

ANALYZE THE OFFICE 365 CALENDAR

Group 15

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Executive Summary

For the design requirements stage, we performed an interview and survey investigating what students require from an online calendar system. We then used a Think Aloud and Personas to evaluate Microsoft Calendar based on these requirements.

The interview was conducted with a final year computer science student. In his opinion, notifications and synchronisation between the devices were necessary features for any timetabling application. However, he highlighted that the most beneficial feature would be synchronisation between other applications, such as email, event planners and timetables. The respondent also pointed out that Microsoft Calendar was especially useful at work, mainly because it allowed to see the availability of colleagues, making meetings extremely easy to schedule. The student mentioned that Microsoft Calendar was unique in this regard. He remarked the calendar was hard to learn due to the a high amount of features, initially exposed to the user.

For the survey, 29 participants responded and interestingly only 3 of them used Microsoft Calendar regularly. In general, most participants felt that they were organised, but preferred to use timetables or to-do lists rather than calendars. The most important calendar features for students, including those that do not regularly use calendars, were phone applications and automatic notifications. Overall, it could be said that students desire minimal effort, with automated reminders and easy-access a priority. Although many participants felt that they were too lazy to create/update a calendar, many still felt that they never learned how to use the Microsoft Calendar system effectively. This is an indication that the current layout may not be the most intuitive for student users.

For the Think Aloud, the participant found it difficult to start the task because they didn't know how to access Microsoft Calendar from Outlook email. They actually had to use the search feature to find it. International students may also find the language used difficult to understand. For example, the participant didn't know difference between Delete Occurrence and Delete Series when they attempted to delete the recurring event they had created. The participant found that Microsoft Calendar was not intuitive. In particular, the recurrence button was not conveniently located. Ultimately, the participant found the tasks to be more difficult than anticipated.

The persona devised was an informatics postgraduate student, familiar with software in general. Her university requires all students to use Outlook email, so she is more inclined to learn how to use Microsoft Calendar for consistency. The persona doesn't spend too much time understanding how to use new software and prefers looking information up. She primarily uses mobile timetabling applications and paper for to-do lists and would consider using a new calendar software as a timetabling application if it is synchronisable between her computer and phone/tablet. Overall, Microsoft Calendar provides the basic features she requires, but there are still some usability issues. For instance, there are insufficient explanations in the tooltips, it's difficult to delete a newly created calendar and the public calendars available for import are not customisable.

In conclusion, from the design requirements we found that students required a calendar that, at the most basic level, would provide notifications and be synchronizable across devices. As a desired feature, students would like to see synchronisation with other applications. The evaluation of Microsoft Calendar was based on its usability for casual/unfamiliar users. Both the Think Aloud participant and the persona struggled with managing events. Finally, in all methodologies, students found that there was a steep learning-curve when first starting to use the calendar.

Interview Report

-- Conductd by Linas Kondrackis

First and foremost - my goal is to understand what students expect of a typical calendar application. I need to understand the problems students are facing that are solved by calendar apps, gauge their knowledge about such app's capabilities and understand how they learned about them. Then, I need to see what students think about the Calendar included in the Office 365 package, understand their experience with it, and compare the perception of it to their preferred app. I should extract any other impressions that students might have on the Microsoft Calendar, as there might be some unforeseen traits that impact user experience.

While preparing the interview, I used the knowledge gained in class and found in the course books [1]. Additionally, I have chosen to prepare the interview, loosely following the DECIDE [2] framework, as it provided comprehensive guidelines on what issues I might expect and the steps I need to take.

After analysing the task requirements with my team, I have chosen to carry out a semi-structured interview, as it provides the safety of having a set direction and guiding questions, and still allows enough flexibility to be able to focus on significant topics that might surface as the dialogue progresses.

The person I selected for the interview is a third year Computer Science student. The person is extroverted and has good communication skills, which should allow me to easier to understand their true impressions on the product in question. Furthermore, I know that the person has used used Microsoft Calendar before, and with a high degree of certainty - in the last 3 months. Recent direct experience might help to pinpoint hidden traits of such applications or pinpoint flaws in their design.

I shall assume that being extroverted and having good communication skills is not related to student's experience with a calendar application or the judgment of one. Interview data from one person is also not enough to extrapolate about the general set of students, but I shall attempt to present the general data obtained, highlighting what, in my opinion, might be biased or endemic to a certain demography.

Question Design

I realized that the student might turn out to know less about Microsoft Calendar than I initially anticipated. Therefore, I tried to keep a steady progression towards Microsoft Calendar. In designing the questions I used the goals, outlined in the beginning of my report.

Statements of ethics

I would tell the respondent that:

- Interview would be broadly oriented around the respondent's organisational habits.
- The interview would last around 20 minutes.
- Gathered data would be used to evaluate Microsoft Calendar.
- Interview recording would not be shared elsewhere and only used to produce a transcript, which would be analysed afterwards.

Warm-up

The questions asked in this phase were aimed to provide a smooth introduction to the theme, as well as to find out some general character traits of the respondent. Potential questions:

- How organised are you, as a person?
- Do you keep a task list?
- What timetabling apps are you using?

Main section

Here, I will attempt to find out the respondent's familiarity with calendar apps and extract any features, that are considered good or bad. I will then figure out how familiar the student is with Microsoft Calendar and if this calendar is seen as a unique product. Sample questions:

- Do you use a calendar app?
- What are you (would you be) using it for?
- What are the basic features that every calendar app must have?
- What are advanced features that would make a calendar app stand out? (Might be too open ended)
- Have you ever used a calendar app at work?
 - Did it have any good features?
- What devices are you using the calendar app on?
- Have you ever used Microsoft Calendar?
 - What good features did it have?
 - What bad features did it have?
 - Is it different from other calendars that you've used? (Might be a repetition of previous questions)
 - Would other students find Microsoft Calendar useful?

Conclusion

During this phase I will provide an easy questions and also bring the interview to a close.

The one question that I'm planning to ask was:

- Do you think students will rely on their calendars more on the future?

This is a more creative and relaxed question that the respondent can answer any way he likes. Therefore, it should put his mind at ease, while still providing me with useful information.

Results

I have carried out the interview. The transcript can be found in the appendix. The uncovered trends and comments are provided below.

Synchronization between apps

I found out that in timetabling apps, the feature that my respondent sees as the most valuable is synchronization between other apps. It is so important, that the respondent considers it as a base case - he'd expect to find it in every new timetabling application. For the person, it would be highly beneficial for synchronization to have immediate effect upon starting to use the app - for instance, it would be very helpful to find the lecture timetable already integrated into calendar.

Therefore, I believe that when negotiating contracts with universities, the calendar app providers should seek to find out about the current timetabling system and integrate it into the calendar as soon as possible. Successful launch with timetable already in place would solve a pain point that students have, or, if a convenient timetabling system already existed before - meet the basic criterion for usability.

Calendar usage for collaboration

My respondent highlighted that Microsoft Calendar was useful at work, as it allowed to see when people are available by showing their schedule, with event information removed. In the student's opinion, this is a capability, unique to Microsoft Calendar. Therefore, advocating for it in the student community might increase its popularity, especially among people, who have not seen this feature before.

why?

The student I talked to was no longer using Microsoft Calendar. However, informing the students about the existence of it might increase the popularity of it at work, in bigger companies, by increasing the chance that a recent graduate would know and endorse it.

Looks and User Experience (UX)

The respondent feels that looks don't matter as much as the aforementioned features. However, the first impression that he claims to have when asked about Microsoft Calendar is about the looks. He also comments that Microsoft Calendar does not look too good.

Usability

The student found the Microsoft Calendar hard to use at first, due to the overwhelming number of functions provided, but it became useful when you get used to the system.

Therefore, it might be beneficial to redesign the feature presentation to make the learning process feel more like an iterative discovery.

Other calendar types

The student pointed out that there are different calendars for different occasions. Quote:

Linus: What are the good alternatives (of Microsoft Calendar)?

Student: Well, I think it's more tied to the social media or email account that you use. Or even messaging system, because, say, with Facebook, you also have a calendar there, but no one puts assignments on Facebook calendar, or no one, that I can think of, in the same regards, it's not so common to have social event reminders on Gmail calendars. So, I think, there's different calendars for different purposes and sometimes you don't even put them into calendars on your phones and it's not that important. Or if they are, you put them in your main calendar somewhere, which could even be physical, on the fridge, or on your phone.

In hopes of improving Microsoft Calendar, it might be worth to investigate whether offering different dedicated calendar types (e.g. "Studies", "Work", "Events") by default would improve popularity.

General findings

- The respondent claims to not be an organised person and rarely used timetabling apps.
- The respondent expects a timetabling app to provide notifications.
- The respondent does not synchronize his iPhone and laptop.

Self-reflection

In my opinion, the interview went well - I have found out about some features that calendars must have, and where Microsoft Calendar stands, in terms of uniqueness. Also, I have managed to obtain some information on how organised the respondent is, and also extracted the opinion on what the student thinks, are the most important features.

During the interview I have realized that I might have been able to find out more about calendar apps in general if I was to do an interview with a person who was organised and deeply cared about the efficiency of timetabling applications he uses.

I believe, the execution of the interview could have been improved - I felt that I was often tempted to help the respondent by narrowing down the question. This would have reduced the range of responses I'd be able to obtain and prime the student to give future answers based on the direction I set. I think, I have managed to avoid such priming in most cases, but some slipped through.

Conclusion

To sum up, my respondent highlighted synchronization between apps as the most useful feature of timetabling apps. The other useful features are collaboration facilitating features such as the ability to view the layout of a colleague's timetable. The student stated that user experience is less important than synchronization across other apps, but still mentioned the User Interface when asked to describe the impression of Microsoft Word.

The respondent thought that Microsoft Word did not have a good User Interface and was daunting to learn due to overabundance of functions. However, it has the unique functionality of displaying the timetables of work colleagues, allowing easier scheduling of events.

References

[1] "Interaction Design: Beyond Human-Computer Interaction" by Preece, Rogers and Sharp;
"Universal Methods of Design" by Bruce Hanington and Bella Martin

[2] Basili et al., 1994

Survey Report

-- conducted by Morgan Mae Rees

Reasoning Behind Survey Questions

The survey has 10 questions in order to ensure that it is concise and the participant does not get bored/distracted, as recommended by Gordon Aitken [1]. The first question is used to give an insight into the **personality of the participation in terms of their organisational behaviour**, this question is very general and eases the participant into the survey. It is set up in terms of a matrix, with 5 columns based on the Likert scale and five rows [2]. Although more questions could have been asked, 5 rows were chosen so as not to overwhelm the participant or confuse them between rows [3]. All questions were worded positively, so that there was more of a flow between the rows.

