



Master thesis

Optimization of the study duration to become a pediatric nurse: a qualitative approach

Researcher:

Manon Klein Teeselink

Master student Health Sciences

Track: optimization of healthcare processes

Faculty of Science and Technology

Organisation:

Beatrix Children's Hospital (University Medical Centre
Groningen)

Supervisors:

Prof. Dr. Ir. E.W. Hans, Full Professor at University of Twente

Dr. J.G. Meijerink, Assistant Professor at University of Twente

Gerard Nijhuis, manager care Beatrix Children's Hospital

Gerda van Bergen, head nurse Beatrix Children's Hospital

Period:

February – September 2022

**UNIVERSITY
OF TWENTE.**

Beatrix Kinderziekenhuis
Universitair Medisch Centrum Groningen

Preface

In front of you is the master thesis 'Improving the study duration of becoming a pediatric nurse' of Manon Klein Teeselink, physiotherapist since 2021 and master student Health Sciences at the University of Twente. From February 2022 to September 2022 this research was carried out on behalf of the Beatrix Children's Hospital in Groningen.

I started this master in September 2021 because during my bachelor I had developed an increasing interest in optimizing healthcare processes. Working with and for children is also something I enjoy. When Erwin Hans tipped me about a possible graduation assignment at the Beatrix Children's Hospital, I did not hesitate for a moment. My brother was one of the many children who was in the Beatrix Children's Hospital 15 years ago, so I thought it was nice to indirectly, through this master thesis, do something for the children who will be in the Beatrix Children's Hospital in the future. This past, together with my interest in optimizing care processes and working with children, made me feel that this assignment was just right for me and I am very grateful that I was able to complete it.

Of course I did not finish this master thesis all by myself. I would like to thank Erwin Hans and Jeroen Meijerink of the University of Twente and Gerard Nijhuis and Gerda van Bergen from the Beatrix Children's Hospital for their guidance during my thesis. It was a pleasure to work with you all. I would also like to thank the interviewees and survey respondents for participating in my research.

I wish you a lot of reading pleasure.

Manon Klein Teeselink

Holten, The Netherlands

September 2022

Summary

Background The demand for care in the western world has been increasing for years. At the national level, this has resulted in a perceived shortage of healthcare personnel (including nurses). To prevent the enormous expected amount of shortages in the future, making working in the healthcare sector more attractive must be a high priority. At the moment the Beatrix Children's Hospital (BCH) has sufficient capacity of pediatric nurses, but with the expected pressure on nursing capacity BCH will soon have to deal with insufficient capacity. Besides, BCH perceives that the study to become a pediatric nurse takes too long. The minimum duration to become a pediatric nurse in the Netherlands after graduating from high school is 5 years and 2 months (3 years and 7 months when following the shortened trajectory of mbo nursing), but sometimes takes more time. BCH raised the question on whether the study time in the Netherlands can be shortened, as in Germany pediatric nurses are trained much faster.

Objective The aim of this research is to determine if the study duration to become a pediatric nurse in the Beatrix Children's Hospital can be shortened and made more attractive, to deploy pediatric nurses more quickly with the ultimate goal to prevent major capacity problems in the future.

Method This study uses an exploratory empirical design. The research questions are answered using a qualitative approach. A literature study combined with semi-structured interviews were done to create insight in the current situation of pediatric nursing education and changes in the education in recent years in the Netherlands. Online surveys were distributed to pediatric nurses (in training) of BCH and other specialized nurses (in training) of UMCG (University Medical Centre Groningen) to find out reasons to not choose pediatric nursing and reflections of pediatric nurses on their study path to become a pediatric nurse.

Results The interviews were conducted with 4 different stakeholders of the Beatrix Children's Hospital. The online surveys were completed by 24 specialized nurses (in training) and 23 pediatric nurses (in training). The studies nursing at mbo and hbo level have a variable duration of 2.5 to 4 years, depending on a student's obtained diplomas and possible workplace. The study pediatric nursing at Wenckebach Instituut has an average duration of 14 months. Wenckebach Instituut is preparing for the application of EPA (Entrustable Professional Activities) education within the study program. Reasons for specialized nurses (in training) working in another specialization to not choose pediatric nursing are ignorance of the pediatric nursing profession, no affinity with working with children or no match between the interests of the participant and the pediatric nursing study. The nursing study seemed attractive because of the staff shortages in the care sector and the associated good job opportunities. Less attractive experienced are the irregularity and the mismatch of a student's wishes in internships. It was attractive for all of pediatric nurses to start the study pediatric nursing, but less attractive was the number of hours they need(ed) to work, the length of teaching days and conducting research.

Conclusion By raising more awareness of the shortened nursing study and further development of the application of EPA education within Wenckebach Instituut with seeking cooperation between Beatrix Children's Hospital and Hanzehogeschool Groningen, Alfa-college and Noorderpoort, the study duration to become a pediatric nurse could be shortened. A shortened study program together with the mentioned suggestions of the participants to improve the studies should make it possible to make the studies more attractive. This should ensure that pediatric nurses are trained faster and are more likely to follow the two studies, so the Beatrix Children's Hospital will not face major capacity shortages in the future.

Table of Contents

Preface	2
Summary	3
1 Introduction	6
2 Problem definition	8
3 Theoretical framework.....	9
3.1 Importance of enough capacity of pediatric nurses.....	9
3.2 Importance of making working in the healthcare sector more attractive	9
3.3 Importance of creating optimal deployment of employees	9
3.3.1 Person job fit	9
3.3.2 Person environment fit	10
3.3.3 Person organisation fit.....	10
3.4 Conclusion.....	11
4 Research methodology.....	12
4.1 Research method, design and study population.....	12
4.2 Data collection method	12
4.2.1 Sampling.....	12
4.2.2 Sample size and randomization.....	13
4.3 Measuring instruments and outcome measures	13
4.4 Validity and reliability	13
4.5 Procedure.....	14
4.6 Anonymization (privacy).....	14
4.7 Data-analysis method	14
4.7.1 Transcription of the data.....	14
4.7.2 Data coding.....	14
4.7.3 Time schedule.....	15
5 Current situation of pediatric nursing education in the Netherlands.....	16
5.1 Alfa-college	16
5.2 Noorderpoort.....	17
5.2.1 Recruitment, influx and student turnover	18
5.2.2 Evaluation of lessons.....	19
5.2.3 Collaboration with stakeholders.....	19
5.2.4 Pediatric nursing in mbo nursing study.....	19
5.2.5 Improvement of the study	19
5.3 Hanzehogeschool Groningen	19
5.3.1 Theoretical minor child and youth.....	20

5.3.2	Honours minor child and youth.....	21
5.3.3	Recruitment, influx, student turnover and evaluation of lessons.....	21
5.3.4	Collaboration with stakeholders.....	21
5.4	Wenckebach Instituut.....	22
5.4.1	Current organisation of the study pediatric nursing	22
5.4.2	Recruitment, influx and student turnover	22
5.4.3	Evaluation of lessons.....	23
5.4.4	Collaboration with stakeholders.....	23
6	Changes in the pediatric nursing education in the Netherlands in recent years.....	24
6.1	Noorderpoort.....	24
6.2	Hanzehogeschool Groningen	24
6.2.1	Theoretical minor child and youth.....	25
6.2.2	Honours minor child and youth.....	25
6.3	Wenckebach Instituut.....	25
7	Reasons to not choose pediatric nursing	27
8	Reflections of pediatric nurses (students) of their study path to become a pediatric nurse.....	30
8.1	Study nursing.....	30
8.2	Study pediatric nursing	33
9	Discussion and conclusion	37
10	References	43
Appendix A	Informed consent form interviews Dutch version.....	47
Appendix B	Informed consent form interviews English version	50
Appendix C	Informed consent form surveys Dutch version	53
Appendix D	Informed consent form surveys English version	56
Appendix E	Topic list semi-structured interview	59
Appendix F	Online survey research question 3	61
Appendix G	Online survey research question 4	64
Appendix H	Ethical approval	71
Appendix I	Time schedule.....	72
Appendix J	Overview nursing education possibilities.....	74
Appendix K	Suggestions to shorten the route and make it more attractive	75

1 Introduction

The demand for care in the western world has been increasing for years and this has several causes. Some of these causes are that healthcare has improved in recent years, a lot of diseases no longer have to be (immediately) fatal and improved diagnostic options that ensures earlier discovered and treated diseases. In general, people are informed earlier about having a disease and due to the improvements in healthcare their life expectancy is increasing. This ensures an increase in the number of people with more than one condition (multimorbidity). Multimorbidity care often requires multidisciplinary collaboration, therefore changes at several levels such as policy, communication, ICT and care processes are needed (promedico, n.d.). In addition, another important factor is responsible for the increasing demand for care: the aging population (Amsterdam UMC, 2019).

Nationally, there is a perceived shortage of healthcare personnel in general and especially nurses. On behalf of the Ministry of Health, Welfare and Sport (VWS), ABF Research was commissioned to research further shortages in healthcare. An increase in shortage of healthcare personnel to 135.000 employees is expected in 2031. Especially the hospitals and nursing homes will deal with large shortages in the future. To prevent the expected amount of shortages, making working in the healthcare sector more attractive must be a high priority. According to the research, it will be especially difficult to get enough nurses on the bed, because there will be too few nurses of both mbo and hbo level (NOS, 2022).

Amsterdam UMC indicates that in particular more specialized nurses (among which pediatric nurses) are needed. In 2019 there was an increase in the number of students for specialized nurse studies compared to 2015, but it did not solve the problems. What they ran into is that the studies take time (the employees concerned cannot be deployed immediately) and there is too little influx from the general nursing study, which means that too little internal progression is possible. In addition, making working in the healthcare sector attractive, including work pressure and career opportunities, is also an important point of attention (Amsterdam UMC, 2019).

A student can follow various learning paths to become a pediatric nurse in one of the departments of the Beatrix Children's Hospital. After graduating from high school the student can study nursing at secondary vocational education (in the Netherlands called 'mbo') or higher professional education (also called 'hbo') (Hogeschool Utrecht, n.d.). Admission requirements belonging to these two courses are given in table 1.

Table 1: admission requirements hbo and mbo nursing (Opleiding.com, n.d.).

Hbo nursing	Mbo nursing
Vwo diploma	Vwo diploma
Havo diploma	Havo diploma
Mbo 4 diploma	Vmbo diploma (level 4)
	Mbo preparatory education (level 2 or 3)
	Proof that student is transferring from 3 havo or vwo to class 4

The nursing study is offered in multiple places in the Netherlands. The most nurses of BCH have followed the study nursing in the environment of Groningen, for example at Hanzehogeschool Groningen, Alfa-college and Noorderpoort. A duration of 4 years applies to both nursing courses (mbo and hbo). It is also possible to follow a shortened trajectory of 2.5 to 3 years if a student chooses for the BBL learning path (Opleiding.com, n.d.).

After obtaining the nursing diploma, the nurse can apply for a study place for pediatric nursing. For this education UMCG has a special institute called Wenckebach Instituut. This study starts 3 times per year: in January, April and September and takes in total at least 14 months (UMCG, n.d.). After graduating the nurse can start working as a pediatric nurse.

In Germany the study to become a pediatric nurse has a duration of three years. Students are admitted to the study pediatric nursing if they have (FP, 2022):

- a secondary education diploma or other equivalent,
- lower secondary education diploma or equivalent schooling, together with successfully completed vocational training with a planned training period of at least two years,
- a license as nursing assistant or successfully completed state law training of at least one year in nursing aid.

From this it emerges that the minimum duration to become a pediatric nurse in the Netherlands after graduating from high school is at least 5 years and 2 months (3 years and 7 months when following the shortened trajectory of mbo nursing). Compared to Germany, Dutch pediatric nurses have a longer study duration to become a pediatric nurse, while ultimately finishing at the same level as the German pediatric nurses. Sometimes a student even takes longer to complete his or her studies because of possible study delay, waiting time for a study place or postponing further education because they first want to gain work experience. Possible other reasons that can cause a student to delay or even stop a study program may be that a study does not (no longer) match the student's interests, the level of the study could be too high or due to personal circumstances (Hoogers, 2011).

Possible solutions to prevent the future capacity shortage in the Beatrix Children's Hospital could be to make the nursing and pediatric nursing studies more attractive and to shorten the study duration.

2 Problem definition

This chapter addresses the problem definition, the main and sub research questions and the final goal of this research.

