JÖNKÖPING UNIVERSITY
*Jönköping International
Business School*

The Benefits and Drawbacks of Implementing Chatbots in Higher Education

A case study for international students at Jönköping University

Master Thesis in Business Administration

Title: The benefits and drawbacks of implementing chatbots in higher education: A case study for international students at Jönköping University

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Abstract

Background

A chatbot is a type of modern computing program that uses textual or vocal interfaces to replicate human communication or "chitchat." is widely used in many large-scale applications. The thought behind this technological advancement was to provide users with quick and instantaneous responses to questions that they would ask when conversing through email or by phone, which has been shown to boost productivity among users and lessen the time being spent on tasks.

Purpose

The main aim of this thesis is to investigate opinions and behaviors, in terms of perceived benefits and drawbacks, of international students on whether or not implementing a chatbot onto a university's website can be mutually beneficial for both the university to lessen the number of incoming questions and the prospective students in their decision-making process to select their future school.

Method

To do this, a mockup chatbot was created with Voiceflow software. The Voiceflow software is a cutting-edge creative tool for teams focused on conversational design and product development. It has been aligned with the TAM model described in the research framework. The participants were placed in the role of prospective students searching the JU website for general and specialized information on the university's study programs, financial arrangements, apprenticeships, exchange overseas, and the enrollment procedure. Participants in the mockup are invited to imagine

themselves as potential students interested in applying for a higher education degree at Jönköping University in one of five scenarios.

Conclusion

The findings of this research provide insights into the benefits and the drawbacks of implementing a chatbot within higher educational institutions that are actively recruiting international students with their English-taught programs, exchange programs, courses, traineeships, etc. The main conclusion of this research is that higher educational institutions such as colleges and universities should opt to implement a chatbot within their website in order to facilitate frequently asked questions that otherwise would take time, for example waiting for a representative to answer the phone and/or waiting for an email reply. When students reside in another time zone, students greatly benefit from a chatbot as it is available 24/7, in addition, having all the necessary information for international students under one roof, students are able to quickly navigate through various information that is relevant to them in a few clicks with the use of a chatbot. On the other hand, findings show that although chatbots are indeed very helpful to international students, there are some drawbacks that should be considered. Major drawbacks introduced by this research include the lack of human assistance in cases where the chatbot is unable to answer complex and/or personal questions or cases where students prefer human contact. Additionally, chatbots require round-the-clock maintenance to keep them up to date with displaying the correct information.

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Terrance Lopez & Meer Qamber

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1. Introduction

This chapter contains the history of the chatbot, how a chatbot comes into this world, and how they are being used in different institutes and businesses as well as discusses the transformation of the chatbot from the beginning till now and how they are being used in today's world.

1.1 Background

During the 1950s, Alan Turing who was a mathematician and logician from the United Kingdom who made significant contributions to mathematics, cryptanalysis, logic, philosophy, and mathematical biology, as well as the new fields of computer science came up with the Turing Test (Can machines think?) and chatbots were widely accepted (Adamopoulou & Moussiades, 2020a). First known chatbot Eliza was established in 1966 with the intention of serving as a psychotherapist and replying to the user's utterances in the form of questions (Adamopoulou & Moussiades, 2020a). Template-based responses were used in conjunction with the basic pattern matching method. However, its speaking skills were limited, which confused users who were unfamiliar with dealing with computers at the time, this motivated the development of further chatbots in the future. ELIZA was replaced with a chatbot with a personality dubbed PARRY, which was built in 1972 as an upgrade. In 1995, the chatbot ALICE was created, and in the years 2000, 2001, and 2004 it was awarded the Loebner Prize, which is a yearly Turing Test. It was the first computer to be awarded the title of "most human computer" in the history of computing (Erickson & Kim, 2020).

Chatbots are computer agents that engage with users by using natural language to offer users access to data and services. Even though the name "Chatbot" is relatively new, computer systems that engage with humans in natural language have been invented and investigated since at least the 1960s (Dahiya, 2017). The latest developments in artificial intelligence and machine learning have contributed to the present spike in interest in chatbots.

Information services, education, treatment, and customer service are all sectors where chatbots have the potential to make a difference. Customer care chatbots are supported by several technology platforms, including IBM Watson, Microsoft Bot Framework, and Google-owned Dialog Flow, which are all available for purchase. Users have a variety of reasons for interacting

with chatbots. Brandtzaeg and Følstad (2017) discovered that the most often cited motives for chatbot usage were efficiency and convenience and that other factors such as the user experience, social elements, and a feeling of novelty might also be important motivators for chatbot use. Recent research on customer service chatbots discovered that consumers' emotional and factual utterances describe their interactions with customer support representatives. Due to machine learning capabilities for sentiment recognition, AI-powered chatbots can recognize and react to emotive consumer remarks almost as effectively as human operators, which is a promising development (Stathakarou et al., 2020).

When used in higher education (HE), chatbots have the potential to improve engagement, sociability, and knowledge acquisition by changing instructional flow to be more interactive and dynamic (Cordero et al., 2020). The use of a chatbot in educational settings has the potential to benefit students by allowing them to get information more quickly and efficiently. Chatbots have also been suggested to assess learning styles as well as to gather feedback in eLearning settings. Chatbots may also serve as a source of encouragement for students to engage in ongoing dialogue for educational objectives. When creating chatbot technology for use in educational settings, it is important to consider the expectations of instructors and other stakeholders. For example, rather than replacing the instructor, a chatbot should be used to increase communication between students and the university.

So far, there has been a dearth of examples of chatbots being used in educational institutions. An alternative approach is to use pedagogical agents and classical intelligent tutoring systems in learning situations, which has been attempted several times. Learning agents are human-like interfaces between learners and material in an educational environment, while conventional intelligent tutoring systems are computer systems that strive to give quick and tailored teaching or feedback to learners in a traditional educational context. When compared to various other learning tools, chatbots communicate with students in real-time, allowing them to respond in real-time to specific student requests. In accordance with the prevalent constructivist learning theory, this enables students to stay in the driver's seat and actively influence their learning process.

Customer service has long been a top priority for service businesses. Customer service has increasingly evolved from being human and dialog-based to being automated and self-service-

oriented because of the widespread use of the internet. However, automation and online self-service solutions can not completely address customers' expectations for aid and support, and the expenses associated with human customer service are continuing to rise for service providers because of this. Support providers provide customer care via a variety of online channels, including corporate websites, social media, email, and chat, to deliver more effective customer service while meeting consumers where they choose to communicate with their businesses (Følstad et al., 2018). Providing customer assistance via chat is becoming more important. When compared to other help channels such as e-mail and telephone, chat is a more resource-efficient option for the service provider since customer care representatives can handle several inquiries at the same time.

"A psychological condition encompassing the desire to accept vulnerability based on favorable expectations about the intentions or actions of another," is how Rousseau et al. (1998) describe trust in their work. In instances when the trustor relies on the activities of the trustee, trust is considered especially crucial. The tractor's cognitive judgment is important, but so are the tractor's feelings and social connections (Ranoliya et al., 2017). However, there is a growing corpus of studies on the topic of confidence in technology, despite its problematic nature. As an example, Ioannou (2020) identified many elements influencing trust in robots, including humans, robots, and environmental aspects in a review study on trust in robotics.

Current research offers some hints as to what crucial elements consumers' confidence in chatbots may be determined by. Considering the unique qualities of chatbots, it is necessary to investigate the topic of trust in the context of this interactive technology.

1.2 Problem discussion

Currently, we are living in a highly accelerated world where information travels instantaneously between parties through the internet. Websites are also continuously becoming more creative in the way they interact and meet the needs of the user. Among other software, chatbots have become increasingly popular among a variety of websites including restaurants, e-commerce, airlines, governmental websites, and much more. Even though many distinct websites have adopted the usage of chatbots on their platform, research has shown that educational institutions, specifically at the university or college level have not caught on with the usage of chatbots on their websites.

Each year when universities and colleges around the globe become open for prospective students to apply for a bachelor's or a master's degree, universities and colleges are met with a high influx of emails, calls, and direct messages on their social media platforms from prospective students asking their questions to the admissions office. Depending on the university, prospective students can expect a reply ranging between hours, days, and weeks at most. In the case of international students, contacting a university can sometimes be even more challenging when they do not find themselves in the same time zone.

Each year when a collective of people wanting to embark on a new academic journey and start applying to various universities usually have to filter through a university's website to find the relevant information they are seeking, for example, courses available for international students, information about the potential of obtaining a scholarship, or simply seeking admissions requirements that pertain to your background and past educational experiences. International students often have different admission requirements, which for example may include different admissions periods than local students, differences in tuition fees depending on which country you are from, mandatory courses, and more. It is undeniably a hectic time for both universities and prospective students, and swiftly answering this surge of queries necessitates a significant amount of time and resources. It should not come as a surprise that international students often have to dig a little deeper into the website and/or contact the university directly to obtain the relevant information that they are seeking. In the end, the process for international students wanting to study abroad can be very stressful and hectic, and usually, time is a crucial factor that plays an unforgiving role. On the other hand, universities naturally want to stand out from the crowd and want prospective students interested in their school and programs, especially if one of their goals is to target students across borders. Moreover, studies have shown that the newer generation(s), Millennials and Gen Z, are immersed in the culture of "instant gratification". Generally, these people have grown accustomed to not waiting for results and expect fast and instantaneous outcomes.

In accordance with previous research pointing out that educational institutions (amongst other sectors of products and services) are not using chatbots within their respective platform(s). This gap in the practice has raised some questions that can be further explored through qualitative

research methods. This research thesis aims to explore the opinions and behaviors, in terms of perceived benefits and drawbacks, of international students on whether or not implementing a chatbot onto a university's website, using Jönköping University as an example, can be mutually beneficial for both the university to lessen the number of incoming questions and the prospective students in their decision-making process to select their future school. The data derived from this research provides the academic institution, Jönköping University, with primary and secondary data to gain a better insight into chatbots and what it could mean, from an international student's perspective, to have a functioning chatbot on Jönköping University's website.

1.3 Purpose

This thesis aims to collect data through qualitative research on the perception and the consumer behavior of international students on the topic of chatbots to further explore their thoughts of chatbots, in terms of efficiency, user experience, and effectiveness to gain insight on whether or not a higher educational institute such as Jönköping University can benefit from implementing a chatbot.

1.4 Research Questions

The questions this research aims to answer are:

1. *What are the perceived benefits for international students when implementing a chatbot in a higher educational institute?*

2. *What are the perceived drawbacks for international students when implementing a chatbot in a higher educational institute?*

2. Literature review

This chapter encapsulates the foundation of what has already been researched and established in the scope of chatbots. This chapter introduces existing research both in a broad sense and in a specific sense relating to the research topic.

An example of a chatbot is an artificial intelligence (AI) system that engages in conversation with a user. Keyword matching and natural language processing were the early chatbots' methods of operation. Voice-activated interfaces started to develop later, thanks to advances in computer and speech recognition technologies. The Amazon Echo, for example, is a voice-activated chatbot that was released in 2014. It is possible to employ chatbots for many objectives, such as entertainment, data query, and agent execution tasks as well as answering inquiries and conducting interaction exercises. If you want to book a flight or make a purchase, for example, a chatbot may act as an agent and gather data from discussions (Fourtané, 2021).

