Welcome to KTH: designing a tool for sustainable integration of international students

Case Study

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ABSTRACT
This study aims to present a design for a tool for sustainable integration of international students at KTH in Stockholm, Sweden. Integration has 3 main parts, social integration which is interaction with natives, structural which is concerned with a civic number, a job, and last but not least cultural integration which deals with customs, traditions, and religion. The tool has two main features, both of which are aiming to create favourable conditions for all three subsets of integration. The tool was developed by conducting 18 interviews, two rounds of prototyping and two rounds of user testing.

It is made out of two main parts, namely informational and social. The information provided is both structural about institutions and getting around, whereas also information about cultural events, attendance at these by international students has the potential to strengthen social integration as well. The social part is designed as a 1-on-1 randomised chat that aims to encourage forming new friendships between international students and natives. This part allows new students to ask questions about anything, the process will get them randomly assigned to any native who shall answer which will create favourable conditions for forming new friendships between newcomers and natives.

1. INTRODUCTION
Today, ‘the free movement of persons is a fundamental right guaranteed by the EU to its citizens’ [25], and it is easier than ever even for overseas students to go and study in countries other than their home. As the numbers at Statistics Sweden, ‘a government agency that brings official statistics to the public’ [12], show, in the 2017/2018, 2235 International students came through the gates of KTH for the first time, of which 1308 were ‘freemover’ students, which means that these students self-organised their application and move, and are studying their full degree at KTH and are not a part of an exchange programme. While all first-time students, including international students, at KTH for 2017/2018 are totalling at 4058 this means that more than 50% of all incoming students to KTH during this time was coming from abroad.

Even though half of the incoming students are from abroad, the tactics for integration are focused on initial orientation for international students only that last for 7 days after their arrival. This orientation is therefore attended by other international students which leaves no space for interaction with natives. Furthermore, after this period, international students are left on their own and find themselves in a strange vacuum where they are not yet integrated but also no longer get the same support. This case study will propose a design for a tool
that aims to create favourable conditions for successful integration both before the arrival and long after at KTH.

This case study has explored the literature on integration, the state of integration of international students at KTH today, the experiences of integrated international students, and has presented a possible design and grounds for features for future development. This case study has discussed and answered the following question:

- How can we design for sustainable integration of international students at KTH?

2. BACKGROUND

In order to discuss sustainable integration, it is important to discuss immigrant incorporation as a whole. Integration is only one of the terms that are used for immigrant incorporation along with ‘inclusion’, ‘adjustment’, ‘absorption’ and ‘assimilation’ [18:14]. However, other authors are trying to distinguish between two main theories in sociology and that is assimilation and integration. Gordon [11] in 1964 argued that assimilation expects ’one group being completely absorbed by a "host."’ [11:699]. Gordon was in 2001 supported by [7] stating that assimilation is the process of change when newcomers are becoming similar to the natives [7:534]. On the other hand, [21] argues that ‘integration’ is the process of becoming an accepted part of society.

Gordon [11] also proposed that there are ‘seven possible dimensions or types of assimilation: cultural or behavioral, structural, marital, identificational, attitude receptional, behavior receptional, and civic.’ [698:11], [29:705] tested his theory and found that only 3 dimensions play a substantial role in assimilation which was structural concerned with organisations, cultural dealing with traditions and receptional as ‘the sum of discrimination and social distance’ [29]. Alba and Nee argue that since integration is not being defined and redefined by researchers, therefore, a clear distinction between assimilation and integration cannot be made and so integration ‘can be seen as encompassing a subset of the dimensions of assimilation’ [1:57].

Since this thesis is not exploring ways of how to reeducate or change the ‘newcomers’ but rather how to help them to orient themselves better in the new environment, the terminology and research within integration is used. Nevertheless, as argued integration and assimilation could be seen as one.

Integration has a widely recognised subset of three different dimensions: social, cultural and structural [4]. Social integration is the degree in which the natives participate in interactions with the immigrants, structural integration is concerned with immigrants and their practical integration within the society and job market, and cultural integration explores the degree into which the immigrants take on traditions and values of their host country [2,6,23,19].