The second question is also more general and about **which type of tools** (or lack thereof) the participant uses to keep organised. Before answering any specific questions about calendars, it is good to see which **other tools** people use to keep organised and perhaps if there is a link between people who use certain tools and which calendars they prefer. Participants who do not use Microsoft Calendar may have a choice of tools that is not included in the software but may easily be incorporated into the calendar. Microsoft could use this information to attract new users.

The third question asks what the participant uses a calendar for, to get an insight into what the online calendar's primary focus should be. For example, if people prefer to use a calendar to keep track of their university deadlines or to remember birthdays. This may aid Microsoft in attracting more students by catering directly to their desired needs and making this type of event easier to enter.

The fourth question asks how often the participant uses each type of calendar, to see if there is a difference between paper calendars, phone calendars, and importantly Google or Microsoft Calendar. There are only 5 rows in this question, once again, so as not to distract/discourage the participant. Furthermore, the Likert scale is used with options which are less ambiguous: the option 'weekly' is much more consistent across participants than the term 'often' [4].

The fifth question asks people to compare and rank certain features of an online calendar from the most important to the least important. This question is specific to online calendars and is useful because Microsoft can see which features are students desire in a given online calendar system and can focus on supporting the desirable features.

The sixth question is specific to Microsoft Calendar. It asks participants who do not use Microsoft Calendar to list reasons as to why they do not use it. Answers include preferring another online calendar system. This makes it possible to distinguish between users who do not use online calendars in general and those who prefer a different software. This may give more insight into the reason behind students not using Microsoft. Do students simply not use online calendars, is there some sort of loyalty to another calendar or is there some design flaw in the Microsoft Calendar that puts students off?

The seventh question is the final question regarding calendars and is also specific to Microsoft. It asks those who use a different online calendar to state which one they prefer and explain why they prefer that given calendar. This could be useful for Microsoft to analyse the differences between the calendar they provide and their competitors' calendars in order to attract more students by implementing the desired features in their calendars. This question was the only open question, and is strategically placed at the end of the questionnaire to allow the participant to give a detailed answer to the most specific question in the survey [1].

The last three questions are about demographics. This was placed at the end of the survey in order to avoid bias influencing other questions as a participant may believe they could be identified from such information [1]. The eighth question is about the students' degree title, including their level of study and programme. This question confused many participants as they omitted the level even though an example answer was provided 'BSc Computer Science'. This was just for interest to see whether there was a difference between subjects or Master's/Bachelor's students, which may be significant. This would be interesting in order for Microsoft to cater to a specific student population with a certain calendar features. The penultimate question asked participants for their age. In hindsight, I don't believe this question is that beneficial to the survey as students who are undertaking a Master's programme are likely to be older than students who are pursuing a Bachelor's degree.

The final question was to see if there may be a language factor in terms of which organisational tools students use. Perhaps Microsoft Calendar is more accessible to those who are native English speakers, compared to students whose mother tongue is not English. Therefore, to increase usage in a student population, Microsoft may be more inclined to target students who would not use the English language version. This question was based on a personal interest to investigate whether or not a student's culture/background has an influence in which type of calendars he/she would use. For me, this replaced the less interesting question of gender, which creates an artificial divide, since cognitively and behaviourally there should be no significant difference between genders (one could find different results based on splitting people by the first letter of their names, but this is also statistically insignificant).

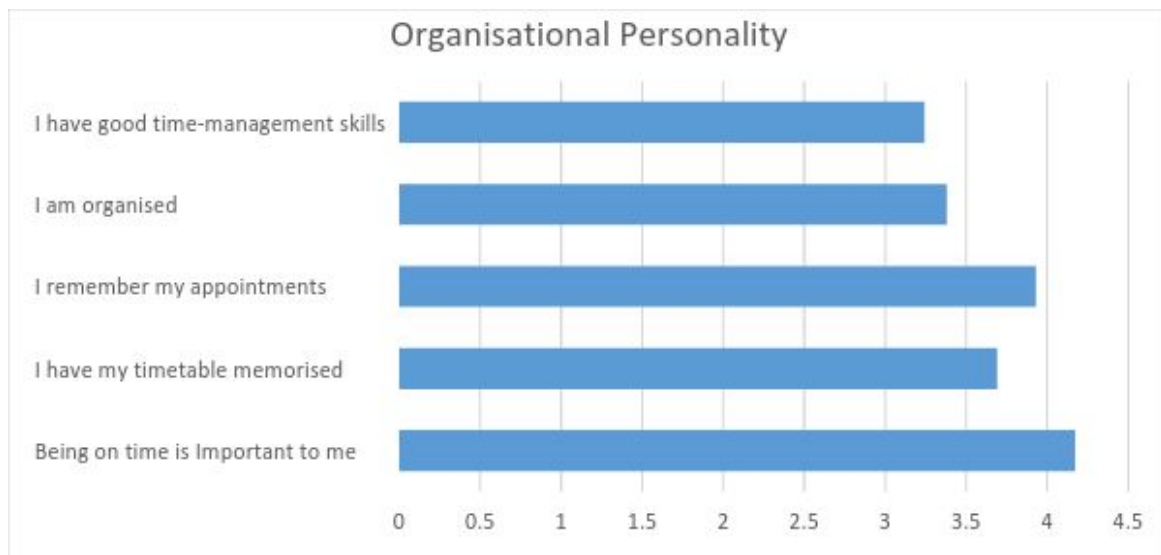
Descriptive Statistics

A total of 32 people took the survey; however, 3 responses had to be thrown out as their answers for Q8: What is your degree title? was N/A. This means they weren't students, although on the consent form it explicitly stated that this survey was for students only. As for the age breakdown, the mode was 21, mean 22.241 and standard deviation 2.695. The data reflects that most students surveyed were either in their final year of their Bachelor's degree or undertaking a Master's. Just over half of the participants (16/29) spoke English as their native language, with Chinese (Mandarin) being the second most common language (5/29).

Analysis of Data

Q1) This question was about the organisational personality of the participant and how well they felt the statement reflected them. The most surprising result is that participants regarded being on time as important but were less likely to describe themselves as having

good time-management skills. This general feeling of lack of organisation may play a role in students choosing not to use calendars.

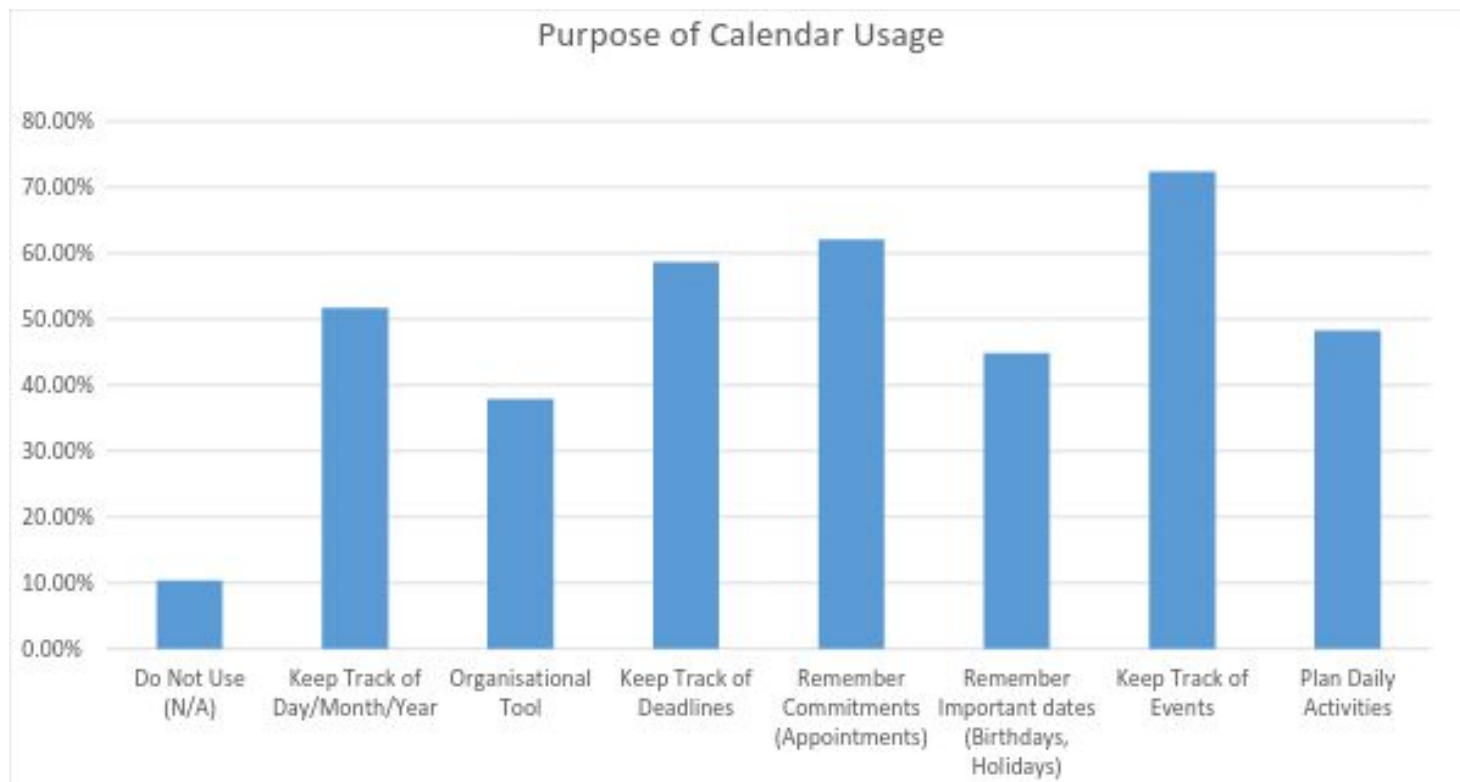


Q2) Just over 70% of the participants used a timetable to keep organised, which is hardly a shock; however, under 50% used an online calendar. This implies that students prefer a weekly timetable where they can easily see their university schedules to a calendar where they have to manually input each event. It's interesting to note that over 50% said they remember events 'from memory only' which in hindsight was ambiguous. It could mean that for any additional events, excluding their normal timetable, they make special effort to remember, rather than what was intended by the answer (as in don't use any tools at all). To do lists and Facebook event reminders were both more popular than online calendars which shows that the participants do use organisational tools, but just aren't interested in the services an online calendar provides.