Conversational robots (chatbots) have been employed in both formal and casual learning environments, with the goal of evaluating the content of learner discussions as well as delivering learning information and feedback in an engaging way. Scholars have also shown that engaging with chatbots often boosts students' learning interests, which has prompted the creation and use of educational chatbots in a variety of environments. Using a chatbot, for example, trained university students in the art of negotiating with others; employed a chatbot to encourage academically productive conversation in a multimedia course and found it to be effective in terms of increasing learners' performance (Dale, 2016). Recently, a chatbot has been implemented to teach nursing students communication skills by posing as virtual patients for them. However, some studies have reported the drawbacks of using chatbots; for example, they the compared performances of students who used chatbots for practice and those who practiced through peer interactions; researchers discovered that after three weeks, students' interest in using chatbots for practice decreased, whereas their interest in interacting with peers remained the same; These studies demonstrate that the use of chatbots in educational contexts has significant promise; yet, the approach's drawbacks must also be taken into consideration (Debnath & Agarwal, 2020).

Chatbots in the education system

Academics have noted that a comprehensive systematic study of certain issues might assist researchers in better understanding major trends in the field. Studies on chatbots in health care, mental health, clinical psychology, and psychotherapy have all been evaluated by Abd-alrazaq et al. (2019), Bendig et al. (2019), and others. Rather than looking at how chatbots may be utilized in education, this research reviewed how they can be employed in medical settings (Dimitriadis, 2020). Thus, this study aims to conduct a thorough evaluation of the research subjects and trends in the use of chatbots in education.

Much research has been done on the use of chatbot technology for educational reasons, such as the usage of chatbots to answer queries from students learning about computer programming ideas. Most of these studies have focused on the use of chatbot systems. Literature reviews were executed to produce restricted summaries of current information in chatbot technology applications for education, as has been the case with past research studies; to provide an example, Cunningham-Nelson et al. (2019) conducted a review of the relevant literature on chatbots and presented two situations in which chatbots may be utilized in an educational context, along with a prototype application for each of the scenarios. A screening approach in an independent online directory was utilized by Smutny and Schreiberova (2020) to examine chatbots used to help learning through Facebook Messenger. The results were published in an independent web directory. After reviewing past research in which chatbots were beneficial to both learners and instructors, it was concluded the advantages outweighed the downsides and that they provided a more successful educational experience (Yang & Evans, 2019). In addition, a study of numerous chatbots used for educational reasons was provided by Pérez et al. (2020), whose study was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses methodology (PRISMA).

This body of knowledge has been enriched by these studies' reviews, but their primary emphasis is on the use of chatbots as a teaching tool or on the many chatbots and development technologies that exist now. University of California (2021) has shown that an artificial intelligence chatbot can deliver rapid replies to library inquiries, sign students up for new courses, or refer them to the admissions department in the blink of an eye. The ability for chatbots to respond to inquiries through messenger helps students and university officials to stay on the same page. Because

chatbots are available 24 hours a day, overseas students may communicate with the university office without regard to the institution's local time zone.

Conversational AI

Cordero et al. (2020) states that conversative artificial intelligence agents can sift through hundreds of registration papers in seconds, offering the correct information when it is required and in real-time. The information they provide on enrollment, financial assistance, residence availability, and fees is crucial to prospective students. They may also answer any basic inquiries regarding university paperwork from prospective students. Cordero et al. (2020) also states that it is possible for a person to take over if the inquiry is too complicated before the impatient learner gets irritated. The adoption of Conversational AI in colleges and universities is a significant step forward in the drive to transform higher education into the workplace of the future. In recent years, researchers have focused on chatbot technology, a subtype of conversation system that has expanded and resulted in applications in a wide range of fields (Adamopoulou & Moussiades, 2020a). Chatbots include broad language models that have been taken from a vast number of different sources on the internet and allow for input by restricting themselves to text-based or voice-based interfaces (Tsivitanidou & Ioannou, 2020). The use of chatbots in education has been the subject of several recent literature reviews. A variety of educational chatbots, as well as design criteria, assessment options, and impacts, have been examined in these evaluations (Noh & Hong, 2021).

Chatbot features

Effectiveness Size (ES) and Chatbot Benefits for Learning Success are important factors in the educational value of conversational interfaces (Plantak Vukovac et al., 2021). It has been shown that students' general characteristics influence how they interact with chatbots in terms of effect magnitude while going into further depth regarding how students engage with relevant courses. According to the researchers, this relationship is influenced by students' technological attitudes, learning traits, and educational background, as well as their feelings of self-efficacy and self-regulation (Chang et al., 2021). The following chatbot traits may improve learning results, "Proactive assistance by students", "Integration with current learning and instant messaging

systems", "Accessibility", and "Response Time". Researchers discovered two major differentiating characteristics for chatbots (Ranoliya et al., 2017). However, the study designs of the studies that have been published vary greatly, making high-level findings difficult to compare and contrast. Earlier this year, researchers suggested an educational-related prototype of a chatbot. It had been created to assist pupils in their studying for a few specialized courses (Huang et al., 2021). The focus was mostly on communication and the selection of suitable replies throughout the exercise. Several natural language processing (NLP) approaches were employed to identify queries and domain ontologies were utilized to pick appropriate responses (Kumar, 2021).

Perception of Chatbots inspired by research

According to Roos (2018), consumers prefer to use chatbots because they boost productivity, serve as a source of amusement, and stimulate curiosity about the response they will get. This research also discovered that users tend to build social bonds with the chatbot, which encourages them to continue to utilize it. Applying this in the context of education, chatbots may give learners rapid replies while also making the instructional flow more engaging and dynamic. When compared to students who self-learn by utilizing search engines, chatbots may considerably improve students' learning results in terms of memory retention and learning outcomes. According to research by Molnár and Szüts (2018), chatbots may also be programmed to recognize and react to the learning styles of users and their comments, which can help to build trust, strengthen bonds, and inspire users. Additionally, Molnár and Szüts (2018) discovered through their research that students are more likely to trust their chat companions than they are to believe a search engine, highlighting the usefulness of chatbots in education. Furthermore, chatbots have the potential to improve engagement, sociability, and knowledge acquisition by changing instructional flow to be more interactive and dynamic. The use of a chatbot in educational settings has the potential to benefit students by allowing them to get information more quickly and efficiently (Mendoza et al., 2020). Chatbots have also been suggested to assess learning styles as well as to gather feedback in eLearning settings. Chatbots may also serve as a source of encouragement for students to engage in ongoing dialogue for educational objectives. When creating chatbot technology for use in educational settings, it is important to consider the expectations of the academic institute and other

stakeholders. For example, rather than replacing human-to-human contact, a chatbot should be used to increase communication between students and the academic institute.

Impact of Chatbots on education

Current research indicates that chatbots are an uncommon practice within the field of education due to the circumstance that chatbot technology is still in its early stages of development within the educational sector, therefore, creating a demand for users to experiment with it to determine its benefits and shortcomings in this particular sector (Beckingham, 2019). Nevertheless, there is current literature that suggests that learning achievement and student happiness are expected to be significantly improved using chatbots in education (Winkler & Soellner, 2018). Chatbots have been effectively used in learning settings in a limited number of research, which has previously been published. For example, the University of Georgia developed 'Jill Watson', a chatbot that was built on the IBM Watson platform and designed exclusively to handle forum messages from students enrolled in a computer science course (McFarland, 2016). The conclusion was that students were more involved in the course, which was the main goal of the project. Chatbots, particularly in large-scale learning environments such as universities or massive open online courses (MOOCs), have the potential to compensate for the lack of individual support provided by the academic institution, which is one of the primary reasons for retention rates of less than 10% in MOOCs. Thus, chatbots may assist in delivering individual learning assistance with a little investment of financial and organizational resources on the part of educators (Sinha et al., 2019).

Use of Chatbots

According to studies, chatbots are already becoming more popular. According to the study results, over 80% of those who took part had previously used a chatbot. Around 75% of individuals who had never used a chatbot were above the age of 45, according to the survey results. Younger generations are highly receptive to new technology, such as chatbots, which are now a popular subject of discussion (Almansor & Hussain, 2019).

Evaluation

With this comprehensive literature evaluation, we want to provide the groundwork for future studies into the use of chatbots in educational settings. As a result, we organized and consolidated previous research using a multi-view framework that included an input perspective, a process perspective, and an output perspective. This paradigm should assist future researchers in filling critical research gaps related to the integration of chatbots into (management) education and training programs.

3. Technology Acceptance Model and its Relation to Chatbots

This chapter discusses, defines, and explains key concepts of the theoretical framework of our thesis and how it relates to the purpose of this research.

The Technology Acceptance model is designed to gauge the extent of the adaptation of the new technology based on the attitude portrayed by the customers. It is an information system theory that measures how individuals accept and utilize the advent of new technology. It is one of the most well-known and widely acknowledged models which investigate the degree of resistance shown to the new technology (Allen, 2020). This theory suggests that when a new technology is presented in front of the users, several factors impact how and when that technology is used by the users. Fred Davis is largely credited with the fact that he devised TAM when he was a part of the Computer and Information Systems, Graduate School of Business Administration at the University of Michigan in the US (Allen, 2020).

3.1 Significance of TAM

The vitality of this model lies in its aspect of putting forward this line of thought that various variables can impact an individual's action in a way that they can predict those actions. Those various known variables are constituted of two main variables:

1)   Perceived ease of use

2)   Perceived usefulness

Perceived ease of use is defined by Davis as the degree to which an individual believes that there will be less effort and struggle pertaining to a particular system whereas perceived usefulness is the degree to which a particular system can be beneficial in terms of overall productivity for the users. The link between these two factors provides a lens through TAM which investigates what are the factors which regulate people's acceptance of technology which further paves way for their utilization.

3.2 Technology Acceptance Model (TAM) and Chatbots

The widespread use of TAM makes it feasible and applicable in various areas of utilization i.e., education. Over time various extensions of this model have been presented by various academics but TAM is often considered sufficient to analyze the extent of acceptance of technology by the users. Nowadays, communication in any and every kind of setting is driven by the prevalent computer-mediated environment. In these circumstances, chatbots have appeared as a software tool to hold and maintain a text conversion with the users related to any field of the study. The chatbots provide the aspect of convenience and cost efficiency which can be very useful (Chocarro et al., 2021).

3.3 TAMs Influence on The Educational Setting

Besides understanding the model's components, the TAM model in education determines the acceptance of new technology in promoting better education; thus, the model greatly influences the implementation and provision of educational resources in the education system. With the development of new technology, many institutions focus on implementing new software like chatbots that enable students to get the best education during their academic years. During recent studies, students have shown improvement in academic performance through TAM analysis. Firstly, the availability of chatbots influences their performance; hence, TAM facilitates quick access to these resources (Adamopoulou & Moussiades, 2020b). Overall, TAM and chatbots' impact in an education setting goes hand in hand to promote better quality in education through improving teaching and learning techniques.

4. Methodology

The method chosen for this study is explained in this chapter. Following that, we discussed our procedure and how we carried out our method of choice. Then, how the results were analyzed, and finally the validity and reliability of this study, and the actions we took in response to these considerations.

4.1 Scientific approach

4.1.1 Qualitative Research Design

In the following section, the research design of this research study is examined. The research design is a framework of methods that ultimately dictate how the research will need to be conducted using a particular methodology (Bhat, 2021). The design typically includes how data is collected, what instruments are employed, how the instruments are used, and the intended means for analyzing data collected. Research designs can be broadly classified into quantitative and qualitative designs. According to Surbhi (2018), qualitative research has the aim of exploring and discovering ideas used in the ongoing processes, while quantitative research examines the cause-and-effect relationship between variables. The design that was chosen for this research study is the qualitative research design. This is due to the fact that this research requires the perception and opinions of the sample population. The qualitative approach that was used throughout this study is grounded theory. This approach is used in discovering what problems exist in a social scene and involves formulation, testing, and redevelopment of propositions until a theory is developed. The general aim is to generate or discover a theory (Glaser & Strauss, 1967).