There is another rarely mentioned dimension to integration: the dimension of time. Integration is a process that takes a long time, sometimes generations. Different aspects of integration usually take different time. For instance, the adult individual has the potential to integrate immediately with regard to the structural aspect of integration if they have a quick way of learning the pragmatics of a new system [16]. Furthermore, it appears that important changes in social integration take place quickly after migration, within the first year or even first couple of months’ [19:811]. The newcomers that did not have social interactions with natives integrated worse, and the level of integration only amplifies with time.

However, students have a better chance of quicker social integration compared to other groups of immigrants. Students are placed in environments where there is plenty of opportunities to interact with natives who are also occupying the same socioeconomic status as the newcomers as on average people tend to interact with similar [19].

The takeaway here is the fact that integration is a difficult and long-term process, however as mentioned before the process for integrating international students currently offered at KTH are not sustainable in nature. Even though international students might have an easier time integrating into a country compared to other types of immigrants, it is still a difficult process that takes time. Structural integration happens fairly quickly with the correct information. Social and cultural is much more gradual, but with tools that provide space for this type of integration to happen over time, it is very likely to happen naturally.

3. RESEARCH PROCESS

Different methods were used in the research process to find out what a tool for sustainable integration of international students at KTH should look like and whether it would be helpful in the process of integration. Based on the findings from the research, a final design was reached and tested with users.

3.1 Interviews and related work

The research process started with conducting 18 interviews each lasting approximately 10-15 minutes with International students studying at KTH. From the 18 interviewees, 12 were in the first year of their Master
degree and 6 in the second year. After conducting 5 interviews a decision was made to shift the focus to international students in their first year of Master’s degree due to the overwhelmingly detailed experiences these participants were providing.

Initially, questions were asked to find out about their journey from being admitted, to starting at KTH, what information did KTH provide, and their feelings about how integrated they felt at the moment of the interview. Afterwards, they were told about a tool and the participants expressed their thoughts about its helpfulness and their expectations. Before the design process, research into similar tools in other places and the features have been conducted.

3.2 Design process
As the interviews have unveiled two different trends in search of information within participants, the decision was made to start the design process by clearly defining key personas and the features that were the most important to each of them. Later, the design process continued by creating paper prototypes while keeping the personas in mind. User testing followed that revealed the preferred prototype and features that KTH students saw as the most important. Then, digital prototyping of the chosen features and style took place followed by Expert Evaluation that improved the user interface.

The final prototype was tested with 3 users and then final conclusions were drawn.

4. RESULTS
4.1. Interviews
Overall 18 interviews were conducted out of which 11 were female and 7 male. 16 interviewees were under 30 and 2 were over 30 years of age. 10 interviewees were from an EU country, 8 were from a country not part of the EU.

The first round of questions was designed to find out where these people discovered their much-needed information once they were accepted to KTH. Approximately half of the interviewees were browsing the internet, KTH website and the emails they have received. The other half stated that they continued posting in a discussion on local.se, various Facebook and Whatsapp groups, where they were getting new friends and information about what to do before coming to Sweden. This was where not only the different strategies for looking for information were observed and noted, but also the information that was sought after. The fee-paying students were guaranteed living space provided by KTH but needed to obtain a visa to be able to study, whereas for non-fee paying students the most difficult obstacle was to find a place to live.

‘Accomodation really wasn’t my issue, since I was getting it from KTH, I knew I’d have somewhere to live’ - Interviewee #10, Male, under 30, India

‘I spent months on Blocket’ - Interviewee #11, Female, under 30, Germany

Four institutions were recognised by all participants as problematic once in Sweden. These were Stockholm’s Student Living known as SSSB, the registration and tax office known as Skatteverket, student discounts managed by Mecenat, and Student Union of KTH which is THS for short. All of the participants experienced different problems with either one or multiple of these institutions.

At SSSB students are entitled to accommodation based on points they get for studying when they sign up. Each day that passes yields 1 point. Interviewees felt discriminated against by starting their day count at 0 once being accepted to KTH as natives already had more than a thousand points. Skatteverket’s website was confusing people about the whole process of registration and ID and why it was necessary. Only 4 interviewees had a good experience with Skatteverket because they had waited for the day the institution came to KTH. There the process was simple, quick and streamlined. Some interviewees still didn’t quite understand the concept of THS and chapters. Mecenat was problematic as some participants did not even know they needed it for a discounted metro ticket for example when they arrived, they were confused as to what it even is.

