

Chatbot – Online tutorial system

Supporting nursing students with immigrant background

LAB University of Applied Sciences
Bachelor of Social and Health Care
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Abstract

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Abstract <p>In recent years, the number of foreign-language speakers has been increasing in Finland. LAB University of Applied Sciences (LAB) is offering various English courses for foreign language speakers and exchange students. Immigrant background students of nursing especially face cultural and linguistic differences in clinical learning environments.</p> <p>The aim of the thesis is to create a Chatbot, which would act like a peer mentor for non-native speaking Finnish nursing students and guide to right direction in search for required information. The purpose of this thesis is to continually support non-native speaking Finnish students in clinical training and maintain the students' motivation and reduce excessive stress for study. Chatbot assistants can help students reduce the stress of clinical training and focus more effectively on their professional development. This thesis is useful for the commissioning party to address the issues faced by immigrant background students, as well as for those responsible for developing support tools.</p> <p>The commissioning party as LAB university not only improves the quality of education with students' efficient implementation in clinical training, but also makes efficient use of teachers' working hours.</p> <p>This practice-based thesis is a functional framework that adheres to the PDSA approach. The data search for the thesis made use of evidence-based materials gathered from different reliable sources while adhering to the LAB thesis guidelines. The chatbot pilot was introduced to students to evaluate its use and effectiveness. The chatbot was found to be a versatile tool, capable of supporting nursing students in clinical training and additionally language and nursing learning functions can be also applied. Although the chatbot had limited content, it can be further developed by qualified university staff as a valuable tool for LAB nursing students in the future.</p>		
Keywords foreign student, nursing student, chatbot, support		

Tiivistelmä

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Tiivistelmä <p>Viime vuosina vieraiden kielten puhujien määrä on lisääntynyt Suomessa. LAB Ammattikorkeakoulu (LAB) tarjoaa erilaisia englanninkielisiä kursseja vieraiden kielten puhujille ja vaihto-opiskelijoille. Erityisesti maahanmuuttajataustaiset hoitotyön opiskelijat kohtaavat kulttuurisia ja kielellisiä eroja kliinisissä oppimisympäristöissä.</p> <p>Opinnäytetyön tavoitteena on luoda Chatbot, joka toimisi vertaismentorina muunkielisille suomalaisille sairaanhoitajaopiskelijoille ja ohjaisi oikeaan suuntaan tarvittavan tiedon etsimisessä. Tämän opinnäytetyön tarkoituksena on jatkuvasti tukea suomenkielisiä opiskelijoita kliinisessä koulutuksessa sekä ylläpitää opiskelijoiden motivaatiota ja vähentää liiallista opiskelun tuomaa stressiä. Chatbot-avustajat voivat auttaa opiskelijoita vähentämään kliinisen koulutuksen aiheuttamaa stressiä ja keskittymään tehokkaammin ammatilliseen kehitykseensä. Tämä opinnäytetyö on hyödyllinen tilaajalle maahanmuuttajataustaisten opiskelijoiden kohtaamien ongelmien käsittelyssä sekä tukityökalujen kehittämisessä.</p> <p>Tilaaja LAB- ammattikorkeakoulu paitsi parantaa opetuksen laatua opiskelijoiden tehokkaalla kliinisenkoulutuksen toteutuksella, myös hyödyntää tehokkaasti opettajien työajat.</p> <p>Tämä toiminnallinen opinnäytetyö noudattaa PDSA-lähestymistapaa. Opinnäytetyön aineistohaussa käytettiin eri luotettavista lähteistä kerättyä näyttöön perustuvaa materiaalia noudattaen LAB-tutkielmaohjeita. Chatbotin pilotti esiteltiin opiskelijoille sen käytön ja tehokkuuden arvioimiseksi. Chatbotin todettiin olevan monipuolinen työkalu, joka pystyy tukemaan hoitotyön opiskelijoita kliinisessä koulutuksessa ja lisäksi voidaan soveltaa myös kieli- ja hoitotyön oppimistoimintoja. Vaikka chatbotin sisältö oli rajallinen, pätevä yliopiston henkilökunta voi kehittää sitä edelleen arvokkaaksi työkaluksi LAB:n hoitotyön opiskelijoille tulevaisuudessa.</p>		
Asiasanat kansainvälinen opiskelija, sairaanhoidon opiskelija, chatbot, tuki		

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1 INTRODUCTION

In recent years, the number of foreign-language speakers has been increasing in Finland. At the same time, there has been a rise in the proportion of students with an immigrant background pursuing higher education in the country (Statistics Finland 2021). There are several reasons why immigrants choose to study in Finland's higher education system. First and foremost, it is because they expect to find better job opportunities and higher salaries. (International Monetary Fund 2020.) Additionally, those who hold a type A residence permit in Finland are exempt from paying tuition fees (Finnish National Agency for Education).

Looking at the issue of immigrant background students from another perspective, Finland is in need of a strong and capable workforce to sustain its social and welfare systems in the future. Due to the changing demographics of the Finnish population, the number of elderly individuals aged 65 years or above currently accounts for around 23% of the country's total population in the year 2021. This has resulted in a decrease in the size of Finland's working-age population. (Statistics Finland 2021.)

LAB University of Applied Sciences (LAB) is offering various English courses for foreign language speakers and exchange students. In particular, the Social and Health Care department has introduced a bachelor's degree program in Nursing in Finnish language for students with an immigrant background since Autumn 2021. The nursing program in English at the Lahti campus has been closed since 2021, but the English program is still being offered at the Lappeenranta campus. Notably, the nursing program includes clinical training, which constitutes one-third of the total credits. (LAB 2020.) However, immigrant background students of nursing especially face cultural and linguistic differences in clinical learning environments (Mikkonen et al. 2017).

This thesis describes our innovation, Chatbot, which supports and encourages nursing students with an immigrant background who study the bachelor's degree programme in nursing in Finnish for immigrants at LAB Lahti campus. Chatbot has potential information technology which can be applied as an instructor of students and as an educational tool (Carayannopoulos 2018). The nursing programme offers most of its educational material on the Moodle learning platform which students access regularly. Especially because of the coronavirus pandemic, the Finnish

government has demanded that educational organizations manage remote studies and learning through the platform since 2020.

During clinical training, nursing students have limited time to access tutor teachers or peer students for support or advice, especially when they are stressed. A chatbot can be a very useful tool for students who need help or have questions, as it can be accessed anytime and anywhere. In particular, this chatbot is designed for students who are first-generation immigrants born outside of Finland and whose mother tongue is not Finnish.

The Aim and The Purpose of The Thesis

The objective of this thesis is to create a Chatbot that acts as a peer mentor for non-native Finnish nursing students. The Chatbot will guide them in their search for required information during clinical training.

The purpose of this thesis is to provide continuous support to non-native Finnish students during clinical training. This support aims to help students maintain their motivation and reduce excessive stress while studying.

When the Chatbot is developed, it will be particularly useful for immigrant students studying at LAB University. The Chatbot will assist students in coping with clinical training, reducing their stress levels, and helping them focus more effectively on their professional development. The commissioning party, LAB University, efficiently utilizes teachers' working hours and improves the quality of education through students' effective implementation in clinical training.

Description of The Commissioning Party

LAB University of Applied Sciences, faculty of Social and Health Care is the Commissioning party of this thesis. LAB has three campuses: in Lahti, in Lappeenranta, and e-campus, which provides the opportunity to study online. LAB is the sixth largest university of applied sciences in Finland. There are 8900 students in LAB including hundreds of foreign students. There are also exchange students from other universities and this creates a real international study environment. (LAB University of Applied Sciences.)

The Bachelor of Health Care, Nursing degree program consists of studies worth 210 credits and its duration is 3,5 years. The overall amount of credits contains 135 credits of common and core nursing competences like theoretical professional studies. Rest 95 credits are included into the studying curriculum as clinical training and nursing practice work at health care placements. (LAB University of Applied Sciences.)

Clinical internship is essential and significant part of nursing education program in LAB University. To increase the motivation of non-native Finnish speaking students for clinical trainings the authors of the thesis decided to create a Chatbot which can be utilized in the University Moodle platform. The authors of the thesis find the creation of Chatbot has significant importance to foreign nursing students, it can promote easy access to necessary information, guide the students, increase the motivation for study and assist them in achieving successful learning outcomes during clinical training.

2 CLINICAL LEARNING ENVIRONMENT OF NURSING STUDENTS

2.1 Nursing students' professional knowledge in clinical training

It has been found that nursing students experience stress mainly in academic and clinical matters (Pulido-Martos et al. 2012). According to the LAB study guide, the curriculum combines both theoretical studies and clinical training. Students are required to complete theoretical study before embarking on clinical placement. The idea behind nursing education is that students improve their competence by gaining experience in clinical settings. For instance, a student can participate in clinical placement in a surgical ward after completing the surgery theory. Generally, students have a basic understanding of professional knowledge before they begin their clinical training. However, the lack of time, excessive study fields, assessments, and exams can lead to stress for the students as they try to absorb the professional knowledge required for clinical placement (Pereira et al. 2013).

After fulfilling the prerequisites for their desired clinical placement, students can receive training in various facilities such as nursing homes, hospitals, and many other options. However, the application system for clinical placements, Jobilli, is complex and depends on how quickly students can secure a reservation online when the application opens. (Moodle platform of LAB University of Applied Sciences.)

Thus, it may not always be possible for students to reserve their preferred clinical placement based on their professional knowledge base. Even within the same field, there may be variations in students' required level of knowledge and skills. If a student is assigned a clinical placement that is more difficult than desired, they may feel that the knowledge level required by the supervising nurse is too high. This can lead to a significant psychological burden and increased stress levels for the student. (Onieva-Zafra et al. 2020.)

2.2 Nursing students' self-esteem in clinical training

Clinical training has been found to impact the self-esteem of nursing students, according to research studies. Far from the school at clinical placements, it is important to understand that the relationship with the supervising nurse and the feedback of the clinical training affects the self-esteem of nursing students. If the relationship with the supervising nurse/nursing team is good, the student feels accepted and

builds good self-esteem. Conversely, if the relationship is strained, the student's sense of unacceptance will lead to defensive behaviour. Evaluation of clinical training also affects self-esteem. A high evaluation from a supervising nurse will give confidence to the students in future work, and a negative evaluation will affect a deep and long-lasting crash of nursing students. Once a student drops into a vicious circle, it can even lead to them dropping out of school. The study also concludes nursing students should be bolstered by feeling competent, and having self-confidence and a strong sense of wellbeing. (Dancot et al. 2023.)