4.2 Data collection methods

4.2.1 Method 1: Literature Review as Research Methodology

Literature review can be broadly defined as a more or less systematic way to collect and analyze previous research. A literature review can address research questions with a power that no single study has, by integrating findings and perspectives from many empirical results one can incorporate research findings to demonstrate meta-level evidence and discover areas where more research is needed. (Snyder, 2019). Literature reviews can be used to develop new conceptual

models or theories, and they can be useful in tracking the development of a specific area of study over time.

4.2.2 Method 2: Chatbot mockup and interview

For this research, a mockup chatbot was created using the Voiceflow software to assess the experience of international students in terms of usability, their perceived benefits, and their perceived drawbacks that fall align with the TAM model described in the research framework. During the chatbot mockup, the students received different tasks to complete. The participants are placed in a scenario where they are prospective students visiting the JU website seeking basic and specific information regarding the university's programs and courses, financial matters, internships, exchange abroad, and enrollment process using the mockup chatbot. Prior to the mockup chatbot, the participants are interviewed on their general knowledge and experience with chatbots. Consequently, the mockup scenario will follow with a semi-structured interview to retrieve feedback on the individual's perception and acceptance of chatbots in an educational setting.

4.3 Procedure

Each participant is invited at their latest convenience to participate to test out the mockup chatbot on campus. The participants for the mockup are asked the put themselves in the scenario of when they were prospective students interested in applying for a higher education program at Jönköping University. The mockup chatbot scenarios were divided into five different stages/tasks.

The mockup chatbot was distributed to the participants using this link:

https://creator.voiceflow.com/prototype/62368e86fd0c8096c5bc2d8b

Scenario 1

The first scenario that the participants are presented with is to find out how many English-taught programs JU offers using the mockup chatbot.

Scenario 2

The second scenario involves the participants finding the application deadline.

Scenario 3

The third scenario requires the participants to find the costs of attending the program (tuition fee), the costs of student accommodation, and daily living expenses (food, gym, cellular data plan) as a student.

Scenario 4

In the fourth scenario, the participants are asked to find which programs at JU offer internships, and which programs offer an exchange abroad.

Scenario 5

In the last scenario, the participants will try to interact with the chatbot using keywords or phrases. In this scenario, the topic was chosen at random.

4.4 Sample collection and population

Through convenience and snowball sampling methods this research will analyze qualitative data from 18 international students attending Jönköping University. There are a lot of differences between students who choose to study abroad and students who choose to study locally. International students tend to spend more time when it comes to researching universities abroad. Typically, students who choose to study abroad have to check if they have to apply for a student visa, check if there are international student tuition fees, check the expenditures in the form of foreign exchange, flight charges, visa, passport, and so on. Therefore, it would be motivating to focus on this segment seeing that more time and effort is being given to their search for a university abroad. This research could also have some implications for local students as well, however, local students will not be specifically addressed in this research.

4.5 Data Analysis

Data analysis is an integral part of any research. This section describes the method of data analysis for this qualitative research in detail.

4.5.1 Applying the Gioia Methodology

The Gioia methodology is aimed to add a qualitative rigor to the performance and interpretation of an exploratory approach by presenting a methodical process to novel constructing meaning and grounded theory exposition (Gioia, 2012). The Gioia Methodology is a method used to analyze data by identifying themes or codes that appear in qualitative or empirical data and assigning connections of data to those codes. Miles et al. (2019) states that codes are tags or labels for assigning components of meaning to varying sizes or 'chunks' of raw data such as words, phrases, sentences, or whole paragraphs. The data analysis process is to narrow down long and detailed qualitative data such as interviews and focus groups into common themes. For this research paper, we will analyze raw empirical data using the method designed by Gioia (2012) where the analysis consists of developing first-order codes, these codes are then further analyzed to identify commonalities to form second-order codes. Finally, the second-order codes are then formed into overarching dimensions.

In an attempt to solve this master thesis, exploratory thematic investigation with semi-structured interviews was chosen as the method of choice. Since the phenomenological approach can shed light on the complexities of this technological issue, it was selected. The preferred strategy for gathering information on participants' narratives, viewpoints, and encounters for this frequent response research subject is to perform in-depth, semi-structured interviews. The Gioia approach is being used to carefully evaluate the information in terms of being able to understand and respond to this.

4.6 Quality of the Research

According to qualitative researchers, the quality of qualitative research depends on the overall neutrality and integrity of the data. The following paragraphs will shed light on which concepts were used to reinforce the quality of the whole qualitative research.

4.6.1 Validity and Neutrality

Firstly, Leininger (1985) states that in a qualitative sense, the term validity refers to obtaining knowledge and understanding of the nature (i.e., the meaning, qualities, and characteristics) of the item under investigation. Secondly, the honesty of the participants determines the validity of the data and information (Abawi, 2014). This is why it was important to make sure that the participants

are aware of the fact that they are encouraged to express their honest opinions. Therefore, it was vital for the interviewer to remain neutral throughout the interview, to receive the most honest and, therefore, *valid* answers from the participants. Sometimes, it is easy for interviewers to be biased, especially when they are closely involved with the subject in question and have their own strong opinions on the matter. However, this is where the fact that the study is qualitative comes into action: there is no favorable direction. The study could go in a variety of different ways, all of which have the potential of providing valuable insight for the researcher, despite their own opinions on the matter. This drastically reduces the chances of a potential bias throughout the duration of the research process, as long as the researcher made sure that he neutrally formulated the questions and refrained from projecting their personal opinions onto the respondents to avoid steering the conversation in a certain direction.

4.6.2 Stability, Consistency, and Equivalence

In quantitative research, reliability refers to how consistent something is if it were to be replicated under the same conditions and circumstances. If it is repeatable, this would mean it is considered reliable. However, in qualitative research, the term reliability is often seen with skepticism within the scientific community with concerns that human behaviors and interactions are never static or consistent (Brink, 1993). Brink (1991) instead proposes three components to evaluate reliability in qualitative research: stability, consistency, and equivalence. Stability refers to asking identical questions to the participants. Moreover, consistency refers to the consistency of topics within a single interview or questionnaire, such that a participant's answers on a certain topic stay consistent. And lastly, equivalence is established by the use of various formulations of a question with the same meaning within a single interview, or concurrent observation by two researchers. These three concepts have been implemented into the research for it to remain stable, consistent, and equivalent throughout the entire research.

5. Empirical Findings

We shall discuss and report the study's key findings in this chapter, including the presentation of qualitative data and its interpretation. In addition, this chapter addresses the findings in light of the study questions, literature review, and methodological framework. The outcome of our empirical data-based study is the discovery of patterns and themes.

5.1 Gioia's Methodology

As we indicated in our methodology chapter, the Gioia technique offers us a methodical order to handle the raw data. This entailed doing data coding on raw data and then developing comprehensive codes based on raw data, known as 1st order analysis. Furthermore, by following a systematic method in the data analysis process, the first-order data may be further filtered into the second-order themes which are then categorized within aggregate dimensions. The 1st order concept codes derive from the interviews of the international students. To maintain validity, the codes are based on the raw data, and no manipulations have been made to the data. Original quotes, words, and phrases are used to present the analysis.
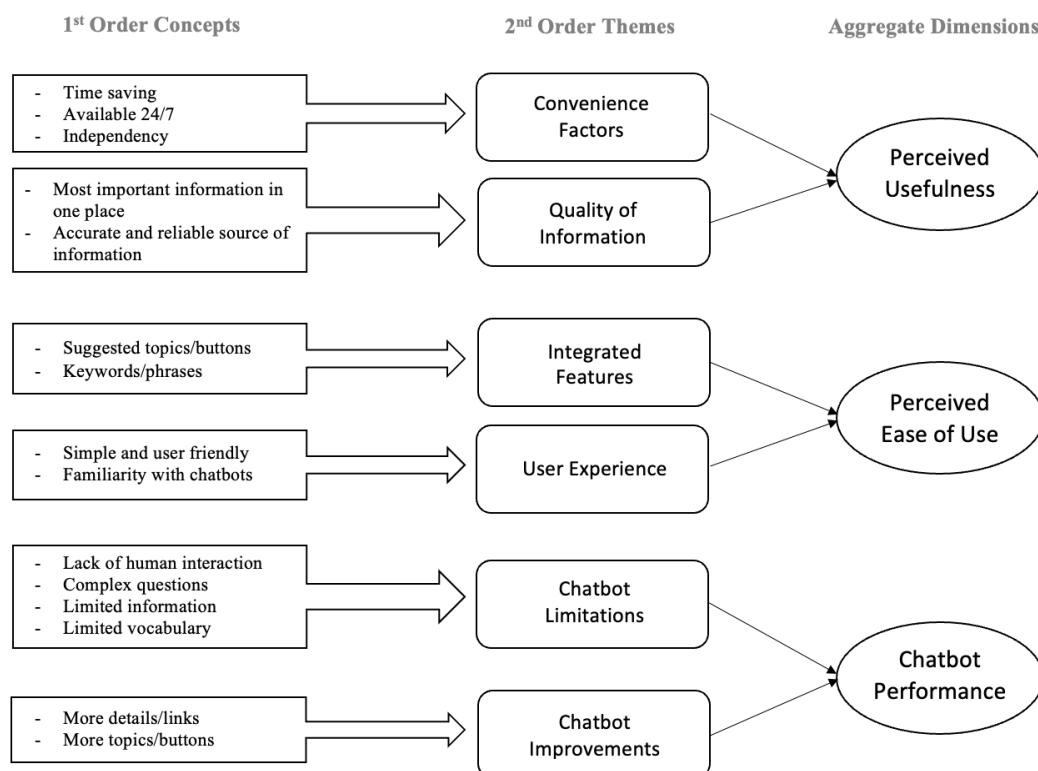

Figure 1: Data Structure according to Gioia et al. (2012).

5.2 Dimension 1: Perceived Usefulness

The Perceived Usefulness dimension is divided into two main themes: convenience factors and quality of information. The following will address the findings of both themes.

Convenience Factors:

Time-saving
The majority of the students reported that inquiring information about a university, in this case, Jönköping University, is normally a tedious task to do. However, after the mockup chatbot, the students were asked how helpful they thought the chatbot was in an educational setting, in which all students reported that using the mockup chatbot saved them a lot of time when searching for various information regarding the university such as accommodation costs, courses, deadlines, etc.

"You can get all the information quickly without having to search the whole website for it."
- *Participant 3*

"I get clear guidance. If I decided to call the university, for example, to ask these types of questions it would be harder to get to my answer. Through emails it would just take too long. With a chatbot I would get an answer right away."
- *Participant 6*

"As an international student one of the benefits (of the chatbot) is that I can get the right information at the right time within a very short time period as I don't need to go for different links for the information cause I'm able to get it on this chatbot."
- *Participant 17*

Available 24/7
Having the chatbot available around the clock has been reported to be crucial for international students. The participants have reported that being in a time zone different from the university's time zone makes it difficult to contact the university via telephone because students sometimes have to book a specific time to call and/or wait a long time on the line before they reach someone.

"Speaking from personal experience, I live in a different time zone so the best way most people feel secure is to phone the university and ask your questions, but that requires you waiting on the phone, booking an appointment, or making sure you call them in their time frame of open calls. And this is such a hassle. So, a chatbot can answer your questions that you may already have. It's efficient and less time-consuming. It's always 24/7 accessible."

- *Participant 9*

"Direct answers are really helpful for international students, especially if you are not living in the same time zone."

- *Participant 4*

Independency

Empirical data from the participants suggests that students appreciate a high level of autonomy when it comes to researching a future university enrollment. The participants expressed that most university websites do not offer information that is catered to international students, in many cases these students would want to communicate with people who are already in the city they want to study, however, it is not always easy to find (former) students if you do not know anyone in the city or the country. A chatbot that could provide this crucial information has the ability to bridge this gap and aid students in independently making secure and well-thought-out decisions about their study abroad.