At the moment 127 pediatric nurses, 14 pediatric nurse students and on average 9 nursing students (mbo and hbo together, per semester) are working in the Beatrix Children's Hospital. For now there is enough capacity, but with the expected pressure on nursing capacity BCH will soon have to deal with insufficient capacity in the short term. Besides, another problem they are already running into is that the study to become a pediatric nurse takes too long (taken the time of start studying nursing to receiving the pediatric nursing diploma). The Beatrix Children's Hospital would like to know whether and how they can shorten the study duration of becoming a pediatric nurse and make it more attractive so that they can deploy pediatric nurses more quickly to prevent major capacity problems in the future. Therefore the following main research question is formulated:

“How to shorten the study duration to become a pediatric nurse to make it attractive?”

To be able to answer the main research question, the following sub research questions are formulated:

- 1. How are the studies nursing and pediatric nursing currently organised? (Chapter 5)**
This question should clarify which steps the current processes consists of (from the beginning of the study in nursing to receiving the diploma for pediatric nursing) and which bottlenecks are present during these processes.
- 2. Which changes have been made in the nursing and pediatric nursing study programs in recent years? (Chapter 6)**
This question should clarify which different changes already have been made during the recent years with associated effects.
- 3. What are the reasons for nurses who have chosen a different specialization to not choose pediatric nursing? (Chapter 7)**
This question should clarify the different reasons for nurses who are working in another specialization or are studying another specialization to not choose pediatric nursing.
- 4. How do the current pediatric nurses and pediatric nurse students who are working in the Beatrix Children's Hospital reflect about their study path to become a pediatric nurse? (Chapter 8)**
The goal of this sub question is to get insight in how the pediatric nurses experienced their learning path to become a pediatric nurse and how the current pediatric nurse students think about their study path. This should also indicate whether they found this path attractive or not and why.

Goal

By the end of September 2022, the Beatrix Children's Hospital will have a research report containing a summary of this research and belonging results, together with clear recommendations for shortening and making the route of becoming a pediatric nurse more attractive in order to reduce capacity problems in the future.

3 Theoretical framework

In this chapter the importance of this research will be further elaborated and important associated concepts and theories will be discussed. Section 3.1 discusses the importance of enough capacity of pediatric nurses. Section 3.2 is about the importance of making working in the healthcare sector more attractive. Section 2.3 explains the importance of creating optimal deployment for employees and pays attention to 3 corresponding concepts: person job fit, person environment fit and person organization fit. In the end a conclusion is given (section 2.4).

3.1 Importance of enough capacity of pediatric nurses

Since the 20th century, it has been increasingly recognized that the treatment and care of children requires specialist knowledge, skills and attitude. Healthcare professionals must comply with (among other things) Article 24 of the Rights of the Child, which states that the child has the right to receive the best possible health and healthcare facilities. Due to various developments in healthcare, including more complex treatments, shorter hospital stays, more children in day care and an increase in the number of chronically ill children, the demand for care is becoming increasingly intensive. To be able to continue providing good quality of care for children, the demand for specialized expertise of the pediatric nurse is increasing (Wagemaker & Wulferink - Elzink, 2015). An imminent shortage of pediatric nurses (in the future) can mean that children have to stay in hospital for an unnecessarily long time, while the period that a child is in hospital should preferably be as short as possible from the point of view of well-being of the child and parents (Stichting Kind en Ziekenhuis, 2016).

3.2 Importance of making working in the healthcare sector more attractive

For several years now, there has been dissatisfaction about the greatly increased workload, administrative burden and working conditions within the healthcare sector, as a result of which there was a lot of outflow and absenteeism due to illness (CAOP, 2020). Estimates has been commissioned by the Ministry of Health, Welfare and Sport to investigate the shortages in healthcare. In the worst case scenario, the healthcare and welfare sector will have a shortage of 74.000 people in 2022, which means that in the future there will be too few healthcare personnel that are able to provide good care (Faas, 2021). Therefore the government was advised to make working in the care sector more attractive, both in terms of control and professional development as in appreciation (V&VN, 2020).

3.3 Importance of creating optimal deployment of employees

Creating an optimal deployment of employees can be done (among other things) by means of training. By offering training to employees as an organisation, the personnel becomes more flexible. They gain more knowledge, which makes them optimally deployable within a certain position, but also outside it. This is useful, for example, when replacing colleagues in case of illness, busyness or turnover. In addition, well-trained employees contribute to working more efficiently, being more productive and delivering a higher quality of work, which also increases job satisfaction (Groenendaal, 2019). Human Resource Management (HRM) is the field that is concerned with creating the optimal deployment of employees with the aim to contribute to the success of the company (Personio, 2021). Three concepts that provide insight into whether a person is at the right place in an organisation are person environment fit, person job fit and person organisation fit.

3.3.1 Person job fit

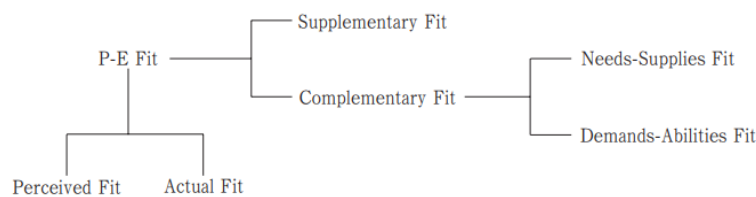
As mentioned in the introduction, a possible reason for a student to delay or even stop a study could be that the study and the interests of the student do not (no longer) match, which is part of the concept person job fit. Person job fit is described as the match between the abilities of a person and the demands of a job or the desires of a person and the attributes of a job (Sekiguchi, 2004). Person job fit is important because it has strong implications for an employees' well-being. It affects job satisfaction

and satisfaction with colleagues and supervisors. In addition, person job fit can also increase organisational involvement and identification when a job is a good fit for the employee. An employee that fits his position is generally happier, more committed to the organisation and less stressed. Next to well-being, person job fit has other positive implications for organisations, it increases a employees' attitude and enhances their performance (Sawyer, 2021).

3.3.2 Person environment fit

Person environment fit is described as the degree of congruence or match between a person and environment. It is a complex and multidimensional concept, which can be conceptualized in complementary fit, supplementary fit, perceived fit and actual fit. Supplementary fit occurs when a person supplements, embellishes, or possesses characteristics which are similar to other individuals in an environment. Complementary fit occurs when a persons' characteristics make whole the environment or add to it what is missing. Complementary fit distinguishes two concepts: needs-supplies fit which occurs when an environment satisfies individuals' needs, desires or preferences and demands-abilities fit which occurs when an individual has the abilities required to meet environmental demands. A large difference between supplementary fit and complementary fit is the definition of the environment: the environment in supplementary fit is described according to the people who inhabit it, while in the complementary fit the environment is defined apart from its inhabitants. Perceived (or subjective) fit is conceptualized as the judgment that a person fits well in the environment and the actual (or objective) fit is the comparison between separately rated individual and environmental characteristics (Sekiguchi, 2004). In figure 1 a representation of the concept person environment fit is displayed.

Figure 1: Relationship conceptualizations of person environment fit (Sekiguchi, 2004)

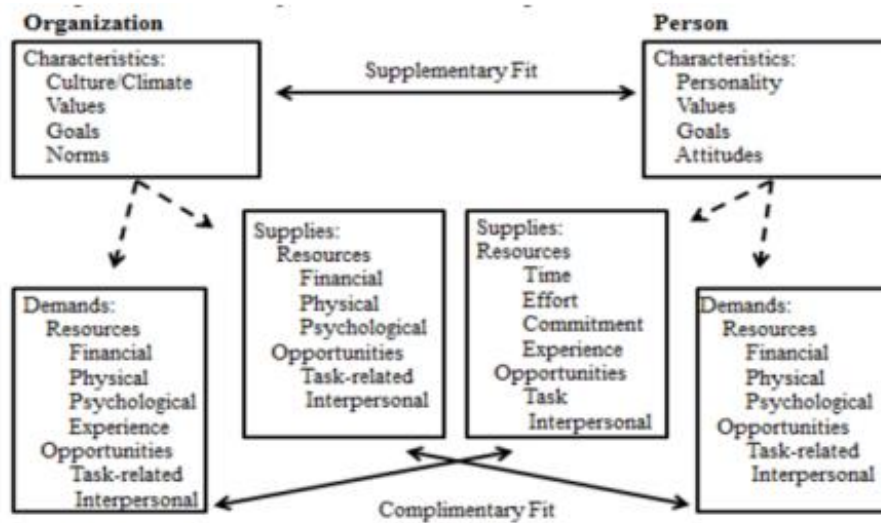


Person environment fit is important because the adequacy of the fit between a person and the environment can affect several things such as the person's motivation, behavior and overall mental and physical health. If the fit between person and environment is optimal, the individuals' functioning may be facilitated and if the fit is not optimal, the person may experience maladaptation (Holmbeck, Jandasek, Sparks, & Zukerman, 2008).

3.3.3 Person organisation fit

With person organisation fit is meant the compatibility between a person and the organisation, emphasizing on the extent to which a person and organisation share similar characteristics or meet each other's needs (Sekiguchi, 2004). A good person organisation fit is important because it can have a positive impact on a person's productivity and performance as well as job personal wellness. The higher the job satisfaction, the more committed the person is to the organisation and thus will be more likely to remain (consulting, 2018). In figure 2 an overview of the conceptualization of person organisation fit is given.

Figure 2: Relationship conceptualizations of person organisation fit (Mcnaughtan, 2017)



Source: Kristof 1996

3.4 Conclusion

As described above, nurses have been dissatisfied with their work for a number of consecutive years, resulting in an increasing dropout rate of staff. As a result, there may soon be too few nursing staff (with the right knowledge) to be able to provide good care, which is important for (in this case) the well-being of a child during hospitalization. That is why more attention must be paid to two major pillars: making working as a nurse more attractive and creating an optimal deployment of employees. These pillars come together in the three important concepts of person job fit, person environment fit and person organisation fit. By balancing these concepts among the employees, they become more satisfied, work more efficiently, deliver a higher quality of work and feel healthier mentally and physically. This is an important basis for ensuring that the number of dropouts can be reduced in the future and that an increase in nursing staff can occur.

4 Research methodology

In this chapter the research methodology will be described. Section 4.1 discusses the research method, design and study population. Section 4.2 explains the data collection method containing the sampling method, sample size and randomization. Section 4.3 discusses the measuring instruments and outcome measures. In sections 4.4, 4.5 and 4.6 the subjects validity and reliability, procedure and anonymization are elaborated. The last section (4.7) discusses the data analysis method.

4.1 Research method, design and study population

The design that suits the best for the problem definition of the Beatrix Children’s Hospital is exploratory empirical research. In order to generate an answer to the main research question, a qualitative approach will be used, because a quantitative approach with numerical data cannot give an answer on the research question. This research contains four research questions that will be examined separately. For research questions 1 and 2 a qualitative research will be set up using semi-structured interviews combined with a literature study. Semi-structured interviews are used because there are a number of topics that must in any case be discussed in order to answer the research question, and in addition there may be room for other comments which fits best in a semi-structured interview. The literature study will serve as a basis and the interviews will be more in depth. For research questions 3 and 4 a mix of quantitative and qualitative research will be conducted in two online surveys. Online surveys are chosen because the study population for these two research questions is big and therefore not feasible to conduct interviews with everyone. By using open questions in addition to multiple choice questions, an attempt is made to get insight in subjective thoughts too. The inclusion criteria for the research questions are given in the table below (table 2). The forms for informed consent can be found in Appendix A, B, C and D.

Table 2: inclusion criteria research

Inclusion criteria		
Research question 1 and 2	Research question 3	Research question 4
Signed informed consent Persons responsible and involved in development of studies nursing and pediatric nursing from: <ul style="list-style-type: none"> • Wenckebach Instituut • Hanzehogeschool Groningen • Noorderpoort • Alfa-college 	Signed informed consent Working in UMCG: <ul style="list-style-type: none"> • Specialized nurse within a different specialization than pediatrics • Nurses studying another nursing specialization than pediatrics 	Signed informed consent Working in the Beatrix Children’s Hospital: <ul style="list-style-type: none"> • Pediatric nurse • Pediatric nurse student • Completed the study nursing and pediatric nursing (or is currently studying pediatric nursing) on Wenckebach Instituut and Hanzehogeschool Groningen, Alfa-college or Noorderpoort or Friesland college

4.2 Data collection method

4.2.1 Sampling

For research questions 1 and 2 an overview will be obtained via e-mail of all persons responsible and participating in the development of the study nursing and pediatric nursing in the environment of Groningen, this would be at least 4 people and maximum 6. All those people receive an e-mail with a

short explanation of this research in which is also mentioned that if they have no objection, they can e-mail back that they are interested. Thereafter the researcher will call them to make an appointment for a semi-structured interview on location if possible, otherwise online.

For research question 3 an overview will be obtained via e-mail of all head nurses of the departments in UMCG except for the pediatrics department. All the head nurses receive an e-mail with a short explanation of this research, which will mainly focus on research question 3. The associated online survey will be included, with the request to forward it by e-mail to the specialized nurses and specialized nurses in training from their department in University Medical Centre Groningen.