2.3 Communication with medical staff and patient in clinical placement

The number of international students being accepted by European medical schools is rising. The transition of international medical students to the clinical years of their study, when they are mostly stationed in hospitals and engaging with health professional personnel and patients, is also clearly impacted by their cultural backgrounds and language. However, there are statistically significant geographical disparities in social adjustment and integration, even though students generally adjust successfully. The impact of linguistic and cultural barriers to communication is a significant difficulty that is recognized, as are the variations in hospital cultures and interprofessional communication norms. Studying in a multicultural atmosphere has both problems and advantages for international medical students. (McGarvey et al. 2021.)

Foreign nurses find the Finnish language to be a great impediment. Every part of daily lives, from general communication to socialising with locals, can be impacted by it. Language difficulties hinder both work and personal life and delay a person's ability to adjust to a new working environment. Communication may be generally misled by it. Lack of communication can impede career advancement and negatively impact healthcare outcomes; hence, mastering the language as an effective tool is critical for personal and professional development. (Wenbing et al. 2014.)

In her study McGarvey stated that admission demographic information has to be more detailed in order to help identify potential students who may struggle with academic and daily life transitions. Additionally, an acculturation programme would be advantageous for the personal and professional development of all students in a multicultural setting. (McGarvey et al. 2021.)

Antón-Solanas et al. (2021) conducted a research with the intention of examining the experiences of European student nurses in gaining cultural competency and in dealing with patients from various cultural backgrounds. In the research it was concluded that the perceived level of cultural competence among the multinational students varied. Each participant offered a different approach to enhance their knowledge, abilities, and attitudes, but they all agreed that transcultural nursing content should be included in nursing programmes. When creating cultural teaching and learning activities, it is crucial to pay attention to what the students have to say and incorporate their perspectives.

2.4 Immigrant students in Finland

In recent years, the number of foreign students in Finland has grown. Increasing mobility and global changes in working life are causing the group to grow more diverse. Languages, cultures and backgrounds vary when people come to Finland. Internationalization and internationalization have always been and remain an integral part of the field of higher education. According to the Ministry of Education and Culture, Finnish universities are required in the 21st century to include mobility or internationalization in their curriculum. (Vaarala & Kyckling 2017.)

According to the Finnish National Centre of Statistics, nowadays 7% of all students studying at universities of applied sciences are foreigners. Comparing this with other study fields, the amount of students getting a degree in healthcare programs is quite considerable. 12 % of the total amount of non-native speaking Finnish language students studying at universities of applied sciences are those who in nursing education. (Opetushallitus 2017.)

During the whole study period of the nursing programme, the clinical trainings play significant role in the process of transforming students into nurses and take almost one third of the entire curriculum. Nevertheless, the clinical trainings can be stressful for students. (Nikkinen et al. 2016.) Stress about or from clinical internships can be alleviated when students receive sufficient information about clinical training, as it promotes a decrease in possible stress in clinical training and provides coping skills for the students (Wenbing et al. 2014).

2.5 International Healthcare Students in Clinical Learning Environments

Since non-native Finnish speaking students come from a variety of educational, linguistic, and cultural backgrounds, their expectations and demands are bound to vary. The main problems confronting foreign nursing students are frequently identified by language hurdles, cultural differences, and unfamiliarity with new social and health care environments and systems. The largest obstacle for international nursing students undergoing clinical training in Finland was determined to be language-related problems. Comparatively to nursing students who are native Finnish speakers, international nursing students with different Finnish levels encounter greater stress and challenges during clinical training. (Wenbing et al. 2014.)

According to the research of stressful situations for nursing students, the sources of stress for nursing students are divided into four primary areas, including academic studies, clinical training, social and personal living. For example, first-year students in clinical internship experience higher stress than second- or third-year students. Due to a lack of professional understanding, this may result in a situation in which the students are unsure what to do. Exams and assessments made during clinical training add to the burden of academic learning. (Pulido-Martos et al. 2012.)

3 SUPPORT TOOLS FOR IMMIGRANT STUDENTS

3.1 Virtual assistant Chatbot

The idea of artificial intelligence, “Can machines think?” was already widespread in 1950 by Alan Turing. The beginning of the chatbot used simple pattern matching and a template-based response, and then a pattern-matching algorithm with the Artificial Intelligence Markup Language was used. Chatbots are popping up on websites of all kinds of fields. It is spreading not only in business fields such as e-commerce, tourism, transportation, and real estate but also in many other fields such as entertainment, education, and healthcare. The imbalance between the required services and the lack of human resources in the industries has pushed the installation of chatbots rather than the fact that many applications with chatbot functions have been developed and spread widely. Chatbots, such as Apple Siri, Microsoft Cortana, Amazon Alexa, and Google Assistant, can also be seen as voice assistants chatbots. One of the unique features of a chatbot is quick response and friendly interactions simultaneously. (Adamopoulou et al. 2020.)

Ethical issues should be considered when using an automated Chatbot conversation tool. Concerning privacy and confidentiality, if Chatbot collects the information of students, it should be confidential. And the policy of Chatbot proper use should be transparent - everyone should know how Chatbots act and what information is collected. From the efficacy point of view, Chatbot acts according to an evidence base to assist students. Safety issues are also essential. Chatbot is just the first step so that students feel support immediately, but it is not a total solution tool. It shouldn't be solely relied upon but it can encourage student to find real human support (Kretzschmar et al. 2019).

3.2 Chatbot in clinical training

Anticipated technology such as Artificial Interagency (AI) might be one of the solutions to support immigrant background students whilst they are completing clinical training. Students who struggle to adapt to new environments, such as clinical training, feel disconnected from the applied universities and supervisor teachers for a while. Chatbot messaging apps that include AI technology may have sound potential. Chatbots are available for conversations and provide tips regardless of time and

location. Chatbot provides the students with helpful information quickly and easily through virtual conversation. At the same time, students feel comfortable that social support and connection with teachers can be replaced with the conversations of Chatbot. (Carayannopoulos 2018.)

The chatbot's support capabilities have been studied among Finnish vocational education and training students in various programs, including information and communications technology, electrical engineering and automation technology, safety and security, and social and health care. The pandemic forced remote teaching and isolated students from social events. According to the research findings, students in social and healthcare programs were the most frequent users of the help services, and female students expressed higher satisfaction with the chatbot compared to male students. The study also revealed that students were willing to seek assistance from the chatbot. (Pesonen.2021.)

During the COVID-19 pandemic, a nursing college in South Korea used and studied a chatbot as an educational tool. The experimental group used the chatbot, while the control group only had access to video educational material. The two groups had no significant difference in examination or clinical evaluation. However, the experimental group, which used the chatbot, showed significantly more motivation and self-directed learning behaviour. (Han et al. 2022.)

In northern Taiwan, a mobile chatbot-based learning approach (MCLA) was studied among nursing students. From the vaccination program conducted among nursing students in clinical training, the MCLA experimental group had better learning achievement than the control group. It is concluded that a chatbot is a suitable learning tool for decision-making, and problem-solving during clinical training in an interactive manner. (Chang et al. 2022.)

The chatbot can be a helpful tool for immigrant students facing difficult situations, even when they are far away and short on time, because of quick responses of chatbot and regardless of the location of clinical training. However, it is important to note that the chatbot is only an advisor for surviving acute cases and chatbot dependence has also to be avoided (Carayannopoulos 2018). To build up nursing competencies in actual social conditions, students require a long-term program. A

program that combines virtual assistance and real social support for immigrant students would be highly beneficial.

3.3 Moodle environment for the chatbot

Moodle is a free and open-source course management system (CMS) software package designed to help educators create practical online courses. It is a versatile learning platform that enables teachers to publish various learning materials, including resources, documents, videos, quizzes, and exams for multiple courses. Moodle also facilitates tasks and assignments, discussion forums, and feedback collection. It is a valuable tool for delivering online courses, offering a wealth of information and learning environments online. (Moodle community.)

During the COVID-19 pandemic, many educational institutions in Finland, including LAB University of Applied Sciences, opted to use Moodle to aid remote learning. With campus restrictions, students were required to study from home, which posed a challenge for nursing students with limited access to practical training on campus. As a result, the students had to rely much on online education to prepare for their clinical training. (Finnish Government 2020; Kilpeläinen 2020.)

Moodle offers various online educational materials. Most of the educational materials can be accessed through the Moodle website. However, sometimes, students may find themselves struggling with an overload of information, which can cause stress and anxiety. Moreover, students and supervising teachers may have limited appointment availability during clinical training. In such situations, although abundant information can overwhelm students, a chatbot can help them by providing the necessary information without causing information overload. (Carayannopoulos 2018.)

Nursing students are placed in unique circumstances that involve a variety of study areas, limited time at clinical training sites, and an unusual environment (Pulido-Martos et al. 2012). It is assumed that the extensive amount of information available on the educational platform Moodle may contribute to stress among nursing students. To address this issue, it may be helpful to review and improve the content of teaching materials posted on Moodle and streamline information access methods, so that nursing students can easily obtain the information they need especially during the clinical training.

4 METHODOLOGY

4.1 Practice-based theses

This thesis is applied as a practice-based thesis, which implies an original inquiry will be carried out to learn new information through practice and the results of that practice. A tangible creative output, such as guidebook, manual, model, brochure, poster or video, will serve as evidence of the author's original contribution to the field of knowledge. A practice-based thesis demands the participation of several actors who are dedicated to putting the thesis into practice. An organisation that commissioned the student to develop this thesis product is known as a commissioning party. The student and collaborating partner work together to discuss commitment, support, the realistic boundaries of the issue, and its exposure after putting this practice-based thesis into practise. Practice-based theses necessitate strong social ties between undergraduate and cooperation partner throughout the entire process. (Salonen 2013.)