‘I had to pay a lot of money in the metro, just because nobody told me I need a special f*%&ing student card’ - Interviewee #13, Male, under 30, Germany

‘I want things quickly and on my phone, I don’t want to sit in front of my computer just to read.’ - Interviewee #11, Female, under 30, Finland

Furthermore, interviewees struggled with finding information on the KTH website. Especially about their courses or the process with universityadmissions.se for the next semester when signing up for courses.

Very close behind was also banking in Sweden, with most banks having their websites in Swedish, people were struggling to set up their Mobile ID, a transactions service based on mobile numbers called Swish and bank accounts as the information was unclear and scattered.

More than half of the participants agreed that going to events outside of the Welcome Week and actively trying
talking to, even becoming friends, with Swedish people had the biggest impact on their transition. This was because Swedish people knew their way around, they already had all the information and they spoke the language, therefore they became the best resource for international students.

However, a lot of the students found it hard to become really good friends with Swedish people and expressed it was close to impossible to become a part of groups of Swedish people, so all of the interviewees only had one or two Swedish friends, never a group.

Only three students actively contacted KTH in hopes of finding information, all of the inquiries were connected to their visa, tuition fee payment, or other bureaucracy.

All 18 of the interviewees agreed that a tool would be something that would have helped them during their process of transition, the positive response suggested that a survey was not necessary.

To summarise, there were two problems that stood out the most. One of the problems was finding information at both KTH's and other institutions’ websites, they either did not know where to look or there was a language barrier. The other problem was talking to and becoming friends with Swedish people. All interviewees experienced some form of these problems.

However between students, there has been another difference, it was in the content of information they were looking for before arrival. Students from the EU needed support when finding accommodation, and the ones outside of the EU needed support with visa information after arrival their struggles became very similar once more. An observational takeaway from the interviews was that there were two different strategies to searching for information that the students needed, one approach was social and the other informational.

4.2. Related work

Different tools have been developed in different places. Main contributor has been a company called CEG Marketing who has developed a series of apps called ‘On Campus: Pre Arrival’ for universities in Sweden and all around the world, which gives information to students about the issues they have to resolve before commencing their studies. The support does not continue once they arrive.

The other type of tools are made for all students. This type is mainly concerned with maps of the campus as the ‘Lost on Campus’ university app – Image 1. – of Australia’s 57 campuses. Interestingly, none of the apps featured any sort of social interaction or cultural events.

4.3. Personas: Luke and Leia

The interviews revealed key problems that students faced, the type of information they were searching for, along with differences in strategies for finding information. These are reflected in the two key personas - Luke and Leia.

Luke is a young guy from Germany, who loves going to parties and socialising. He mostly gets his tips around Sweden from online discussions or real-life discussions with people he meets. Currently, his biggest problem is finding accommodation in Sweden, but he already has a group of people he met online that he is looking for a flatshare with. He has also signed for SSSB and hoping he will get a room later.

Leia is a young girl from China. Usually, she is not really social outside of her group of friends all of which are from China. They sometimes help her with some things. Although she is a very organised person and likes to have things under control, she still has not managed to do a lot of things because she has trouble finding the information on websites. Before she comes to Sweden, she needs to get through the process of obtaining a visa which is her main struggle right now. Once in Sweden, as a fee-paying student, she has a guaranteed home by KTH so she is not worried about that.