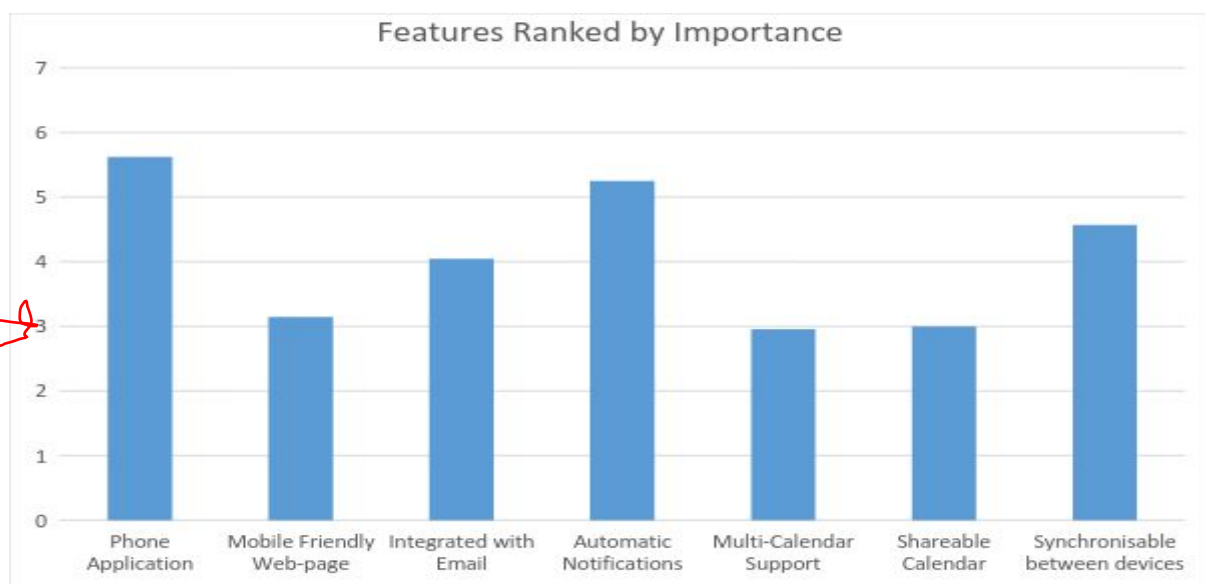


Q3) This question is about any type of calendar and answers the question of why/when a student may choose to use a calendar instead of another tool. This question is possibly the most pertinent to the task as it directly asks what students require from an online calendar. The three most important things for the participants was to keep track of events,

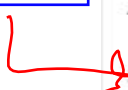
commitments and deadlines. Based on the results, an online calendar which incorporates the three would be the most useful calendar for students.



Q5) Perhaps the most interesting question was ranking features of online calendars by their importance. This reflects what students desire from an online calendar with the most important being a phone application, closely followed by automatic notifications. This suggests students would like to have access to the calendar on their phones (so perhaps need access 24/7) as well as being reminded about events without any extra effort needed.

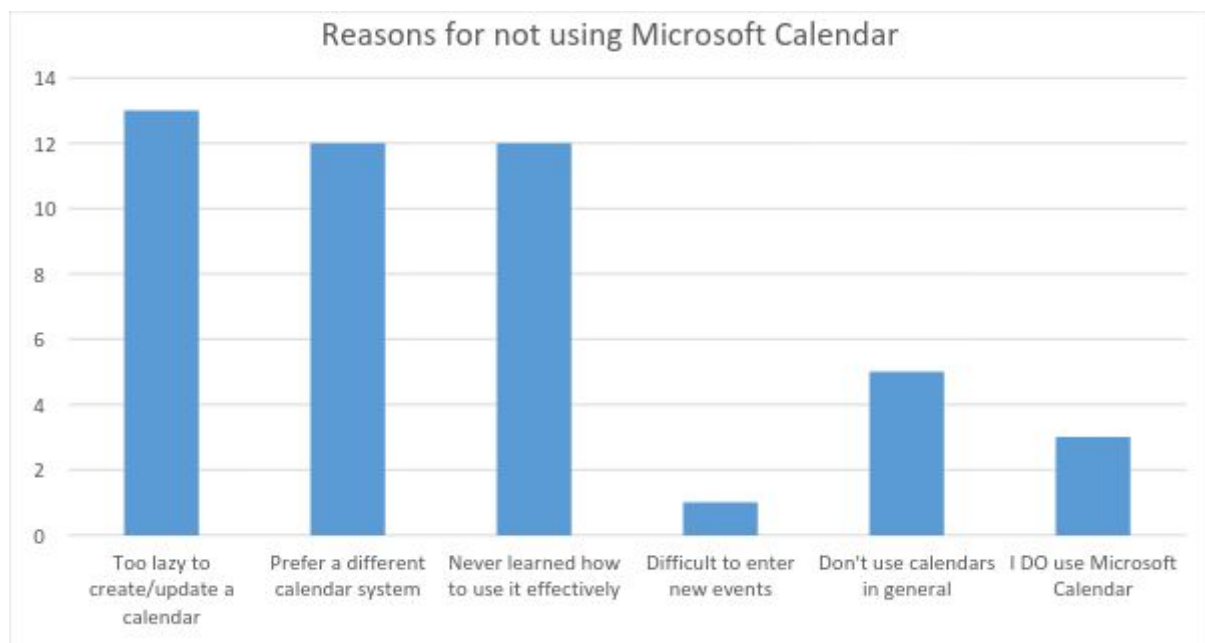


what do these numbers mean?

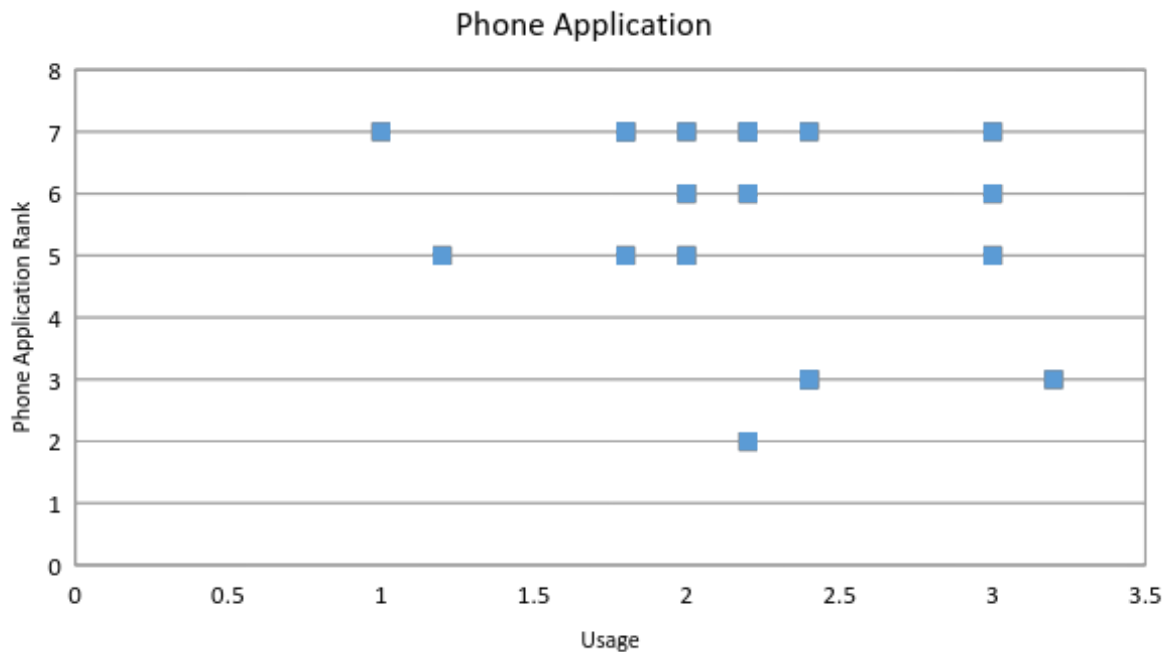


Q6) This question is specific to Microsoft Calendar and search for a reason as to why students may be put off using the calendar in general. The conclusion is that either students use a different calendar, and may be loyal to that calendar, or they are just simply too **lazy** to keep an up-to-date calendar. The interesting result was that 12 participants felt they had never learned how to use Microsoft Calendar effectively, which suggests that maybe a simple training video/session geared towards students would encourage them to start using the calendar. Only 3 respondents actually used Microsoft Calendar (out of a total of 29), which means enhancing features and better catering towards students' needs could attract many new users.

Lazy is a very biased word.



Q4 and Q5 Relationship Investigation: Below is a scatter plot diagram which compares the amount a participant uses calendars to the desirability of a certain calendar feature. The feature chosen as an example is the Phone Application feature, as it was the highest ranked, but the appendix includes the rest of the features, for interest. It didn't seem to matter how much a person used calendars to the desirability of the phone application feature. This was an interesting part of the investigation, as it would be useful to see which features people who regularly use calendars desire and which features people who don't use calendars desire. If there is a discrepancy between these two categories, it would be useful for Microsoft to start supporting features desired by those who do not currently use calendars.



Q7) Unfortunately, 15 people skipped the only open-ended question (Q7), which I thought would provide better insight into what students looked for in an online calendar. I did not throw away these 15 responses because I feel the question was not worded properly and therefore did not elicit a response from every participant. Those who do use Microsoft Calendar or those who do not use an online calendar in general would have just skipped the question. Those that did answer the question did provide a rich qualitative answer. Most students preferred either phone, Google or Mac Calendars. Reasons given for Google Calendar were 'simplicity', 'linked to everything' and 'integrated with email' as well as the 'university operating system based on/around Google Calendar'. Reasons for Mac Calendar included 'integrated with Facebook events'. Reasons for phone calendars included 'synchronised with university timetable' and 'no hassle of logging in'.

Results

The purpose of the questionnaire was to determine what university students want and need from an online calendar system. The results show that the most important calendar features for the participants, including those who rarely use online calendars, was a phone application and automatic notifications. This highlights the facts that students desire easy-access to their calendars at all times and also want to avoid the hassle of having to open the calendar in order to be notified of an event. Furthermore, students preferred to do lists and timetables to calendars in general, so perhaps allowing students to easily link/upload their timetables to their Microsoft Calendar would encourage more students to use it. The reasons listed by participants for preferring a different calendar system included integration with email and integrated with Facebook events; however, this is difficult for Microsoft to implement as someone's email system may be Gmail, so Google Calendar would be preferred. Interestingly, one user commented that their university's system was based around Google Calendar and therefore they were familiarized with that system. Rather than targeting the student population specifically, Microsoft Calendar could make their product more desirable for universities to implement as standard. Finally, although many participants felt that they were too lazy to create/update a calendar, many still felt that

they never learned how to use the Microsoft Calendar system effectively. Microsoft could try incentivize students to use the Calendar by providing a basic introduction/training for inexperienced users.