This method was chosen to create a specific product for the commissioning party. The commissioning party is LAB University of Applied Sciences and thesis cooperation agreement (Appendix 1) was concluded. The product is designed as a Chatbot, which is useful for the commissioning party to maintain reliable education with supporting immigrant nursing students, and also to solve shortage of teachers or school staffs. Given the special circumstances of immigrant nursing students as in clinical training, students are disconnected from the university, supervisor teachers, and peer friends, even if immigrant students require quick support regardless of location and time. Chatbots are the right tools to provide helpful assistance for the students to cope and to maintain their clinical training with their motivation and confidence.

Creating a functional Chatbot to assist nursing students requires an evidence-based approach to support them effectively. Therefore, it's crucial to research and examine reliable studies and articles to identify the issues that immigrant nursing students face. As the number of immigrants in Finland continues to grow, the problems encountered by immigrant nursing students during clinical training are becoming more diverse. During the chatbot development process, leveraging the PDSA framework through multiple cycles turned out to be ideal for creating a functional chatbot. In order to solve the problems faced by immigrant students during clinical training, it is

essential to create a flowchart to properly categorise the problems and guide the students in the right direction.

The use of a chatbot can be very beneficial, but it's important to consider where it is applied. There are many platforms available, such as school website, Facebook, blogs, and other applications. When it comes to making chatbots accessible for nursing students with an immigrant background, the Moodle website, where school materials are located, may be the best option. (Villegas-Ch et al. 2020.) However, it may not be possible to integrate the chatbot with the existing Moodle site due to university security policies. If a reliable platform is found and the chatbot is integrated, it would be beneficial to allow students to test pilot the service. This practice-based thesis would be useful for the commissioning party to address the issues faced by immigrant background students, as well as for those responsible for developing support tools.

It's important to evaluate the chatbot not only on its usability and technical performance but also on its ability to provide learning assistance, encourage students, and offer social support. Currently, most chatbots used in education are focused solely on technology. (Wollny et al. 2021.) The purpose of this practice-based thesis is to support non-native Finnish-speaking students and increase their motivation to study. Therefore, the evaluation of the chatbot should be centered around providing informative coping strategies rather than just technical performance. It's important to note that the main language of the chatbot can be in Finnish, but it's critical that it uses simple Finnish to ensure that students can easily understand it. LAB nursing international students will have access to a chatbot prototype for assessment and feedback.

4.2 Development of Chatbot

During the Täydennyskoulutus (Continuing education for supervisor nurses in clinical placement) program, we were invited as guests to discuss the importance of learning opportunities and real experiences for nursing students during their clinical placement. It is a crucial matter for hospitals, LAB and the students themselves, as they are the future colleagues in the field of nursing.

LAB nursing program offers excellent educational materials on Moodle and eLAB website. In collaboration with other universities, they provide campus-online elective courses and seminars. All nursing students at LAB have access to proper academic materials. Students can also access information about the study process from Student Service. Additionally, the KOE student association of LAB provides a social program for all LAB students. Lahti city also offers various programs in general. Overall, LAB is an ideal university for international and immigrant students as they receive both academic and social services from the university.

From this perspective, it was difficult to consider that immigrant students experience considerable struggles during clinical training. It was thought that something like an indicator might be needed to speedily guide students in the correct direction they wanted.

School materials and social events often contain an overwhelming amount of information for students. It is unclear whether students are utilizing these materials and services effectively. To alleviate this issue, tools such as Chatbots have been considered as a helpful way to easily access necessary information. This is especially useful during clinical placements, where students may require immediate support. Practical tools to support nursing students should be made available as and when needed.

The Chatbot is knowledge-based product with developing PDSA (Plan, Do, Study, Act) method. The initial workflow was set up as follows. (Figure 1. Developing process of Chatbot)

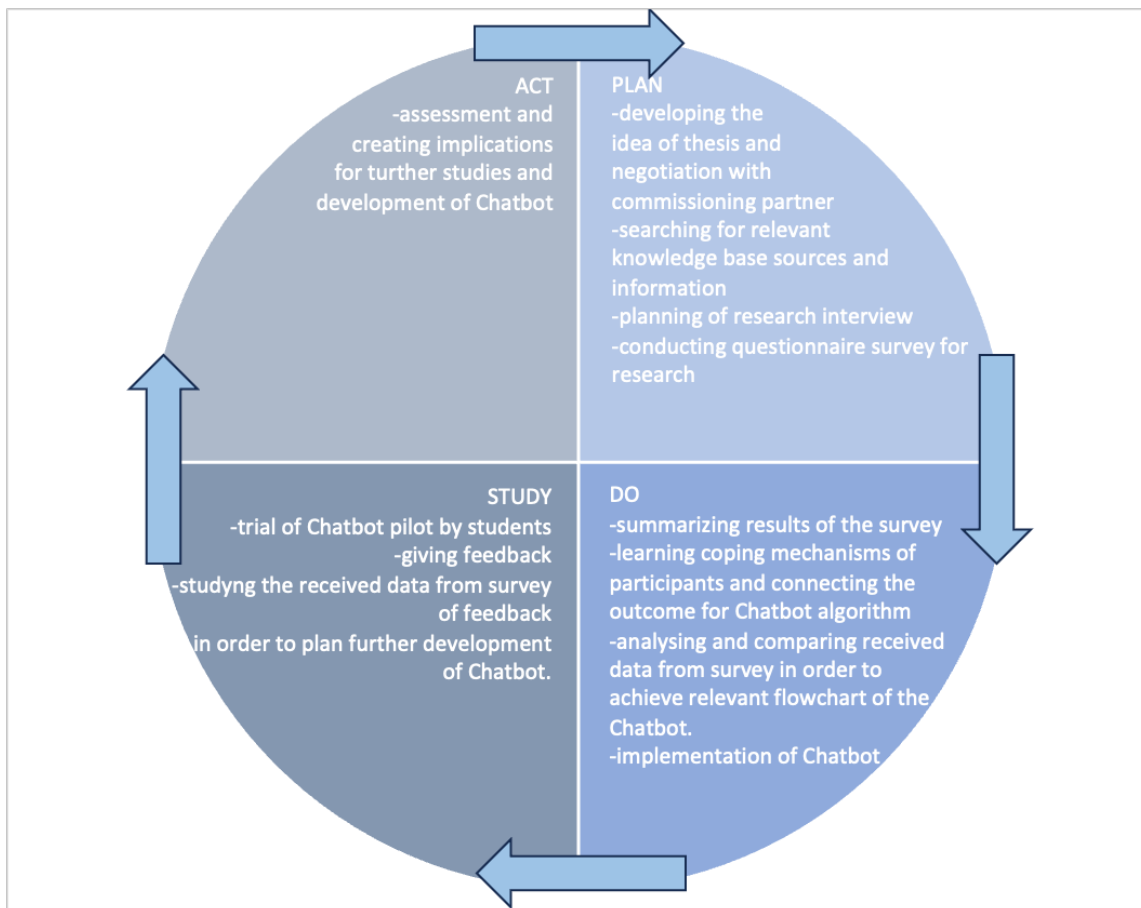


Figure 1. Developing process of Chatbot

Plan – A chatbot was created for non-native Finnish-speaking nursing students and the commissioning party for a practice-based thesis. The purpose of the chatbot was to provide assistance during clinical training. To achieve this, different contexts of school life and clinical training were categorized. Furthermore, a consent form (Appendix 2) was sent for participants and questionnaire on clinical training for nursing students with an immigrant background was conducted to gather qualitative data for analysis.

Do – Based on the results of qualitative analysis, questions and answers during clinical training were compiled, and flowchart triggers and actions were tested and developed to guide students in acquiring the necessary information.

Study - To confirm whether the chatbot is working as intended, ask immigrant background students to use the chatbot and collect their impressions and opinions, so that areas for improvement can be identified to ensure the chatbot can be useful during clinical training.

Act - To assess collected feedback from students about their experience using the chatbot and redesign areas for potential improvements, such as the flowchart flow-lines, response time, content adequacy, and comprehensive answers to questions. Furthermore, the challenges are analysed that students who may rely on the chatbot during clinical training face. Then, communicating these concerns to the commissioning partners to enhance the curriculum and additional support immigrant students in their clinical training pursuits.

4.3 Development of chatbot

4.3.1 Plan stage

Location - Accessibility

Data management is a top security concern when it comes to the Chatbot feature, which is an online tool. It would be a practical solution to set up the Chatbot on the clinical training Moodle page of LAB since this is frequently accessed by students. Although the commissioning partner supports the Chatbot idea, the LAB teaching technology team, which provides IT services for students and LAB, has declined to install the Chatbot on the university website or Moodle. Discussion and negotiation were held with the LAB teaching technology team. Still, the reasons for their declination were primarily due to a lack of resources (labor and budget) to maintain the Chatbot and ethical concerns regarding providing students with administration accounts to modify the Moodle system.

Therefore, creating a test environment was considered to temporarily acquire a domain related to the words "nursing" and "student" and operate a test version of the chatbot on that domain. The domain name "nursing-students.blog" was acquired, and it was decided to test it on the subdomain lab.nursing-students.blog, since it was run by LAB students. However, the ideal location for an accessible Chatbot should be continually considered. The chatbot was installed following the URL. <https://lab.nursing-students.blog/>

Contents of Chatbot

To simplify common issues faced by immigrant nursing students during clinical training, articles were investigated and analysed. The coping strategies of students for

problems in clinical training were also categorised and applied to chatbot flowcharts. This allows students to conveniently access the materials and information they need in their Moodle through a chatbot. Chatbots serve as guides to direct students to the appropriate resources, helping them find the right information and develop their own coping strategies. It is important to include words of encouragement and stress relief in the chatbot's flowchart for challenging situations.

Questionnaires – Qualitative analysis

After conducting a qualitative questionnaire (Appendix 3), we were able to identify the clinical training problems faced by LAB students more accurately before creating the chatbot. The questionnaire asked firstly, "Please describe your challenging situation in clinical placement." and secondly, "Please tell us how you cope/manage your challenging situation? "

Below are some common responses to the first questionnaire.

