Change the location of the created notebook
- Add two sections (tabs) to the notebook
- Add three pages to one of the sections
- Make one of the pages a subpage of another
- Write the title by hand, not via typing
- Convert the handwritten title to text using OneNote tools
- Insert today's date and time using OneNote tools
- Insert a formula $a^2 + b^2 = c^2$
- Insert a numerical equation with spaces around the equation mark (=), i.e. $2+2 = 4$
- Write a word in your native language and translate it to English using OneNote tools
- Add a list with three items
- Add a 'to-do' tag to one of the list elements
- Add a 'critical' tag to one of the list elements
- Mark the to-do tag as done
- Insert an online picture using OneNote tools
- Insert a screen clipping
- Insert a PDF file
- Share the notebook with a friend via e-mail
- Share the notebook with a friend via link

Appendix 3 - Printed and colour-coded lecture notes

1

Lecture 4
Influencing self-reliant behaviour

Reasoning styles

Experiential system (System I)	Analytical system
1 Holistic	Analytic
2 Affective : pleasure-pain oriented (Study with the donation → more donation when you could personify yourself with the single child)	Logical : reason oriented (what is sensible)
3 Associationistic connections	Logical connections
4 Behaviour mediated by "vibes" from past experiences	Behaviour mediated by conscious appraisal of events
5 Encodes reality in concrete images, metaphors and narratives	Encodes reality in abstract symbols, words and numbers
6 More rapid processing: oriented towards immediate action	Slower processing: oriented towards delayed action
7 Self-evidently valid: "Experience is believing"	Required justification via logical and evidence; requires mental effort

Biases

- Biases exist due to different functioning of both systems
- Objective and perceived risk (symbolic vs. image/affect)
- Difference in understanding between experts and lay-persons
- The **intuitive system is dominant and distorts our perception** → bias

Conjunction fallacy

- Story about Linda
- Objectively the first statement makes more sense and is more likely
- Affectively the second one makes more sense

Naturalistic decision making (Gary Klein)

- Expert decision making (chess masters, fire fighters...): they make a lot of good decisions intuitively
- **Pattern recognition (RPDM)**: for example mothers recognise the pattern of the sounds their playing child makes, know something is wrong if that pattern is disturbed
- Which cues?
- **Mostly implicit / subconscious**

Intuitions: System 1

- Intuition = recognition
- **Accuracy**:
 - **Validity environment: predictive cues** (feedback from the environment to make accurate decisions)
 - **Opportunities for learning** (repetitive experiences to build up intuition)
- **Confirmation bias** to test hypotheses we build in our life to test our intuition → Rule: if "A" then "3"

Fear appeal: Ruiter et al. 2014

- Fear appeal: message is threatening and fear arousing and options are given to avert threat
- Threat appraisal and coping appraisal (efficacy)

Cremers et al. 2014: design

- Board game (B-safel) versus control condition without board game
- Questionnaire three moment: before, directly after and after two weeks
 - risk perception (awareness, probability, consequences, emotions)
 - actions (thinking, information search, talk to others)
 - responsibility
 - self efficacy
- Distinction between safety and security
- Results:
 - Awareness of Game-Group rising from 2.5 (pre) to 3.0 (post) while control stays stagnant at 2.8 (pre and post)

% respondents	natural		man-made	
	before	after	before	after
Thought about what to do in case of an incident	48%	60%	38%	50%
Looked up information	14%	23%	10%	12%
Talked about it with acquaintances (e.g., relatives, neighbors, colleagues)	23%	42%	43%	40%

Values

- We prefer values and communicating with people who share our values
- Influences our decision making process

Stories

- Decision aids have two parts:
 - Information: options, pros and cons (giving and receiving information)
 - Valuation (aligned to own values and emotions) → what is most important to you?
- Using stories to make people more aware of their own valuation
- Drawback of stories
 - biased (not all sides presented, risk information)
 - heuristic processing (e.g. person delivering information)

Why are stories persuasive?