Reflection

Before conducting the survey, I did familiarise myself with Google and Microsoft Calendar, but still found it difficult to design survey questions about a topic that I had little previous experience with (I personally never use online calendars). However, I found that many of my participants also had limited knowledge of online calendars, so perhaps the broader questions were in fact a good decision. Specifically, I think the first couple questions about the participants' general organisational skills were definitely worthwhile investigations since all participants answered these questions and it gives an insight into which tools people primarily use to stay organised and may be incorporated with Microsoft Calendar to improve the overall experience. For example, they could add a weekly timetable option separately which would appeal to students, but also allow them to incorporate this into the regular calendar if they wish. The ranking system unfortunately did not work as hoped, so that is definitely something I would improve on should I do another survey. I thought this question was the most pertinent in finding a successful design solution. Seeing which features appeal to students and implementing these features would definitely increase the likelihood of students using Microsoft Calendar. Unfortunately, I had to omit quite a few responses as they did not complete the ranked comparison. If I was to do the survey again, instead of having participants compare the features, I would have them rank each feature individually from 1-5 instead. This would mean that it would be possible for a participant to omit ranking some features without invalidating the data. Finally, one interesting question that cropped up whilst distributing the survey was from a friend of mine asking if my data would still be valid if a participant would keep contradicting themselves. For example, by saying they use Microsoft Calendar daily and then in the next section saying they have never used it. Thankfully, I did not see anyone intentionally trying to manipulate/invalidate the data, but it made me more aware of the issues that can arise if there are discrepancies in the survey data. In the future, I would put more thought into avoiding questions where these types of discrepancies could arise.

References

- [1] RCU Limited, *10 Step Guide to Questionnaire Design by RCU*. 2010.
- [2] Survey Monkey, *3 Common Survey Design Mistakes and How to Fix Them*. 2014.
- [3] W. Vagias, *Likert-Type Scale Response Anchors*, 1st ed. Clemson University, 2006.
- [4] John Wilie & Sons, Inc, "Data Gathering", 2011.

Think Aloud Report

-- Conducted by Yingcong Li

In this course work, I choose to conduct the methodology of Think Aloud in the Usability Evaluation. My goal is to let a participant to use the Outlook Calendar and do some given tasks, and the most important thing is the participant must be keeping talk about what he is doing during the Think Aloud. At the same time, I will sit besides the participant and record the question he had and the unexpected scenario he met. Then I will conclude conclusions from the note I took and collect information from voice recording, finally write a report.

While preparing this Think Aloud, I mainly use the knowledge from books¹, and slides. Useful information such as what I need to say in advance and what I should do during the test. Most important things is the steps I need to take.


Task Design

Follow the guide, I design the six tasks for the participant to complete:

1. Create a all-day event in the Outlook Calendar
2. Turn the all-day event to a time-limited event.(eg. starts from 1pm to 3pm)
3. Invite some friends for the event.
4. Create a new weekly event (eg. course notification)
5. Delete the weekly event.
6. Import Google Calendar to Outlook Calendar

As the reason why I choose these tasks. First and the most important point is that it is based on the scenario I created. It's all about setting up a realistic situation for the purpose of data collecting. Based on the experience of myself and my friends, combining with the topic this time. I decide to set the scenario like that :

You are a new student into the University of Edinburgh. In the past time, you usually like to use Google Calendar to make the event notification. Since you get the outlook email address by the university, so you think it will be more consistant if you use the Outlook Calendar as well, cooperating with the Outlook Email.

Since the user is new to Outlook Calendar, so the tasks is  basically starting from very basic operation like **CRUD(Create, Retrieve, Upd ate and Delete)**. First of all, It's something related to the Integration of these small tasks, and I think these basic operations are the most fundamental features of this application and it should be easy for user to go through these basic operations smoothly. Additionally, there is also a trick in the basic operations, for example, when the participant doing the Task 5, it seems simple, but that event is actually a weekly event, called 'Series'. That is where the term comes in. Because most of international

¹ "Universal Methods of Design" by Bruce Hanington and Bella Martin

"How to Conduct a Think-Aloud Usability Test" by the university of Carnegie Mellon

students do not know what the Series and Occurrence means in this calendar, we use our knowledge to match the Outlook Calendar to the real Calendar. So here is a point where I want to test one of the heuristics of Outlook Calendar.

Another consideration taking into account in the designing of tasks is the cooperation with the other part of Outlook -- Email, which is the most important part in Outlook. Because users use school email account in Outlook, good connection and flexibility between the two parts is the advantage of Outlook. If users can really feel the efficiency of the combining of calendar and email provided by the Outlook, I think the possibility of a new user choose to use Outlook will be much higher. Finally is the integration with other system such as Google Calendar or other calendar applications they might use. Consistency is regarded as import in many students' mind². If user want to transfer to Outlook or use other Calendar Application in Outlook interface, this feature is very important for them.

Recruit User

Just as different systems require different situation and scenario in order to provide a realistic environment, so will different system require different types of users to provide generalizable data³. In this problem, the question is : Why few students use Outlook Calendar? So the student is the target of this research, I have to choose a student to be the participant. Additionally, according to the scenario I wrote for this Think Aloud, the participant must be new to Outlook and want to use Outlook to cooperate with the school email account. Finally I choose my roommate to help me to this methodology. The reasons why I choose him as participant are basically depends on the following: first of all, he is new to this university and have a school email account on Outlook, that means he has a very large potential to be a Outlook Calendar user. Secondly, he actually use calendars such as Google Calendar or iPhone Calendar to notice the event, particularly in the Welcome Week. Finally, he heard about Outlook Calendar but several times but never actually have a try.

Generally, he is a very identical sample which will represent a lot of common feature of new students just like me or other new undergraduate or postgraduate students. A large number of these new students just begin using Outlook Email because the university required, and they have a lot of things to do in the first week, it is very essential and convenient for them to use a calendar application to notify all the event. When classes begin, they also need this to notice the lecture time since we haven't remembered it. What's more, if they get used to one calendar during this short period, it will hard to change it in a quite long time. For Microsoft, I think it is very important for Microsoft to get a reasonable users during the opening days. So, choosing a student who are new to university will get more generalizable data since they are actual user group of Outlook Email, have a great potential of using Outlook Calendar or maybe the user of Calendar too.

² Conclusion from my teammate's survey and interview.

³ 'How to Conduct a Think-Aloud Usability Test guide' developed at Carnegie Mellon

Preparing and Basic Factors

Preparing a Think Aloud is a very important part in Think Aloud. First of all, since it is very common people use Outlook with their laptops, a realistic hardware setting is to use a laptop. I decide to use a screen-capture software and a voice recorder to collect information. I open the Outlook in advance so the participant can start with finding the entrance of Outlook Calendar. Second is writing down the task to the paper, one on each paper. What's more, I also have to write down the scripts which use to introduce Think Aloud and user training. The transcript can be found in the appendix. Finally is the practise and practise. I invite my another roommate to help to go through all the process before collecting any actual data. I also read the introduction until I can read it fluently, so that it will the reduce the press on participant.

The whole Think Aloud lasts about 20min, including 5min introduction and user training, following 15min task completion. During the whole Think Aloud session, I use my voice recorder and a screen-capture software to record, for the convenience of that I can replay the recordings to find more details. What's more, during the task session, I write a note to record the question asked by the participant, the moment when participant seems confuse and the unexpected situation the participant met during the tasks. The transcript can be found in the appendix.

Analysis

Aftering this Think Aloud, I say thanks to my roommate and cook a dinner for him because he did very well in whole testing -- keep talking about what he was going to do, what questions he had, which made the data realistic and easy to generalizable.

First thing I did in the analysis section is to establish a criteria for criteria incidents. Using it as a reference as I review the data, keeping the recordings can get manageable.

Following the criteria, is to write UAR reports according to this criteria table, so we can figure out main problems and good features. Additionally, give out some possible solutions and finally I can examine these possible solutions and choose one solution as the final decision and write to the report.

Criteria for criteria incidents

Possible Criteria for Problems	Possible Criteria for Good Features
The participant articulates a goal of finding the entrance but through searching.	The participant says the mail-list is better than Google
The participant articulates to fix an event and can not success in 2 minutes	The participant says it is very Microsoft-Type because you can finish

	many things through right-click.
The participant failed to delete an weekly event	Searching output is very precise and correct.
The participant feel confusing	

With the help of criteria table we can figure out several problem and good features. And depending to this table and data I collected, I wrote 4 UAR reports to speak these problems in a more detailed way and find possible solutions.

Summary

In the beginning, although it is more integrate combining Email and Calendar, small icon makes some troubles for participant to find the entrance of Calendar. In the testing, participant's mouse went through all screen for several rounds but finally got into the Calendar through searching 'calendar' in the searching bar. This is easy to figure out that this design violate the principle of "Visibility" in the Nelison's Heuristic.

Another issue is about the "term" in Outlook. When participant wanted to change a weekly event, message box of "Open Occurrence / Open Series " just came into screen, so the participant asked the question: What is the difference of these two words. Then he choosed "Occurrence" and changed it, but rest of event in this series didn't change and the participant realized what is the differences. Same situation happened when participant deleted a weekly event. Since it is different from real world calendar.

Despite of these problems, Outlook is definitely a well-structured, versatile and 'high-tech' calendar application which has a lot of advantages which can let it stand out from all the calendar applications. The most powerful weapon is the integration with Email. Since the Outlook Email is wildy used in many companies and schools, where meetings or events happen all the time, the need of calendar is immense in these places. We can easily invite someone to an event or meeting, the best thing is, Outlook has a good structured mail list, so find someone's email address is very esay. Same as we can receive an event through email and add to calendar directly. Additionally, due to the good ability to the netural languages process, Outlook can find what user want quickly through the "Searching" bar. This make it easy to use this application which has some functions.

After combining data and examing possible solutions, several redesigns can be taken into account to improve Outlook Calendar:

- Put the entrance of Outlook Calendar to a more conspicuous place.
- Give helpful text or link when "Occurrence " and "Series" come into screen.
- Add "Reoccurrence" options under the event title.