"Before the beginning of a training, I always feel stressed because I am afraid my clinical skill and my language skills are not sufficient."

No matter if a student is an immigrant or Finnish, it is assumed that both students face similar challenges with nursing competence during clinical training. Additionally for immigrant background students, insufficient proficiency in language can increase students' stress levels.

"Language barrier, cannot relate with the mentor in all cases."

It can be challenging for a student with an immigrant background to undergo clinical training if they lack confidence in the Finnish language.

As per the LAB nursing education program, students are required to complete a theoretical course before clinical training. Immigrant students need to study Finnish language every semester and work on improving their language skills. If they struggle with the language or lack confidence, they can receive individual support to enhance their Finnish language skills. In such cases, a Chatbot can provide encouragement and support to study the language. However, it is important to note that the effectiveness of these methods is largely dependent on individual language skills and self-esteem.

The next two responses to the first questionnaire pertain to communication between the student and the supervisor nurse.

“I do not speak Finnish language fluently so for me, communication with nurses/patients has been my biggest challenge.”

Communicating with nurse supervisors can be challenging for immigrant students, especially when facing language barriers in Finnish.

“My supervisor was very rude and unkind, couldn't communicate the most important things to me, was only focusing on my language skills lack focus on my main objectives.”

It has been reported by some immigrant students that they are facing racism and inadequate support from their supervisors.

Challenging situations during clinical training were simplified and categorised into two themes: personal problems and interpersonal problems (Table 1). In particular, finding solutions to interpersonal problems can be complicated. However, for affected students, an easy way to report experiences of discrimination is essential. Chatbots can provide passive support and contact for such situations. They can help these students report and address such situations by providing a safe and secure platform to share grievances.

Responses of the participants	Simplify	Theming
<ul style="list-style-type: none"> -Language problems -new health terminology to familiarize on -I do not speak fluent Finnish so communication with nurses and patients was biggest challenge -language barrier -my Finnish skills were not very good 	Language skill	Individual
<ul style="list-style-type: none"> -I was lacking experience -new environment challenge 	Lack of experience	
<ul style="list-style-type: none"> - I didn't understand what the supervising nurse and the patient told me, so I felt uncomfortable, stressed and embarrassed - no matter how correctly I understand but there is always fear of being wrong 	low self-esteem	
<ul style="list-style-type: none"> -My supervisor was very rude and unkind -rasismi kokemuksia 	Racism	Interpersonal
<ul style="list-style-type: none"> -couldn't communicate, nurse was focusing on my language skills -nurse didn't talk much with me, didn't offer information of her own accord -interaction with the nurse was poor 	Miss/lack of communication with nurses	
<ul style="list-style-type: none"> -supervisor was clearly not interested in supervising me -nurse acted quite aggressively when I asked for help 	Gaps between student and nurse	

Table 1. Analysis of responses for challenging situations during clinical placements.

The second question is how to cope/manage in challenging situations. When dealing with challenging situations, there are two main questions to consider. Firstly, how to cope and manage effectively. Many responses to this question relate to communication and language skills, with an interesting division between active and passive coping styles. Is coping more closely linked to an individual's personality than the methods they use? Secondly, there are two types of students: those who actively manage challenges for the long term, and those who choose temporary, passive solutions.

“I insisted that people tried to speak Finnish with me as much as possible.”

It is a positive sign that the student is enthusiastic about learning Finnish language and culture. It is expected that the nurse supervisors will welcome him/her as a potential future colleague.

“Usually, I ask question or try to translate in English and do research on the internet.”

If student is in a demanding situation, it may work as a temporary solution. However, in the long term, it may not be the best way to cope with the Finnish language environment.

Coping methods in challenging situations during clinical training were simplified and categorised into two themes: personal problems and interpersonal problems (Table 2). It is crucial to enhance students' communication skills and overall proficiency in the language, and the nursing program should also include insights into Finnish culture, especially for nursing students with an immigrant background, because students can accelerate their learning process by understanding Finland more deeply and building stronger relationships with Finns. Various solutions are available, but the ultimate goal is to improve students' language skills and provide valuable cultural knowledge. Features of chatbots are available to support the students' emergency cases in clinical training and encourage them to improve their Finnish language skills.

Responses of the participants	Simplify	Theming
<ul style="list-style-type: none"> - I was asking from supervising nurse - I asked questions - My solution was to be as active as possible. So I would ask her questions of my own accord, and ask follow up questions to her answers. I actively sought to include myself in nursing tasks, with her, or with others. I also arranged to have time with other supervisors. - I insisted that people tried to speak Finnish with me as much as possible - I learn Finnish by taking a course, memorizing new words I encountered during my internship. And try to speak in Finnish to everyone even though it's hard to say 	Active communication with nurse	Active, long-term solutions
<ul style="list-style-type: none"> - wrote down what I didn't understand and research myself - Tried to make myself familiar with 	Self-study	
-try to translate to english and do reseach in internet	Searching English resources	Passive, temporary solutions
- to cope, I use Google translate whenever I can	Google search or google translation	

Table 2. Analysis of responses for cope in challenging situation in clinical training.

4.3.2 Do stage

It was considered which chatbot agent was most suitable for this thesis. To achieve the purpose of this practice-based thesis, whether a chatbot is effective as a continuous support tool for non-native-speaking Finnish nursing students in a clinical training environment should be verified. Rather than developing the chatbot in detail, having the students experience its functionality was focused on.

Therefore, TIDIO was the first choice Chatbot application to be tested. It is a free application, and there are many AI conversation and template options to adjust the creating flowchart. TIDIO chatbot was also able to be tested in various environments, for example, website, email and social networking services. It was essential to have a variety of options during this uncertain stage of development.

The unique aspect of the developing chatbot was its ability to provide an information source that could help solve problems for students undergoing clinical training, rather than just answering their questions or addressing their problems. In order to implement such functions, it was important to carefully consider what type of chatbot would be most suitable for the students. Two types were considered: one that generates answers using AI and another that uses pre-saved answers from a fixed source. Generative model chatbots may be more human-like and use machine learning algorithms to give better answers, but building and training them can be complex (Adamopoulou & Moussiades 2020). Chatbots that provide pre-saved answers may have limited range, but they are still effective as initial chatbot for specific conditions, for example, targeting immigrant students in clinical training. To avoid the students input errors in the chatbot and to categorise student questions clearly, a click-based interaction method was incorporated into the chatbot. It is said that pre-prepared answers can offer more appropriate guidance to students (Mai et al. 2022).

To provide comprehensive support to students by the chatbot regarding clinical training, answers were prepared in advance for the problems commonly faced by immigrant students. At the same time, phrases in both English and Finnish were prepared. Although Finnish is required during clinical training, it was thought that it would be better to respond to emergencies if students could receive support in their own preferred language. These problems have been identified through qualitative

questionnaires. The first set of questions, which are based on a click-based method, have been categorised under the following sections: clinical training in general, Jobiili, requirements in clinical training, Finnish language, nursing documentation, and medication. (Appendix 4. Tidio Chatbot)

The flowchart was created with a focus on preventing the problem-solving process from getting stuck in a loop. It was designed in a way that always brings the student back to the first set of questions (click-based), regardless of whether the problem was solved or not. Additionally, a chatbot feature has been incorporated to allow students to send messages in case there is no relevant item related to problem-solving. However, human intervention from supervisor teachers in clinical training is still required to respond to these messages later. (Appendix 5. Flowchart of chatbot)

The Chatbot pilot was tested by authors several times. Some technical matters were fixed, and a link to the questionnaire was added at the end so students could leave immediate feedback after experience using the chatbot pilot.

4.3.3 Study stage

In study stage the invitation letter for making feedback of the Chatbot pilot was send for immigrant background nursing students of LAB University of Applied Sciences (Appendix 6). A Webropol survey (Appendix 7) was created and provided for participants to express their opinion in anonymous method about the concept of Chatbot for supporting students during the studies. In the invitation letter was as well mentioned that all data collected from participants feedback will be treated as confidential and used only for research purposes according to the law.

All feedback (Appendix 8) gathered from participants was summarised and put as follows:

The concept of a chatbot to assist students with their academics might be a useful tool for the organisation as well as the students. A chatbot can instantly obtain information, respond to queries, offer study advice, and many other functions.

A good chatbot makes it simpler to find information. In today's society, chatbots are extremely common. There is currently a chatbot option on practically every website, therefore using one for study is totally appropriate! When a student has to find out certain information but only has not so much time to browse the Moodle platform, it

can surely save time. It is a wonderful and innovative idea to use chatbots to assist students with their academic work and clinical training. The chatbot can assist many students in finding solutions to their problems and sharing their experiences. Chatbots are excellent for getting quick assistance.

The authors got as well positive feedback about the chatbot pilot. The participants called it a remarkable fresh start and concept has so much room for development. The pilot's feedback feature undoubtedly aid in the continued development and improvement of the chatbot services. Although the pilot version's capabilities are extremely limited, it is still worth expanding.

4.3.4 Act stage

The chatbot pilot worked as expected, and based on user feedback, future improvements are being considered.

Content adequacy

The pilot chatbot had six fields to respond to students' inquiries in front of the popup page (Appendix 4. Tidio Chatbot). The contents were clinical training in general, Jobiili, requirements in clinical training, Finnish language, nursing documentation, and medication. The chatbot provides direct links to Moodle pages and other relevant sources for quick access to information students need. As feedback, the content is limited. However, by enriching the content of chatbots, it has the potential to cover a wide range of problem solving in clinical training.

Chatbot conversation languages

The pilot chatbot had English and Finnish conversational texts. It was concerned some students become passive if they have to manage only Finnish. The commissioning party provide only nursing programme in Finnish for immigrant back ground students since 2021. It would be best to use only Finnish language for the chatbot in the future. Reading the text in the limited popup window was difficult because it was covered with two languages. The limited space made it harder to comprehend.

Flowchart flowlines

The flowchart was carefully designed with two specific points in mind. (Appendix 5. Flowchart of chatbot) Firstly, conversations should not be abruptly stopped by errors.