4.4. Paper Prototyping

Four different ‘models’ as I called them, resulted from the Interviews and Personas. Two of the models were more related to Luke and two were more related to Leia, all models take into consideration whether students were from the EU or not. These four models were, from the

Two models designed for Leia were The Timeline Model and The Maslow’s Hierarchy of needs model. These designs displayed information in an organised way without any interaction with other users. The Timeline Model displayed tasks in the form of bubbles on a scrollable timeline that was going down the centre of the screen. The left side was used to display bubbles that needed attention such as THS or SSSB, all of the tasks were expandable in order to access more text information, hyperlinks and maps. Dragging the tasks to the right side would mark them as finished. The Maslow’s Hierarchy of Needs [20] Model is inspired by Maslow’s work. At the bottom, it would feature things that a person needs to survive in Sweden, e.g the formalities of Skatteverket, KTH, THS, and others. As they complete the different parts from bottom up, they reach self-actualisation, they get to a place of how they can make a difference. Each part of the hierarchy would contain more text information with hyperlinks and maps inside. All information in these two models would be added by officials at KTH.

The Interactive Model along with the Spiral Model was designed for Luke as the strategy for finding information was based on interaction with other users where no information was provided by KTH. In the Interactive model, the interface was interacting with user data about participation in discussions. Each bubble contained a Reddit like discussion on a topic inside. The more users would be interacting in a topic, the bigger the bubble would grow, almost like ‘trending’ function that would provide urgency for topics that needed attention. The Spiral Model is similar to The Interactive Model but the bubbles are not floating randomly on the screen but are organised on a timeline. A user can spin the model to move on the timeline, and the bubbles on the timeline grow with importance, this means that, if something is really important such as a deadline a user can assess this information with a simple look and then act on it.

4.5. Design Feedback

To conduct the user testing 15 participants were recruited, of which 11 were also part of the interviews. The 4 new participants were in their first year of Master’s degree at KTH, all under 30, and from countries of EU.

Four different models were introduced and explained how they would work. The participants were asking follow-up questions to make sure they understand each model. They were then asked to rank the models 1-4 by how much they liked them. 13 out of 15 interviewees placed The Timeline Model as their most preferred, this model was the most familiar model to them as the others were a little more abstract. The Maslow’s hierarchy of needs placed second. The main complaint was that it would be too many clicks to get to the information that they would want. The third was The Interactive Model filled with discussions, the main problem here was that they felt it might confuse them that the interface would keep changing especially with crucial information as ‘integration by itself is already stressful enough’ - Interviewee #8, User Tester #3, Male, Under 30, Spain.

The last place was secured by The Spiral Model, the interaction with the spinning and the spiral as an overview of time was a little difficult concept to grasp and discussions in both of the models were not appreciated very much.

The discussion around the features included ideas about a map of the city, a map of KTH. Moreover, within the information structure, all users agreed that the information structure was essential, but they were heavily talking about importing their own courses information, signing up for courses straight from the app, being able to subscribe for events that would be created by KTH, create their own events. Some of the users were talking about creating appointments directly from the app with the organisations. For the social part of the app, a lot of different ideas were presented. It was 1-on-1 chat, it was customer service chat - where the person responding could choose which question and from whom they wish to answer, customer service chat where only the question would be visible and not the profile, a discussion, a discussion with an official involved, comments, and randomised chat. There were also ideas around accommodation that students would be able to either get together with other students or students could advertise their free spots.

All in all, the timeline model was chosen along with 3 main features. Namely the timeline information display, import of courses, and the 1-on-1 chat randomised answers chat. These were the features that got the most positive responses from the participants.
5. DESIGN

There has been a couple of findings within the research process that would be valuable to consider when designing for international students in the future. The findings suggest that some students search for information in discussions with others and others by researching, the tool needs to consider the needs of both. Also, it is important to have a way of discovering new and strengthening existing social ties between natives and new students. It would be beneficial if the user had control over the content such as different programmes offer different information e.g. course information, but also a chance to get rid of the information that the student already knows.

The digital prototyping started by implementing The Timeline model and its features - Image 3&4. The timeline running down the center of the screen is an important vehicle for integration displaying not only study related and initial structural matters but also a window to activities that create favourable conditions for all three subsets of integration. As a second part of the app, a randomised 1-on-1 chat that will match international students’ questions to answering natives. This feature is also trying to create favourable conditions for strengthening the interaction between natives and new students and thus helping with all three subsets of integration. Information about the ways of integration and its subsets - See Section 6.

After the first implementation, an industry expert evaluated user interface, therefore changes for better usability were implemented into the design before the final user testing - Image 5&6.