1. Vividness
 - Increasing emotional interest
 - Proximity
 - Concreteness of information
2. Credibility → inconclusive findings

Appendix 4 - Printed and colour-coded paper summary

Lecture 4

Beyond nudges: Tools of a choice architecture

1. Introduction

- Choice architecture: ways to present a choice to the decision-maker
- Influencing choice in many ways: by varying the presentation order of choice alternatives, the order attributes and their ease of use, selection of defaults
- There is **no neutral architecture**
- This paper presents tools for decision making at every part of the choice

Table 1 Summary of the tools

Problem	Choice architecture tools	Examples
Setting up the task		
Alternative overload	Reduce number of alternatives	Medicare drug plans (Kling et al. 2011), investments (Cronqvist and Thaler 2004)
	Technology and decision aids	Sorting on attributes (Lynch and Ariely 2000), mobile devices and applications (Cook and Song 2009), smart energy grids
Decision inertia	Use defaults	Investments (Cronqvist and Thaler 2004; Madrian and Shea, 2001), insurance (Johnson et al. 1993), organ donation (Johnson and Goldstein 2003)
Myopic procrastination	Focus on satisficing	Planning errors (Kochler 1991; Weber et al. 2007; Shu 2008), job search (Iyengar et al. 2006)
	Limited time windows	Gift certificates (Shu and O'Donoghue 2010), retirement planning (O'Donoghue and Rabin 1999), tax credits
Long search process	Decision staging	Automobile customization (Levav et al. 2010), product evaluation (Hübner et al. 2010)
Describing the options		
Naïve allocation	Partitioning of options	Investments (Langer and Fox 2005; Bardolet et al. 2009), food menus (Fox 2005), automobile attributes (Martin and Norton 2009)
Attribute overload	Attribute parsimony and labeling	Good/bad labels for numeric information (Peters et al. 2009)
Non-linear attributes	Translate and rescale for better evaluability	Credit card repayments (Soll et al. 2011), gas mileage ratings (Larrick and Soll 2008)
Implementation issues		
Individual differences	Customized information	Politics and energy conservation (Hardisty et al. 2010), numeracy and decision making (Peters et al. 2006; Sagara 2009)
Outcome valuation	Focus on experience	Focusing and satisfaction (Schkade and Kahneman 1998), cooling off periods

2. Structuring the choice task

2.1 Number of alternatives

- Dangers: too few options or choice overload (tyranny of choice) → overwhelming the processing capacity

- Two criteria need to be balanced for the correct amount of choice:
 1. More options increase the chance of offering a preference match to the consumer
 2. The more options place a greater cognitive burden
- The amount of options is dependent upon characteristics of the individual decision-maker (consumer)
- Generally four or five non-dominant options may represent reasonable initial values for the choice architect

2.2 Technology and decision aids

- Automatic personalisation of user interfaces to reflect our preferences
- Product recommendation can be highly beneficial to consumers, but they also influence consumer's choices (presentation of other product along side e.g.)

2.3 Defaults

- Most powerful tool → choices that apply to people who don't actively change them
- Guide choice but also preserving freedom
- Simple defaults (choosing one default for all)
- Random default (assigning a configuration at random, for instance as an experiment)
- Forced choice (without the product by default)
- Sensory default (changing dependent on user)
- Persistent defaults (past choices remembered)
- Reverting default (forget last changes)
- Predictive defaults (changes made on observation of user)

2.4 Choice overtime

- Some choices have outcomes that affect choice tasks in three ways:
 1. Individuals prefer receiving positive outcomes early → yielding temptation
 2. Uncertainty for future can lead to over- /underestimation
 3. Individuals are often overly optimistic about the future
- Tools include drawing attention to the delayed options which can lead to more patient choices
- Or placing limited windows for opportunities can overcome the tendency to think the future holds more resources

2.5 How task structure affects the search process

- Structure of the choice affects the way in which consumers decide
- Consumers are more likely to choose default levels of attributes when they begin with attributes that offer a greater number of configuration options than when they begin with attributes that offer a smaller number of options
- Sorting alternatives in order of expected attractiveness can be an effective way to improve search outcomes
- Providing easier upfront information

3. Describing choice options

3.1 Partitioning options and attributes

- How the set of options, attributes or events are partitioned into groups or categories
- Partitioning creates vivid categories that can influence allocations involving simultaneous choices
- Impact of partitioning is strongest among decision-makers with weaker intrinsic preferences or beliefs and diminish among those with strong preferences

Appendix 5 - Comparison between a lecture slide and notes based on it

Challenges intergroup contact

- Often intergroup contact is **negative** and increases prejudice
- The **causal sequence problem**: does contact reduce prejudice or reduced prejudice increase contact?
- The **generalization** of effects problem: Do positive consequence of contact with outgroup members “translate” to:
 - New situations? – yes
 - From the individual to the group in general? - yes
 - To other 'involved' groups? - yes