After a conversation is finished, students should be directed back to the chatbot front page and start to have other topics of conversation. Secondly, it is important to pay attention to cross-over flowlines. For instance, the nursing documentation and the Finnish language share common denominators. The nursing documentation in the chatbot navigation follows the structure of Finnish Care Classification (FinnCC), uses medical terminologies, and adheres to Finnish grammar rules. The Finnish language in the chatbot navigation consists of grammar, writing, and speaking. The chatbot must guide students to the correct fields, regardless of whether they start the conversation from nursing documentation or Finnish language.

Appropriate response

The chatbot pilot was only able to respond to one or two inquiries. It didn't use any Artificial Intelligence (AI) technology, which requires a vast amount of data to maintain a proper conversation. The chatbot was designed to serve immigrant students in clinical training, a minority group compared to others. It was designed with pre-saved data and a flowchart to better serve them. Once the template was developed, it worked properly at this level. However, to provide appropriate responses in the future, it's more efficient to use both templates with pre-saved data and AI technology.

Response time

When using the chatbot pilot, the conversation text is displayed in a small popup window. It's important to give students enough time to read and think before responding. If the chatbot sends messages too quickly, students may not be able to use it effectively. Therefore, the speed of the chatbot's response should be carefully considered.

A by-product is that logs of anonymous students who use chatbots are recorded. Fields with more logs can be assumed to be areas in which students are particularly having problems during clinical training, so it may be possible to suggest areas for future curriculum enhancement to commissioning partners.

Immigrant students often struggle in clinical training due to low self-esteem regarding their Finnish language skills. The chatbot pilot navigates the students good Finnish training website "Opi hoitoalan suomea oppimisympäristö" which was developed

by LAB University of Applied Sciences and Salpaus Further Education. It is a good Finnish online training program. However, it would be even better if the chatbot had Finnish training functionality in the future.

4.4 Presentation of chatbot

The chatbot pilot was named SHObot, which stands for “Sairaanhoitajaopiskelija robot”. It is possible to get acquainted with the pilot version by following the URL. <https://lab.nursing-students.blog/>

Upon landing on the start page, visitors are greeted with a pop-up message in both Finnish and English (Figure 2. Opening pop-up). They can easily make inquiries by clicking on various options (Figure 3. Click-based inquiry). For instance, if a visitor clicks on “Suomen kieli”, SHObot will ask about any challenging situations they may have encountered during their clinical training, either in writing (documentation) or communication (Figure 4. Second click-based inquiry). If the visitor clicks on “communication”, SHObot will suggest online studying materials or opportunities for social experiences (Figure 5. Supporting advice). Once the inquiry is complete, a “Start over” button appears, allowing visitors to return to the start window, and they can also provide feedback on their experience (Figure 6. Ending point).

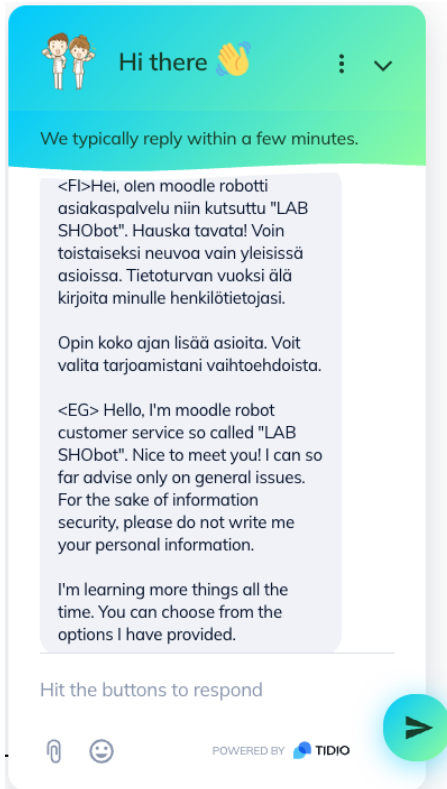


Figure 2. Opening pop-up

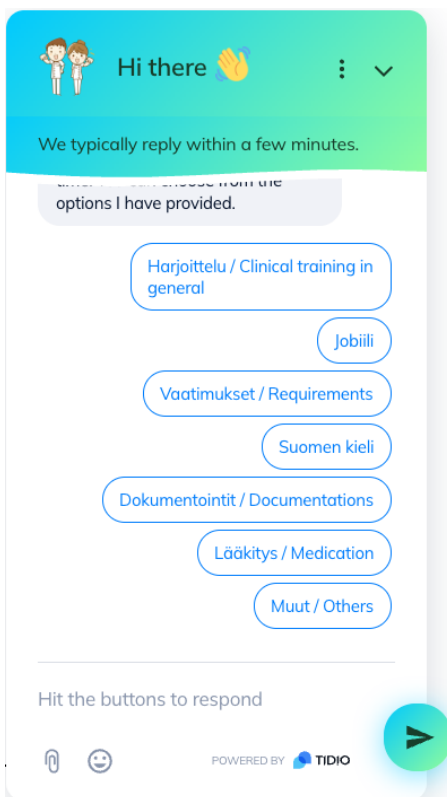


Figure 3. Click-based inquiry

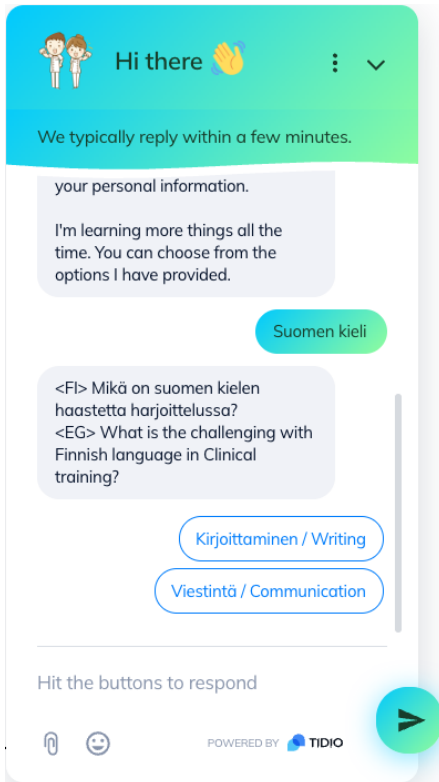


Figure 4. Second click-based inquiry



Figure 5. Supporting advice

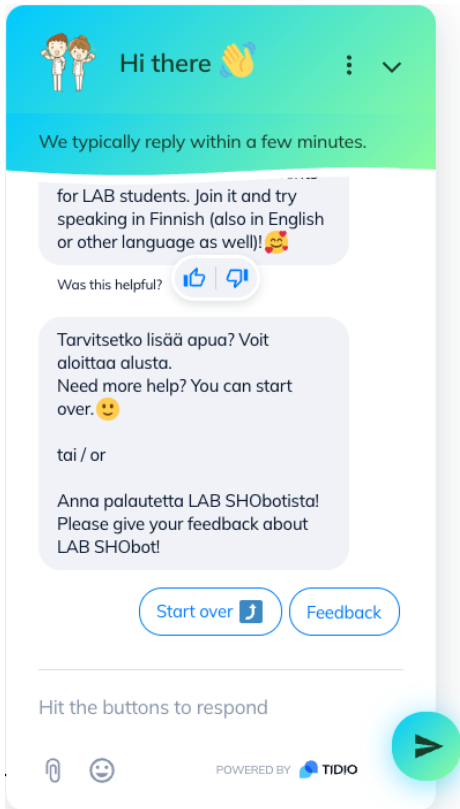


Figure 6. Ending point

5 Discussion

5.1 Finding

The chatbot is a modern interactive program designed to solve problems. However, students who provided feedback were already familiar with it. Assuming there is little resistance to using a new program and that chatbots are useful for clinical training. According to Pesonen's research, students were seeking assistance from the chatbot and chatbots have the potential to be an effective tool for supporting students (Pesonen. 2021). LAB should take into account incorporating chatbots as tools for learning, training, and supporting students during their clinical training.

As noted in various studies, it is crucial for students from different cultures to not only enhance their language skills but also adjust to the learning environment of a new place and apply it to society. It is emphasized that while chatbots can assist students in some ways, a comprehensive immigrant student support program that extends beyond the academic curriculum is necessary. (Byrne et al. 2019.)

Chatbots are not only used as problem-solving tools, but also as effective learning tools. In South Korea, chatbots are said to be even easier to maintain motivation than existing learning tools (Han et al. 2022). In Taiwan, the use of Chatbot is said to be an effective learning approach for clinical training (Chang et al. 2022). Higher education institutions also recognize the usefulness of it as a language learning tool, although it is different from clinical training. Chatbot itself is useful as language learning tool (Nagaletchimee et al. 2023).

During this practice-based thesis, the chatbot pilot was introduced to students to evaluate its use and effectiveness in clinical training. The chatbot was found to be a versatile tool, capable of supporting nursing students in clinical training and additionally language and nursing learning functions can be also applied. Analysing chatbot usage logs can be used to create a learning curriculum that focuses on difficulties faced by immigrant nursing students. Although the chatbot had limited content, the authors hope that it will be further developed by qualified university staff as a valuable tool for LAB nursing students in the future.

5.2 Ethical aspects and trustworthiness

Ethics considers both choices and acts. It focuses on making decisions about what is right and wrong. Ethics is the foundation of a meaningful and gratifying research, a right behaviour that distinguishes between honest impression and undesirable behaviour. Throughout the investigation, all work was centred on preserving the dignity of both individuals and society. The research being conducted is based on trust, and the results must be reliable and unbiased. (Nather 2015.) This thesis process adhered to all norms and regulations established by LAB ethical and legal criteria.

The data and information is collected and processed in a responsible and trustworthy way following the guidelines of Finnish National Board on Research Integrity (TENK 2023). The research is conducted in ethical and professional manner with clear and honest processing of information using citing, quoting and referencing. There is required a research permission from the commissioning party, since external participants are involved in the research. The participation in the research is voluntary and can be withdrawn any time. The data is utilized in confidential way. The participants are instructed about research and its potential benefits in understandable manner.