5.1 Information element

5.1.1. The Timeline

The timeline is the central part of this design and essential for integration. A scrollable timeline is running down the screen. It is populated by ‘cards’ that display different types of information.

After the person logs in with their KTH Login, the system has all of the information about the country they are coming from, their programme, the courses they are undertaking within the period, and deadlines. The timeline is used from the day students are admitted to displaying supporting information about visa or accommodation that aims to help with the transition and its use is continued after their arrival.

By clicking the plus button the student can add their own courses into the timeline. Currently, it is possible to import your information about courses on your phone calendar. Nonetheless, the information is much less detailed, you only get the basics - name, time and room number. By implementing the possibility to sync the app with Canvas, even if not in its full scope, some of the information can be very useful within the integration e.g. KTH map, deadlines and course information. The Course information will not be in the timeline by default but can be imported into the timeline. This is because in the beginning especially when there will be a lot of other content for supporting structural integration within different Swedish institutions the UI should not be cluttered and students should have the option to not have course information displayed.
The students are always notified when there is something in their timeline, whether that information is about courses or about their registration. Nevertheless, the difference between the calendar import and the KTH International app is that once the notification appears and the students click on it to get more information, they already see a map of where building it is along with the floor, more information about the name of the course, and related actions such as any deadline pending - Image 6.

The course information along traditional events on the timeline is designed to help international students discover and participate in Swedish traditions and therefore strengthen all three parts of integration up to a year after their arrival.

5.1.2. The ‘Cards’

PUNCH LUNCH
Every Thursday
11:30 - 13:00

Image 7. – A card from the Timeline Interface

A card is a clickable feature on the timeline which displays 3 types of information - KTH, Essential, and Trivia. The first type is KTH, these cards give information about KTH or about their programmes and courses. These cards give information about places at KTH, about where courses are taking place and deadlines. Once they are expanded into the one-page view, they can get more information about all the cards, get navigated into the rooms around KTH, and figure out how to sign-up for courses.

The second type is Essential, these cards give all of the essential information that every student absolutely needs to be a functioning part of the Swedish society and KTH. This information includes information about banking, accommodation, civic registration number, doctors, student’s association, and more.

Last but not least is Trivia. These cards might seem strange at first sight as they include trivial information about grocery shops, student bars, home supplies, shopping centres, libraries, and so on. This information is required for successful integration as not being preoccupied with the practicalities of daily life and spending unnecessary time researching trivial information might leave time and energy for other more important parts of integration. The Trivia also includes information about cultural events, what and where is it happening, e.g. Punch Lunch: pea soup with pancakes every Thursday at the University café.

5.2 Social element

The social aspect of the app is designed in a way that every new international student has a place to ask a question. This question is put into a category, either general which is made for general inquiries about traditions, customs, and ‘swedishness’, or they can choose categories by organisations such as KTH, Skatteverket, Mecenat, or other. They also have an option to ask questions categorised by programmes, and or specific courses.

These questions are then randomly assigned to natives. The random matching of questions to respondents is done in a way so that no one is discriminated against, and everyone’s question gets answered. After answering the question, a respondent has an option to ‘close’ inquiry which marks it as ‘solved’ and removes the option to chat. This feature exists so that students feel safer when interacting with people they do not know. If someone gets angry or respondents do not feel comfortable, then they have the option to end the connection to the person, and the whole chat with a profile is removed from their messages.

Image 8. – Social Interface
6. DISCUSSION

This section aims to discuss the research findings, what are the subsets of sustainable integration of international students at KTH and how can these be supported by the two different parts of the app.

The international students, also called ‘expats’ are moving abroad [18] in hopes of better education or job opportunities. When new people come into a university, and they are aware of their differences whether that is by appearance, culture or religion, they aim to be understood. Being integrated would mean being an accepted part of society [21]. The challenge of full integration lies at its three different levels, namely the individual level, the organisational level, and at the level of the institutions. For successful integration, all three levels must aim and actively work towards integration [21,22]. It is a daunting task for both natives and institutions to secure a way of maintaining a smoothly running society ‘in which everyone gets a piece of the pie and all feel connected in some way’ [18]. This design attempts to include all three levels for integration: individuals, organisations and institutions; along with all three subsets of integration: social, cultural and structural.