Reflection

In my opinion, the Think Aloud went well - I have found out about features and problems that calendar have. Also, I have managed to obtain some information on how to analysis the data I collected. But in this Think Aloud testing, I didn't test Outlook Calendar in the telephone or webpage, and the consistency in difference types of devices. I think maybe next time I will ask participant do the same tasks in laptop and telephone. And in my opinion, the result of this test is various, depends in the participant, if the participant is careful enough(like my another roommate), he may feel easy to find the entrance and "Reoccurence" button, but someone can not. This is also related to the task. Maybe next time I can make the task more general so that the result is more depends on the software not the participants.

Reference

- [1] "Interaction Design: Beyond Human-Computer Interaction" by Preece, Rogers and Sharp
- [2] "Universal Methods of Design" by Bruce Hanington and Bella Martin
- [3] "How to Conduct a Think-Aloud Usability Test" by the university of Carnegie Mellon

Persona Report

-- Conducted by Chaonan Dai

1. Create a persona

Persona methodology is a well-known method that experts use to evaluate the usability of a software or It system.¹ In this course work, I would like to select it to be involved into the usability evaluation of the Outlook calendar.

It provides an ideal solution by combining the behaviors of related groups of people². While preparing for this methodology, the persona used as the representative of a part of calendar users needed to be developed. In order to generate a reasonable archetype, I decide to follow the steps of the four basic perspectives in offered resource.¹

1.1 The goal-directed perspective

Considering who are the Outlook Calendar designing for? It might be supported or welcomed by people who need to record their appointments or reminders. Most of them are business people, students and professors. According to the survey of our group, most participants were undergraduate students and postgraduate students. And there is no enough data about the exact percentage of calendar users. So we can just consider one aspect of the users, the specific persona should be generated as a postgraduate student as well.

Think about the goals students choose to use online or other kinds of calendars. They probably only use the calendar to see what is the date that day at the beginning. While they are exploring more functions of the calendar, they might add a reminder on it to record their plans, or try to highlight some special days. These goals may assume that the users might have the habits of reviewing date or holidays, and tend to schedule their work.

So that as for our persona, this student should have sense of time and decide to plan his or her own calendar. Simply suppose the persona to be named as Michelle, a student who tend to be in time for her appointment or due work. On the other hand, she has a messy course table and tends to find a job in the first semester. It seems that the demand of scheduling her work is urgent. When she created her outlook email account or brought a Microsoft product, she found a new tool for her requires: the outlook calendar.

1.2 The role-based perspective

This perspective is to consider the users' roles in using the online calendar¹. It depends on the method they prefer to use the calendar (computers, mobile phones or both) and the frequency they use it. While they are used to use paper calendars or texts in mobiles to record their plans, the online calendar might not be very important and they may ignore most of the functions it brought to us.

In these case, our persona should be familiar with electronic devices and willing to use them to do everything. Thus she would prefer to use her computer or phone to record her schedules such as the due date of course work. She may also use paper at hand to record

her ideas or to-do-list sometimes, but in most situations adding a reminder in the online calendar will be the first choice.

Actually, it is not likely to get valuable feedback and suggestions from users who only apply the online calendar as a decoration or only use it for conformation every once in a while. Even there is no actual data for the percentage of the effective users, their opinions and habits should be focused on basically. Even though not all students who choice online calendar will behave as what we assume before, this case might be the most typical one and can bring more information when considering the affection toward the calendar.

It seems that if she decides to record things at wherever she need to, that is to say the online calendar can easily be reached at her phone or table PC. And the information she recorded will be stored in the same account and in all devices they are synchronized. When she is going to have a lecture or she tends to add a meeting in a memorandum, the calendar might be useful.

1.3 The engaging perspective

As for postgraduate students, most of them are interested in a specific area and plan to get into a deep learning. That is to say they are aware of explicit goals and would force themselves to pursue it. On the hand, they might not struggle on living expenses, even they may get a part-time job.

Thus we can assume for our persona Michelle. She is an informatics student who is focusing on software engineering. Due to the school's requirement, she has to use outlook email as the mainly used personal email address to receive official information. She is very familiar with how to use online calendar and other kinds of similar software. In order to record events immediately, she downloads the apps of Outlook email and other kinds of reminders on her phone.

Needs and attitudes of users are indeed essential for a product¹. While considering the importance of various events, things related with their focused area should be more important. They may want to highlight the professional events in their schedules. Different colors or shapes can be used to distinguish them.

On the other hand, habits of using an exact product might be the most important reason why users continue to use it in psychology. Thus, the people's behaviors and how they use it to interact with others might influence the changes or improvements of the certain functions. It is not enough only to attract users or advertise itself to the companies.

Think about the usability and aesthetics. Suppose that Michelle is more concerned about the usability and how she can handle the whole setting of the online calendar to fulfill her life. As for aesthetics, there is no strict requirements for herself, but it needs to be comfortable and changeable.

1.4 The fiction-based perspective

The Outlook calendar will not be the only choice. There are various online calendars such as the google calendar and the calendar included in the computer or phone. Why they choose the calendar they use instead of others? What is motivating he or she to do use this online calendar?

The beginning of how users choose to use online calendar might be different. Some of them

may discover it by themselves. Some are forced to use the related email account, so that they use its calendar for convenience. Others might be suggested by their friends or colleagues so that they can share events on their calendars.

Instead of usability and aesthetics, instructions of this calendar and a clear constrained interaction might be important.³ Not all users are experts or can easily handle to use a new product. We cannot consider all the cases in a single persona. It is suitable just to choose the one in the medium place.

That is why our persona is formed to use the outlook calendar based on the using of outlook email account. In fact, she may use other kinds of calendar like google calendar as well. This persona **should be a casual user**. Only simple instructions or some clear designations are required so that she can follow the steps of getting the calendar in use. She would not be as an expert of this product, but a flexible interaction in some extent will be more helpful.

About collaborate habits, Michelle is used to invite her classmates to go a lecture by email or on Facebook. But if there is a similar function in calendar, she might think it is still a great idea to just share a schedule online. It can be in the form of reminder or just a note.

1.5 Summary of creation

After considering the process to form a reasonable persona through the four basic perspectives, some vital functions of the online calendar can be highlighted as well. These needs or functions might not be suitable for all users. But as for students group, these benefits may attract them or at least would not make them throw it out.

In my opinions, this persona is formed mainly based on the prototype of students in Informatics school. Actually, maybe no one will match all the behaviors or needs of this persona, but most of them might do similar choices as she did. As the persona method is all about the user needs, attitudes and behaviors, they are gathered using qualitative methods.¹ To some extent, this is the most appropriate one while evaluating this project.

2. Scenarios that this persona might try and engage in using Office 365 calendar.

Office 365 calendar is a kind of Outlook calendar supported for business people and colleges. While users are making their decisions, there might be specific environment, their work and their context. It is difficult to keep this context in mind all the time, but personas is one way to achieve this.³ Considering various scenarios personas use the product might be helpful to do the evaluation. Two typical scenarios for a student most probably will be selected, and these two would be more considerable than others.

Necessary elements should be included to form a reasonable scenario: the persona's main character, context and situations, motivation for what happens, persona's actions and decisions, what influence he or she to do this, the final solutions and changes.⁴

2.1 Example scenario one: Add a lecture reminder

Michelle receives an email about a useful lecture from career service at her accommodation, and she tends to attend it. They did not provide a calendar file so that she has to add it in her schedule by herself. It is easy to find it in the left corner of the landing page. The calendar of this month is shown and the date of this day is automatically selected.

Then she selected the day of the lecture, click on the right-hand button to create a new schedule. Location can be searched in Outlook calendar or you can just input in your own way. It seems she has to prepare for this event, so that the start time can be a little bit early than the official one. She selects a 10-minutes reminder to announce that the lecture is coming and sets this period of time to be working elsewhere. Then she moves to the end of this page and write some notes and comments about this event.

The previous process of creating a reminder is just followed by the structure of the calendar. As this lecture is relevant with her major, she decides to highlight or category it. But she can only category it with color or patterns after a reminder is created. It is not convenient for Michelle for she just wants to complete the schedule at once. Extra operations are not necessary and may be a waste of time.

While she is checking the schedule, there is an extra event at the same day which she never used to add it. It seems to be automatically added by the invitations from emails without permission. It annoys her because she has never been asked about that and has to delete and check the schedule again, in case there might be other plans she has to add in.

After this event is noted on the calendar, Michelle tends to share it with some of her classmates. She can just send the same email to them or share the schedule through calendar. As the event description in the email is underlined by pink lines, she points to the lines and click them occasionally. It is terrible that everyone in the mailing list receives her invitation, and there is no caution or hanging-instructions for this operation. Thus, she can just forward it to others in schedule part.

2.2 Example scenario two: Invitation from friends

Michelle meets some of her friends in café and they invite her to join their journey to somewhere near the Edinburgh. The exact time is to be decided and they are asking for the opinions of Michelle. She has to check when she is free from coursework or important lectures. In this case, reminders or notes might not work as they are asking for a period of days. It seems creating an additional calendar for exact event is a better choice.

She chooses to add a holiday calendar from the top of the page, and it asks her to include countries from the list on the right. Actually it might not be necessary for common holidays and the selection should be changed to optional. She chooses the UK and try to mark her leisure days. It does not work and this calendar seems to be regulated by official holidays. Thus, she has to create a secondary calendar to replace it. In her opinions, there should be an instruction towards the holiday and birthday calendar to remind the users that they are official and cannot be changed.

After she marks all the dates that she would not arrange special events, the two calendars can be covered together so that it is obviously to select a day for the journey. But there is a problem that when she decides to delete the holiday calendar, there is no such choice in the right side of calendars lists. If she closed the 'holidays' label, it still exists even the holidays remarks are hidden behind the current calendar.

3. Summary and Improvements

3.1 Summary

In order to create a typical persona, normally we should gather data of users' type firstly. As we do the design requirements methodology based on the undergraduate and postgraduate students, it is reasonable to create a persona as a postgraduate student. This kind of users are covering a large part of the whole customers as well. Then according to the analysis in the four perspectives, a relatively completed persona is formed. Most of her behaviors are regulated by a common sense how a student with explicit goals might be. Basic personal information of this persona can be concluded in Table 3.1. More information about how this persona behaves in her daily life, her goals and opinions and the key differences will be described in the appendix.