Trustworthiness in the conveyance of interpreted collected information while reading and utilising confidential, public, or non-confidential study material. Describing the procedure, although not in an overly detailed manner, that results in a better or new product. Careful and accurate use of reliable source materials will allow an independent third party to examine the final product's honesty. (Salonen 2013.) Reliability and validity are crucial variables in determining the quality and accuracy of data collecting in studies, which will result in a consistent outcome (Heale & Twycross 2015). This practice-based thesis strictly adhered to the aforementioned regulations and criteria, and it was completed in a trustworthy manner. Each phase was described as requiring careful and extensive analysis. Based on the scientific study material acquired, the writers incorporate aims.

The information for the thesis was gathered from reliable databases such as LAB Primo, EBSCO, PubMed, Theseus and Google Scholar. The mostly up-to-date and

evidence-based information was searched. To avoid plagiarism, the authors were proactive and had to be cautious when managing the acquired data. During the authoring process, trustworthiness was taken into account. The authors of the thesis followed required ethical guidelines and regulations mentioned above to provide reliability and quality of the research. The whole process of the thesis was conducted honestly and accurately. The methods used in the thesis corresponded guidelines principles. Possible participants were free to withdraw the research at any moment and all of them were concerned with esteem. The information provided was reliable and credible, and the data provided by the LAB-students was treated privately. The respondents' feedback was treated in a trustworthy manner and examined properly. The authors of the thesis conveyed the potential benefits for the target group. The participation in the research was confidential with no risk or harm.

5.3 Assessment of the final product and future practical use

The aim of this thesis was to create a Chatbot, which would act like a peer mentor for non-native speaking Finnish nursing students and guide them in the right direction in their search for required information during the clinical training. Pilot of Chatbot was available for LAB nursing international students to assess the use of it and give feedback for the authors of the thesis.

The purpose of this thesis was to continually support non-native speaking Finnish students in clinical training and maintain the student's motivation and reduce excessive stress for study. The authors obtained and compiled all the necessary research sources to augment and create the Chatbot that served as a support for foreign nursing students by using the Plan-Do-Study-Act, or PDSA, approach.

It was a challenge to study the creation of a chatbot as the theme is rather innovative. There are two elements which must be considered to search the articles to assess the chatbot. Firstly, subject of study should be immigrant or similar circumstances. Commissioning party LAB opens Nursing course for immigrants in Finnish. Immigrant students as subjects should be focused on providing an appropriate Chatbot. Secondly, subjects are in clinical training setting. The students are isolated from the school hours, and they need a support immediately far from the school.

Concerning the immigrants, several types of students may be admitted to LAB. For example, a person who comes to Finland from outside of Finland to seek better working place and living permanently, or a person who come to Finland with parent(s) and be educated in Finnish primary schools. In other case a person, who was born in Finland in immigrant parents' family, may also studies in Nursing course for immigrants even if he/she is practically a Finnish citizen and able to speak Finnish well. Because the mother tongue in the family may not be Finnish due to immigrant parents' background. Completely different of cultures, religions, and social habits in immigrant families compare to Finnish families may affects to the decision to take the course for immigrant. Different level of Finnish language skill, other values of cultures and habits among the several type of immigrant students, should be carefully considered during researching the articles and studies.

Clinical placement is also specific condition for the nursing students. Immigrant students are accustomed to being in the nursing course for immigrants with friends similar background, but suddenly the immigrant students belong to minority in clinical training, and it demands to face communicating with native Finnish people such as Finnish students, nurses and patients. Among the articles and studying of nursing students, identify experienced or anticipated problems, stresses, or coping situations in the setting in which nursing students are conducting their clinical training are captured.

Whilst actual researching articles, immigrant nursing students and clinical training both met articles were limited. In developing a chatbot, it is necessary to infer the problems in clinical training of immigrant nursing students in Finland by combining the problems and stresses faced by general nursing students in clinical training and the problems faced by international nursing students. Similar topic of research papers can also be found in graduate theses from LAB, so it can be inferred that not much research have been done on this subject, even though it is a substantive problem.

Despite the challenge of the theme, the authors meticulously chose the content and retrieved evidence-based sources from reliable databases. The pilot version of Chatbot was created following the criteria of qualitative research. According to Ingham-Broomfield the focus of qualitative nursing research is on experiences and the reality of individual situations in life is not minimized and not converted into an

average statistical number (Ingham-Broomfield 2014). During the thesis writing process the survey was conducted and responses of participants and their life experience were analyzed. A pilot version of Chatbot was carried out to fine-tune the methodology. The chatbot pilot worked as expected, the construction went successful and garnered good feedback of participants and based on user feedback, future development can be considered. The pilot version was a scaled-down version to assess appropriateness of Chatbot and there is space for development and improvement in the future.

References

- Adamopoulou, E. & Moussiades, L. 2020. An Overview of Chatbot Technology. IFIP International Conference on Artificial Intelligence Applications and Innovations. Advances in Information and Communication Technology, vol 584. Springer Nature. Retrieved on 21 March 2023. Available at https://doi.org/10.1007/978-3-030-49186-4_31
- Antón-Solanas, I., Tambo-Lizalde, E., Hamam-Alcober, N., Vanceulebroeck, V., Dehaes, S., Kalkan, I., Kömürçü, N., Coelho, M., Coelho, T., Nova, A.C., Cordeiro, R., Sagarra-Romero, L., Subirón-Valera, A.B., Huércanos-Esparza, I. 2021. Nursing students' experience of learning cultural competence. Plos One Journal. Retrieved on 2 October 2023. Available at <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0259802>
- Barton, G. & Hartwig, K. 2017. Professional Learning in the Work Place for International Students. Professional and Practice-based Learning. Retrieved on 10 August 2022. Available at https://doi.org/10.1007/978-3-319-60058-1_9
- Byrne, E., Brugha, R., & McGarvey, A. 2019. 'A melting pot of cultures' -challenges in social adaptation and interactions amongst international medical students. BMC medical education, 19(1), 86. Retrieved on 27 February 2023. Available at <https://doi.org/10.1186/s12909-019-1514-1>
- Carayannopoulos, S. 2018. Using Chatbots to Aid Transition. The international journal of information and learning technology 35.2: 118–129. Web. Retrieved on 19 August 2022. Available at <https://www-emerald-com.ezproxy.saimia.fi/insight/content/doi/10.1108/IJILT-10-2017-0097/full/pdf>
- Chang, C.Y., Hwang, G.J. & Gau, M.L. 2022. Promoting students' learning achievement and self-efficacy: A mobile chatbot approach for nursing training. British Journal of Educational Technology, 53, 171– 188. Retrieved on 21 March 2023. Available at <https://doi.org/10.1111/bjet.13158>
- Dancot, J., Pétré, B., Voz, B., Detroz, P., Gagnayre, R., Triffaux, J. M. & Guillaume, M. 2023. Self-esteem and learning dynamics in nursing students: An existential-phenomenological study. Nursing open, 10(2), 939–952. Retrieved on 12 March 2023. Available at <https://doi.org/10.1002/nop2.1361>

Education Statics Finland. Educational structure of the population. Helsinki. Retrieved on 10 August 2022. Available at <https://vipunen.fi/en-gb/structures/Pages/V%C3%A4est%C3%B6n-koulutusrakenne.aspx>

Finnish National Agency for Education. FAQ about applying to higher education. Retrieved on 21 August 2023. Available at <https://opintopolku.fi/konfo/en/sivu/faq-about-applying-to-higher-education>

Government adopts resolution on local and regional recommendations to prevent the spread of COVID-19. 2020. Finnish Government. Retrieved on 8 November 2023. Available at <https://valtioneuvosto.fi/en/-/1271139/government-adopts-resolution-on-local-and-regional-recommendations-to-prevent-the-spread-of-covid-19>

Gurdogan, E. P. 2016. Comparison of the Self Esteem and Communication Skills at the 1st and Senior Year Nursing Students. *International journal of caring sciences*. Retrieved on 27 February 2023. Available at <https://web-s-ebSCOhost-com.ezproxy.saimia.fi/ehost/pdfviewer/pdfviewer?vid=0&sid=5842aeec-1e63-423e-bf9e-5f6724aeb823%40redis>

Han, J.W., Park, J. & Lee, H. 2022. Analysis of the effect of an artificial intelligence chatbot educational program on non-face-to-face classes: a quasi-experimental study. *BMC Med Educ*. Retrieved on 2 October 2023. Available at <https://doi.org/10.1186/s12909-022-03898-3>

Heale, R. & Twycross, A. 2015. Validity and reliability in quantitative studies. *Evid Based Nurs*. Retrieved on 15 October 2023. Available at <https://ebn.bmj.com/content/ebnurs/18/3/66.full.pdf>

Hwang, E., Kim, M. & Shin, S. 2021. Initial Clinical Practicum Stress among Nursing Students: A Cross-Sectional Study on Coping Styles. *International journal of environmental research and public health*. Retrieved on 27 February 2023. Available at <https://doi.org/10.3390/ijerph18094932>

Ingham-Broomfield, R. 2014. A nurses' guide to Qualitative Reseach. Scholarly paper. *Australian Journal of Advanced Nursing*. Retrieved on 15 October 2023. Available at https://www.researchgate.net/publication/273135487_A_nurses%27_guide_to_Qualitative_Research

Instructions and study tools. LAB University of Applied Sciences. Retrieved on 27 February 2023. Available at <https://elab.lab.fi/en/it-instructions-and-study-tools/moodle>

International Monetary Fund. 2020. World Economic Outlook. The great lockdown. Chapter 4: The Macroeconomic Effects of Global Migration. Retrieved on 21 August 2023. Available at <https://www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020>

Jobiili user instructions for students. 2022. Harjoittelu sairaanhoitajakoulutuksessa. Moodle platform of LAB University of Applied Sciences. Retrieved on 21 October 2023. Available at https://drive.google.com/file/d/1mqLXk-GOYrWfE6z_YxL4cTCCUDYYObGEI/view?pli=1

Kilpeläinen, T. 2020. Coronavirus update. E-mail message. Recipients LUT and LAB staff and students. Sent on 16 November 2020

Kretzschmar, K., Tyroll, H., Pavarini, G., Manzini, A., Singh, I. & NeurOx Young People's Advisory Group. 2019. Can Your Phone Be Your Therapist? Young People's Ethical Perspectives on the Use of Fully Automated Conversational Agents (Chatbots) in Mental Health Support. National Library of Medicine. Retrieved on 31 August 2022. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6402067/>