"I think it (a chatbot) would be easier for prospective students to learn more about JU before they come here. Because most of the students that I know just came here blindfolded not knowing about much cost it would be and it's always a hard time for their accommodation and stuff. So, this chatbot is really helpful with all the information that is needed like."

- *Participant 5*

"Based on my experience before I came to Sweden, I had many questions such as how much the living expenses are, accommodation costs, how to rent, you must ask someone who is already living there, but, when you don't have any connections there it is difficult. So frequently asked questions in the form of a chatbot is helpful for students, especially international students."

- *Participant 4*

Quality of Information:

Most important information in one place

Findings suggest that it is of the essence that international students have all the most important information about a university in one single place. The participants agree that a chatbot that has everything they need in one single place is very beneficial to them. This concept goes hand-in-hand with the time-saving concept as having all the most important information will ultimately save students a great deal of time when they are researching a particular university.

"I think it benefits international students because you might read more information like this because it's easier, you might search up more things instead of going to look for everything and spend so much time on it. Personally, I wouldn't do all of that. I wouldn't search for everything and write it down. With this chatbot you have everything you need in one place."

- *Participant 8*

"You don't have to go through the whole website, you can just chat with the chatbot, and it can help you in a short time."

- *Participant 1*

"I feel that it would be helpful and less time-consuming going through all the pages in the university's website."

- *Participant 2*

An accurate and reliable source of information

Findings show that international students find that a chatbot embedded on a university's website is accurate and reliable. Participants agree that they would use a chatbot because it is a reliable source of information.

"If the university provides this kind of chatbot, the information that the student will get will be reliable and it will be useful for them, instead of asking their friends or someone who is already studying there."

- *Participant 4*

"The benefits are that I get information instantly and accurately."
- *Participant 13*

5.3 Dimension 2: Perceived Ease of Use

The Perceived Ease of Use dimension is divided into two main themes: integrated features and user experience. The following will address the findings of both themes.

Integrated features:

Suggested topics/buttons
The mockup chatbot featured suggested topics in the form of clickable buttons to guide users. This feature is common on various chatbots on the internet. The participants view this feature as a helpful tool that makes the process a lot easier since many students are faced with an overload of information when visiting a website, the buttons act as helpful reminders on the most important topics.

"I like the fact that it had some pop-up general queries and either with those or keywords it makes it easy for the user."
- *Participant 7*

"Yeah. It is easy because it gives you options, it already suggests you head topics."
- *Participant 10*

"It was easy, the little bubbles with the main topics are stuff that any new student would want to know about. It covers basically everything."
- *Participant 9*

Keywords/phrases
Another feature that has been added to the mockup chatbot and is common on most chatbots is the ability to recognize certain keywords or phrases in order to provide the user with the adequate information they are looking for. Most of the participants find this feature helpful and easy since

they are able to freely type in exactly what kind of information, they are looking for to get their answers in a quick and easy manner.

"It was simple to the point, and it was well aligned, and I was able to get every single piece of info I was looking for using keywords and simple phrases."

- *Participant 17*

"I thought it was it was easy and the chatbot understood they keywords that I have used and the simple phrases."

- *Participant 1*

"When I typed in certain keywords, the information popped up right away, it was helpful, the keywords work in my experience."

- *Participant 4*

User Experience:

Simple and user-friendly

Chatbots highly depend on their user experience to determine whether or not the user will return to use it again. For this reason, a well-functioning chatbot must provide its users with a pleasant experience every time. When asked to score the mockup chatbot on its user experience, the majority of the participants have given a score between 7 and 10. These participants have reported that the mockup chatbot was very simple, easy to use, and user-friendly in terms of navigating through the chatbot, the look and feel, and overall user experience.

"It was very easy to navigate through, the platform that was used was very clean as well"

- *Participant 9*

"It was very clear how to use it, so it is very user friendly"

- *Participant 6*

"It is very easy to understand, not complicated at all."

- *Participant 4*

Familiarity with chatbots

When asked if the participants were familiar with chatbots prior to our mockup chatbot, all but one participant stated that they have used a chatbot before, and most of the participants had experience with chatbots on shopping websites, airline/travel websites, and banking services. Previous usage of chatbots among students is significantly high, which can serve as an indicator of a high probability of usage when confronted with one.

"Everyone I think is familiar with chatbots, everyone will know right away what to do. There weren't any difficulties for me."
- *Participant 4*

"I have experience with chatbots prior to this mockup. Chatbots are pretty common nowadays on various websites."
- *Participant 13*

"I have experience with chatbots from some banks and online shopping sites. I think everyone has at least some experience with them since it's becoming a really popular tool to make things more efficient."
- *Participant 15*

5.4 Dimension 3: Chatbot Performance

The Chatbot Performance dimension is divided into two main themes: chatbot limitations and chatbot improvements. The following will address the findings of both themes.

Chatbot Limitations:

Lack of human interaction

Participants have expressed that chatbots, in particular AI chatbots, lack human interaction which students deem to be crucial, these cases range from needing extra assistance with an issue to getting frustrated when the chatbot does not immediately recognize the problem.

"I think the most secure way to find information is on the phone because you know the person who is speaking is giving valid information. However, if you are on a chatbot it could give misleading information sometimes. Maybe it misses a bit of human interaction to make it more believable, but it all depends on if it's an AI or a live person."

   - *Participant 9*

"Because I needed more assistance for my special case from a real person."

   - *Participant 3*

"For me, when I don't get what I want once or twice I get frustrated and would want to talk with someone. The importance is how flexible is the chatbot. The vocabulary needs to be more extensive."

   - *Participant 10*

Complex questions

Findings suggest that participants believe that one of the major drawbacks of a chatbot is that it is incapable of comprehending complex questions that include personal details. Chatbots have been trained to only understand what they have been taught. They are unable to comprehend the context of humans, which is a significant gap that can result in a dissatisfied customer.

"They don't provide required answers for out of the box or complex questions."

   - *Participant 15*

I don't feel like I would contact the university after using the chatbot. If I had a more complex question, I would need to contact the university.

   - *Participant 2*

   -

"When the goal is to find personal wants or needs then it becomes tricky if the chatbot is not flexible and is not able to give you the information that you need."

   - *Participant 10*

Limited information

The participants expressed that the chatbot provided them with very limited information. Chatbots usually reside within a small chatbox on the webpage, chatbots tend to keep the information limited to not strain the user with a lot of information that one would otherwise receive on a full-fledged webpage. Students often need and want more information rather than just a small straight-to-the-point answer, especially for making important decisions like choosing their higher education program. In this instance, they would rather go to the webpage with the full description of the topic they are looking for or contact the university directly through phone or by sending an email.

"It can provide basic answers more quickly, but it lacks information and feels extremely limited."
- *Participant 15*

"The drawbacks are that I would get very limited information, for example, the living expenses, I got a small information about the most important things. I would prefer to look at the whole text on the webpage with more detailed information.
- *Participant 3*

"If there is a specific topic that I need more details I can't get it through the chatbot I would need to go through the website to find more information. Usually, the webpage would offer more information than a chatbot."
- *Participant 6*

Limited vocabulary

During the mockup, the participants were asked to find different topics using keywords and phrases, to which some participants were not able to complete the task as the chatbot did not pick up on the keyword/phrase used as input. The chatbot was programmed using words and synonyms as keywords to find a topic, however, when the participant is looking up a topic using a word that has not been programmed the chatbot would give an error.

"The vocabulary needs to be more extensive. Sensitive to keywords that are not necessarily in the article or information."

- *Participant 10*

"I would say the keywords and phrases are moderately good as I was not able to get answers to all of my questions so there is a lot of room for improvement."

- *Participant 15*

"It lacked understanding of the question that I asked."

- *Participant 18*

Chatbot Improvements:

More details/links

The chatbot was programmed to respond with short to moderate feedback. Some topics such as available programs were a direct link to the webpage, however, not every topic contained a link to the full webpage. In order to combat the limited information of the chatbot, suggestions have been gathered from the participants. Participants have suggested that areas, where more information is required, should have a link to click on to redirect the user to the webpage that includes all the information if the student wishes to read more.

"To improve the chatbot I would say to provide a link in the message to the webpage with more detailed information regarding the topic."

- *Participant 3*

"More links embedded into the chatbot. For example, the student accommodation part should have a link to sign up."

- *Participant 6*

"The brief answers are cool, however, it would be nice to add a link to if you want to know in-depth details about the topic."

- *Participant 9*

More topic/buttons

Participants have also suggested that a university chatbot should include more topics that are relevant to international students such as healthcare in the city/country. Healthcare in each country varies, in the case of Sweden, if you are not an EU/EEA citizen you are required to find a private healthcare provider. Another suggestion for improvement that the participants have made was to include a button for relevant social activities that Jönköping University offers. Jönköping University for example offers many online and offline seminars and student associations/clubs. Prospective students are mostly unaware of these activities, especially when they are able to join online has the ability to enhance their educational journey and experience with the university. In addition, participants also suggest adding a topic/button pertaining to Jönköping's point of interest that would be interesting to know for an international student such as bars, clubs, and gym locations.

"Maybe adding a button for questions regarding healthcare for international students in the country. As an international student you do not know how the healthcare system works. Not in the sense of providing medical advice, but more in the sense of giving you information about which clinics to go to."

- *Participant 4*

"To find school clubs you can join; I didn't see this on JU's website before coming here. When I was already here, I found out, I wish I knew earlier though."

- *Participant 12*

"I immediately think of what else you want to know about the city that the university is in. Like, what might be interesting for an international student are like bars, clubs, where the gyms are. The points of interest."

- *Participant 8*

6. Formation of Grounded Theory

In this section, the grounded theory is presented in addition to an in-detail explanation of how the theory was developed.

Grounded theory is a technique in which a theory is developed based on a review of the literature and the raw qualitative data gathered from research (Gioia et al., 2012). To develop a grounded theory, Gioia et al. (2012) provides four steps or guidelines that aid researchers in adequately formulating a new theory. These four steps are listed below in the figure.

Features of the Methodology That Enhance Grounded Theory Development.

Step[a]	Key Features
Research Design	• Articulate a well-defined phenomenon of interest and research question(s) (research question[s] framed in "how" terms aimed at surfacing concepts and their inter-relationships) • Initially consult with existing literature, with suspension of judgment about its conclusions to allow discovery of new insights
Data Collection	• Give extraordinary voice to informants, who are treated as knowledgeable agents • Preserve flexibility to adjust interview protocol based on informant responses • "Backtrack" to prior informants to ask questions that arise from subsequent interviews
Data Analysis	• Perform initial data coding, maintaining the integrity of 1st-order (informant-centric) terms • Develop a comprehensive compendium of 1st-order terms • Organize 1st-order codes into 2nd-order (theory-centric) themes • Distill 2nd-order themes into overarching theoretical dimensions (if appropriate) • Assemble terms, themes, and dimensions into a "data structure"
Grounded Theory Articulation	• Formulate dynamic relationships among the 2nd-order concepts in data structure • Transform static data structure into dynamic grounded theory model • Conduct additional consultations with the literature to refine articulation of emergent concepts and relationships

Figure 2: Four steps of developing a grounded theory according to Gioia et al. (2012).

Formation process

Systematic evidence has been collected to support the codes. Now to align the extensive data and tables the first order codes have been removed. The second-order themes have then been used as building blocks to generate a grounded model. The second-order codes are the concepts to be used to build the model. The first order is descriptive, and the data structure includes their empirical details. This is how we show our theory is grounded in the data. We started writing this model by

identifying themes from the thesis. The definitions of the second-order themes have been incorporated inside working tables in order to gradually articulate all the building blocks of the model. This led to an understanding that the thesis needs to know the perception based on the use of chatbots. To that, grounded theory was then applied and first of all the second-order themes were identified. Using the second-order themes we worked out what could provide the descriptive data or short phrases that could include the explanations justifying these themes. This can be later seen in the data structure table as well which is empirical robust evidence. Then we associated the aggregate dimensions to the second-order themes and classified the highlighted data from the thesis according to these dimensions against the second-order themes for more clarification. This grounded our data and led to a general understanding of the thesis. After this sketching is done to visualize the representation of intuitive emerging bits of the theory. Which for reliability has been tested against the data and robust evidence.