For research question 4 an overview will be obtained of all pediatric nurses and pediatric nurses in training with work experience as a pediatric nurse up to 10 years and all pediatric nurse students who are working at the Beatrix Children's Hospital. All these nurses will receive an e-mail with a short explanation of this research and also containing the link to the online survey. In the first four questions the inclusion criteria will be checked. If a pediatric nurse answers 'no' to one of those questions, the results will be excluded of the research.

4.2.2 Sample size and randomization

Based on the overview that is obtained of all persons who are responsible and participating in the development of the study nursing and pediatric nursing, the maximum sample size for research questions 1 and 2 is 6 persons.

In UMCG there are approximately 1630 nurses and senior nurses working in all different areas except for pediatrics. It is not possible to find out how many of these nurses are in training to become a specialized nurse. Typically, surveys do have a response rate between 20 and 30% (Qualtrics, 2022). Based on the 1630 nurses and a response rate of 20%, the expected maximum sample size for research question 3 is 326.

On basis of the document containing the amount of pediatric nurses and pediatric nurse students in the Beatrix Children's Hospital, the maximum sample size for research question 4 is 141.

4.3 Measuring instruments and outcome measures

A topic list (appendix E) will be designed to use during the semi-structured interviews for research question 1 and 2. The outcome measures will be the answers that are given during the interviews. For research question 3 the measuring instrument is an online survey, which contains a mix of open questions and multiple choice questions (appendix F). The outcome measures will be the answers that are given. The measurement instrument for research question 4 is another online survey, which contains also open questions and multiple choice questions (appendix G). The outcome measures will also be the answers that are given.

4.4 Validity and reliability

When doing research two concepts are important: validity and reliability. Validity is about the accuracy of a measure, in other words, do the results measure what they are supposed to measure. Reliability is about the consistency of a measure, this is the extent to which results can be reproduced when the research will be repeated under the exact same conditions (Middleton, F., 2022). The validity and reliability of this research will be guaranteed by asking clear and understandable questions that are pre-designed in the topic list (appendix E) and the online survey lists (appendix F and G). Those lists are tailored to the research questions. The researcher will be able to ask more (in depth) questions when the interviewee gives an answer that does not match the belonging question. Before the interviews and questionnaires are conducted or sent, the questionnaires will be checked by both the supervisors of the University of Twente and the external supervisor of the Beatrix Children's Hospital.

4.5 Procedure

The interviews will be held on location or online via Teams. The researcher has tested and prepared the recording equipment before the subject takes part in the interview. The topic list will be prepared by the researcher in advance. When the participant joins the interview, the course of events is briefly discussed and the informed consent will also be signed. The researcher will ask the participant for permission to record the interview and afterwards the interview will start. The interview will start with questions of the topic list and in the meantime other topics can be discussed. If all the topics have been discussed and the researcher or participant do not have questions anymore, the interview will be stopped by the researcher. When the interview has come to an end the recording will directly afterwards be saved in the database of the University of Twente of faculty Science and Technology and afterwards destroyed of the recording equipment.

The online surveys will be made in Qualtrics and tested before the surveys are send by e-mail to the participants. All head nurses will receive an e-mail with a short introduction of the research including the link for the online survey, and the request to send this e-mail forward to their specialized nurses (in training). For research question 4 all pediatric nurses and pediatric nurses in training will receive an e-mail which contains a short introduction of the research including the online survey link. If the surveys are filled in, the researcher will move the data from Qualtrics to the database of the University of Twente (faculty Science and Technology) where the data will be stored.

4.6 Anonymization (privacy)

All participants of the interviews will get an unique number in order of participation in the study. Only the researcher knows which person belongs to which number. This will not be disclosed further in order to guarantee privacy. If important quotes from the interviews or online surveys are used in the research report, reference will also be made to this number. All participants that fill in the online survey are completely anonymous because no personal data is requested and it is not possible to trace who completes the survey or on which computer this will be done.

4.7 Data-analysis method

4.7.1 Transcription of the data

The recorded interviews (audio) will be transcribed with an automatic transcription service called Trint to save time. This program will convert the spoken text into words. In interviews where no permission was given to record it, the researcher writes down notes during the interview and afterwards will make a summarizing transcription. The data of the online surveys will be converted into an SPSS file.

4.7.2 Data coding

When the transcription of the interview data is finished, the data can be coded by using the program Atlas.ti. Firstly, two interviews are divided into fragments. This will be done by dividing the text of an interview and summarizing each fragment in key words in the margin. The texts are then coded openly and labels are also created for the pieces of text. These labels will be placed under a few denominators, which will create a separation between main labels and sub labels. When the labels are ordered, the remaining interviews are read and afterwards labelled. This process repeats until no new information emerges from the interviews. Once everything is labelled, a selection is made of the definitive themes corresponding to the research questions. From this selection, connections, structures and meanings are sought. Finally, the main findings are described per theme and if necessary the results are supported with graphs or figures.

The data of the online surveys will be presented in two different ways. The results of the multiple choice questions will be presented in tables and figures using SPSS. The qualitative data of the open questions will be coded using Atlas.ti, in the same way as the data of the interviews.

4.7.3 Time schedule

Normally the total duration of the research period is 20 weeks fulltime (840 hours). Since the researcher is not able to work 20 weeks fulltime on this research but strives to work at least 30 hours a week, the total duration of this research will be 30 weeks (from February 28 to September 23). Appendix 10 contains the time schedule with description of tasks.

5 Current situation of pediatric nursing education in the Netherlands

In this chapter the results of the interviews and the literature study will be described. The (pediatric) nursing education information will be described in section 5.1 (Alfa-college), 5.2 (Noorderpoort), 5.3 (Hanzehogeschool Groningen) and 5.4 (Wenckebach Instituut). The interviews were conducted with 3 different stakeholders of the Beatrix Children’s Hospital. The stakeholders that participated are:

- Team manager of the nursing study of Noorderpoort
- Mother and child study manager of Wenckebach Instituut
- Director minor child and youth of Hanzehogeschool Groningen

When studying at a secondary vocational education such as Alfa-college and Noorderpoort, a student can choose between two study tracks: the BOL track or the BBL track. BOL is an abbreviation which stands for ‘Beroeps Opleidende Leerweg’ (vocational training learning path). In this track the student is studying most at school. BBL stands for ‘Beroepsbegeleidende Leerweg’ (professional guidance learning path), this track is a combination of working and learning in which the student is employed by a recognized training company (Goflex, n.d.).

5.1 Alfa-college

The first study offered by Alfa-college is an mbo nursing study, type BOL, level four with a duration of four years. This study is open for students with a pre-vocational, mixed or theoretical learning path diploma, transition certificate class 3 to class 4 havo or vwo, or a mbo diploma level 2 or higher. Each school year students work on the following five learning units: providing care, vital nursing, nursing reasoning, collaboration in care and delivering quality in giving care. In addition, they will also have various knowledge-choice modules in year two, three and four. The following subject areas of the mbo nurse are central during the learning units and knowledge-choice modules and are given in table 3 (Alfa-college, n.d.):

Table 3: overview subject areas mbo nurse Alfa-college

Anatomy and physiology	Health promotion
Pathology	Crisis situations
Nursing care	Individual plan
Daytime activities	Collaboration in healthcare
Communication in healthcare	Quality assurance
Nursing acting	Clinical reasoning
Nursing math	Evidence Based Practice
Guidance in healthcare	Organizing and coordinating care
	Laws and regulations

In addition, students must follow the following compulsory vocational courses and general courses, as well as some elective courses which are shown in table 4 (Alfa-college, n.d.):

Table 4: overview courses Alfa-college

Vocational courses	General subjects	Electives
Basic care (theory and practice)	Dutch	Care and technology
Guiding patients	English	Healthy lifestyle
Anatomy	Calculate	In-depth palliative care
Nursing operations	Career and citizenship	Complementary care
Medicine (pharmacology)		Entrepreneurial behavior
Hospital care		(the range of electives can vary)

The second study offered at Alfa-college is a mbo nursing study type BBL, level four with a duration of two to two and a half years. A student is eligible for this study if it has already completed the preliminary study in nursing IG or an equivalent study (for example, a welfare study at level 3 or 4). It depends on a student's previous education, competencies, knowledge, skills and work experience how long the duration of the study exactly is. In the vocational guidance pathway (BBL) a student combines working and learning. The student must arrange for a paid job at a recognized training company and goes to school for two half-days a week. Here the student needs to follow the same courses as students of the BOL track (table 3 and 4), but will gain all the practical experience at their work which is the recognized training company (Alfa-college, n.d.).

The third study offered at Alfa-college is a mbo nursing study type BOL, level four with a duration of two years. This study route is only available for students who already have a social care or nursing IG diploma and will start in the third year of the nursing study. The student needs to follow the same courses as previous mentioned (table 3 and 4) and will besides do internships at various healthcare organisations (Alfa-college, n.d.).

5.2 Noorderpoort

The first nursing study Noorderpoort offers is a BOL mbo nursing study (level four) which has a duration of four years. The first two years are aimed at teaching basic skills, and during the third and fourth year, more in-depth knowledge is sought in the subject itself. During the study, the students will do internships at various places. In addition, in the fourth year the student will specialize in one of the care directions: hospital (about 23% each year), nursing and care homes and home care or mental health care. An overview of the courses that must be followed during this program is shown in table 5. In addition, fifteen percent of the study time is reserved for elective courses in which the student can broaden or deepen his knowledge. The electives ensure that students, for example, can find work more quickly or move on to further education more easily (Noorderpoort, n.d.).

Table 5: overview vocational and general courses mbo nursing Noorderpoort

Vocational courses	General courses
Nursing	Dutch
Anatomy and physiology	Math
Pathology	Career orientation and citizenship
Nursing skills	Sport
Counselling science	English
Personal care	
Healthy ageing	

The second nursing study that Noorderpoort offers is a BBL mbo study (level four) with a duration of three and a half years. For this study one of the following diplomas are needed: mbo- management vocational track or mixed track, mbo- theoretical pathway or mavo, transition permit from havo 3 to havo 4 or from vwo 3 to vwo 4, mbo level 2 or 3, or another diploma or proof that the government has recognized. During the first six months, students are working in their training company for two days a week and going to school for two days a week. After that they only have one day of school and they spend the other four days at the training company. In the final year, students choose one of the following outflow profiles: mental healthcare, care for the disabled, nursing home, care home, home

care or hospital. Participant 3 says that the students of the BBL study program follow the same courses as the students of the BOL study programme, see table 5 (Noorderpoort, n.d.).

The third option is a shortened mbo nursing study, which is a BBL parttime study (level four) with a duration of two and a half years. For this it is important that the student already has a mbo diploma in nursing IG or equivalent. During this study, the student works at the training company for at least 20 hours a week. In addition, they receive the theory at school that consists of the same subjects as the BOL and BBL fulltime nursing studies, see table 5 (Noorderpoort, n.d.).

There is also a combi mbo nurse / personal counsellor social care study (shortened). This is a BBL parttime study with a duration of two and a half to three years, depending on previous education, knowledge and experience. A student can follow this study route if he or she has a mbo diploma nursing IG or social care level four, or comparable. For this study it is also important that the student finds a recognized training company in advance where he or she can work at least 20 hours a week. An overview of the courses for this program is shown in table 6 (Noorderpoort, n.d.). Besides the student can follow elective courses to broaden or deepen their knowledge.

Table 6: vocational and general courses combi mbo nursing / personal counsellor study Noorderpoort

Vocational courses	General courses
Anatomy	Dutch
Physiology	Math
Pathology	Career orientation and citizenship
Nursing (GGZ-GHZ-VVT-ZH)	English
Guidance science (socialization, expression and activities, group dynamics)	
Developmental psychology (knowledge of target groups, social skills)	
Nursing skills	

5.2.1 Recruitment, influx and student turnover

Noorderpoort organizes open days for pre-vocational secondary education students to visit the school. The students can visit all different studies to get a global impression and based on this they can hopefully make a choice for a follow-up study. In addition, there are walk-in days in the last year of the study nursing in which pre-vocational secondary education students can spend a school day with a last year nursing student. Besides participant 3 says that the deans of Noorderpoort are often present at secondary schools to do promotions for their studies.

To ensure the right match between the study nursing and the future student, participant 3 says that students can choose which study type they would like to follow (BOL or BBL part). For this, they must also make clear what their motivation is for their choice. Before the start of the study the future students also have a welcome meeting (intake). When students who are already doing the mbo nursing study wants to be part of the UMCG guild, they really have to apply for a place. When arranging internships for the students, Noorderpoort always tries to take into account students' wishes and living distance to the internship place.