Table 3.1 Basic information of the persona

Facets	Information	Comments
Name	Michelle	
Age	23	
Social background	Postgraduate student	Informatics school
Importance	A large part, maybe not the largest	
Life pressure	None	Appropriate part-time job
Devices	Computer, Mobile phone, Table PC	
Familiarity	Causal	Flexible interaction needs
When to begin	Given an outlook student email account	
Used to use	Google calendar, Paper notes	
Frequency of use	Everyday	Add or review

From the two scenarios above, how the Outlook calendar matches the persona's goal and behaviors can be concluded in Table 3.2.

Table 3.2 Comparison of persona's behaviors and functions in calendar

No.	Behaviors of persona	Matches in Calendar
1	Add details and notes of an event	Function of adding schedule in a day
2	Add time reminder and status	Function of time start reminder and status
3	Share with others	Can forward through schedule, no instructions and may make terrible mistakes
4	Highlight while creating	Only category after creating
5	Arrange schedules	Events mentioned in email should not be add automatically or need to ask about this operation
6	Create secondary calendar	Can create another calendar, no instruction
7	Combined all calendars	Function of combined perfectly
8	Change arrangements	Cannot delete the extra calendar

In my opinion, the behaviors of handle basic functions might be worked and can be consider to be a guidance of improvements. The behaviors of No.1, 2, 7 can be matched perfectly in Outlook calendar, these would be the advantages they do not have to change.

However, about behaviors of No.3, 6, 8, they all have the common drawbacks which might affect the using of this calendar. Mistakes should be avoided or at least there needs to be a caution to warn the results of certain operation. Any extra arrangement should be controllable by users even some of them will not choose to handle it.

In contrast, the behaviors of some personal functions might not be worked. As for the behaviors of No.4 and 5, they are caused by personal opinions and might only be approved by certain kinds of users (such of people who are similar with our persona). In order to solve these problems, more situations or persona should be created and take into consideration. These behaviors are mainly about the usability of the Outlook calendar, and the aspect of aesthetics is not mentioned. We can only assume that the current appearance and designs are comfortable and would be accepted by most of the users. It might not be correct and more data needs to be collected in interview about this facets.

3.2 Improvements of next time

In fact, there are two mainstream methods to create a persona. One is “10 steps to persona”, which is suggested by Lene Nielsen, and another is Alen Cooper ‘s “7 steps to persona”¹. They are followed by strict steps to find out regular behaviors from data or interviews. And then they identify the behaviors patterns and relevant goals. After complete the description about attitudes and redundancy, a relatively completed persona is formed. This process is much more realistic and scientific.

The process of creating a persona we followed might be the simplest one and will ignore some important facets. However, if there is a chance to do it differently next time, I would like to follow the rules of Lene Nielsen. Not all steps will be covered probably, it can still be a more practical one. I would like to design the interview based on the online calendar’s users and ask people with various social background to participate it. That will be a proof of why we form the persona with a certain kind of background. Then analysis their behaviors and goals through the data you collected about this group of people. Combing with your hypothesis, the new persona with be formed. Designs of scenarios will also follow the similar steps.

Reference

- [1] “The Encyclopedia of Human-Computer Interaction, 2nd Ed.” by Interaction Design Foundation
- [2] “Universal methods of design 100 ways to research complex problems, develop innovative ideas, and design effective solutions.” By Bella Martin, Bruce Hanington
- [3] “Interaction Design - Beyond Human-Computer Interaction, 4th Edition.” Yvonne Rogers, Helen Sharp, Jenny Preece
- [4] “The Persona Lifecycle: Keeping People in Mind Throughout Product Design (Interactive Technologies)” by Quesenbery, Whitney (2006): Storytelling and Narrative. In: Pruitt, John and Adlin, Tamara (eds.)

Appendix

Appendix A : Interview

This is the interview, performed by Linas, with a third year Computer Science student. (name substituted with X). Questions in **bold** are the one that were planned in advance. Note that a part of the warm-up dialogue happened before the interview was started, in particular - introducing the respondent to the general theme of the interview. Also, further dialogue continued after the interview, hence the lack of valediction.

Linas: Hi, X, how are you?

X: I'm good, thanks.

Linas: I'll be asking you some questions today, mainly focus around certain organisational app usage. It shouldn't take more than half an hour.

X: Ok.

Linas: Now, Google Hangouts actually moved the system to Youtube LIVE, so after the interview, the video will get saved on youtube as a private video, so we won't get anything exposed anywhere else.

X: Yeah, I wouldn't mind being a youtube celebrity anyway. (laughs)

Linas: Maybe some later time. I'll only be using this for my own purposes, to write everything down and later use for research, evaluating how useful Microsoft Calendar is.

X: Yeah, that's fine.

Linas: Well, ok. Let's start then. Do you consider yourself an organised person? What do you think?

X: Perhaps not?

Linas: Ok. Do you keep a task list?

X: Not really. (laughs)

Linas: Ok. Then how do you keep up with all the things you need to do, at school or at work?

X: Mental memory.

Linus: Well, that works, I guess. (laugh)

X: Works until you forget something important.

Linus: Oh yeah. **Have you ever tried using lists like that or timetabling apps?**

X: I think I've used it. Well, for example: at work, for example, while working, in those situations where you've got a lot of tasks and you have to work with others, then it's a lot more useful, yeah.

Linus: Is it because of the collaboration capabilities that these apps have?

X: I think, besides collaboration, it's also a way to hold people accountable. To hold accountability.

Linus: Oh, ok. So, you know who did what and so on, right?

X: Hmm. As in, you know how the tasks have been allocated and you can, not pressure people, but you can sort of push them in the right direction.

Linus: Back to simpler things: **Have you ever a calendar app?**

X: Which one? Microsoft?

Linus: Any sort of app.

X: Yeah, yeah, I've used a calendar app before, if you're just talking about general ones.

Linus: **What kind of things were you using that for?**

X: Events.

Linus: **Which bits of the app, do you think, are useful?**

X: I think: dates and times, reminders, good with the iphone; and Google, it sort of syncs across the things that you sign up for, say Eventbrite or other things. It syncs your calendar, so it's quite nice.

Linus: **Now, what kind of features would you always expect to find in, like, a new calendar app that you just downloaded? What is the base case for you?**

X: It synchronizes and it gives notifications.

Linus: Now, what kind of features do you think a calendar should have, for it to be considered "High-tech" - somehow fancy?

X: Probably a nice UI is a good sign. Maybe not just UI, but, like, UX. Although that's not a requirement for me. Personally, I much more prefer to have synchronizing, because I just use my phone and rather than, like, manually having to update, everything just automatically gets there and gives you notifications at the right time.

Linus: Now, to clarify - is it the synchronization between the devices, or synchronization between other apps?

X: It's with apps. Well, it synchronizes between devices as well. If you're signed into an account that manages your devices, but the main thing is that it synchronizes with the calendar that you have on, say, Gmail or some other places, and your hardware device.

Linus: Now, you've mentioned devices a lot. **What actual devices do you use your calendar on, mostly?**

X: Mainly iPhone, but I think it also synchronizes, or should synchronize with my laptop, but I'd probably disable that.

Linus: Ok. Why would you disable it? Because of security and privacy issues?

X: Yeah, because of that. As in, I don't connect all my accounts.

Linus: Fair enough. So you have several accounts. Which ones do you use the calendar on?

X: No, it's in, I don't synchronize my devices - I don't synchronize my iPhone with my laptop.

Linus: Now, have you ever used a calendar app at work?

X: Yes.

Linus: Can you recall which one it was?

X: Microsoft Calendar.

Linus: Do you remember any good features that you liked about it?

X: Yeah, I think scheduling time with other people was good.

Linus: Do you know if it's different than other calendar apps that have similar functionality.

X: Actually, I think, it's quite unique. There might be other apps, but for a large organisation, it was quite good.

Linus: Could you explain the feature in more detail, please?

X: The feature, basically, gave you a rough schedule of availability of other people within your organisation. It didn't tell you exactly what they're doing - it was all private, but you could get a rough indication of when someone will be available and schedule meetings based on that. And send the invitations to the email.

Linus: **Now, did Microsoft Calendar have any bad features?**

X: I thought initially it was a bit of a challenge to use.

Linus: Why?

X: I think there are a lot of functions there, and you have to sort of browse through it. Once you get the hang of it, once you know what things do, once you know how to search people's calendars properly, it's good.

Linus: Alright. Now, is there any way you think you could improve it with additional features?

X: I think, it served its purpose quite well.

Linus: **Are you still using the Microsoft Calendar?**

X: (laughs) I mean, do you think so? Uhh, no. (laughs)

Linus: Why not?

X: Well, when we were at work, we were always on the computer, on their devices. Email was necessary because they didn't use any other channels except probably, Skype, but that was connected anyway. Now, when I'm not on the grid, I don't need it as much.

Linus: Fair enough. **Now, if you close your eyes, springs to mind when you hear the name "Microsoft Calendar"?**

X: The best product ever (laughs). I think, you think about look.

Linus: Ok. Does it look attractive as a product?

X: No, it's not too good.

Linus: Are you talking only about the visual design?

X: Visually, yeah.

Linus: **And then, do you think other students would find Microsoft Calendar useful?**

X: If it's used by their organisation, then it might be. There are alternatives these days.

Linus: What are the good alternatives?

X: Well, I think it's more tied to the social media or email account that you use. Or even messaging system, because, say, with Facebook, you also have a calendar there, but no one puts assignments on Facebook calendar, or no one, that I can think of, in the same regards, it's not so common to have social event reminders on Gmail calendars. So, I think, there's different calendars for different purposes and sometimes you don't even put them into calendars on your phones and it's not that important. Or if they are, you put them in your main calendar somewhere, which could even be physical, on the fridge, or on your phone.

Linus: As a last question, do you think students will rely on their calendars more on the future?

X: Maybe if it was synchronized for them, if students had calendars were already assigned for them, say, their timetables, their assignments and instead of going to their central timetable, they could go to their calendar and if their email directly syncs with their personal email accounts or devices, then yeah.

Linus: Alright, which types of apps must the calendars be synchronized with?

X: I think, personal emails do it quite well, as most people have access to a personal email account on their primary devices, but, I mean, there could be a potential app for that as well. But that's a lot of effort for something.

Linus: Well, thank you for your time. This was really helpful.

X: No worries.