The understanding is that the use of chatbots can be examined in three domains. One is its usefulness, ease of use, and technicalities. Each of these defines how the practical applicator of the chatbot will perceive it to be. As was also observed from the interview findings that due to experience of a prior chatbot, the technical difficulties led to a lack of ease of use and made it less useful for the function. Hence the participant in such a situation would perceive the chatbot to not be beneficial for them or the higher education institutions.

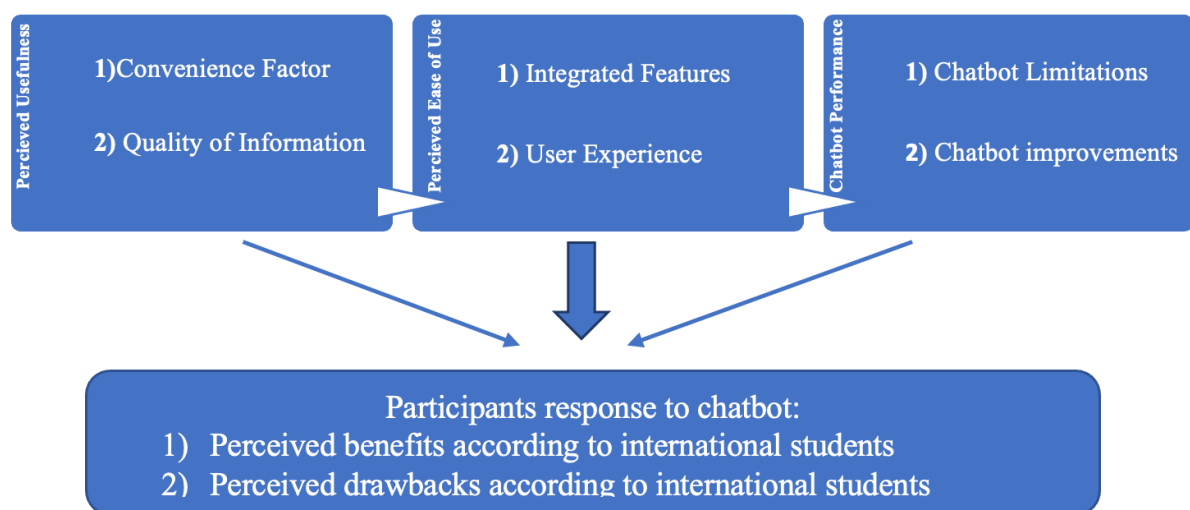**Chatbot's Perceived Benefits and Drawbacks by International Students**

Figure 3: Grounded theory: Chatbot's Perceived Benefits and Drawbacks by International Students

7. Discussion

This chapter delves into the meaning, importance, and relevance of the findings and discusses the limitations as well as implications for higher education institutions in order to develop an argument to support our conclusion.

After deciding to incorporate the chatbot in a higher institutional setting, the aim of this research is to find out how the consumers would react to this integration. The consumers in this scenario are the applicants or students applying at Jönköping University. The thesis is focused on the perceptions of these consumers to evaluate how beneficial or limited chatbots are for them. The thesis incorporated research that included an interview to be conducted two times. This is because the participants were subjected to a control situation, which is the perception about chatbots before using the prototype of the chatbot developed by the researchers. The next time the same participants were subjected to the chatbot prototype and asked to use it as if they would while applying for Jönköping University.

Limitations

The study included international students at the university who use the English language for communication, hence, the app might not be convenient for Swedish students or those who are not fluent in English. The problems of local students might differ in nature from the international students which were not explored in the current study, hence the chatbot might not be as helpful to local students, as it is for international students. The time for trial use of the chatbot was limited, there might be some areas of problems that could have not been found by the participants during the use, which would need to be explored in future research in order to get a comprehensive understanding of its purpose for international students. The study included the experience of a limited number of participants, hence further quantitative study is required to cross-check the experience of these participants. The chatbot was designed for students only, however, it could be further expanded to be used by guests or employees. The chatbot had been fed with limited information; hence the user might not get answers to some queries, which needs to be enhanced with the user experience and feedback.

Benefits for universities

Colleges and universities may improve the efficiency of their operations by using digital technology and chatbots. Both procedures that run in the background and communication with their intended audience fall into this category, to varying degrees. Upon deeper inspection, it becomes clear that prospective students profit the most from unlimited accessibility "24/7" via chatbots. Applicants may get the information they are seeking about a particular institution or about the degree program they are interested in extremely fast and readily on the internet. People who reside in a different time zone or who want specialized information at times when no one at the institution is accessible would benefit the most from this service, as will those who work from home. Another advantage is the simplicity with which university information may be accessed. Potential consumers are urged to actively look for information with a single click and a few short chats with sales representatives. As a result, chatbot users may expect to get responses that are several times quicker than they would receive when conversing through email, for example. Furthermore, digital technologies such as chatbots have long been a part of contemporary society's method of interaction and communication. As a result, this form of media is very well received by the university's intended audience (Ma et al., 2021).

In addition, the implementation may help to lower the expenditures of the marketing department. Chatbots, which can answer many queries at the same time, assist to reduce the need for additional employees and support. As a result, workers save a significant amount of time since they are no longer required to answer repetitive questions and are free to devote their time to other activities. On the other hand, if a chatbot is created "properly," it will function flawlessly and will not generate problems. Another key benefit is that the university's contemporary and inventive image is enhanced, allowing it to stand out from the competitors. The marketing department benefits most of all from the analytical insights that a chatbot may provide numbers, statistics, details about the number of conversations, their length, and content, frequently asked questions, and much more are all available to them via a chatbot.

From the research questions, it can be determined that before the participants were subjected to the prototype most of them had positive views about the chatbot. They were asked if they had been subjected to a chatbot before to which almost all of them had been and according to them it had been very useful to them. Words such as 'reliable, less time consuming, nice, immediate responses/

suggestions, innovative, convenient, time saver, very helpful, etc.' have been associated while describing the chatbot. However, only in a few situations, a subject had not been subjected to a chatbot before such as for participant 11. Even though after the use of the chatbot prototype the user did not mention any drawbacks and has reported that the chatbot grasps keywords easily and rated it 10 for ease of use and convenience. According to him, it makes the process simple by increasing the integrity of the website and does not require a lot of labor work responding which might create confusion. The major finding from this research is that chatbots do indeed have a benefit towards whoever includes it depending on the type of developmental software's it has and its technological efficiency. In this domain, chatbots have proved to be quite innovative with a broad application.

Drawbacks for universities

Chatbots, on the other hand, have several drawbacks that might be recognized by educational institutions that use them. For starters, there are expenses associated with implementation. Because a chatbot can only display and respond to the material that has been programmed for it, it must be maintained and extended to keep current with current trends and information (Sjöström et al., 2018). Therefore, there are recurring expenses. If the chatbot displays incorrect material to prospective customers or fails to provide a solution to their inquiries, this might result in a poor image of the institution and dissatisfaction on the part of the users who would otherwise benefit from it. A chatbot's usage, on the other hand, may be rejected by the target audience, who may not feel comfortable with an impersonal method of communication. A few participants showed resentment towards the use of the chatbots mostly before they were subjected to the prototype. They would exclaim that the chatbot would feel robotic making them uncomfortable to talk with. A few times after being subjected to the prototype the participants informed that the chatbot tends to respond more towards factual questions, however, chatbots are not flexible with personal wants and needs. These types of information are not factual and require human assistance and so the chatbots have not been designed to answer them. While for international students it is of immense importance to figure out every detail in order to decide on a sound environment that does not lead to discrepancies in their educational needs, it is acknowledged that a chatbot does not fully possess all the capabilities to solely rely on them for all their needs, only to facilitate some of their needs

Future Research

Researchers can focus on implementing more features to the chatbot that were mentioned by the participants in this research. We also encourage future researchers to explore other chatbot capabilities such as voice integration utilizing Amazon's Alexa software that would enable prospective students to have a verbal conversation with the chatbot. In addition, it can also be useful to explore human-assisted chatbots to help students with complex and personal inquiries that they may have.

8. Conclusion

This chapter summarizes the goal of this research as well as relates the results to the literature review and provides an interpretation of the results in order to draw conclusions and make recommendations for future work.

The goal of the thesis was to collect data through qualitative research on international students' perceptions and consumer behaviors on the topic of chatbots in order to further explore their thoughts on chatbots in terms of efficiency, user experience, and effectiveness in order to determine whether or not a higher educational institution like Jönköping University would benefit from implementing one.

In the literature review it was alluded that although there are some examples of chatbots being implemented within university websites, chatbots remain an uncommon practice in the education sector. Nevertheless, in our literature findings, we also identify that there is significant interest from the education sector to implement chatbots accordingly. According to Beckingham (2019), people still need to experiment with chatbot technology within the educational sector to learn its merits and shortcomings. On the grounds of this, the present research has been developed to investigate exactly that.

Throughout this research no extreme ends of the findings neither one side is supported completely, nor does it state the other as being completely wrong. Through various literature findings, this thesis document shows that the literature supports benefits which include that it is cost-effective for the university. It is a great investment that leads to a long-term benefit, requires less labor force, and makes it easier for the faculty as well. They are exempted from answering repeated questions that can lead to inefficiency.

In the same manner, data was collected through interviews with 18 participants. It was observed from the answers that they did have multiple benefits and drawbacks that they were able to identify. However, the number of positive and satisfied responses based on the positive terms associated with chatbots outweighs the drawbacks. So, to answer the research questions altogether, a chatbot is a device made out of software that is not prone to human error. The development will keep

taking place and more suggestions will keep sprouting up. Despite this, the number of benefits from the findings indicate according to the perception of participants is more than the drawbacks and so it can be concluded that chatbots are relatively a beneficially perceived device to facilitate, ease, and support both incoming international students and higher educational institute such as Jönköping University.

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Appendices

Appendix 1 – Interview guide

Pre- experiment:

- Are you an international student? Which country are you from?
- Have you had experience with chatbots prior to this experiment?
- Can you give one or more examples of how you have had a <u>positive</u> experience with chatbots?
- Can you give one or more examples of how you have had a <u>negative</u> experience with chatbots?
- On a scale of 1 to 10 how much would you rate your overall past experiences with using a chatbot?

Post experiment:

- Based on your opinion, how was your experience using the chatbot in an educational setting?
- Based on your experience, how helpful do you think this chatbot is?
- Were you able to complete all the given task to your satisfaction?
- In your experience was using the chatbot easy to use? Why?
- On a scale of 1 to 10 how easy was using the chatbot?
- What would you say are the <u>benefits</u> of using such a chatbot for educational purposes as an international student?
- What would you say are the <u>drawbacks</u> of using such a chatbot for educational purposes as an international student?
- On a scale from 1 to 10 how much would you rate the user experience of this chatbot?
  - What would need to be implemented in order to get a higher rating?
- On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?
- Would you use the chatbot function if it were present in your journey of searching for university programs abroad?
  - If yes, why? If no, why not?