Last year Noorderpoort had a lot of applications for the mbo nursing study. Normally they had around 140 to 150 sign ups and last year there were more than 200. This was according to participant 3 due to corona, because other branches were locked at the time (e.g. catering). Noorderpoort also saw that a few more students have dropped out last year. Especially in the first study year there is a high turnover, sometimes also in the second year because then students find out during the internship that

this study is not quite appropriate for them. On the other hand, in the second year of the nursing study they also receive intake students again, for example level three VIG (Verzorgende IG) students who want to continue to nursing. In addition, the BBL study is very attractive. About two years ago the BBL study group was about 50 students, now there are more than 100 students who follow this type of study.

5.2.2 Evaluation of lessons

To evaluate the study, teachers have panel discussions with the students of all classes several times a year. Teachers also hand out feedback forms themselves after a given lesson says participant 3.

5.2.3 Collaboration with stakeholders

According to participant 3, Noorderpoort collaborates a lot with Alfa-college and the Hanzehogeschool Groningen is also increasingly joining to this collaboration. The different schools do almost all projects in practice together. In addition, the location of Noorderpoort in Assen also has a collaboration with Drenthe College. Noorderpoort is getting more contact with Wenckebach Instituut through the UMCG guild, but they do not yet work closely together. Up to now, students from the mbo nursing program have not yet been able to accelerate their progress towards the post-secondary education in pediatric nursing.

5.2.4 Pediatric nursing in mbo nursing study

Pediatric nursing is covered in the theory of the study nursing, but it is only a small part of the entire knowledge line. The students who follow the regular route (most of the time at school), can almost never arrange an internship in pediatric nursing. The only students that can sometimes arrange an internship in pediatric nursing are the students who are part of the guild which is a collaboration between Noorderpoort, Alfa-college and UMCG. In the guild there are a certain number of students that work in different departments of the hospital for two years to do their internships. These students can sometimes get an internship within pediatric nursing because they already have developed some hospital competences. For students who do not have hospital nursing experience this is almost never possible.

5.2.5 Improvement of the study

Participant 3 says that Noorderpoort has a strategic course, based on this course they make plans together with the nursing study teaching team to improve the study continuously. The plan focuses on the employees and their needs. In addition, Noorderpoort wants to give the LOB (Loopbaan Oriëntatie Begeleiding) course a different shape with more coaching in it. All the process improvements in Noorderpoort are based on the PDCA cycle (Plan, Do, Check, Act). Besides there is a group of employees who mainly focus on innovations in healthcare and apply this within the education.

Noorderpoort notices the mental blow from students very well due to the corona period. Teachers have been trying to do everything for a long time, but the motivation of the students has subsided for many. This also affects the satisfaction surveys that students complete. Before the corona, the mbo nursing study of Noorderpoort had the predicate 'Topopleiding', but participant 3 does not expect that they will also achieve this again due to the corona crisis.

Participant 3 also wonders at the end of the interview why the topic pediatric nursing within the mbo nursing program is presented the way it is now, and what they can do to make this topic come back more and differently within the study.

5.3 Hanzehogeschool Groningen

At Hanzehogeschool Groningen they offer three study routes: nursing (HBO-V) in fulltime and parttime and FastSwitch Nursing. The fulltime study nursing has a duration of four years. It is open to students

with a hbo diploma, vwo diploma, mbo level 4 diploma, mbo 4 nursing diploma (accelerated track possible, 3 years in total) or via a 21+ scheme. In the first year, the focus is on acquiring nursing knowledge, communication skills and nursing skills. The second year continues with clinical reasoning on the subjects of the first year. In addition, the student will learn in practice for six months. The third and fourth year together form the graduation phase in which practical learning, elective education and conducting research are central themes. In total, a student completes an internship for about one and a half year at various places during the entire study program. In addition, the minor (half a year of elective education) takes place during the third and fourth year, where students can choose from various programs, including child and youth. In table 7 the core subjects are given of the nursing program (Hanzehogeschool Groningen, 2020).

Table 7: core subjects nursing study program

Nursing	Communication skills
Clinical reasoning	Medical knowledge
Rights	Skills lab education
Psychology	Ethics
Agogic	Evidence based practice
Organisational science	Sociology
	gerontology

The second course the Hanzehogeschool Groningen offers is the parttime study nursing with a duration of two to four years. It is only possible to follow this study if a student works at least 20 hours per week in the healthcare or welfare sector in which they work with nurses, or if they have the opportunity and guarantee to do an internship within the healthcare or welfare sector. Depending on a student's previous education the study duration is for mbo nurses (level 4) 2.5 years, in-service nurses 2.5 years, mbo care and welfare (e.g. doctor's assistants) 4 years, SAW (Social Agogic Work) and SPW (Social Pedagogic Work, level 4) 3 to 4 years and hbo and wo students in care and welfare 3 to 4 years. In addition, it is possible to follow separate modules, but you will not receive a bachelor's degree (Hanzehogeschool Groningen, 2022).

FastSwitch Nursing is an efficient, shortened study for motivated career switchers who already have a higher education or university diploma. The Hanzehogeschool Groningen offers in the FastSwitch project an adapted parttime bachelor's degree in nursing. How long this study type will take exactly is not stated (Hanzehogeschool Groningen, 2022).

The Hanzehogeschool Groningen offers two different minors in the field of children and youth: the theoretical minor child and youth and the honours minor child and youth. A minor is a program with a duration of six months that consists of two coherent blocks of in total 30 European Credits (ECs) in which students can broaden or deepen their knowledge (Hanzehogeschool Groningen, 2021).

5.3.1 Theoretical minor child and youth

The theoretical minor child and youth can be followed by all fulltime and parttime nursing students with an affinity for the pediatric and/or youth nursing profession. All the education for this minor is given at school (Hanzehogeschool Groningen, 2020). According to participant 2, the minor child and youth consists of 20 weeks in which they do two types of assessments. The first assessment is a portfolio in which they write an ethical dilemma and their vision of the child and youth nursing profession. When they have submitted this, they have to pitch it in an assessment together with five other students which is a kind of a mini MDO (Multi Disciplinair Overleg). The second assessment is a project, in which they have to write a CAT (Critical Appraisal of a Topic) that deals with a subject within

child and youth care between zero and eighteen years. They then turn the results of their CAT into a digital product, which means that they create a website, app, audiobook or podcast that matches their target group, aimed at giving information and prevention.

During the lessons they go through the different developmental phases from zero to eighteen years within different themes. These lessons are collected during a lecture by both Hanzehogeschool lecturers as colleagues from the practical field. The pediatric nursing profession is very broad and the students have to go deeper into the different areas themselves. For example, if they have had a lecture on a certain subject, they can find out for themselves what else they want to know about it. In addition, they also have skills lessons in which they practice conversation skills with an actor. The minor does not have internships and the students do not have the opportunity to accelerate to the pediatric nursing study. The total number of students applying varies, but they run on the number of registration. This is usually about 40 students per semester.

5.3.2 Honours minor child and youth

The honours minor is for excellent students who want to do more and can only be followed by fulltime nursing students. This is subject to the condition that the student may not have any study delay and all practical learning periods of the program must have been completed (Hanzehogeschool Groningen, 2021). The honours minor is also a minor of 20 weeks, but then students go into practice to do an internship for four days a week next to going to school for one day a week (Hanzehogeschool Groningen, 2020). The internship can be within the hospital, the GGD (Gemeentelijke of Gemeenschappelijke Gezondheidsdienst) or the GGZ (Geestelijke Gezondheidszorg). In addition, they design their own lessons, for example intervision, discussing an article, a clinical lesson or something similar. They are tested by means of an aptitude test. Most of the students have finished their study if they have completed the honours minor. The chance that they can stay in the department where they did their honours minor internship is therefore greater because they have already been trained. Participant 2 knows from the Beatrix Children's Hospital that the students can often stay there and that they can also start the study pediatric nursing earlier if they want to register for it after three months of work experience. There are not a lot of honours places, participant 2 thought a there is place for a maximum of 10 students.

5.3.3 Recruitment, influx, student turnover and evaluation of lessons

The Hanzehogeschool Groningen has two minor markets per year that are offered to second year nursing students, where each director of a minor tells what the minor contains and what they can expect. Thereafter students can sign up for the minor. They don't have to do an assessment to be admitted to the theoretical minor. For the honours minor students must register and are subsequently selected (maximum of ten study places) by the program on the basis of having passed all previous education and motivation. After each semester the minors have an evaluation moment in which students have the possibility to fill in the evaluation surveys. On basis of that the minors try to improve their education.

5.3.4 Collaboration with stakeholders

At the moment there is no collaboration between the minor children and youth of the Hanzehogeschool Groningen and Wenckebach. Participant 2 had contact with someone of Wenckebach Instituut but that has become a standstill, the goal is to pick up this contact again. This is about the application of the EPAs. Participant 2 knows that the practice office of Hanzehogeschool Groningen has good contact with Wenckebach Instituut, but this has nothing to do with pediatric nursing or the pediatric nursing study. There is currently also no collaboration between participant 2 and Alfa-college and Noorderpoort.

5.4 Wenckebach Instituut

5.4.1 Current organisation of the study pediatric nursing

At the moment the Wenckebach Instituut still has to adhere to the current attainment targets that have been set nationally by the CZO (College Zorg Opleidingen) according to participant 1. The pediatric nurse study at Wenckebach Instituut has an average duration of 14 months and consists of just over 30 teaching days. The precise length of the study depends on if a student has a fulltime contract or a parttime contract. A student has to make 1200 practical hours according to the CZO. With a fulltime contract the student will become a pediatric nurse in 12 months, but when the student has a contract of 24 hours, almost 15 months are needed to become a pediatric nurse says participant 1. Admission to this study is possible for BIG-registered nurses with a mbo nursing or hbo nursing diploma. The focus of this nursing study is aimed at providing care to children aged zero to eighteen years. The study focuses on intramural as well as transmural and extramural working as a pediatric nurse. The education is based on the following principles that are shown in table 8 (UMCG, n.d.).

Table 8: basic principles of the pediatric nursing study (UMCG, n.d.)

Basic principles	
▪	Theoretical knowledge alternated with practical skills
▪	Attention for children in stable, but also rapidly changing and unpredictable and complex situations
▪	Attention for the different age categories and levels of development
▪	Generic core competences such as cooperation, knowledge and science, communication, social action, organisation and professionalism
▪	Knowledge exchange within the chain of care by participants from various care situations, for example intramural (children's departments, outpatient clinics, child psychiatry, institutions for children with physical or mental disabilities) and trans- and extramural (specialist home care, children's hospice, medical nursery)

Participant 1 says that the study pediatric nursing consists of five modules to which a fixed number of teaching days are linked, see table 9.

Table 9: division of modules and teaching days study pediatric nursing

Modules	Number of days
1. Generic	8
2. Newborns	5
3. Child	12
4. Communication and collaboration	5
5. Quality	5

What is striking during the generic module is that many students do not have a certain basic knowledge that the Wenckebach Instituut would have expected based on their nursing education. That is according to participant 1 why the module generic focuses in part on knowledge that they have already had in their nursing study and should therefore have already known.

5.4.2 Recruitment, influx and student turnover

The Wenckebach Instituut has no share in recruiting students for the pediatric nursing study programme, the practices themselves do that. The only things Wenckebach Instituut offers are the theory and the knowledge tests. About six years ago they had an influx of one or two groups per year. That has now become four large groups due to the increase in shortages. Nevertheless, participant 1

sees that practices are still struggling with the influx, they can hardly find people or cannot find suitable people. In addition participant 1 also sees that practices struggle with a lot of dropouts, because it is often a younger study group that is easier to go 'shopping' and after two or three years want to sail a different course, perhaps a completely different one even outside the healthcare landscape. They do not really know where these people are. Participant 1 thinks that the student turnover within the study pediatric nursing depends on mismanagement, how the job counselling is organized and the working climate (is the student able to really take on a learning role or is the student deployed as a fully-fledged employee), but also that they are often young people who are starting a family. In addition, sometimes it concerns vulnerable people, professional resilience and dropout for psychological reasons.

5.4.3 Evaluation of lessons

The Wenckebach Instituut evaluates their lessons both orally and in writing by asking about the reactions of students after the given lesson. Participant 1 indicates that the written evaluations are not always completed correctly. To find out whether it is correct what students say about the lessons given, they try to ensure that another teacher is always present during the lesson. Wenckebach has a team of in total twelve teachers who provide all lessons and the teachers also evaluate at the end of the lesson whether all lesson objectives have been achieved.