UNIVERSITY OF TWENTE. 14

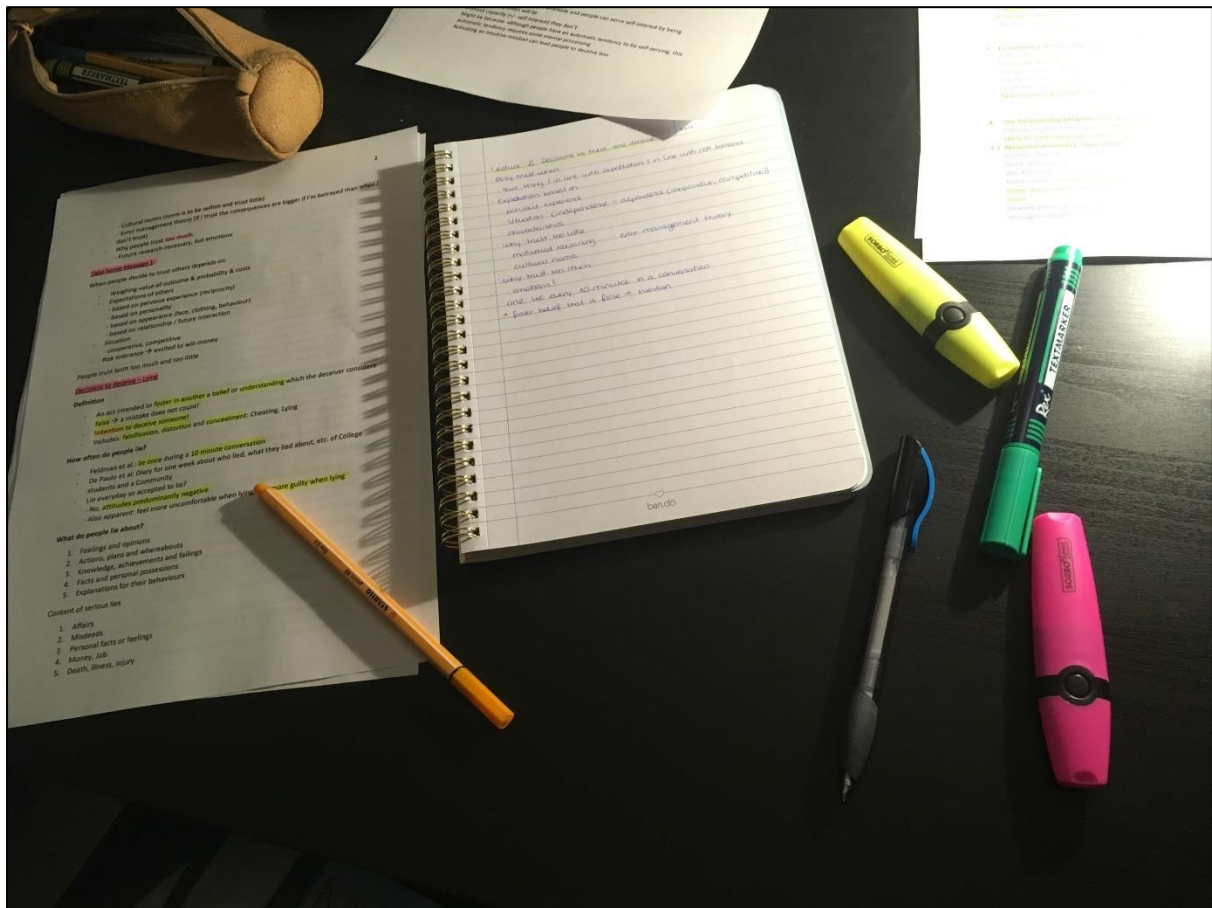
Figure 6. Original lecture slide. Psychology of Safety lecture slides (Renate Geurts) [15 Oct 2018].

Challenges intergroup contact

- Only works when contact is positive
→ often intergroup contact is **negative** and increases prejudice (in situations of threat, forced contact)
- The **causal sequence problem**: does contact reduce prejudice or reduced prejudice increase contact
- The **generalisation** of effects problem: do positive consequences of contact with outgroup members “translate” to:
 - New situations? – yes
 - From the individual to the group in general? – yes
 - to other “involved” groups? – yes

Figure 7. Notes based on the lecture slide.