- For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?
- On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Appendix 2 – Interview Transcripts

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 1: Yes, I'm an international student from The Netherlands, and I'm studying Marketing Management at JIBS.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 1: Yes on Bol.com and other shopping websites.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 1: Usually they help me pretty well when I'm lost on a website, or I want to find something specific. Or if I have a quick question where I don't have to wait for an actual person to speak with.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 1: As far as I know I never had a negative experience with chatbots before.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 1: I would give it a 7 or 8. Let's say 7.5.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 1: I think the chatbot was very helpful and it was very easy to use. With simple questions it was easy to find information.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 1: I think as an international student the chatbot was very helpful to find the basic information such as tuition fees and living costs and everything that an international student might need about the university.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 1: Yes. I was able to complete all of them.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 1: I thought it was it was easy and the chatbot understood they keywords that I have used and the simple phrases.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 1: Yes, because it clearly understood the keywords I have used. When you click start conversation some suggestions were already given which was helpful. So, overall, it was easy to use.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 1: I would say a 9 or a 10.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 1: I think for an international student it is quite handy because you get all the information about the university and especially being an international student, you don't know much about the university, so it was helpful. When you don't have time to wait for a direct person to talk to, I think the chatbot is helpful in that scenario.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 1: Maybe, there is more information that the chatbot does not know, in this case, you won't get the information you need. When you talk to an actual person you can get a feel of the university itself, with a chatbot you could only get facts about the university.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 1: I would say an 8.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 1: I would say like I mentioned about the feel of the university, maybe there should be a keyword associated with the student experiences. In order to get a complete view.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 1: I would say an 8 as well.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 1: Yes, I would. Because it was easy to use and it has the most important information like the tuition fee and the living costs, which is important for international students. You don't have to go through the whole website, you can just chat with the chatbot, and it can help you in a short time.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 1: Maybe places to go and must do's around or at the university such as hangout places, clubs, and associations you can join.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 1: I would still give it an 8. Like I said it was easy to use and it had the most important academic information, so it saves you time instead of going through the website. And it was easy and not difficult at all to use.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 2: I come from Norway; I am an international student in Jönköping University studying a master's program in International Marketing.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 2: Yes, I have.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 2: Yes, it was helpful but rather robotic. On Norwegian insurance website, I am a citizen of Norway so, I asked the chatbot a question like "Where can I find information related to the tax office" and it gave me a little bit information about the topic. It was kind of helpful, I guess.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 2: It just feels a little bit robotic, when I type in a question, I always get a reply with more questions such as "Did you mean this?" or they show me options not related to the topic.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 2: Maybe 6.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 2: Yeah, it was good because it is helpful to find information directly and the buttons were also helpful.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 2: If I would have to rate it, I would give it an 8 because it was helpful for direct information related to education. I could find the information I needed.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 2: Yes, I completed all of them.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 2: The keywords of the main topic worked well.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 2: Yes, it was easy and at a basic level to quickly understand.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 2: I would give it a 9.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 2: It gives you direct answers for example the fees, as an international student you would want to know the fees for the programs, yeah it was helpful.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 2: I don't have any drawbacks; I don't feel like I would contact the university after using the chatbot. If I had a more complex question, I would need to contact the university.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 2: I would give it an 8.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 2: For example, to add a logo for the university to identify themselves.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 2: I would give it an 8.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 2: Yeah, I would, I feel that it would be helpful and less time-consuming going through all the pages in the university's website.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 2: Maybe add the school logo in general, and school activities such as clubs and associations as one of the buttons.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 2: Overall I would give this experience an 8.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 3: I'm an international student at JIBS, I study Strategic Entrepreneurship and I'm from Germany.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 3: Yes, for example I have programmed a chatbot once.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 3: Sometimes, for example, on Facebook I contacted a business through their chatbot service to ask about their opening hours, and a chatbot replied to me and told me when it opens and closes.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 3: For example, I was flying with Finnair to Mexico this December, and I had some issues in connection with my flight. I tried to contact the airline which they have a chatbot tool for doing that, so I always wrote to the chatbot, however, in that situation it wasn't sufficient for me, because I needed more assistance for my special case from a real person. So, it always took a long time to reach a real person through the chatbot. The chatbot asked me so many questions which were not important and, in the end, the chatbot would refer you to a real person. But I would be waiting in the queue for hours waiting for a real person ta answer. Another situation is where I have a specific issue that required assistance but the chatbot is not really answering my specific topic, they recognized a keyword which would then bring up an automatic response, but the answer I received was not what I asked.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 3: I would rate it a 4, it's more negative than positive. Like I would get annoyed if a chatbot answered.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 3: These are the things I would find directly on the homepage but with a lot of searching. What would be nice to have in a chatbot is for it to be able to answer in-detail questions, for example, "Do I need insurance for studying at JIBS" if I'm not an EU-citizen.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 3:It is difficult to evaluate, I would need to play around a little bit more by myself and look up questions I would ask myself as an international student. For example, the application deadline it would help a lot, but maybe there are some things that haven't been introduced to the chatbot yet but are important for me to know. So, the chatbot would have to be extensive and would need a lot of information.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 3:Yes. All except one when I tried using the keywords it did not recognize it.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 3:Overall it was a good experience, it recognized all except one like I said earlier.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 3:Sometimes it is not that easy, but in this specific scenario it would be easy.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 3:I would rate it a 10.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 3:You can get all the information quickly without having to search the whole website for it, yeah, I think that's the only benefit that comes to my mind.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 3:The drawbacks are that I would get very limited information, for example, the living expenses, I got a small information about the most important things. I would prefer to look at the whole text on the webpage with more detailed information.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 3:I would rate it a 10.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 3:To improve the chatbot I would say to provide a link in the message to the webpage with more detailed information regarding the topic.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 3: I would rate it a 6 out of 10.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 3: Yeah, I'm not sure because of my previous experience with chatbots. So, I would maybe try to search on the page myself instead of using the chatbot, because I would expect the chatbot to not be very good or satisfying. Also, it depends how it is imbedded on the page, if it clearly states that it is a chatbot I might use it to play around. If it says chat and not chatbot, so if it were a real person behind it, I would not write anything because I don't want to ask stupid questions knowing there is a person behind it because I would think that it could jeopardize my application process.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 3: If I apply as an international student I would like to know, for example, what I need to think of when I apply, do I need an extra insurance? Another example is a library page to look for books for the course, or guidelines for citations. Also, how my university schedule would look like? For the first time when I was looking for my grades, I had a tough time finding them, if I had a chatbot to ask that I would have known immediately that I can find them on Ladok.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 3: I would rate it a 9.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 4: Yes, I am an international student from Myanmar which is one of the Southeast Asian countries. Right now, I'm studying International Marketing at Jönköping International Business School in Sweden.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 4: Usually on Facebook some pages have chatbots that reply automatically, so yeah, I have some experience with chatbots.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 4: The automatic chatbot help you to get an immediate response and provide all the information you need. You just need to click the category you want to know and then provide you with more information. So, it saves time, and it is effective. Basically, you can get an immediate response which is comfortable for me.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 4: When chatbots reply to you "We will get back to you as soon as possible" I do not like that kind of chatbots because you don't know when they are going to reply. I just wanted to know a small detail. Basically, I don't like the general responses I get sometimes.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 4: I would give it either a 6 or 7, so a 6.5.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 4: It was a nice experience; I got all the answer right away and that saved a lot of time and I think the information on the chatbot is reliable. I think all students who are planning to study abroad who have questions about the school can make use of this chatbot. The chatbot covers all the basic questions one might have. Also, you don't need to find all the information by yourself, when you have to find yourself, you have to search and read everything, and this takes a lot of time.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 4: It is helpful, because based on my experience before I came to Sweden, I had many questions such as how much the living expenses are, accommodation costs, how to rent, you must ask someone who is already living there, but, when you don't have any connections there it is difficult. Sometimes universities do not offer some information that I need on their websites. So frequently asked questions in the form of a chatbot is helpful for students, especially international students. Plus, sending emails to the information office will not get you a fast reply. Even when you do send an email, after I get a response I would have another question, and then another one and so forth. Which is making the whole

process very long and exhausting. Also, direct answers are really helpful for international students, especially if you are not living in the same time zone.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 4: Yes, according to the prototype yes. It covers almost everything that international students want to know. In the real model it would be nice to add more information for more specific questions/topics. But, with this prototype I feel really satisfied. I like those chatbots that provide different categories to help you think what you want to know.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 4: When I typed in certain keywords, the information popped up right away, it was helpful, the keywords work in my experience.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 4: It is very easy to understand, not complicated at all. Everyone I think is familiar with chatbots, everyone will know right away what to do. There weren't any difficulties for me.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 4: I would say 9.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 4: First, if the university provides this kind of chatbot, the information that the student will get will be reliable and it will be useful for them, instead of asking their friends or someone who is already studying there. It will also save a lot of time, no one wants to spend many hours for finding all the information from different topics that is scattered throughout a website. So, if all the most important information is collected into one place it is very effective and timesaving.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 4: Sometimes a chatbot will provide the information that is important or needed, not a full explanation. On the website they will explain a lot just for one topic. So, for those who want a deep explanation it would not be that useful.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 4: I would rate it an 8.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 4: 8 it is high, but I think the chatbot should include other categories as well. If you provide all the possible questions international students might have it will make the chatbot stronger.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 4: I would rate it an 8.5.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 4: Yes of course. Because if I don't have any connections in that country, it would be difficult, and if I sent an email a lot of the time, I would have more questions. So, a chatbot would make my life a lot easier.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 4: Maybe adding a button for questions regarding healthcare for international students in the country. As an international student you do not know how the healthcare system works. Not in the sense of providing medical advice, but more in the sense of giving you information about which clinics to go to.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 4: I would give it an 8.5 overall.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 5: Yes, I am an international student, I'm studying Global Management master program at Jönköping University, and I am from Myanmar.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 5: Yes, I have experience with chatbots on shopping websites.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 5: I contacted a clothing business using there chatbot during non-working hours and I got a reply from them on the next day. You select which service you are looking for and the next day a real person will contact you back. I have never faced a chatbot that does not have a real person behind it. I think it is nice that you can contact a business and ask questions after working hours, for example, at midnight when you are going through their website.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 5: Yes, there was one encounter that I had where I asked some questions using their chatbot in the morning and after a lot of hours they still haven't replied to my question yet. So I asked the question to the chatbot again, but the chatbot AI refreshed and I had to go through the process all over again.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 5: Around 7, I think.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 5: It's easier than going through the website and it makes the process simpler.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 5: The keyword is helpful if you don't know where to start. For me, as an international student, I didn't know before I came here how much the bus cost on a monthly basis. The chatbot specified about the costs that one might expect when you come to Sweden.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 5: Yes.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 5:It's better than just choosing the topic, you can just type what you want to know. I think that is a vital key point to have.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 5:It's easy because you don't need to ask other former students or people who live in Jönköping, you can find everything inside one chatbot, so I think it is good.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 5:I would say 9.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 5:First of all, it's less time-consuming compared to going through all of the pages on the website, lots of things you have to go stage by stage. Normally students wouldn't get all the information they might need to know from the website, but if they knew about this chatbot then it's much better.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 5:I don't see any drawbacks, a chatbot is very innovative. The only thing I can think of is that students will depend on this alone and therefore not interact with other students. Because there are Facebook groups for international students. Basically, if I have a question I could ask it there, if the chatbot is there they might be less interactive between students.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 5:I would rate it a 9.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 5:For me personally, I would be really pleased if I'm talking to a mascot instead of fake name that the programmer chose. Maybe a JU mascot or something creative like that