5.4.4 Collaboration with stakeholders

At the moment there is no collaboration between Wenckebach Instituut and the minor child and youth of the Hanzehogeschool Groningen. Participant 1 indicates that there is contact with the them, because they are also going to renew their education. Hanzehogeschool Groningen would also like to be included in the development of the EPAs to see which EPAs they can already use within their education, for example within the minor child and youth in order to create the opportunity to shorten the study program. Participant 1 is also aware that there are honours students in nursing from Hanzehogeschool Groningen who already receive an exemption for a certain module (quality) of the study pediatric nursing because they have followed a minor focused on children.

Participant 1 says that the mbo nursing studies at Noorderpoort and Alfa-college are not currently in discussions with Wenckebach Instituut with a view to possibly also link up with EPA education. Participant 1 can imagine that this might happen in the future. At the moment there are many other partnerships between Wenckebach and Noorderpoort and Alfa-college, but this goes through the student office. The collaboration is mainly aimed at internships for mbo and hbo and all kinds of different projects. These collaborations have not yet ensured that students from the mbo nursing studies can now progress more quickly to or through the pediatric nursing study.

6 Changes in the pediatric nursing education in the Netherlands in recent years

In this chapter the results of the interviews will be described. Section 6.1 discusses the changes in education of Noorderpoort. Section 6.2 elaborates on changes in the nursing education of Hanzehogeschool Groningen. The last section (6.3) discusses the changes in the pediatric nursing study of Wenckebach Instituut. The interviews were conducted with 4 different stakeholders of the Beatrix Children's Hospital. The stakeholders that participated are:

- Team manager of the nursing study of Noorderpoort
- Mother and child study manager of Wenckebach Instituut
- Study manager of Wenckebach Instituut
- Director minor child and youth of Hanzehogeschool Groningen

6.1 Noorderpoort

A major change that participant 3 has seen within the mbo nursing program is that there is much more attention being paid to the welfare aspect now, which was not the case at all before. This mainly concerns the well-being of the client, but also partly of the student and it is now included in the education directly from year one. The welfare aspect is tested both in theory as in skills. A second major change is that a lot of practices ask to train students within the practices. Practices want to participate in the entire learning process of a student. Because there is shortage of nurses, they try in this way to bind and retain nursing students. Noorderpoort also notices that the professional field really has struggles with providing good guidance to students because of the shortage on the nurses market. Therefore the practices are asking more if the education can do more in this regard.

Participant 3 says that the study program nursing will start a modular education system next school year. The aim of applying the modular education system is that students can decide more in their own learning process. This system will not be applied in the first year of the nursing studies because they first want to let new students get used to education at a mbo school. However, from year two onwards, the modular education system will be applied. The intention is that the educational content will remain the same, but it will get a new look. And in the new modular education, more attention will also be paid to the welfare aspect and care and technology.

Participant 3 also indicates that they sometimes hear that when students finish their nursing studies, they will do something else because of the work pressure they have experienced during the nursing study. Noorderpoort has been trying to pay more attention to this in the last study year by providing better guidance, for example by paying attention to this by means of the LOB ("Loopbaan Oriëntatie Begeleiding) course. They also put an extra supervisor on this because they have received extra money for this due to the corona period. In addition, Noorderpoort wants to set up an alumni policy so that graduated nurses can continue to discuss work problems with each other.

The last recent change is that Noorderpoort is considering whether they might want to organize the internships differently. They know that Alfa-college is already working with a system in which the students go to school for three days and have internship for two days a week during the whole school year.

6.2 Hanzehogeschool Groningen

Hanzehogeschool Groningen will start a pilot in September together with Beatrix Children's Hospital and the children's home care. They will offer a transmural internship to two students. These students are in the third or fourth year of the study in which they are obliged to do two internships. These two students do their internships in the children's hospital and in home care. The intention is that after

completing their transmural internships, these students will have gained a lot of experience in the field of pediatric nursing and the intention is that they can then proceed directly to the study in pediatric nursing. If the pilot goes well, they hope to be able to expand this to just over two students who can follow this trajectory. However, it will not be possible to take on a large number of students for this due to available places within children's home care says participant 2.

6.2.1 Theoretical minor child and youth

The theoretical minor has been completely changed by the bachelor 2020 program. They have incorporated all CanMEDS roles within the program. The CanMEDS system is used to describe the seven different roles (competencies) of healthcare professionals which are: the healthcare provider, communicator, collaboration partner, reflective EBP (Evidence Based Practice) professional, health promotor, organizer and the professional and quality promotor (Hanze Hogeschool Groningen, n.d.). In addition, they have slightly changed the content of the assessment. No EPAs have yet been processed in this minor, participant 2 says that there was contact with someone from Wenckebach Instituut about this, but Wenckebach was not yet so far with the application of the EPAs in their education. Besides participant 2 is in contact with someone from VIA in Zwolle to see how they put the EPAs in their education and how the Hanze Hogeschool can learn from that. Participant 2 is waiting until Wenckebach is ready to talk about the possible application of EPAs within their education and the education of Hanze Hogeschool Groningen. The Hanze Hogeschool Groningen would like to make students become familiar with EPA education, and want to be able to sign off EPAs and thus gain a head start or an accelerated progression to the study pediatric nursing.

6.2.2 Honours minor child and youth

Participant 2 claims that the honours minor has not changed much in the past five years, but this semester they have looked at extra points for attention from the CZO flex level, the EPAs, to add this to the program. Not as a replacement but more to look at how that works and whether they can test it. A number of EPAs have been added within the honours minor to see how they are going to put this away within the minor. They want to see whether they can already test EPA's on for example level one or level two. A pilot is currently running on this. The first assessment for this is almost coming, this is not a replacement but purely extra to see whether they can replace this in the future in order to allow the student to progress more quickly to further education.

6.3 Wenckebach Instituut

No changes have been made within the study pediatric nursing in the past five years. A little longer ago, in 2015, a modular system was started in consultation with practice (the hospital), whereby the Wenckebach Instituut looked at where the different studies could flow into the same modules (for example, students of pediatric nursing and students of obstetrics nursing). Since then, pediatric and obstetrics nurse students have basically followed the same programme, except the child module which is not offered to obstetric nurses, they do an obstetrics module instead. The same also applies to intensive care neonatology nurses, they also follow the four modules generic, new-borns, communication and cooperation and quality according to participant 1. In addition, it is also possible for nurses from the adult ICU who would like to go to the pediatric ICU to follow an adapted study trajectory, they only have to follow a few modules of the study to become a pediatric nurse on ICU.

At the moment, the pediatric nursing study program is not running into any problems. Very remarkable is that the program is preparing for the application of EPA education within the program. EPA education is a huge national transition. EPA stands for Entrustable Professional Activities and is about the daily activities of a healthcare professional student that a supervisor entrusts to the student. With this new concept of education, a supervisor can entrust a student in specific professional activities to

perform independently if the student has shown that his or hers competences are sufficient (Zorg voor het Noorden, n.d.).

Nationally, the employer organisations NFU (Nederlandse Federatie Universitaire ziekenhuizen) and the NVZ (Nederlandse Vereniging algemene Ziekenhuizen) have given the order to train more efficiently and effectively in a new concept, which is called EPA education. National EPAs have especially been developed for this, which have been established in consultation with practice. Wenckebach Instituut can decide for itself how they will shape EPA education, this is done in consultation with the region. To this end, "Zorg voor het Noorden" has been working on a position paper for some time now which, when it is finished, will be used as a kind of starting point for shaping and substantiating EPA education. The Wenckebach Instituut hopes to be able to start EPA education next year, especially because they see that other institutions are already starting EPA education this year or early next school year. This was not possible within the Wenckebach Instituut due to delays within the organisation of Zorg voor het Noorden according to participant 1.

Participant 4 told that EPA education is already being used within the minor acute care of the Hanzehogeschool Groningen. According to participant 4, the advantages for students are that they can already become familiar with acute care and that they get used to EPA education. The advantage of a minor in EPA education is that the minor is a combination of theory and practice and that this is designed together with practices. Initially, this only applies to universities of applied sciences, but participant 4 knows that they also want to see whether this can be arranged at mbo studies also. Besides, participant 4 says that stakeholders have the intention to apply the same type of system as in the minor acute care within the minor child and youth, but that they are still working on this.

EPA education should soon make it possible to create a more personal study route. The intention is to look more closely at what students are ready for, in which context they want to work and which EPAs they (still) need to obtain in order to be able to perform a certain act independently within that context of nursing. The CZO therefore wants to see whether they will (partly) abandon the mandatory 1200 practical hours, so that the current study duration (an average of fourteen months) may be reduced in the future (also depending on how the student functions in practice and in the study) says participant 1.

7 Reasons to not choose pediatric nursing

In this chapter the results of the online survey for all specialized nurses (in training) in another specialization than pediatrics in UMCG will be described. The questionnaire had in total 37 responses. The data of 13 respondents are excluded of the dataset because they did not meet the inclusion criteria, only answered the inclusion criteria questions or did not answer any questions.

Socio demographics

24 respondents have completed the questionnaire “survey specialized nurses (in training)” of which the socio demographics can be found in table 10.

Table 10: Socio demographics of the sample

Variable	Number (n)	%
Sex		
Male	4	16.7
Female	20	83.3
Age (years)		
21 – 30	10	41.7
31 – 40	6	25.0
41 – 50	7	29.2
51 – 60	1	4.2
Specialized nurse (in training) in another specialization than pediatrics in UMCG		
Yes	24	100
No	0	0
Years of work experience		
0 – 5	7	29.2
6 – 10	9	37.5
11 – 20	6	25.0
More than 20	2	8.3
Working in specialization		
CCU	1	4.17
Dialysis	1	4.17
IC	11	45.83
MDL	1	4.17
Obstetrics	5	20.83
Oncology	1	4.17
PACU	3	12.50
Endoscopy	1	4.17

The table below (11) shows whether the participants were able to become acquainted with pediatric nursing during their nursing studies. This shows that 61.5% of the participants did not become acquainted. The participants who became acquainted in a way other than through theoretical courses or internships, did so through the obstetrics study course, gained work experience in the child pool and worked as a PACU (Post Anesthesia Care Unit) nurse in child recovery.

Table 11: Different ways of becoming acquainted with pediatric nursing during nursing study

	N	%
Yes, through one or more theoretical courses pediatric nursing	5	19.2
Yes, through an internship in a children's hospital or children's home care	2	7.7
Yes, through a minor in pediatric nursing	0	0
Yes, in a different way	3	11.5
No	16	61.5

Of the 24 participants, 8 have ever considered a study in pediatric nursing, see table 12.

Table 12: Number of nurses who have ever considered the pediatric nursing study

	N	%
Yes	8	33.3
No	16	66.7

These 8 participants were asked about the reason why they do not want to start the study of pediatric nursing yet (see table 13). One of the participants does not want to start a new study, and another participant is still in doubt whether he/she actually wants to study pediatric nursing because the participant looks for a specialization that can be combined well with family. Of the 6 other participants who indicated that they did not yet do it for another reason, most indicated that they first opted for the IC (Intensive Care) or obstetrics.

Table 13: Reasons to not yet start the study pediatric nursing

	N	%
I do not want to start a new study	1	12.5
My salary will be less if I start a new study compared to what I earn now	0	0
I do not have time to combine study and work together with my personal life	0	0
I am still not sure if I really want it	1	12.5
Other reason, namely..	6	75.0

In addition, table 14 shows why the participants chose a specialization other than pediatric nursing. It shows that 33.3% do not find the pediatric nursing study interesting enough and 29.2% do not like to work with children. 9 others gave a different reason, of which 3 chose the IC anyway because they preferred that more, had already been hired there and expected it to suit them better. One of the participants gave a striking answer:

“I have no experience with specialism children in a hospital: not in my HBO education, but also not in my work afterwards at UMCG. This made that I was familiar with the specialization, but I do not know exactly what it entails and whether it adds enough for me.”

Table 14: Reasons to choose for another specialization than pediatrics

	N	%
I do not find the pediatric nursing study interesting (enough)	8	33.3
I do not like working with children	7	29.2
Other reason, namely	9	37.5

8 Reflections of pediatric nurses (students) of their study path to become a pediatric nurse

In this chapter the results of the online survey for all pediatric nurses (in training) of the Beatrix Children's Hospital will be described. The Beatrix Children's Hospital has in total 141 pediatric nurses (in training), of which there are 35 responses on the questionnaire. This indicates a response rate of 24%. The data of 11 respondents are excluded of the dataset because they only filled in the inclusion criteria questions or did not answer any questions.

Socio demographics

23 respondents have completed the questionnaire "survey pediatric nurses" of which the socio demographics can be found in table 15.