LAB University of Applied Sciences. Bachelor's degree programme in nursing 2020. Retrieved on 20 August 2022. Available at <https://opinto-opas.lab.fi/en/68177/en/68148/NURSE20SLTI/year/2020>

Labrague, L.J., McEnroe-Petitte, D.M., Papathanasiou, I.V., Edet, O.B., Tsaras, K., Leocadio, M.C., Colet, P., Kleisariis, C.F., Fradelos, E.C., Rosales, R.A., Santos-Lucas, K.V., Velacaria, P.I. 2018. Stress and Coping Strategies Among Nursing Students: An International Study. Journal of mental health. Retrieved on 27 February 2023. Available at <https://web-s-ebscohost-com.ezproxy.saimia.fi/ehost/pdfviewer/pdfviewer?vid=0&sid=380a5c28-482c-4354-8bdc-d70cf944e3d8%40redis>

- Liu, J., Yang, Y., Chen, J., Zhang, Y., Zeng, Y. & Li, J. 2022. Stress and coping styles among nursing students during the initial period of the clinical practicum: A cross-section study. *International journal of nursing sciences*. Retrieved on 27 February 2023. Available at <https://doi.org/10.1016/j.ijnss.2022.02.004>
- Mai, V., Neef, C. & Richert, A. 2022. "Clicking vs. Writing"—The Impact of a Chatbot's Interaction Method on the Working Alliance in AI-based Coaching. *Coaching: Theorie and Praxis*. Retrieved on 10 October 2023. Available at <https://doi.org/10.1365/s40896-021-00063-3>
- Makrooni, G. & Ropo, E. 2021. Academic Learners in Finland: The Experiences and Perceptions of First-Generation Migrant Family Students in Higher Education. *Journal of Ethnic and Cultural Studies*. Retrieved on 10 August 2022. Available at <https://www.ejecs.org/index.php/JECS/article/view/597>
- McGarvey, A., Karivelil, D. & Byrne, E. 2021. International Students' Experience of Medical Training in an English-Speaking European Country. *Journal of Studies in International Education*. Retrieved on 21 August 2023. Available at <https://doi-org.ezproxy.saimia.fi/10.1177/1028315320976029>
- Mikkonen, K., Pitkäjärvi, M. & Kääriäinen, M. 2017. *International Healthcare Students in Clinical Learning Environments. Professional and Practice-based Learning book series. Volume 19.* Springer International Publishing. Retrieved on 10 August 2022. Available at https://link.springer.com/chapter/10.1007/978-3-319-60058-1_9
- Moodle community. Retrieved on 8 November 2023. Available at <https://moodle.org/>
- Nagaletchimee, A., Radzuwan, A.R., Umair, M.H., Misrah, M., Marwan, H.A., Ala, E.S. 2023. Using chatbots for English language learning in higher education. *Computers and Education: Artificial Intelligence*. ScienceDirect. Retrieved on 10 October 2023. Available at <https://doi.org/10.1016/j.caeai.2023.100153>
- Nather, A. 2015. *Planning Your Research and How to Write It.* World Scientific. Retrieved on 15 October 2023. Available at <https://doi.org/10.1142/9464>

Nikkinen, K. & Hoa, N. 2016. Clinical Training Experiences of Nursing Undergraduates : a Literature Review. Lahden ammattikorkeakoulu. Retrieved on 20 August 2022. Available at <https://www.theseus.fi/handle/10024/106261>

Nkatha, M. & Kiprop, J. 2022. Challenges of International Nursing Students and Promotion of Their Wellbeing : a Guidebook for International Nursing Students. . Lahden ammattikorkeakoulu. Retrieved on 27 February 2023. Available at <https://www.theseus.fi/handle/10024/748615>

Onieva-Zafra, M.D., Fernández-Muñoz, J.J., Fernández-Martínez, E., García-Sánchez, F.J., Abreu-Sánchez A. & Parra-Fernández, M.L. 2020. Anxiety, perceived stress and coping strategies in nursing students: a cross-sectional, correlational, descriptive study. BMC Medical Education. Retrieved on 10 March 2023. Available at <https://doi.org/10.1186/s12909-020-02294-z>

Opetushallitus. 2017. Tilastoja ulkomaalaisista tutkinto-opiskelijoista Suomen korkeakouluissa 2016. Retrieved on 20 August 2022. Available at https://www.oph.fi/sites/default/files/documents/faktaaexpress6a_2017.pdf

Pereira, M.A.D., Barbosa, M.A. 2013. Teaching strategies for coping with stress – the perceptions of medical students. BMC Medical Education. Retrieved on 10 March 2023. Available at <https://doi.org/10.1186/1472-6920-13-50>

Pesonen, J.A. 2021. Are You OK? Students' Trust in a Chatbot Providing Support Opportunities. International Conference on Human-Computer Technologies. Learning and Collaboration Technologies: Games and Virtual Environments for learning. Springer Nature. Retrieved on 21 March 2023. Available at https://doi.org/10.1007/978-3-030-77943-6_13

Pulido-Martos, M., Augusto-Landa, J.M. & Lopez-Zafra, E. 2012. Sources of stress in nursing students: a systematic review of quantitative studies. International Nursing Review. Retrieved on 20 August 2022. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1466-7657.2011.00939.x/full>

Rafati, F., Nouhi, E., Sabzevari, S. & Dehghan-Nayeri, N. 2017. Coping strategies of nursing students for dealing with stress in clinical setting: A qualitative study. *Electronic physician*. Retrieved on 27 February 2023. Available at <https://doi.org/10.19082/6120>

Salonen, K. 2013. Näkökulmia tutkimukselliseen ja toiminnalliseen opinnäytetyöhön. Turun ammattikorkeakoulu. Retrieved 10 October 2023. Available at <http://julkaisut.turkuamk.fi/isbn9789522163738.pdf>

Sawe, H., Njambi, S. & Ezebuoro, B. 2018. Coping with professional identity crisis as international nursing students. *Lahden ammattikorkeakoulu*. Retrieved on 27 February 2023. Available at <https://www.theseus.fi/handle/10024/154421>

Shankar, P. R., Cox, A., Leon, G. & Kumaresan, E. 2019. Stress and Coping Strategies Among Undergraduate Nursing and Medical Students at American International Medical University, St Lucia. *Education in medicine journal* 10. Retrieved on 27 February 2023. Available at <https://web-s-ebscohost-com.ezproxy.saimia.fi/ehost/pdfviewer/pdfviewer?vid=0&sid=cd03dcdcf-3308-4f50-a22d-eb97dd00347d%40redis>

Statistics Finland. Population and Society. Retrieved on 10 August 2022. Available at https://www.stat.fi/tup/suoluk/suoluk_vaesto_en.html

The Finnish Code of Conduct for Research Integrity and Procedures for Handling Alleged Violations of Research Integrity in Finland. 2023. TENK. Finnish National Board on Research Integrity. Retrieved on 20 August 2023. Available at https://tenk.fi/sites/default/files/2023-05/RI_Guidelines_2023.pdf

Student customer service. LAB University of Applied Sciences. Retrieved on 20 February 2023. Available at <https://elab.lab.fi/en/study-guidance-and-support-services/student-customer-service>

Student Union KOE. Student Union of LAB University of Applied Sciences KOE. Retrieved on 20 February 2023. Available at <https://www.koe.fi>

Study guidance during the studies. LAB University of Applied Sciences. Retrieved on 20 February 2023. Available at <https://elab.lab.fi/en/study-guidance-support-services/student-guidance-and-support/guidance-model/study-guidance-during>

Vaarala, H., Kyckling, E. 2017 Kansainvälinen opiskelija – kuka olet, minne menet? Kieliverkosto ja kirjoittajat. Retrieved on 20 August 2022. Available at <https://www.kieliverkosto.fi/fi/journals/kieli-koulutus-ja-yhteiskunta-lokakuu-2017-2/kansainvalinen-opiskelija-kuka-olet-minne-menet>

Villegas-Ch, W., Arias-Navarrete, A., Palacios-Pacheco, X. 2020. Proposal of an Architecture for the Integration of a Chatbot with Artificial Intelligence in a Smart Campus for the Improvement of Learning. Retrieved on 1 September 2022. Available at <https://www.mdpi.com/2071-1050/12/4/1500/htm>

Wenbing, W., Karki, A. & Cheng, M. 2014. Guides for Stress Coping During Clinical Training for International Degree Nursing Students. Lahden ammattikorkeakoulu. Thesis. Retrieved on 20 August 2022. Available at <https://www.theseus.fi/handle/10024/72362>

Wollny, S., Schneider, J., Di Mitri, D., Weidlich, J., Rittberger, M. & Drachsler, H. 2021. Are We There Yet? - A Systematic Literature Review on Chatbots in Education. *Frontiers in artificial intelligence*, 4, 654924. Retrieved on 1 September 2022. Available at <https://doi.org/10.3389/frai.2021.654924>

Appendix 1. Thesis cooperation agreement



THESIS COOPERATION AGREEMENT

I Parties to the agreement

Cooperative partner	
Company name	LAB University of Applied Sciences
Business ID	2630644-6
Street address	Mukkulankatu 19
Postal code and town/city	15210 Lahti
Contact person	Virpi Liljeström
Telephone	[REDACTED]
Email	[REDACTED]

(Hereafter "Partner")

Thesis writer(s) ¹		Activate Name and click the + button to enter a new row.
Name	Naohiro Takahashi, Tatiana Kuisma	
Student ID	[REDACTED]	
Field of education	Faculty of Social and Health Care	
Degree	Bachelor's Degree Programme in Nursing	
Telephone	[REDACTED]	
Email	[REDACTED]	

(Hereafter "Student")

(Hereafter either one alone also "Party" or both together "Parties")

II Background and purpose of the agreement

In this agreement (hereafter "Agreement"), the Partner and Student agree on conducting the Student's thesis project that relates to the Partner's field of operation. The Student studies at LAB University of Applied Sciences and the thesis is part of his/her UAS studies. LAB University of Applied Sciences provides this agreement template but is not a party to the Agreement.