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 5:Definitely a 10. I think it would be easier for prospective students to learn more about JU before they come here. Because most of the students that I know just came here blindfolded not knowing about much cost it would be and it's always a

hard time for their accommodation and stuff. So, this chatbot is really helpful with all the information that is needed like.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 5: Yes. It would be easier for me. I see a chatbot I would just ask it, if I don't see it I have to go through it and that is time-consuming and confusing.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 5: I would say also put in information about food costs. What is the general cost for groceries? And try to put information about student nightlife such as bars and clubs. Also, second-hand stores. Me and my friends we asked about that information from the buddy program. It would be a huge advantage is these were included also. So, not only academic information, but also general information about Jönköping. Information about the university's cafeteria is also something that most students I know find very important. Also, where you can get lunch or have fika and where you can buy cheaper food.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 5: I would rate it a 9. It's something that the university hasn't implemented yet and it would give students who are thinking of coming to JU the necessary information they are seeking for.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 6: Yes, I'm an international student from The Netherlands studying International Marketing at JU.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 6: Yes, I have.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 6: I was using Uber, and something went wrong where they overcharged me, and I had to use their chatbot to get help and it was very fast and right away I found the

issue that I was dealing with via the chatbot to which I followed the steps, and it was very easy to get it resolved and I got my money back. It was convenient. Also, with travel agencies I used it many times when something went wrong where I ended up using their chatbot to get a reimbursement for my overcharged booking.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 6: Once I was ordering food on Uber Eats and they took way too long to take my order, so I decided to call them, but nobody picked up, so I opted to use their chatbot service to cancel my order and get a refund. It was a live chat with a real person, and I felt that they were very arrogant and inconsiderate towards my complaint, and they told me that my complaint was not eligible for a refund.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 6: Out of 10 I would give it a 9. I have more good experiences than bad.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 6: it was really good and super direct, in one chatbot you would get all the info you needed. It was also very clear how to use it so it is very user friendly. I was able to get help.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 6: Yes.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 6: Yes, super easy. First of all, the different topics that were given helped me a lot and I did not need to think much of what to ask the options helped me to get the different information needed. The structure of the chatbot is very clear because one thing led to the other in a very clear way.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 6: It went well, the chatbot recognized the keywords and simple phrases that I used.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 6:It was very easy I can't complain at all.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 6:10.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 6:I get clear guidance. If I decided to call the university, for example, to ask these types of questions it would be harder to get to my answer. Through emails it would just take too long. With a chatbot I would get an answer right away. Also, the chatbot gave me the option to search multiple things at once, as an international student I have a long list of questions that I need to know. So, it makes it easier for me to navigate through all of the topics by myself.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 6:If there is a specific topic that I need more details I can't get it through the chatbot I would need to go through the website to find more information. Usually, the webpage would offer more information than a chatbot.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 6:I would rate it a 9.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 6:More links imbedded into the chatbot. For example, the student accommodation part should have a link to sign up.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 6:8.5

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 6:Yes, because I don't like to spend a lot of time trying to find all the information I need through the university's website or any website for that matter.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 6:Maybe to add the different associations that you can join that the university offers.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 6:I would rate it an 8.5

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 7:Yes, I'm an international student, I come from Greece and I'm taking my master's in international Logistics and Supply Management at JIBS.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 7:Yes, a couple of times.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 7:It's easier for me if a company has a chatbot with pre-installed answers to my questions. For example, if I type something the algorithm will find out for me what I probably am looking for. I find them to be fast and efficient.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 7:Sometimes I typed in certain keyword, which it (chatbot) would give me an answer, but it was not the answer I was looking for

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 7:About 7 I would say.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 7:It was epic, all the information that I encountered on the chatbot I had to search through the university's website and universityadmissions.se and it took very long. This is very efficient, and I am pleased. I used chatbots a couple of times, but this one was very helpful and on point.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 7:Very helpful.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 7:Yes.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 7:Very efficient. It was flexible, and it didn't take a lot of time to give me an answer.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 7:Yes, very easy. I like the fact that it had some pop-up general queries and either with those or keywords it makes it easy for the user. If I'm not sure what I want to ask I type in a keyword, and it would give me very precise information I was searching for.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 7:10 I would say.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 7:There are too many to be honest. In just a few minutes I found out a lot of information that is very important to know as an international student. Also, it saves you so much time. For example, in certain websites like universityadmissions.se you would have to search on a lot of pages for a lot of the information I was searching for. At a certain point I felt lost. The chatbot makes it very easy for an international student who is not familiar with the setup of a certain website.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 7:If the chatbot does not provide the exact answer I need. A flaw in the system's algorithm can sometimes skew the answers. Also, sometimes it's easier to talk to a person, that's the human-factor. But, as far as AI intelligence goes, I think it's

better to have a computer to answer you, the algorithm, the system or whatever it is called have all the access to the information that a human brain could not find as fast so we should use that as a positive not as a negative thing.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 7: 10 as well.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 7: -

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 7: 10 as well. It deserves it because it was very useful.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 7: Yes, I would. I find it very easy and I'm a person that I really try to search things to get to the bottom of it. To people like me it gives us the chance to do that in less time, half or even two-thirds of the time that I would spend. I could spend hours just searching for one thing, with a chatbot I could find it faster and easier as well.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 7: It could be a good idea to use it for problem-solving cases, instead of using Google Forms or something to file the issue, we can use the chatbot to make it more user-friendly for students to solve their problem. Have everything within one platform, instead of searching for where to go file a complaint, have a chatbot that does this for you.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 7: I would say 10 again. Because I really like it, it was fast efficient and flexible.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 8: Yes, I'm an international student from The Netherlands and I'm studying Strategic Entrepreneurship at Jönköping University.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 8: Yes, I have. On websites such as Bol.com to make a return, I received the wrong item. And I spoke with a chatbot. Also, on Shein.com, I spoke with a chatbot there as well.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 8: I like that some chatbots gave options to click on, you couldn't say whatever you wanted. The options are either this, that, or that. You had to choose which subject you wanted to talk about with the bot, and afterwards it would redirect me to a live chat. But the part that you get to choose was clear about what the possibilities are.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 8: I also used a chatbot to contact KLM, that's where I had a bad experience. Because I was trying to change my ticket, I would type something and the chatbot would reply with something I wasn't looking for, so I didn't receive any help.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 8: I think like a 7.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 8: It was nice, everything was clear, it was easy to work with. It gave precise information, and the options were clear. It was good.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 8: It's very helpful because I don't want to waste time on searching on the website where every information is described. It's very easy this way.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 8: Yes.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 8: It understood every keyword I used, and it presented the information that I needed.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 8: Yes, because it gave options, if I had to start with typing something I wouldn't know what to type, because it gave the options it was way easier.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 8: 9 or 10. It was super easy.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 8: I think it benefits international students because you might read more information like this because it's easier, you might search up more things instead of going to look for everything and spend so much time on it. Personally, I wouldn't do all of that. I wouldn't search for everything and write it down. With this chatbot you have everything you need in one place.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 8: I don't think there are any drawbacks.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 8: It was an 8.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 8: I don't think it can be any better – I wouldn't know.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 8: Definitely an 8.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 8: Yes, I think when I'm going to look for a master's program I would love if the university I'm interested in had such chatbot because I personally am a lazy

person and I prefer not to do a lot of searching. So, an option do that quickly is very nice. So, yes.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 8: I immediately think of what else you want to know about the city that the university is in. Like, what might be interesting for an international student are like bars, clubs, where the gyms are. The points of interest.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 8: I think a 9. It was good.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 9: Yes, I'm an international student from South Africa, and I'm studying International Logistics and Supply Chain Management at JU.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 9: Yes, I work for an influencer that has a beauty brand and there's a chatbot for the beauty brand. But in general, I have used it on the website of the student financing company of South Africa. Also, random websites. Sometimes I think they don't understand what I want though.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 9: I had to get a detail from my banking info because there was a payment that wasn't going through, and their phone lines were too busy, so I decided to contact them using their chatbot. It was live chat and they asked me to verify myself, so that made me feel safe. So not anyone can just access it. And then they quickly explained what was going on with my payment issue and told me how next time to do it properly. But with an AI I feel like it's more for general questions if you don't want to go through the website.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 9:If it's an AI, they don't really understand the question beyond what they are setup to do, so if you have a more specific case, you would not be able to receive any help.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 9: Like a 7.5.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 9: It was very easy to navigate through, the platform that was used was very clean as well. It was also really cool how it redirected you easily from the choices you made. The only thing is that they cut me off from the conversation, and I had to restart all over again when I got my answer. Usually, I would expect to get a reply with "was this helpful? Yes or no." and if you weren't satisfied the chatbot would try to help you again in a different way.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 9: Very helpful, when you go on a university website from a country that you are not familiar with it's very overwhelming because there is just so much information, so using this tool you could really filter out your search and finding out what you want. And the fact that it redirects you to a page from the selection you chose, you can't go wrong or be misled.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 9: Yes except for the pathway program, how is an international student supposed to know about that. Maybe if the person could type in career advice or future prospect program advice, and then they would be met with the pathway program. Maybe add a button as well. In my opinion, people are generally interested in chatbots because they are just curious to see what's on there, but it needs to be setup in a way that makes sense to the user.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 9: It pretty much got everything. If I had to search on my own, I would have an easy time.

Interviewer: In your experience, was using the chatbot easy? Why?

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Participant 9: It was easy, the little bubbles with the main topics are stuff that any new student would want to know about. It covers basically everything. If it wasn't in the bubbles, I would still be able to find it using keywords.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 9: It was a 10.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 9: Speaking from personal experience, I live in a different time zone so the best way most people feel secure is to phone the university and ask your questions, but that requires you waiting on the phone, booking an appointment, or making sure you call them in their time frame of open calls. And this is such a hassle. So, a chatbot can answer your questions that you may already have. It's efficient and less time-consuming. It's always 24/7 accessible.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 9: I think the most secure way to find information is on the phone because you know the person who is speaking is giving valid information. However, if you are on a chatbot it could give misleading information sometimes. Maybe it misses a bit of human interaction to make it more believable, but it all depends on if it's an AI or a live person. Also, you need internet connection the whole time.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 9: I would rate it a 10. It's easy to navigate and clean. The options make asking a question easier.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 9: Place something at the end where you could rate the chatbot. Also, the brief answers are cool, however, it would be nice to add a link to if you want to know in-depth details about the topic

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 9: 10.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 9: I would use it because it would help me where I want to be quicker instead of searching hours online. Deciding about which university to attend is quite important so you don't want to mess it up.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 9: The school's clubs and associations and what there is to do in the city that is interesting for international students to know about.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 9: I would rate it a 10.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 10: Yes, I am an international student from The Netherlands studying International Marketing master program at Jönköping University.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 10: Yes, in The Netherlands we kind of have something like Amazon called Bol.com you can ask the chatbot questions if you are lost or need to find something.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 10: With Bol.com it was quite clear in terms of finding what is my terms and conditions when it came to returns, I couldn't find that easily on the website, so the chatbot directed me quite well.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 10: With an airline, I was confused about my luggage ticket, I was asking the chatbot what is the right information, and the chatbot failed to answer my question so I was still confused in the end. It didn't even allow me to ask what was wrong with my ticket. I just wanted to speak with someone. Then I took a different route.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 10: I would say a 5-6. So, a 5.5.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 10: It was okay, but I immediately noticed that the chatbot is limited, the chatbot was not able to pick up certain keywords I have used.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 10: I think it would help to a certain extent. Finding the facts would help, but when you want to know specific information, it would become a bit delicate.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 10: Only one not. I was still satisfied.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 10: It was okay, but it's limited.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 10: Yeah. It is easy because it gives you options, it already suggests you head topics.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 10: I think a 9. The moment I clicked on to type it immediately gave me some suggestions. So, that was a smart move.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 10: When you're new to everything, getting the facts that there is no debate about is important. If that is the goal, then the chatbot is suitable.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 10: When the goal is to find personal wants or needs then it becomes tricky if the chatbot is not flexible and is not able to give you the information that you need. For me, when I don't get what I want once or twice I get frustrated and would want to talk with someone. The importance is how flexible is the chatbot. The vocabulary needs to be more extensive.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 10: I would rate it a 7.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 10: Sensitive to keywords that are not necessarily in the article or information. I would also suggest that the chatbot replies with "I'm sorry I was not able to find the information you are looking for".