Table 15: socio demographics of the sample

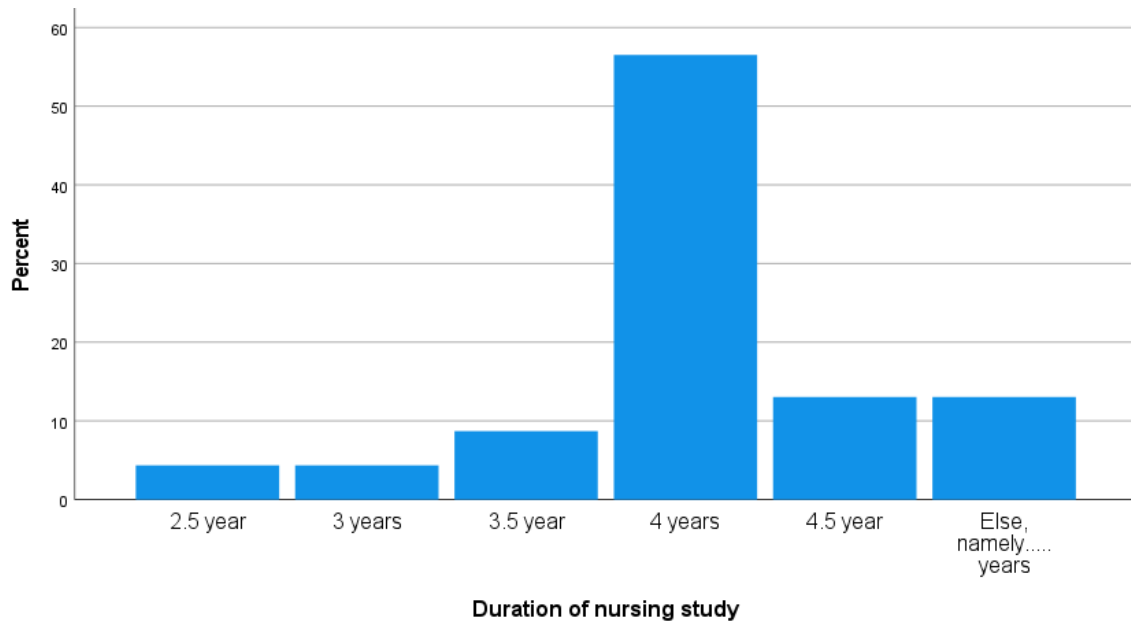
Variable	Number (n)	%
Sex		
Male	3	13
Female	20	87
Age (years)		
21 – 30	9	39
31 – 40	7	30
41 – 50	3	13
51 – 60	4	17
Pediatric nurse (in training)		
Yes	23	100
No	0	0
Years of work experience		
Still pediatric nurse in training	8	35
0 – 5	4	17
6 – 10	4	17
11 – 20	2	9
21 – 30	4	17
More than 30	1	4
School		
Hanzehogeschool Groningen	15	63
Alfa-college	3	13
Noorderpoort	2	8
Other	4	17
Study route		
Mbo nursing	6	26
Mbo nursing shortened	1	4
Hbo nursing	13	57
Mbo and hbo nursing	3	13

8.1 Study nursing

Duration

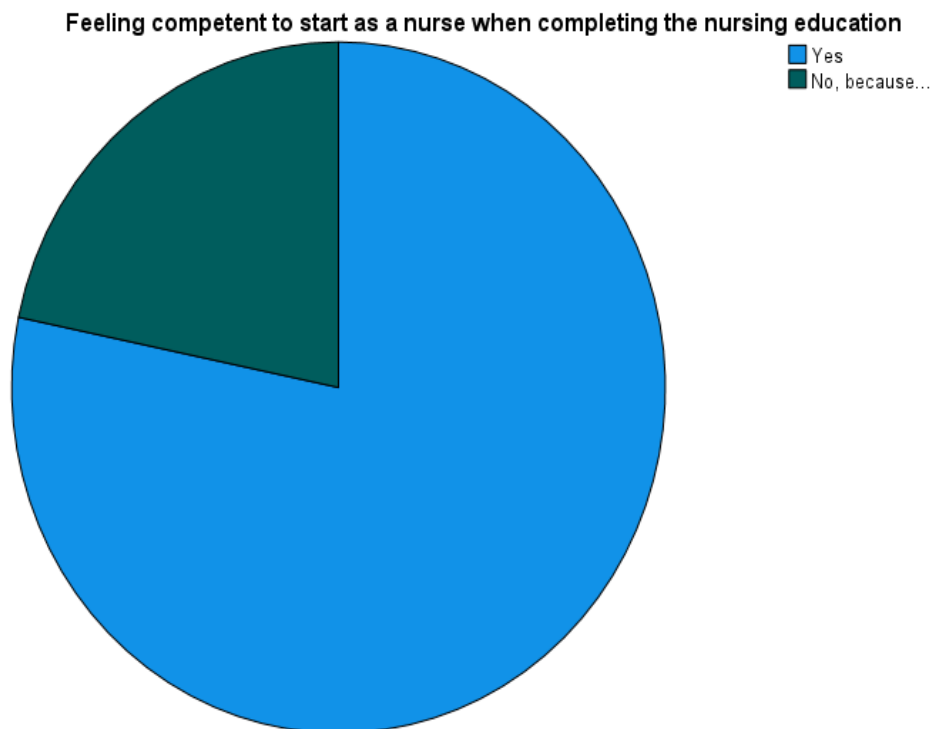
In figure 3 is visible how long the participants did take to finish their study nursing (mean 4.22, standard deviation 1.41). The most participants finished their study nursing in 4 years (56.5%). Two of the participants had a duration of 7 years because they first followed the mbo nursing study and afterwards the hbo nursing study.

Figure 3: Duration of nursing study



Of all the participants, 78.3% felt competent to start as a nurse when completing their nursing education (see figure 4). Reasons for the other participants to feel not competent (21.7%) were too little practical experience in the field they wanted to work in.

Figure 4: Feeling competent as a nurse



Motivation for the study nursing

A frequently mentioned reason for the nurses to study nursing was that they have always wanted to help people and mean something for them. In addition, being a nurse seemed to be a beautiful and

interesting profession. At the time, all 23 nurses (100%) found it attractive to start studying nursing. The most frequently mentioned reason why it was perceived as attractive were the staff shortages in the care sector and the associated good job opportunities. Other reasons mentioned were the affinity with caring for people in a disease process and the financial possibilities to be able to study.

Learning about pediatrics in nursing study

During the nursing study, most participants were able to become acquainted with pediatric nursing. They were able to do this by taking courses, through an internship or a minor (see table 16). What is striking is that there were also a number of participants who would have liked to become acquainted with pediatric nursing, but that did not happen.

Table 16: Ways to become acquainted with pediatric nursing during the nursing study

	N	%
Yes, through one or more theoretical courses on pediatric nursing	5	17.8
Yes, through an internship in a children's hospital or children's home care	6	21.4
Yes, through a minor in pediatric nursing	3	10.7
Yes, in a different way	5	17.8
No, but I would have liked that at the time	5	17.8
No, and I did not want that at the time	4	14.3

Reflections of the study nursing

The most attractive part of the nursing study is the number of internships in different settings. In the second place, care for the patient and the possibilities within the study and possible specializations are mentioned as attractive features of the study. The alternation between theory and practice and the fact that the study is very broad is also experienced as attractive. What several participants (13%) experienced as less attractive about the nursing study is the irregularity in the internships. In addition, the possibilities within the internships are also a point of attention that did not always match their wishes. One of the participants:

"Less attractive is a lot of internships in elderly care and just a few opportunities for internships in other fields"

The courses and internships within the program are generally experienced as instructive, although it was also indicated that not all courses are equally useful and are applied within the professional field. One of the participants did indicate that the interests of the student were not sufficiently taken into account when allocating the internship places. It also emerged that there are sometimes too few internships, about which one of the participants indicates the following:

"I really wanted to do an internship in the children's department, but there was only one internship available"

The participants did not like doing research in their study. In addition, they also do not like the fact that the study often focuses on care for the elderly.

Ultimately, the majority (87%) of the participants indicated that the nursing study matched their expectations, see table 17. They indicated that the study met their expectations because it was a broad study with a good combination of theory and practice. For the participants (one mbo student and one hbo student) whose nursing education did not meet their expectations, they indicated they had expected more practical lessons.

Table 17: Results question “did nursing education meet your expectations?”

	N	%
Yes	20	87.0
No	2	8.7
Missing	1	4.3

Of the 23 participants, only one participant ever thought about quitting the nursing study, with the reason being unpleasant at internships where the participant was made insecure by supervisors. 69.6% of the participants would recommend the nursing study to prospective students because it is a fun and challenging profession. On the other hand, reasons not to recommend the study are that nursing profession consists of heavy work that is not well paid for. They would only advise prospective students to choose this job if it really feels like a calling to practice this profession.

Table 18: Recommendation of the study nursing to prospective students

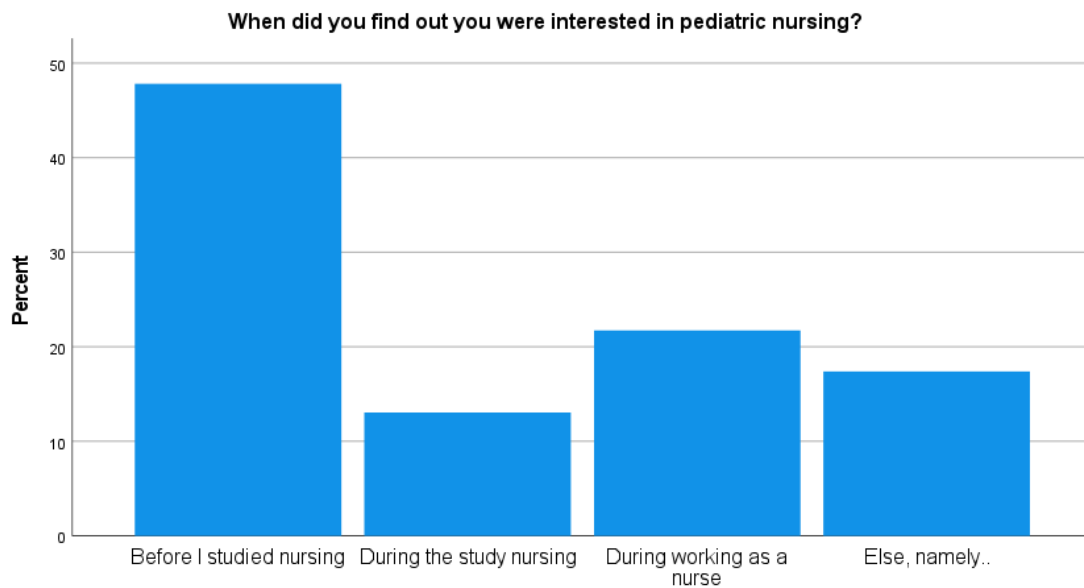
	N	%
Yes	16	69.6
No	5	21.7
Missing	2	8.7

The participants suggested various options to make the study nursing more attractive. An often mentioned option is to create more opportunities within the internships. In this way the internships could be better tailored to the wishes of the students. They would also like to see that it is possible to do more hospital internships. In addition, the nurses would find the study more attractive if more income could be generated.

8.2 Study pediatric nursing

The figure below (figure 5) shows how the participants found out that they were interested in pediatric nursing. Of all the participants, 47.8% knew they were interested in pediatric nursing even before they studied nursing. 13.0% found out they were interested during their nursing study. 21.7% experienced their interest in pediatric nursing while working as a nurse and the remaining 17.4% experienced it differently.

Figure 5: Interested in pediatric nursing



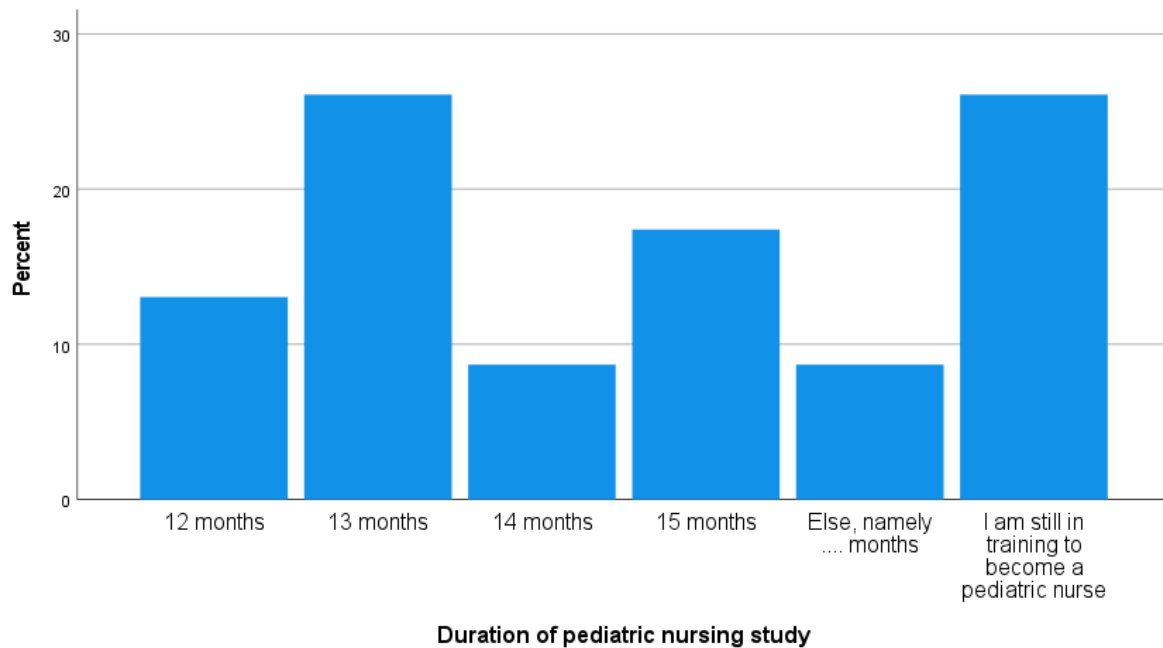
In the table below (table 19) it is made clear when the nurses started the study pediatric nursing after completing their nursing study. It shows that the vast majority of the participants did not immediately start the study pediatric nursing. 39.1% wanted to gain general work experience before starting the new study. Of those who indicated that they did not immediately start for another reason, three participants indicated that they first worked as a nurse with adults and later discovered that they wanted to work with children.