The thesis topic and details of the thesis project are introduced below. This Agreement may include, as an attachment, a more specific description of the thesis project.²

Thesis topic and estimated total duration	
Thesis topic ³	Chatbot for helping nursing students with immigrant background in clinical training. Please refer to the attached file "Proposal for a thesis topic 20220527.pdf".
Estimated total duration of the thesis project	Twelve months

The contact details of the appointed thesis supervisor(s) are provided below.

Thesis supervisor(s) ⁴		Activate Name and click the + button to enter a new row.
Name	Tuija Rinkinen, Hannele Tiittanen	
Telephone	[REDACTED]	
Email	[REDACTED]	

III Employment

The Student is employed by the Partner during the thesis project.⁵

yes

no

IV Reimbursement of expenses

The student is reimbursed the expenses that are incurred while working on the thesis, such as travel expenses.⁶

yes

no

Other information on expenses:

Chatbot is used with free plan. A domein may cost approximately 10 €/year due to testing the chatbot.

V Public availability of the thesis

The thesis to be compiled is a public document. The thesis is published in the Theseus Open Repository as instructed by LAB University of Applied Sciences.

VI Confidentiality

The Student commits to not disclosing any confidential or secret information, as specified by the Partner, to which he or she has gained access.

Contrary to the above, the Student has the right to disclose confidential Partner information to the thesis supervisors at LAB University of Applied Sciences if this is necessary for conducting the thesis work.⁷

Materials to be kept secret, as specified by the Partner, can be included only in a separate appendix to the thesis. An appendix that contains confidential information is not a public document.

In addition, the Student commits to using the information obtained from the Partner only for a purpose related to the thesis work.

VII Rights

The Students holds the copyright to the thesis, unless otherwise agreed in a separate agreement. The Partner has the right to use the public thesis in their operations.



When the thesis work results meet the threshold of originality, the copyright to such foreground materials belongs to those parties, in proportion to their input, who participated in producing the foreground materials, unless otherwise agreed. The Partner holds the copyright to the background materials that the Partner hands over to the Student for the thesis work, unless otherwise agreed.⁸

VIII Partner's responsibilities	
Contact person and handing over of needed information	The Partner names a contact person to fulfill the obligations of this Agreement. The Partner commits to giving the student the information needed for the thesis work and also to providing specialist advice relating to the thesis topic, when necessary.
Duty to inspect	It is the Partner's responsibility to inspect, before publication, that the thesis does not contain materials that the Partner has declared confidential. The thesis inspection must take place within a reasonable time period, within fourteen (14) days at the latest, from the date when the Student delivered the thesis to the Partner. If the Partner does not comment on the thesis within the said time period, the Student has the right to publish the thesis. ⁹

IX Student's other responsibilities	
Procedures	The Student commits to working in a goal-oriented manner with the Partner and observes the principles of good research practices while working on the thesis.
Reporting duty	The Student is obliged to inform the Partner and LAB University of Applied Sciences of any changes regarding the contact person or thesis supervisor.
Delivering the thesis to the Partner	When the thesis is ready for evaluation, the Student is responsible for delivering the thesis to the Partner before publishing. If the Partner announces, within the agreed inspection time period, that the thesis contains confidential information, the Student is obliged to edit the thesis report so that the version to be published does not contain confidential information.

X Amendments
This Agreement can be amended only in writing. A written amendment must be signed by both Parties to confirm it.

XI Validity
This Agreement enters into force when both parties sign the Agreement and is valid until the Student's thesis is published in the Theseus Open Repository or until both Parties jointly state that the Agreement has expired.

XII Signatures	
Thesis writer's/writers' signature(s)	Activate Date and click the + button to enter a new row.
Date	14.6.2022
Place	Lahti
Signature and name in block letters	 Naohiro Takahashi, Tatiana Kuisma
Partner's signature	
Date	16.06.2022
Place	Lahti
Signature and name in block letters	 Virpi Liljeström

Appendix 2. Consent form

Dear all,

As part of our thesis project, we are conducting a survey. The survey's goal is to collect information on challenge situations and students' ability to successfully cope with and manage difficult circumstances during clinical training at their placements. By responding to a questionnaire, you can participate in our study and help us uncover ways to cope in clinical settings. The results will be used for developing a Chatbot as helping tool which will benefit students in study.

The questionnaire is given below. That doesn't take long to complete. Since all responses are handled in a confidential and anonymous manner, no specific person can be identified from the findings that are published.

If you have any additional questions about our thesis or survey, please get in touch with us.

We appreciate your participation.

Best regards


Naohiro Takahashi and Tatiana Kuisma

Appendix 3. Qualitative questionnaire

Interview: Coping in clinical placements
Haastattelu: Selviytyminen harjoittelussa

Please tell us How could you successfully cope/manage in challenging situations in clinical placement?

Kerro, kuinka selviytyisit/pärjäisit haastavissa tilanteissa harjoittelun aikana?

 Pakolliset kysymykset merkitty tähdeillä (*)

1. Please describe your challenging situation in clinical placement.
ex. I couldn't communicate well with supervisor nurse.

Kuvaile haastavaa tilannetta harjoittelussa.
esim. En pystynyt kommunikoimaan hyvin ohjaajan hoitajan kanssa. *

2. Which category do your challenging situation belong to above situation?
Mihin kategoriaan haastava tilanteesi kuuluu yllä olevaan tilanteeseen? *

- Professional matter / Ammatillinen asia
- Self-esteem / Itsetunto
- Social communication / Sosiaalinen kommunikaatio
- Environment / Ympäristö
- Violence / Väkivalta
- Others / Muut

3. Please tell us how you cope/manage above situation?
ex: If I didn't understand, I made it a point to ask questions.

Kerro, kuinka selviät/hallitset yllä olevan tilanteen?
esim.: Jos en ymmärtänyt, uskalsin esittää kysymyksiä. *

4. Did your coping solve the problem?
Pystyitkö ratkaisemaan tilanteen? *

0

Didin't / Ei

Workable! /
Ratkaistava!

10

Somehow / Jotenkin

Lähetä

Appendix 4. Tidio Chatbot

<https://lab.nursing-students.blog/> Image of chatbot on a website.

LAB Sairaanhoitaja Opiskelija Our thesis [Privacy Policy](#)

Olemme sairaanhoitajaopiskelijoita.

Hello LAB
Nursing
Students!

07/03/2023

Millaisia kokemuksia
sinulla on?

[Get In Touch](#)

LAB Sairaanhoitaja Opiskelija

Hei 🙌

Voisinko auttaa sinua?

Hit the buttons to respond

POWERED BY TIDIO

.SS

Appendix 6. Invitation letter for feedback of Chatbot pilot

Dear immigrant background nursing students of LAB and LUT University of Applied Sciences,

We are sending an invitation to participate in the assessment of Chatbot pilot for our practise-based thesis on the topic "Chatbot – Online tutorial system

Supporting nursing students with immigrant background ”.

We are kindly asking to visit Chatbot pilot at <https://lab.nursing-students.blog/> and give feedback and express your opinion about the concept of Chatbot for supporting students during the studies.

The findings will contribute the further development of Chatbot for LAB University. The aim of the thesis is to create a Chatbot, which would act like a peer mentor for non-native speaking Finnish nursing students and guide to right direction in search for required information. The purpose of this thesis is to continually support non-native speaking Finnish students in clinical training and maintain the students motivation and reduce excessive stress for study. Chatbot assistants can help students reduce the stress of clinical training and focus more effectively on their professional development. The commissioning party as LAB university is not only improves the quality of education with students' efficient implementation in clinical training, but also makes efficient use of teachers' working hours.

All data collected for feedback will be treated as confidential and used only for research purposes according to the law.

Your participation in this research is entirely voluntary.

Thank you for considering this invitation. We look forward to hearing from you soon.

Best regards,

Naohiro Takahashi and Tatiana Kuisma

Appendix 7. Feedback form

link.webpolsurveys.com

**PLACE YOUR
LOGO HERE**

**Chatbot - Online tutorial system Supporting nursing students
with immigrant background**

**We are kindly asking to visit
Chatbot pilot at
<https://lab.nursing-students.blog/>**

**1. Express please your opinion about the concept of Chatbot for supporting
students during the studies.**

2. Give please feedback for Chatbot pilot

Submit

1 of 1

Appendix 8. Survey report

Chatbot – Online tutorial system Supporting nursing students with immigrant background Basic report

Chatbot – Online tutorial system Supporting nursing students with immigrant background We are kindly asking to visit Chatbot pilot at <https://lab.nursing-students.blog/>

Total number of respondents: 6

Express please your opinion about the concept of Chatbot for supporting students during the studies.

Number of respondents: 6

Responses
the concept of chatbot for supporting students during their studies could be a valuable tool not only for the students but for the organization as well. Chatbot can provide instant access to information, answer questions, offer study tips, there are so many parts that could be developed.
the concept of chatbot for supporting students during their studies could be a valuable tool not only for the students but for the organization as well. Chatbot can provide instant access to information, answer questions, offer study tips, there are so many parts that could be developed.
I think chat bot is a good. It makes it more easy to find information.
Chatbot in modern life is very popular, almost in every internet page nowadays there is chat option, so it's quite actual to be used for study as well! It can definitely save time when student need to find out some certain information and has limited time that search through moodle platform
The idea and concept of chatbot for supporting students during the studies and clinical training is very nice and new. I hope this chatbot will help and solve the issues of many students and share the experiences.
Very useful to receive fast help

Give please feedback for Chatbot pilot

Number of respondents: 6

Responses
In my opinion the chatbot pilot is a great startup. It has so much potential to further develop the concept. The feedback feature included in the pilot will surely help improve and develop the chatbot services further. Great work!
In my opinion the chatbot pilot is a great startup. It has so much potential to further develop the concept. The feedback feature included in the pilot will surely help improve and develop the chatbot services further. Great work!
Functions in the pilot version are quite limited but it is definitely worth developing.
Pilot chatbot is cool, of course it's a small version, but gives nice impression what the authors worked at
I guess it should be anonymous chat platform.
Still developing but brilliant concept