6.1. Informational Aspect

Respondents both in the interview and in the final user testing revealed that they had a hard time orientating themselves within the institutions of a new country. Saying things like ‘how can I google when I don’t know what to search for’. On top of not knowing where to find the important things concerning visa information, banking, or social civic number, finding the cheapest grocery store, getting a certificate of registration or their student’s pub was also a challenge. ‘Such ordinary things seem trivial for long-time residents, but ended up as quite significant for international students at their first arrival. Because they were new to the university and lacked knowledge about available services, some participants spent unnecessary time to get things done’ [30:9].

By streamlining information about institutions, the whole process of structural integration becomes organised and easier to digest. By also including Trivia information about everyday tasks, international students should benefit from having more time for interactions with natives, attending events or focusing on important parts of structural integration.

The information that accompanies the students indefinitely after their arrival is cultural cards along with their KTH courses info. KTH courses info makes it easier for students to come back to the app and therefore increases its practical use. Cards displaying cultural events and where to find them makes it easier for interested students to attend, understand new culture better and maybe even meet new natives.

6.2. Social Aspect

There is plenty of reasoning behind using a social aspect of the app as a means for all three subsets of integration. By social integration ‘newcomers’ get a chance to expand on their social networks, which can have a significant impact on their cultural and structural integration [32,27]. Via contact with the natives, they can learn about different traditions as well as improve their language skills [8]. Not only that but since many of the high paying positions are inhabited by the Swedish, it results in a recruitment process called ‘networked recruitment’ where young Swedes are offered jobs which are not even advertised and the selection process is based on the fact that someone from their network has recommended them [4,24]. Because of this, the new students might have a better chance to finding a job within the job market, if they could tap into the same resources within networks that Swedish people have [14].

On the other hand, it is important to note that the social integration of international students also has benefits for natives and society as a whole. The same reasons as for why it is beneficial for natives to interact with international students apply, as they have the opportunity to experience other cultures, tap into social capital they might not have the opportunity to use otherwise and learn another language which in turn can help them. The positive response in the final user testing when it comes to responding to the questions does prove this to be the case. As for society, social integration reduces the fear of the unknown, as well as the friction between groups of people as their preconceived ideas about ‘the other’, are being challenged and eradicated [3].

Society came a long way since William Jeffrey in 1983 was differentiating between desirable and undesirable immigrants [13] but, increasing social integration is difficult ‘in an era of ‘securitization,’ representations of immigrants as danger are often blended with cultural markers, such as religion and language’ [5:161], and there is evidence that students are often fearful of interacting with international students [31]. However, the 1-on-1 chat aims to provide a sense of security with a feature that allows the students to opt out of conversation if they are uncomfortable, this does not only apply to the natives but also international students, like the persona Leia, might feel more secure reaching out via a screen while being protected from strangers rather than in real life. With the development in technology, people do not really need to engage in new
relationships in the real world, thanks to ‘societal flourish of social networks’ we spend the majority of our time on the internet, so it is not surprising that we are going to form new relationships and relationships online [15:2]. These new relationships, are not less important or have lesser impact than relationships formed in the real world, as the ‘movement in geographical space is no longer a constraint for communication’ [15:36] therefore people can move within the world freely and still benefit. Nowadays, with ‘person-to-person community, the person ‘has become the portal’ [28:238]. The portal to a network of weak ties that could be very beneficial for them.

The chat function increases the option for ongoing interaction between students not limited by time and space making integration an ongoing process. In contrast, currently events and orientation always happen at the beginning of the studies, where these events are heavily attended by international students and not natives, this means that students only have a short amount of time to find their new groups. Out of necessity, they will socialise with and therefore they make groups with other international students [31]. The chat and its ongoing conversation is creating favourable conditions for the creation of friendships between the natives and the international students. This friendship with a single person would then be the portal to an expanded social network of social capital otherwise not available.