Table 19: Moment of starting the further education in pediatric nursing after completing nursing degree

	N	%
Yes, I started the further education in pediatric nursing at the first registration opportunity after completing my nursing study	6	26.1
No, I had to wait until a study place became available	1	4.3
No, I first wanted to gain general work experience as a nurse	9	39.1
No, for another reason, namely..	6	26.1
Missing	1	4.3%

Of all the participants, 95.7% did follow the study pediatric nursing at Wenckebach Instituut. In figure 7 is visible how long the participants did take to finish the study (mean 3.61, standard deviation 1.852). Of those who have already completed the study, most completed it in 13 months (26.1%). The minimum duration of the study for the participants in this study was 12 months and the maximum duration 18 months. The participants who have already graduated all felt that they were able to start as a pediatric nurse upon graduation.

Figure 6: Duration of pediatric nursing study



Motivation for the study pediatric nursing

A frequently mentioned reason for the participants to start the study pediatric nursing is that they enjoy working with children. They get a lot of satisfaction and challenge from with both the children and their parents. Several participants found out that they would like to become a pediatric nurse through a follow-up day or internship in the pediatric ward. For most it was attractive to actually start the study pediatric nursing (see table 20). The most frequently mentioned reason for this was that they wanted to continue learning and also could get a study place.

Table 20: Attractiveness of starting the study pediatric nursing

	N	%
Yes	21	91.3
No	2	8.7

Reflections of the study pediatric nursing

What was often mentioned as attractive about the pediatric nursing study was the opportunity to do an internship in different departments, in order to gain a lot of knowledge and ultimately be able to choose which department they would like to work in. The deepening of knowledge through the various courses taught by several guest lecturers from practice was also experienced as very attractive. The number of hours worked, the length of the (online) teaching days and conducting research were perceived as less attractive.

For the majority of the research group, the pediatric nursing study met their expectations (see table 21). Nevertheless, it did not meet expectation for a number of participants, because they found it too easy and too little depth. At the time, one participant considered quitting the nursing study because conducting research was very difficult.

Table 21: Results question: “does/did the pediatric nursing study meet your expectations?”

	N	%
Yes	20	87.0
No	3	13.0

The participants mentioned several possibilities to make the study of pediatric nursing more attractive. An often mentioned point for improvement is the creation of more job guarantees with associated attractive employment conditions. In addition, it was also suggested to make it possible to do an internship in more than two departments.

The majority of the participants would recommend the study to prospective students (see table 22). They experience it as a very nice study in which you learn a lot about children, but also about diseases and everything that comes with it. They think being a pediatric nurse is a very nice and fun profession. The reasons of the three participants to not recommend the study are that there is an increasing amount of aggression when performing the profession, not a good salary and first having work experience before a prospective student should start the pediatric nursing study.

Table 22: Recommendation of the pediatric nursing study to future students

	N	%
Ja	20	87.0
Nee	3	13.0

9 Discussion and conclusion

Interpretation of the value of this study

For an accurate interpretation of the value of this study, the strong and weak points are given based on an article that describes how a qualitative study should be assessed (Willems & Zwieten, 2004).

1. Strong points

A clear research question was used by formulating a main research question with four sub questions. The different methods used in each phase of this research are all explicitly described. The fieldwork was described in detail by indicating how and where the interviews would take place and the surveys would be sent, together with a clear description of the tasks of the researcher. Procedures for the analysis of the data are clearly described and substantiated, besides it is also indicated how this relates to the research question.

2. Weak points

The population selection was clearly described and theoretically complete. Unfortunately it was not possible to get in contact with the nursing study manager of the Hanzehogeschool Groningen to obtain more in-depth information about the nursing study. In addition, the Alfa-college did not want to meet the inclusion criteria of this study, that is why no in-depth information regarding the nursing study was collected here either. The online survey for the pediatric nurses had a response rate of 24%. A response rate between 20 and 30 percent is considered as average (Qualtrics, 2022). Because the response rate is not very high, the results of the survey cannot be generalized for the entire target group of pediatric nurses (in training) of the Beatrix Children's Hospital. For the online survey for all specialized nurses (in training) in another specialization than pediatrics only 24 responses were useful to analyse in this research. Since there are over 1600 nurses working in UMCG and it was not possible to find the amount of nurses who are specialized and the amount of nurses who are in training to be specialized, it is assumed that the response rate is below 10 percent, which is considered as very low (Qualtrics, 2022). The results can therefore not be generalized for the entire target group of specialized nurses (in training) in another specialization than pediatrics in UMCG. Another limited factor is that pediatric nurses with more than 10 years of work experience have filled in the questionnaire on basis of how their education was at that moment. Therefore the education now (as written in chapter 5 and 6) might be (slightly) different from their education at the time.

Another weak point of this study is that the raw data (recordings and transcripts) have only been viewed by the researcher herself and not by others. The analysis was also performed by only one researcher, which means that the reliability is less guaranteed. Other types of bias that (may) have occurred in this study are response bias (in which the participant does not tell the truth to such personal questions but a more socially desirable answer) and interviewer bias (in which the participant does not answer the questions honestly, or bias from the interviewer where the interviewer consciously or unconsciously directs the answers of the participant, so that the answers may not have been given truth or reality). In addition, non-response bias has occurred, because there is a large difference in the composition of the participants who did participate in the interview or the survey and the large number who did not participate.

Organisation of the studies nursing and pediatric nursing

One of the important questions that had to be answered in this study was how the nursing and pediatric nursing studies are currently organized. Appendix J contains an overview of the options for studying nursing at Alfa-college, Noorderpoort and Hanzehogeschool Groningen. There are various options for studying nursing at both mbo and hbo level with a variable duration of 2.5 to 4 years,

depending on which diplomas a student has (already) obtained and a possible workplace. The studies (mbo and hbo nursing) all offer various internships in addition to theoretical and practical courses. Noorderpoort indicates that pediatric nursing is included in the theory of the nursing education, but that this is only a very small part. In addition, it is almost never possible for the students of Noorderpoort to do an internship in pediatric nursing. This combination would mean that students are actually not able to get acquainted with the profession of pediatric nursing during their study.

In mbo education there is room for elective courses and in hbo education there are various minors that can be followed of which two are focused on pediatric nursing (the theoretical minor child and youth and the honors minor). For the theoretical minor of Hanzehogeschool Groningen the students do not have an internship during the minor. They also cannot accelerate to the study pediatric nursing. For the honors minor child and youth they do have an internship and these students can start the study pediatric nursing earlier.

The study pediatric nursing at Wenckebach Instituut has an average duration of 14 months and consists of just over 30 teaching days. The precise length of the study depends on if a student has a fulltime contract (12 months) or a parttime contract (15 months). Admission to this study is possible for BIG-registered nurses with a mbo or hbo nursing diploma.

Recruitment, influx and student turnover

Noorderpoort mainly recruits future students through open days and so-called walk-in days in which they try to look for person job fit and person organisation fit. What is striking is that there is increasing interest in the BBL study variant. To see whether students are suitable for this, they must write a motivation letter and also participate in an intake interview. Here they test person job fit, person organisation fit and person environment fit again. Overall, in the past year there has been an increase of more than 30% in the number of students who have registered for the nursing study at Noorderpoort. On this basis, the study nursing seems to have become more attractive, but the reasons for this are unknown because this population was not included in this research. Hanzehogeschool Groningen organizes two minor markets per year where they recruit students. Students do not have to take an assessment for the theoretical minor child and youth, but they do for the honors minor. Wenckebach Instituut has no share in recruiting students for the pediatric nursing study, the practices themselves do that. About six years ago they had an influx of one or two groups per year, that has now become four large groups. Nevertheless, they see that practices are still struggling with the influx, they can hardly find people or cannot find suitable people. They also see that practices are struggling with a lot of dropouts. Wenckebach Instituut thinks that the student turnover within the study pediatric nursing depends on mismanagement of the job, working climate and balance between work and having a young family. This is purely based on thought and no further research has been done on this.

Evaluation of lessons

The teachers of Noorderpoort organize panel discussion together with the students of all classes several times a year to evaluate the lessons. Besides, teachers also hand out feedback forms themselves after a given lesson. After each semester the theoretical and honors minor of Hanzehogeschool Groningen have an evaluation moment in which they give students the opportunity to fill in evaluation questionnaires in order to improve their education on the basis of this. The Wenckebach Instituut evaluates their lessons both orally and in writing by asking about the reactions of students after the given lesson, but know that the written evaluations are not always completed correctly. It is remarkable that they know that it is not always filled in correctly, but that no action has been taken to change this.

Collaboration with stakeholders

Noorderpoort often works together with Alfa-college. In addition, they are also increasingly collaborating with Hanzehogeschool Groningen. They mainly work together on different projects. Noorderpoort is increasingly coming into contact with Wenckebach Instituut but do not work closely together. Hanzehogeschool Groningen indicates that there is currently no collaboration between their children's minors and Wenckebach Instituut. There was contact about the application of EPAs but that has come to a standstill. In addition, there is currently no collaboration between the director of the minor child and youth of Hanzehogeschool Groningen and Alfa-college and Noorderpoort. Wenckebach Instituut knows that Hanzehogeschool Groningen would like to be included in the development of the EPA education to see which EPAs they already can offer within their education, in order to create acceleration to the study pediatric nursing. Wenckebach Instituut says that Noorderpoort and Alfa-college are not currently in discussions with Wenckebach Instituut about the same topic. It seems very valuable to look for a collaboration of all the different schools (Wenckebach Instituut, Hanzehogeschool Groningen, Alfa-college and Noorderpoort) in this area in order to be able to better coordinate education and possibly also to enable accelerated trajectories towards the study pediatric nursing.

Changes in the (pediatric) nursing education

Noorderpoort notices that there is much more demand from the practices to train students within their practices, because they want to participate in the entire learning process of a student to bind and retain them more. This shows that practices increasingly want to steer towards person environment fit and person organisation fit, which could be a good development to contribute to employee satisfaction. Next to that, the study program nursing will start a modular education system next school year with the aim to apply a system in which students can decide more in their own learning process.

The Hanzehogeschool Groningen will start a pilot in which they offer a transmural internship to two students. In this way students will gain more experience in the field of pediatric nursing and the intention is that they can proceed directly to the study pediatric nursing afterwards. This seems a good development to create more insight and interest into the work of the pediatric nurse. Unfortunately this will only be possible for a very limited number of students.

Wenckebach Instituut is preparing for the application of EPA education within the program. They hope to be able to start the EPA education next year. In another minor of the Hanzehogeschool Groningen they are already offering EPA education and the advantage is that a combination of theory and practice is given and designed together with practices. The study manager of Wenckebach Instituut knows that until now this is only applied to the universities of applied sciences, but they also want to see whether this can be arranged at mbo studies also. The application of EPA education seems to be a very good development which makes it possible for students to learn in a more targeted manner according to their own wishes and, as a result, possibly also accelerate to further education.

Reasons to not choose pediatric nursing

What is striking is that more than 60% were not able to become acquainted with pediatric nursing at all during their nursing studies. It seems logical that someone who has never been introduced to pediatric nursing would not (as fast) consider this study either due to ignorance. 33.3% considered the study pediatric nursing but did not start it because most have chosen another specialization (often obstetrics or IC), they did not want to start a new study (12.5%) or they are still not sure about their choice (12.5%). Various reasons were given why they did not choose the specialization in pediatric nursing. More than 30% did not find the study interesting enough, 29% percent do not like to work

with children and more than 37% had another reason of which one is remarkable and in line with what has already been mentioned above: the participant said that he/she had no experience at all in the specialism pediatric nursing both during the study and afterwards while gaining work experience. As a result, the participant did not know exactly what it entails and whether it suits and therefore did not opt for it.