Appendix 6- Participant's desk during the process of colour-coding and studying print-out notes



Appendix 7- Overview of the usability testing findings

Task	Time spent on task (min)	Success	Comments
Create a new notebook	0:48	Yes	Emptiness of a new notebook was confusing
Change the location of the notebook	3:02	No	Confused by the save icon, exporting submenu, and send option. Unable to find the notebook properties where location can be changed.
Add two sections (tabs) to the notebook	0:06	Yes	-
Add three pages to one of the sections	0:06	Yes	Colourful sidebar drew the eye
Make one of the pages a subpage of another	0:05	Yes	Found the drag-and-drop option first and right-click option later. Confused by drag-and-drop because unclear if page was moved or something else happened.
Write the title by hand, not via typing	0:30	Yes	Title shown in the menu bar of the program changed with a delay
Convert the handwritten title to text using OneNote tools	1:22	Yes	Difficulties with finding the correct button in the menu. Tried selecting and right-clicking the text instead.

Task	Time spent on task (min)	Success	Comments
			<p>Confused by not having to select the text they wish to convert.</p> <p>Expected to see the opposite option of converting typed text back to handwritten text as well.</p>
Insert date and time using OneNote tools	0:24	Yes	Added date and time separately (first “Date”, then “Time”) instead of using the “Date & Time” option causing them to appear in different textboxes.
Insert a formula $a^2 + b^2 = c^2$	0:18	Yes	Formula was given in “Equation” submenu already so there was no need to type anything out
Insert a numerical equation	0:16	Yes	<p>Confused by OneNote automatically completing the calculation when space was entered after equation mark (=).</p> <p>Needs getting used to and active focusing to not fill it out manually as well.</p> <p>Liked the idea.</p>

Task	Time spent on task (min)	Success	Comments
Write a word in your native language (German) and translate it to English using OneNote tools	4:16	No	<p>No idea where to start looking for the option, so start with “Home” menu.</p> <p>Not intuitive that word had to be selected before clicking on the translate button.</p> <p>Confused by German definition.</p> <p>Translation was presented lower, in a fine cursive print, and therefore harder to notice.</p> <p>Unable to find a button which would replace the original word with translation.</p>
Add a list with three items	0:08	Yes	Typing a number followed by space automatically turned it to a numbered list which was familiar from MS Word.
Add a to-do tag to one of the list elements	0:49	Yes	First looked at the “Insert” menu because that’s where everything is added.

Task	Time spent on task (min)	Success	Comments
			Found it via right-clicking on the list element before also noticing the option in the “Home” menu.
Add a ‘critical’ tag to one of the list elements	1:29	Yes	<p>Tried looking for it in the “Home” menu based on the previous task but did not click the expanding button to reveal other tagging options.</p> <p>Found the correct tag by right-clicking on the word and noticing the expanding button there.</p>
Mark the to-do tag as done	0:06	Yes	Clicking on the box was intuitive
Insert an online picture using OneNote tools	2:54	Yes	<p>A lot of trouble with converting the first picture to a correct format. Had to use a different picture because they could not figure out the correct format which would not produce an error.</p> <p>Error message was vague and did not give enough information about the mistake and what should be done to resolve it.</p> <p>Clicking the “Help” button did not direct to a specific on-topic help page, but to a general one. The Participant did not want to start</p>

Task	Time spent on task (min)	Success	Comments
			<p>looking for the right section from the overflow of information, so they closed the help window.</p> <p>Confused by another image working without the need to convert.</p> <p>Disliked having to use Bing due to it being the only option.</p> <p>Liked being able to move the picture around without it changing the layout of everything else on page as happens in Word.</p> <p>Liked how moving the image outside of the current canvas area made the workplace canvas bigger and how moving the image back made it smaller again.</p>
Insert a screen clipping	2:47	No	<p>Unable to find the right option in menus.</p> <p>Tried using the lasso select tool instead. Managed to cut and paste existing text with that one, but formatting (spacing, indents) was reset.</p>

Task	Time spent on task (min)	Success	Comments
Insert a PDF file	1:28	Yes	Added the PDF as a file attachment (link to the document), not as a file printout (image of the document). Confused by attached file opening with a lag.
Share the notebook with a friend via e-mail	0:37	No	Did not have Outlook installed correctly.
Share the notebook with a friend via link	3:22	No	Looked for the option in the Quick Access toolbar instead of the File menu. Did not have OneDrive connected correctly.

Average time spent on task: 1:14

Success rate: 75%

Appendix 8 - Screen capture of the translation tool in OneNote