6.3. Final User Feedback
The final design was discussed with 3 students for about an hour each. All three participants re-lived their experiences of when they were admitted to KTH, their arrival and struggles, and were very certain that this would have helped them tremendously. The part that they liked the most was the timeline with all the information, and they were impressed with the range of information that was provided. All three parts of integration moulded onto a simple timeline makes opportunity for a simple but effective design for sustainable integration over time. They liked the fact that trivia things were added to the app as these were the ‘unseen’ and time-consuming struggles. They were not as excited about the 1-on-1 chat but admitted that they might be biased since they already had groups of friends formed and therefore in a different situation as incoming or new international students. They also expressed that they would not mind answering questions, as it would be nice to form new friendships, they were just not interested in asking new questions.

Nonetheless, one very important complaint has been raised by one of the participants. He has a part-time job with the KTH and had training about what to do in case of emergency, ‘apparently there is a number you are supposed to call’ he said. This idea was then spun into a whole contact list of people like programme coordinators and other information like opening hours that shouldn’t be just offered via the ‘cards’ function but should be a stand-alone part of the bottom item menu for easy access where the search function could be moved to the top of the page, which should be customised to each KTH user by their KTH login and programme.

This feedback was very valuable and eye-opening as no other participant has even thought about an emergency contact detail. Granted that this contact information might not be as crucial for integration but more for ‘life at KTH’, but it should be added anyway to ensure the safety of students.

6.4. Feedback from KTH Officials
The Information and Service of KTH was approached, and feedback was given from 2 KTH officials, Helena Sandgren and Viktoria Pankina, who are responsible for organising the Arrival Days. They thought that the timeline was an interesting tool to communicate information to new students from the day of their admission and support their smoother transition, and that the chat would be a way to bring different people together. Their concerns were more with the actual implementation with the accuracy of the information and who could contribute to the information displayed, for the chat the training of the answering students was the main concern.

6.5. Critical Discussion of Method
The method used in this study is very traditional in terms of human-computer interaction research. Different methods could have been used in order to find the struggles of international students as they are coming into KTH for the first time. They could be interviewed or observed much closer to the time of their actual arrival. Alternatively, a video or written diary could be kept in order to find out what are the topics they are struggling with the most. The traditionalist way of this research could be seen as one of the drawbacks of it e.g. no workshops, or creative research methods were employed. Another drawback of this research is that no KTH officials were involved in the design process even though they gave feedback afterwards. This was because this research was focused on the experiences of integration of international students and how these could be improved and since officials did not undergo integration in the near past and are not studying, their perceptions of the helpfulness of the tools they are creating are biased.

Another drawback of this research is the fact that most of the interviewees were studying either Interactive
Media Technology or Media Management, therefore their understanding of design, development and what can be done could have been affected by this. There is also a significant change in the number of participants for the initial interviews, and the final user testing which might have given distorted results. On top of this, very little people over 30 were interviewed. No one from the interviewees had a family of their own, so people who are dealing with plenty other issues when transitioning into the KTH environment when they are bringing a family as well could be giving different answers about their issues.

6.6. Ethics of this work
During the development of each feature for social, structural and cultural integration, it is important to consider different implementations of information display so that the tool is not affecting the newcomers in a negative way and does not become culturally pressuring or political.

7. CONCLUSION
To conclude, this study explored different designs that could be used to make sustainable integration of international students at KTH. The research started with an interview process, which has revealed differences in international students both by the country they came from, and also observational differences in the way they searched for information they needed. These personality types were then used to create key personas, Luke and Leia.

The interviews revealed that all of the newly admitted international students were struggling with what to do and where to find information once in Sweden and all of them would have welcomed a tool to help them. They have also expressed their wanting of having more Swedish people in their social circle, which has proven difficult for some of them. The research into the body of literature has proven that social, structural and cultural integration supported over time is vital for the successful integration of international students.

The design process started with 4 different paper prototypes that were rated by students. One of the prototypes was then later digitally prototyped, with features that students wanted from a user testing, and the prototype was critiqued by an industry professional. After some changes, a round of user testing revealed their satisfaction with the design and its usefulness. The design result for a tool for sustainable integration of international students could become a helpful tool to international students after being implemented within KTH with more research and development.

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