Appendix B: Survey

Survey and Disclaimer

▼ **Multiple Responses:** ⓘ

- ☐ On, allow the survey to be taken more than once from the same device
- ☒ Off, only allow the survey to be taken once from the same device

▼ **Response Editing:** ⓘ

- ☒ On, respondents can change their answers on any survey page until they complete the survey
- ☐ On, respondents can change their answers even after they complete the survey
- ☐ Off, respondents can't change their answers once they leave a survey page

▼ **Anonymous Responses:** ⓘ

- ☒ On, your respondents will be anonymous
- ☐ Off, include respondents' IP addresses in your survey results

▼ **Instant Results:** ⓘ

- ☐ On, show results to respondents.
NOTE: Some questions, such as open-ended questions, will not be displayed.
- ☒ Off, do not show results to respondents

Informal Consent Statement: A direct private message was sent **to friends** with the following statement and the link to complete the survey:

Answers to the following survey will be used in an assessed piece of university coursework. The survey is intended to be conducted anonymously, as such please do not provide any identifying information. If you do not wish to answer one of the questions, you are free to leave it blank.

Screenshots of the survey questions are provided below. Please feel free to click on the following link for an interactive version of the survey: <https://www.surveymonkey.co.uk/r/YMVTFBT>.

1. How well do each of the following statements reflect you?

	Very Untrue of Me	Untrue of Me	Neutral	True of Me	Very True of Me
Being on time is important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have my timetable memorised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I remember my appointments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am organised	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have good time-management skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Which tools do you use to stay organised? (Please check all that apply)

☐ From memory: no additional tools used

☐ To do list

☐ Timetable

☐ Paper Calendar

☐ Online Calendar

☐ Facebook Events

☐ Yearly Planner

☐ Other (please specify)

3. Why do you use a paper and/or online calendar? (Please check all that apply)

☐ Do not use (N/A)

☐ Keep track of day/month/year

☐ Plan daily activities

☐ Keep track of events

☐ Organisation tool

☐ Keep track of deadlines

☐ Remember Important dates (Birthdays, Holidays)

☐ Remember Commitments (Appointments)

☐ Other (please specify)

4. How often do you use each of the following calendars?

	Do Not Use	Rarely	Monthly	Weekly	Daily
Paper Calendar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Google Calendar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Microsoft Calendar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Calendar Application for Mobile Phone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Calendar Application for Computer/Laptop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Please rank how important these online calendar features are to you. 1 being the most important and 7 being the least important.

<input type="text"/>	Phone Application
<input type="text"/>	Mobile Friendly Web-page
<input type="text"/>	Integrated with Email
<input type="text"/>	Automatic Notifications/Reminders
<input type="text"/>	Multi-Calendar Support (Can switch between different calendars)
<input type="text"/>	Shareable Calendar
<input type="text"/>	Synchronisable between devices

6. If you do NOT use Microsoft Calendar, what are the reasons? (Please check all that apply). If you do use Microsoft Calendar, please check the first option only.

- ☐ I DO use Microsoft Calendar
- ☐ Don't use calendars in general
- ☐ Difficult to enter new events
- ☐ Difficult to see weekly timetable (from University)
- ☐ Too lazy to create/update a calendar
- ☐ Never learned how to use it effectively
- ☐ Prefer a different calendar system
- ☐ Other (please specify)

Survey logic could have solved this.

7. If you use an online calendar which is NOT Microsoft Calendar, please state which one you use and explain why you use/prefer this calendar.

8. What is your degree title? Please include the level and programme. (For example, BSc Computer Science)

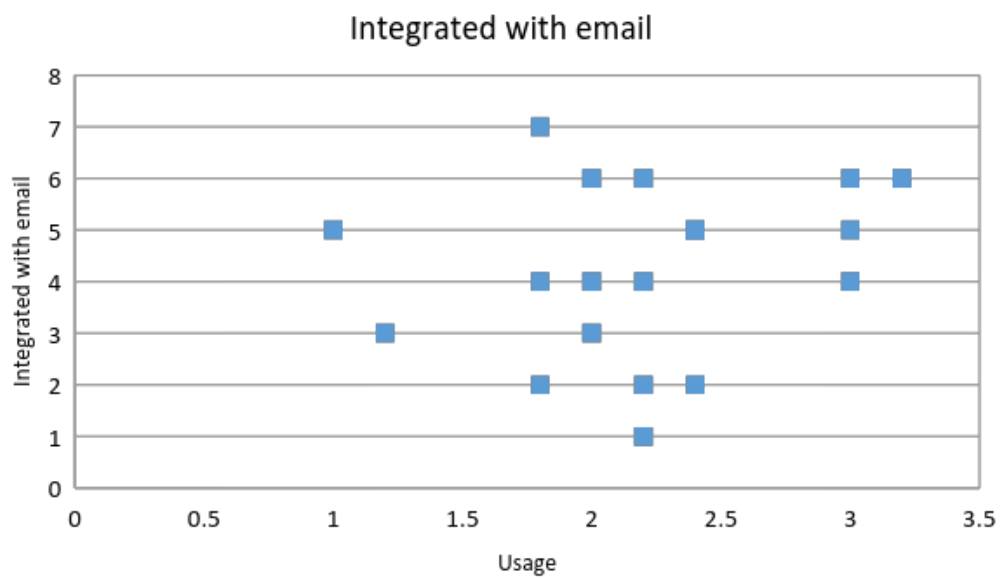
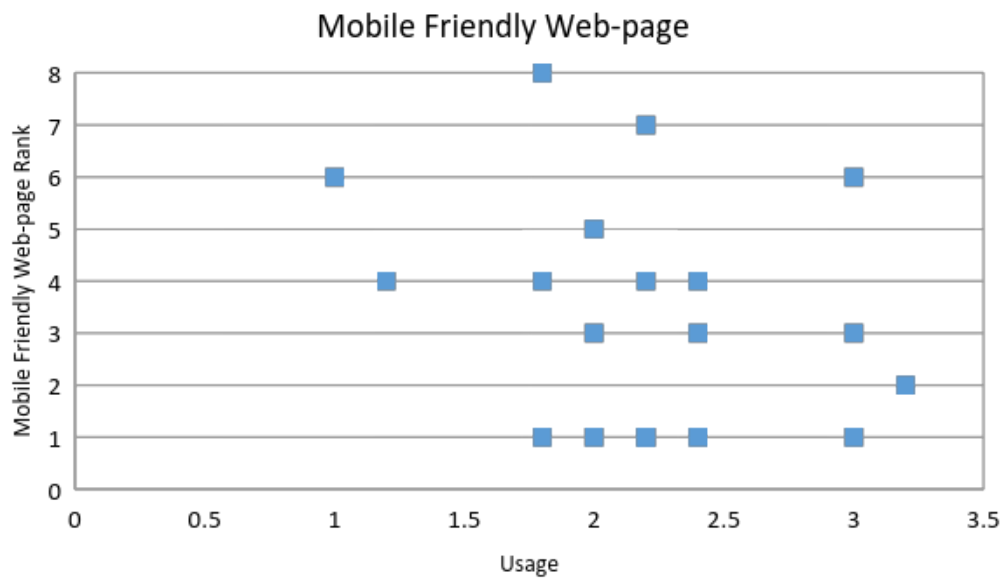
9. What is your age in years?

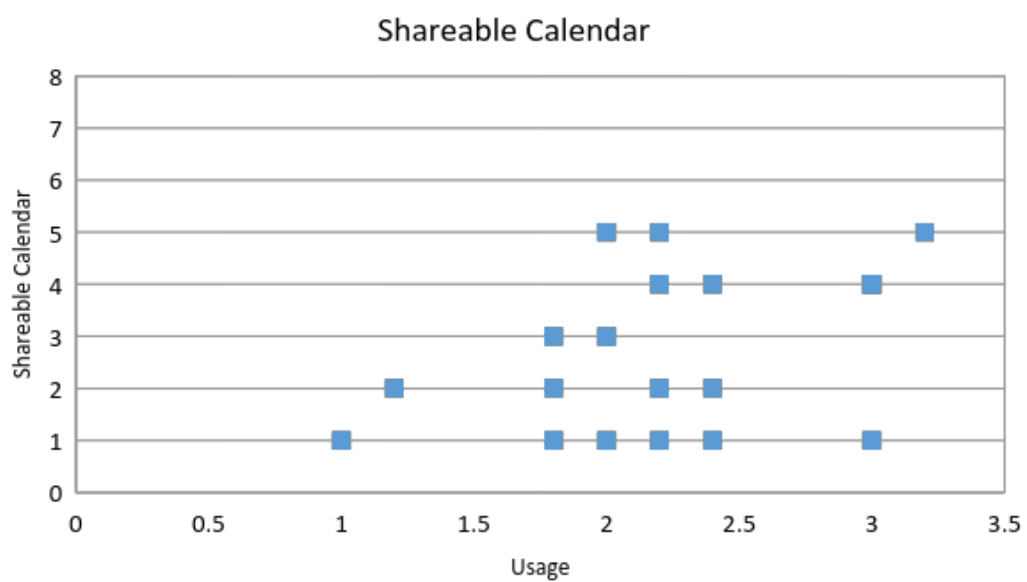
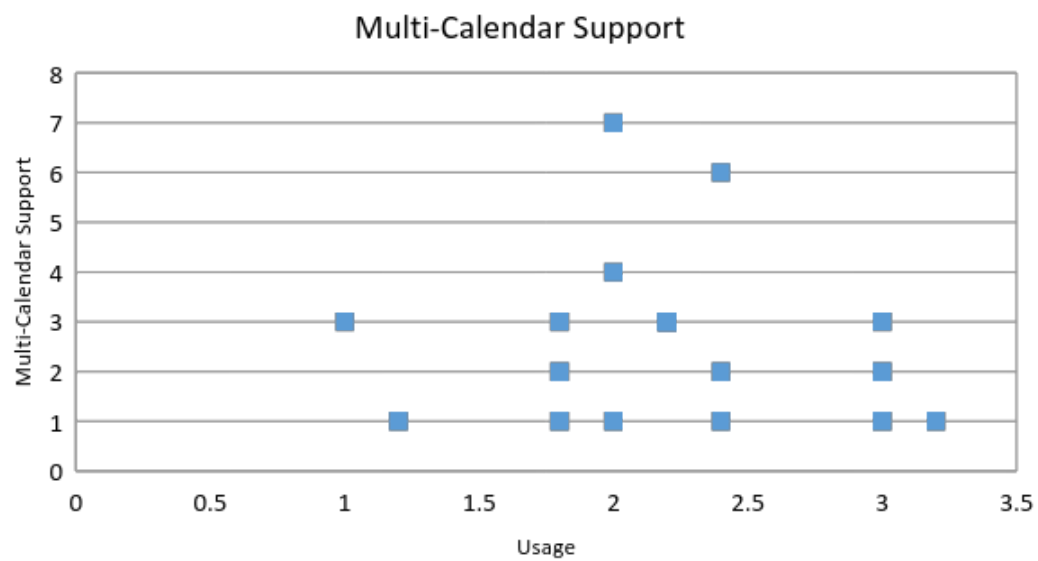
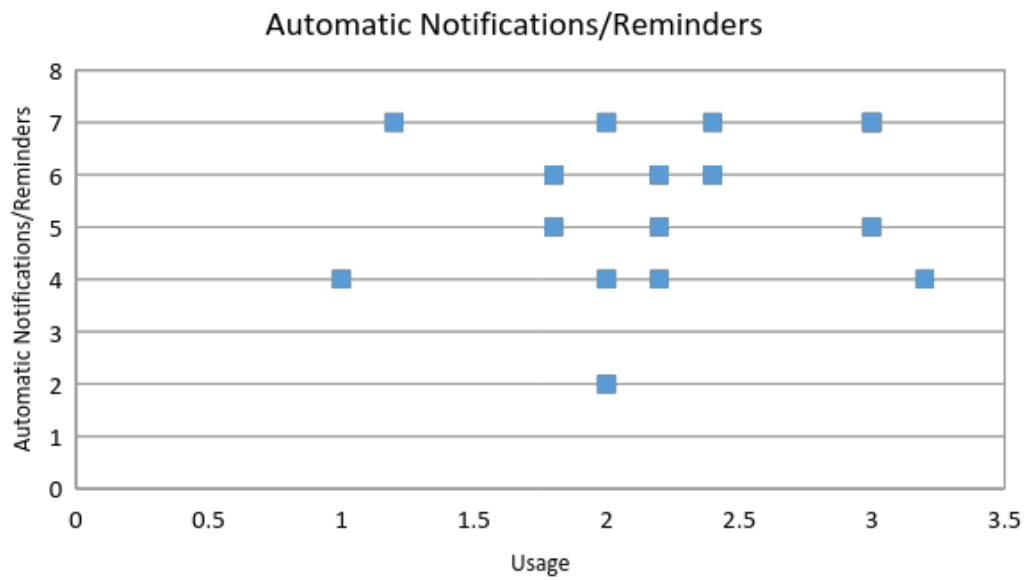
10. Please select your native language(s).