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 10: I would rate the current state as a 6.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 10: Yes, only if I actually was prompted to. So, when I would go to the website, and it would pop up and say "Hey are you new? Ask your questions here". Or else I would have the tendency to do my own searching through the search box.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 10: What are the upcoming events that the university offers for international students.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 10: I would rate it an 8 as a new international student.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 11: Yes, I am international student, and I am from Pakistan.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 11: don't have experience before just experience this one

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 11: I wanted some information regarding internship, and it took directly to that information according to my program

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 11: No negative experience

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 11: I will rate it 10 because it saves a lot of time because at my admission time I faced this issue for some kind of information I used to wait for 2 to 3 days.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 11: It made the process so convenient and time saving and a time saver.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 11: Yes, it was helpful

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 11: Yes, I was satisfying according to my task I want some information and it was helpful

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 11: It was good, the chatbot recognized the keywords that I have used.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 11: yes, it was easy so easy

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 11: I would rate it a 10 because it was so easy.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 11: Yes, it has benefits I never find any Chabot in JU website for each information I have to email. It makes the process simple and will increase the integrity of the website and reduce people to answer the question

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 11: I don't see any drawbacks.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 11: I will rate it 10 because it was easy and convenient.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 11: You should add some contact information should add video links, and the email address.

Interviewer: On a scale from 1 to 10 how much would you rate the usefulness of this chatbot?

Participant 11: I will rate this 10

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why? If not, why not?

Participant 11: Yes, I will use it and consider it.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 11: To find out more about the university's associations.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 11: I will rate it a 10.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 12: Yes, and I am from Pakistani.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 12: Yes, I have used Canadian and Australian university website.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 12: Yes, I used it to receive a refund for my purchase on a shopping website, it was very helpful to use without needing to contact them by email.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 12: No negative experience when I am in trouble chatbots really help me.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 12: Overall I would give my past experiences a 7.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 12: It's a good thing not just to help international students but also local students if I talk about JU when you are new or old sometimes you forget sometimes things for a particular thing, at that time chatbots can help us and specially for international student because of the language barrier.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 12: It's good for the initial stage, but it may need to be improved over time.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 12: Yes.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 12: It was good, it recognized them.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 12: Yes, because it's super user friendly.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 12: 7 out of 10.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 12: Yes, when you come to another country you face many problems there chatbot can help.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 12: I don't think but yes students can rely on chatbots more then to learn a bit more Swedish.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 12: It is like a 6.

Interviewer: What would need to be implemented to get a higher rating?

Participant 12: I guess in this level it has limited options but with the passage of time you guys will cover all things in website so it will be 10 out of 10.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 12: Yes, sometimes you could not find the program.
Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 12: To find school clubs you can join; I didn't see this on JU's website before coming here. When I was already here, I found out, I wish I knew earlier though.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 12: It is 7 out of 10.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 13: Yes, I am from Pakistan and started last year in 2021.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 13: Yes, I have experience prior to this mockup. Chatbots are pretty common nowadays on various websites.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 13: Yeah, I used them to complain on a food app, and I spoke with a live person, it was convenient not to have to call them.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 13: I never had a negative experience with chatbots before.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 13: Overall I would like to rate 6.5 or 7.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 13: It would be helpful for the student for queries regarding study and accommodations and I believe there should be more options like FAQ (frequently asked questions).

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 13: It is helpful as technology is everywhere not only international student but also can help local student regarding any issue without waiting for someone to attend there call and waiting for email replies.

Interviewer: Were you able to complete all the tasks given to your satisfaction?

Participant 13: Yes, was able get all information.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant13: The chatbot recognized them.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 13: Yes, because you don't have to wait for someone to respond. You get your answer accurately according to your question.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 13: It was 9 it was super easy.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 13: The benefits are that I get information instantly and accurately.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 13: The limitation of the question as student you have so many issues if the chatbot doesn't have the answer so it will be a drawback like add FAQ.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 13: I guess 8.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 13: FAQ should be added
Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why? If no, why not?

Participant 13: Yes, I will because sometimes you some confusion and you need to click on that function, and you would be guided to the specific things like the master programs.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 13: Live chatbots as well.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 13: I will rate 7.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 14: I am from India, and I am studying Supply Chain and Logistic in Jönköping University and I am in my second year.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 14: Yes, I have.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 14: With online travel agencies. They helped me with my questions about my ticket.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 14: Don't have.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 14: I will rate is 8

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 14: Very good it's not possible for everyone to respond on emails every time so it gives an instant answer and it's always available 24/7.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 14: it is Very good for instant reply as we always lag on things like time zone as well some time, I have some issue or something the office is close and chatting with the bot is helpful.

Interviewer: Were you able to complete all the given tasks to your satisfaction?

Participant 14: Yes, I did.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 14: Yes, it understood the keywords I have used like "gym membership fee"

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 14: It's very easy and click to link it's start and click to study abroad thing it directly went to the certain page of JU.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 14: I will give 8.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 14: Yes, I mention that before.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 14: One thing instantly and giving like long answer as I mention that can affect the mood of the person and should add a little intro for chatbot like hey my name is Emma, and I am from JU how can I assist you little bit brief.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 14: I will rate it a 9.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 14: Maybe something regarding after study placement or something and student's counselor numbers.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 14: Yes of course I would use it. Because it will save me a lot of time.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 14: -

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 14: I will rate 9

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant15: Yes, I am from Pakistan

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 15: Yeah, I have experience with chatbots from some banks and online shopping sites. I think everyone has at least some experience with them since its becoming a really popular tool to make things more efficient.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 15: They provide an answer quickly and are very good with simple answers, but they are not so effective with some specific or more complex answers and tend to fail to provide a solution creating more confusion.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 15: They don't provide required answers for out of the box or complex questions

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 15: 5/10.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 15: It's okay for some basic information but I would not look at it as something that's very helpful, innovative, or out of the box. The information it provides is easily available elsewhere so what's the point of a specific chatbot.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 15: It can provide basic answers more quickly, but it lacks information and feels extremely limited. The authenticity of information is also questionable.

Interviewer: Were you able to complete all the tasks given to your satisfaction?

Participant 15: No, in my case I would use an email to representative or university site as the chat box is very limited and no authentic source of information.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 15: I would say moderate as I was not able to get answers to all of my questions so there is a lot of room for improvement.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 15: Yeah, it was very basic nothing special which would have made it tougher to use.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 15: I will give an 8.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 15: You can get the basic information, but I would seriously question authenticity of information.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 15: lack of information. Lack of understanding of complex questions. Limited to basic keywords only.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 15: 5/10 I will give.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 15: A link to source of info, improve the information quality, add some graphics, requires a bit of human assistance to be effective.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why? If not, why not?

Participant 15: No, I would not. I already mentioned the reasons above.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 15: None that I can think of.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 15: 5/10 I will rate it.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 16: I am an international student, and I am coming from India

Interviewer 16: Have you had experience with chatbots prior to this experiment?

Participant 16: Yes.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 16: Yes, from a website called cleverbot.com and Siri or Google Assistant.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 16: Sometimes their questions are repetitive and not what you need.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 16: 9.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 16: Very good and precise.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 16: Since it's in English it is very helpful.

Interviewer: Were you able to complete all the tasks given to your satisfaction?

Participant 16: Yes.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant16: Yes, it understood the phrase I have typed in such as "what are the tuition fees for two-year master programs".

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 16: I wasn't a complicated task, and it wasn't a FAQ.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant16: 10.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant16: Not needing to translate or navigating through all the pages you want to reach.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 16: Sometimes a single webpage has more options to go through than the number of options that fit in the chatbot list.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 16: 9.

Interviewer: What would need to be implemented to get a higher rating?

Participant 16: I don't know.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why? If not, why not?

Participant 16: Yes, it is easy to search for courses in a very quick way, then stressing through lots of information.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 16: I wouldn't know.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 16: 9.

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 17: Yes, I came from Pakistan and studying Master of International Logistics and Supply Chain Management at JIBS.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 17: Yes, I use them all the time when I see them on websites.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 17: Yeah, I regularly use my bank's chatbot system, a lot easier than calling.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 17: Live chats take too much time to reply.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 17: I would rate 8 out of 10.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 17: Overall it was good experience, but I think there could be more options, there could be more info about the course and the option of sending to the weblink should be the last option just for further details. The positive thing is that when you start with the chatbots it starts with options that lead to the specific.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 17: As an international student I think it is a complete package, but I would be more likely to see the course/subject fee and schedule in chatbot.

Interviewer: Were you able to complete all the tasks given to your satisfaction?

Participant 17: Yes, it's a simple yes to this question, I'm satisfied with it, and I was able to complete all my tasks.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 17: It was simple to the point, and it was well aligned, and I was able to get every single piece of info I was looking for using keywords and simple phrases.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 17: It was easy to use, and the reason is that it was simple and aligned. Everything was in a flow as I was able to get all the required information on just clicks.

Interviewer 17: On a scale of 1 to 10 how easy was using the chatbot?

Participant 17: 10/10

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 17: As an international student one of the benefits is that I can get right information at the right time within a very short time period as I don't need to go for different links for the information cause I'm able to get it on this chatbot.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 17: I don't think there is any drawback in this chatbot as an international student, but I would appreciate if I can get fee info and a detailed program info directly on the chatbot without clicking any external link.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 17: 9/10

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 17: To add more options about the existing programs like you can add fee details, subjects' details and moreover you can add examination pattern.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 17: If it is linked directly to the university then I would most likely use it.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 17: To find about scholarship programs. If there is any?

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 17: 9/10

Pre chatbot mock-up interview

Interviewer: Are you an international student? Which country are you from?

Participant 18: Yes, from Pakistan.

Interviewer: Have you had experience with chatbots prior to this experiment?

Participant 18: Yes.

Interviewer: Can you give one or more examples of how you have had a positive experience with chatbots?

Participant 18: They are time saving and have precise information.

Interviewer: Can you give one or more examples of how you have had a negative experience with chatbots?

Participant 18: They sometime lacked the understanding of questions.

Interviewer: On a scale of 1 to 10 how much would you rate your overall experience with using a chatbot?

Participant 18: 7.

Post chatbot mock-up interview

Interviewer: Based on your opinion, how was your experience using the chatbot in an educational setting?

Participant 18: It was good.

Interviewer: As an international student how helpful do you think this chatbot is?

Participant 18: It was up to the mark.

Interviewer: Were you able to complete all the tasks given to your satisfaction?

Participant 18: Somewhat yes.

Interviewer: How was your interaction with the chatbot using keywords or phrases?

Participant 18: It lacked understanding of the question that I asked.

Interviewer: In your experience, was using the chatbot easy? Why?

Participant 18: Yes, because all questions more present in list more or less.

Interviewer: On a scale of 1 to 10 how easy was using the chatbot?

Participant 18: 7.

Interviewer: What would you say are the benefits of using such a chatbot for educational purposes as an international student?

Participant 18: They are helpful for international students to get more in-depth knowledge about the institution and their program.

Interviewer: What would you say are the drawbacks of using such a chatbot for educational purposes as an international student?

Participant 18: I can't think of any.

Interviewer: On a scale from 1 to 10 how much would you rate the user experience of this chatbot?

Participant 18: 7.

Interviewer: What would need to be implemented in order to get a higher rating?

Participant 18: It should develop the understanding of user questions more.

Interviewer: Would you use the chatbot function if it were present in your journey of searching for university programs abroad? If yes, why. If no, why not?

Participant 18: Yes, because it would help me extract the required information timely.

Interviewer: For what reasons, other than what was presented today, would you want to have a chatbot in place to facilitate your academic needs?

Participant 18: Nothing more than what I have already described.

Interviewer: On a scale from 1 to 10 how much would you rate your overall experience using this chatbot?

Participant 18: 7.