- ☐ English
- ☐ Spanish
- ☐ French
- ☐ Chinese (Mandarin)
- ☐ Other (please specify)

Done

Feature Compared to Usage





Appendix C: Think Aloud

Tasks

1. Create a all-day event in the Outlook Calendar
2. Turn the all-day event to a time-limited event.(eg. starts from 1pm to 3pm)
3. Invite some friends for the event.
4. Create a new weekly event (eg. course notification)
5. Delete the weekly event.
6. Import Google Calendar to Outlook Calendar

Note I wrote during test

- Participant found hard to find the entrance to Outlook Calendar from Email interface.
- Participant close an event without saving.
- Participant found a litter hard to find the "Edit" button, it is "Open" in Outlook.
- Participant asked "What`s the difference of Occurrence and Series ?"
- Participant was kind of confused when deleting an event but it still exist because he just delete a Occurrence in this Series.
- Participant said the Recurrence is complicated.
- Participant said "Maybe I can do all tasks using Searching"
- Participant found easy to invite a certain people to an event.

Introduction

1 Script (read all of this aloud to the participant)

Hello my name is: Leo

Today we will be using the Outlook Calendar to do typical dating tasks like create or delete an event . You will not be entering any real information and your participation today is purely voluntary, you may stop at any time. The purpose of this exercise is identify issues with the Outlook Calendar . Please remember we are testing the website, we are not testing you.

2 Think aloud training

In this observation, we are interested in what you think about as you perform the tasks we are asking you to do. In order to do this, I am going to ask you to talk aloud as you work on the task. What I mean by "talk aloud" is that I want you to tell me everything you are thinking from the first time you see the statement of the task till you finish the task. I would like you to talk aloud constantly from the time I give you the task till you have completed it. I do not want you to try and plan out what you say or try to explain to me.

what you are saying. Just act as if you were alone, speaking to yourself. It is most important that you keep talking. If you are silent for a long period of time, I will ask you to talk. Do you understand what I want you to do?

Good. Now we will begin with some practice problems. First, I will demonstrate by talking aloud while I solve a simple problem: "How many windows are there in my mother's house?"

[Demonstrate talk aloud.]

Now it is your turn. Please talk aloud as you multiply $120 * 8$.

[Let them finish]

Good. Now, those problems were solved all in our heads. However, when you are working on the computer you will also be looking for things, and seeing things that catch your attention. These things that you are searching for and things that you see are as important for our observation as thoughts you are thinking from memory. So please verbalize these too.

As you are doing the tasks, I won't be able to answer any questions. But if you do have questions, go ahead and ask them anyway so I can learn more about what kinds of questions the Outlook Calendar brings up. I will answer any questions after the session. Also, if you forget to talk aloud, I'll say, please keep talking." Do you have any questions about the talk aloud?

Now I have some tasks printed out for you. I am going to go over them with you and see if you have any questions before we start.

[Hand them the task.]

Here is the task you will be working on. Why don't you read it aloud just so you can get comfortable with speaking your thoughts?

Do you have any questions about the task?

You may begin.

UAR Reports

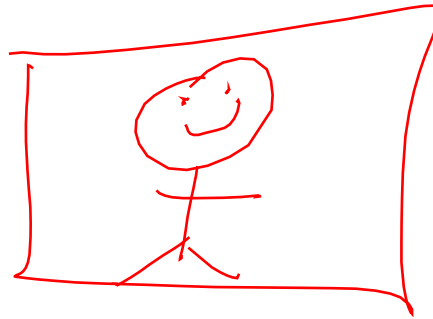
NO. HE-1	Problem/Good Aspect: Problem
Name: Small Icon	
Evidence: Heuristic: Visibility of system status Interface aspect: The participant articulates a goal of finding the entrance but through searching.	
Explanation: For the new users, it is quite hard to find the entrance from Email to Calendar, since the entrance of calendar is too small at the left-bottom side of the interface with a very small icon, user usually hard to notice that area.	
Severity or Benefit: Rating: High Justification(Frequency, Impact, Persistence): Frequency: common Impact: High Persistence: one-time How I weighted the factor: although it is a problem which is easy to overcome and just one-time, but it happens when new user comes in. It may have influence the final decision whether to use it or not. First time impression is important.	
Possible Solutions: It is possible to divide Email and Calendar into 2 different applications. and it is also possible just move the icon to a more conspicuous place or the icon bigger.	
Relationships: NO	

NO. HE-2	Problem/Good Aspect: Problem
Name: terminology: Occurrence and Series	
Evidence: Heuristic: Match between System and real world Interface aspect: Every time user want to edit or delete an recurrence event, people have to choose 'Occurrence or Series'.	
Explanation: In real world, people will be more familiar with 'weekly event' not 'Series event'. Some people do not know what outcome it will cause until they have a try.	
Severity or Benefit: Rating: Low Justification(Frequency, Impact, Persistence): Frequency: not too low Impact: Low, easy to overcome Persistence: one-time How I weighted the factor: this problem some times make user confusing, but it is easy to overcome and just one-time problem.	
Possible Solutions: It is possible to add some helpful text or just a link for those user who can't tell the differences of the two terms.	
Relationships: NO	

NO. HE-3	Problem/Good Aspect: Problem
Name: Step by Step	
Evidence: Heuristic: Flexibility and efficiency of use Interface aspect: User dose not to used to find the “Recurrence” button in the toolbar.	
Explanation: User likes to creat an event step by step (subject to place to time to recurrence) like Google Calendar.	
Severity or Benefit: Rating: Medium Justification(Frequency, Impact, Persistence): Frequency: Common Impact: Influence user experience Persistence: Not long How I weighted the factor: This problem is easy to overcome since users will get used to it when they use it for a period of time, but it is easy to prevent this by adding a recurrence options below the time bar. This will improve UE(user experience)	
Possible Solutions: Add a recurrence option below the time bar.	
Relationships: NO	

Appendix D: Persona

Developed persona



Michelle is a 23 years old and studies Computer Science as a postgraduate student in The University of Edinburgh.

Background:

Before Michelle comes to pursue her master's degree, she studies software engineering and worked in a big commerce company for a year. She is single and moves to Edinburgh alone. As her parents still live in their hometown, she decides to go back to there after graduation. She likes to keep up with fashion, but it is not necessary to keep it all the time. It more comfortable to dress up in official occasions and dressed casually in daily life. She always holds the same attitudes towards products she chooses.

Michelle loves travelling. But due to the various courses and labs, she can only travel to the sights in Edinburgh or near it. She used to spend her spring and summer in California with her friends. Before she went, she would like to make a detailed travelling schedule.

In an average day, she prefers to drink a cup of coffee in the morning to keep her refreshing. And then she would like to check whether there are previous schedule work or appointments this day. She has a part-time job in a nearly restaurant but it will not take much of time.

Computer use:

Michelle is very familiar with the common tools in computer. She used to use google account for it has free large drive and also Google calendar incidentally. Due to the school's requirement, she begins to use outlook email in this semester. She can use online calendar and other kinds of similar software casually, but not the expert of them. In order to record events immediately, she downloads the apps of Outlook email and other kinds of reminders on her phone.

She would like to connected with her friends or classmates on the internet as well. Share events and information might be important for them and they would consider to use the products with this function.

If she needs help of meets some problems, she prefers to search it on the internet or find out information in built-in instruction firstly. While it does not work, she would like to turn to ask some experts.

Her workday:

She has regulated curriculum schedules and will check it everyday morning.

She will participate in the lecture she used to add in her to-do list. At leisure time she would like to stay in her accommodation or in the café to review the coursework.

Some time she goes out for her part-time job, it is usually arranged on the weekends.

She receives email and decide whether to attend the mentioned events. If there is a discussion on Piazza about labs, she will click in to see what's going on.

She makes her meals at time and while waiting for food cooked, she prefers to call her parents and chat with them.

Future goals:

Michelle decides to complete her master's study in 2017 and then find a job wo work as software engineer or UI designer. Opportunities in anywhere is acceptable, but she would prefer the jobs from her hometown. She is still planning to travel more places even abroad in her vocations.

Could be improved by adding information about her Calendar related goals in one section. They are Here but hard to find.