Reflections of the study nursing

More than 50% of the participants finished their study nursing in 4 years. This corresponds to the duration of the nursing study given by Noorderpoort, Hanzehogeschool Groningen and Alfa-college. It is striking that very few participants completed the nursing study within 2.5, 3 or 3.5 years. Based on the possibilities offered by the various schools for a shortened nursing study, it was expected that this number would be higher. Of all the participants, almost 80% felt competent to start as a nurse when completing their nursing education which means there is a good person job fit. Reasons for the other participants to feel not competent (21.7%) were too little practical experience in the field they wanted to work in. In this case, the person's abilities and the job demands or desires do not match which could have strong implications for an employees' well-being. Unfortunately it is unknown what has been done about the less good person job fit for these participants.

A frequently mentioned reason to study nursing was that they have always wanted to help people and mean something for them. Being a nurse seemed to be a beautiful and interesting profession. At the time, all 23 nurses found it attractive to start the study nursing. It was perceived as attractive because there were staff shortages in the care sector and associated good job opportunities. Other reasons mentioned were the affinity with caring for people in a disease process.

During the nursing study, most participants (over 67%) were able to become acquainted with pediatric nursing. They were able to do this by following courses, through an internship or a minor. What is striking is that there were also a number of participants who would have liked to become acquainted with pediatric nursing, but that did not happen. Unfortunately it is not known why they have not been introduced to pediatric nursing.

The most attractive part of the nursing study is the number of internships in different settings. In the second place, the possibilities within the study and various specializations are mentioned as attractive features of the study. The alternation between theory and practice and the fact that the study is very broad is also experienced as attractive. What several participants (13%) experienced as less attractive about the nursing study is the irregularity in the internships. In addition, the possibilities within the internships are also a point of attention that did not always match their wishes. The interests of the students were not always sufficiently taken into account when allocating the internship places. They also do not like the fact that the study often focuses on care for the elderly. The fact that there is an overwhelming focus on elderly care is also detriment of coming into contact with pediatric nursing. The chance is much less that they would eventually want to follow a possible study in pediatric nursing if they cannot become familiar with it during their nursing study. Ultimately, the majority (87%) found that the nursing study matched their expectations, because it was a broad study with a good combination of theory and practice. Almost 70% would recommend the nursing study to prospective students.

The participants suggested various options to make the study nursing more attractive. Often mentioned is to create more opportunities within the internships. In this way the internships could be better tailored to the wishes of the students. They would also like to see that it is possible to do more

hospital internships. In addition, the nurses would find the study more attractive if more income could be generated. This shows that the person environment fit can be organized even better, and that this is particularly the case in complementary fit in the fit between need and supply, in which the environment meets the needs, desires or preferences of individuals. It is curious that these ways to make the study more attractive are not in line with articles in the news suggesting possibilities to make the study nursing more attractive. For example is stated that lowering study costs should make it more attractive to study nursing (Kluijver, 2018). This did not come up at all in this research.

Reflections of the study pediatric nursing

It is remarkable that almost half of the participants knew they were interested in pediatric nursing even before they studied nursing. A small 10% found out their interest in pediatric nursing during their nursing study. Where a student normally comes into contact with different specializations within the study and then often really discover whether they are interested in a specialization, the number of participants who found out their interest in pediatric nursing within the nursing study was not expected to be so low. Besides the number of participants who knew they were interested in pediatric nursing before they studied nursing was not expected to be so high.

The vast majority of the participants did not immediately start the study pediatric nursing after graduation of their nursing study. Almost 40% first wanted to gain general work experience. 26% of the participants did start the study pediatric nursing right after graduation of the nursing study. It is curious that a large number of participants first want to gain work experience before they want to start with a new study. On the other hand, the percentage of participants that directly started with the pediatric nursing study is not as high as expected.

The most participants completed the pediatric nursing study in 13 months. This is slightly above average, as the Wenckebach Instituut indicated that the study takes an average of 14 months. The participants who have already graduated all felt that they were able to start as a pediatric nurse upon graduation. This draws attention to the fact that there is a good person job fit.

A frequently mentioned reason for the participants to start the study pediatric nursing is that they enjoy working with children. For most of them it was attractive to actually start the study pediatric nursing, because they wanted to continue learning and they were offered a study place.

For the majority of the participants, the pediatric nursing study met their expectations. What was experienced as attractive about the pediatric nursing study was the opportunity to do internships in different departments. The deepening of knowledge through various courses taught by several guest lecturers from practice was also very attractive. The number of hours they need (or needed) to work, the length of the (online) teaching days and conducting research were perceived as less attractive. In the end, the majority of the participants would recommend the study to prospective students.

The participants mentioned several possibilities to make the study pediatric nursing more attractive. An example for improvement is the creation of more job guarantees with associated attractive employment conditions. In addition, it was also suggested to make it possible to do an internship in more than 2 departments.

Suggestions for further research

Follow-up research should be conducted to determine whether the results of this research will be representable to the whole population. To do this, it is necessary to ensure that a larger population actually participates in the research by designing the research in a different way. Even more in-depth research could be carried out into person organisation fit, person environment fit and person job fit of the research population. In addition, a subsequent study could focus on the best way to innovate the education.

Conclusion

This research was conducted to answer the main research question: “how to shorten the route of becoming a pediatric nurse to make it attractive?”. This research has shown that there are only a few participants who have completed the nursing study in less than four years and that the percentage that transfers directly to the pediatric nursing study is low. The reason that so few students graduate from their nursing study in less than four years is because most have opted for the normal bachelor (or mbo study) with a duration of four years. The percentage of pediatric nurses that directly started the study pediatric nursing after graduating from the nursing study is low, because most of them wanted to gain general work experience (in another field) first or found out later that they wanted to work with children. To date, there are also no accelerated transfer options from the nursing study to the pediatric nursing study for mbo and hbo nursing students (except for honors minor students), which can ensure that the entire study duration can be shortened. These factors together ensure that the study duration to become a pediatric nurse takes a long time.

The Wenckebach Instituut (and Hanzehogeschool Groningen to a lesser extent) are already preparing for the introduction of EPA education within the (pediatric) nursing studies. As mentioned earlier, EPA education should make it possible to create a more personal study route in which more attention is paid for tailoring the education to what a student is ready for, in which context the student wants to work and which skills are (still) needed in order to be able to perform it independently within that context of nursing. By deploying the emerging EPA education more broadly, both in the pediatric nursing study as in the hbo and mbo nursing studies, education can be better coordinated which can result in a shorter study duration for a student that wants to become a pediatric nurse. A shortened study duration together with the mentioned suggestions of the participants to improve the studies (appendix K) should make it possible to make the studies more attractive. To achieve this, the manager of the Beatrix Children’s Hospital is advised to set up a working group and multiple meetings together with Wenckebach Instituut, Alfa-college, Hanzehogeschool Groningen and Noorderpoort college to discuss the suggestions made based on this research and finally set up action points to really create a more attractive, shortened study duration for a future student to become a pediatric nurse.

10 References

- Alfa-college. (n.d.). *mbo-verpleegkunde groningen*. Retrieved April 6, 2022, from Alfa-college: <https://www.alfa-college.nl/opleidingen-en-cursussen/zorg-en-welzijn/mbo-verpleegkundige-groningen>
- Alfa-college. (n.d.). *mbo-verpleegkundige (BBL Groningen)*. Retrieved April 6, 2022, from Alfa-college: <https://www.alfa-college.nl/volwassenen/scholing-voor-volwassenen/mboverpleegkundige-bbl-groningen-groningen>
- Alfa-college. (n.d.). *mbo-verpleegkundige instroom 3e leerjaar groningen*. Retrieved April 6, 2022, from Alfa-college: <https://www.alfa-college.nl/opleidingen-en-cursussen/zorg-en-welzijn/mboverpleegkundige-instroom-3e-leerjaar-groningen>
- Amsterdam UMC. (2019). *Sterke stijging instroom, maar is het genoeg?* Retrieved April 1, 2022, from Amsterdam UMC: <https://www.vumc.nl/educatie/amstel-academie/nieuwsoverzicht-amstel-academie/sterke-stijging-instroom-maar-is-het-genoege.htm>
- CAOP. (2020, September 16). *Breed pakket aan maatregelen moet werken in de zorg aantrekkelijker maken*. Retrieved June 30, 2022, from CAOP: <https://www.caop.nl/artikelen/2020/breed-pakket-aan-maatregelen-moet-werken-in-de-zorg-aantrekkelijker-maken/>
- consulting, 4. p. (2018, June 11). *Hiring a New Employee: Person-Organizational Fit and Why It's Important*. Retrieved June 30, 2022, from 4 point consulting: <https://www.4pointconsulting.com/resources/2018/6/11/hiring-a-new-employee-person-organizational-fit-and-why-its-important#:~:text=A%20good%20person%20organization%20fit,employee%27s%20longevity%20at%20a%20company.>
- Edwards, J. R., Caplan, R. D., & Van Harrison, R. (n.d.). *Person-Environment Fit Theory*. Retrieved April 25, 2022, from UNC Kenan-Flagler: <https://public.kenan-flagler.unc.edu/faculty/edwardsj/edwardsetal1998.pdf>
- EM Onderzoek. (2022). *EM Onderzoek kennisbank: Wat is bias?* Retrieved August 12, 2022, from EM Onderzoek: <https://www.emonderzoek.nl/wat-is-bias/>
- Faas, M. (2021, February 25). *Het Grote Zorgdebat: Maak de zorg aantrekkelijker*. Retrieved June 30, 2022, from Skpir: <https://www.skpir.nl/blog/het-grote-zorgdebat-maak-de-zorg-aantrekkelijker/>
- FP. (2022). *Gesundheits- und Kinderkrankenpfleger/-in*. Retrieved March 15, 2022, from FuturePlan: <https://www.futureplan.de/career/suchen/Universit%25C3%25A4tsklinikum+Jena/Gesundheits-+und+Kinderkrankenpfleger%252F-in/>
- Goflex. (n.d.). *Vershil tussen BOL en BBL*. Retrieved April 6, 2022, from Goflex: <https://www.goflex.nl/leren-en-werken/meer-over-het-roc/verschil-bol-bbl/#:~:text=BOL%20staat%20voor%20Beroeps%20Opleidende,bent%20van%20een%20erke nd%20leerbedrijf.>
- Groenendaal, L. (2019, June 27). *Waarom is ontwikkeling van medewerkers belangrijk?* Retrieved June 30, 2022, from CAN Academy: <https://academy.certificeringsadvies.nl/waarom-is-ontwikkeling-van-medewerkers-belangrijk/>

- Hanzehogeschool Groningen. (2020, November 12). *Honoursminor Kind en Jeugd*. Retrieved April 11, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/nld/onderwijs/gezondheid/academie-voor-verpleegkunde/opleidingen/honoursprogrammas/honoursspecialisatie-kind-jeugd>
- Hanzehogeschool Groningen. (2020). *Verpleegkunde (HBO-V)*. Retrieved April 7, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/nld/onderwijs/gezondheid/academie-voor-verpleegkunde/opleidingen/bachelor-voltijd/verpleegkunde>
- Hanzehogeschool Groningen. (2021, Oktober 27). *Kind en Jeugd*. Retrieved April 11, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/nld/onderwijs/gezondheid/academie-voor-verpleegkunde/opleidingen/minor/kindenjeugdspecialisatie>
- Hanzehogeschool Groningen. (2021, Juni 30). *Wat is een minor?* Retrieved April 11, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/nld/onderzoek/innovatiewerkplaatsen/digital-society-hub/voor-studenten/minoren/minor>
- Hanzehogeschool Groningen. (2022, April 7). *FastSwitch Verpleegkunde*. Retrieved April 11, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/nld/onderwijs/gezondheid/academie-voor-verpleegkunde/opleidingen/bachelor-deeltijd/fastswitch-verpleegkunde>
- Hanzehogeschool Groningen. (2022, April 6). *Verpleegkunde Deeltijd*. Retrieved April 11, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/nld/onderwijs/gezondheid/academie-voor-verpleegkunde/opleidingen/bachelor-deeltijd/verpleegkunde-modulair-hbo-v>
- Hanzehogeschool Groningen. (n.d.). *Rollen van de hbo-verpleegkundige*. Retrieved May 19, 2022, from Hanzehogeschool Groningen: <https://www.hanze.nl/assets/academie-voor-verpleegkunde/Documents/Public/Rollen%20van%20verpleegkundige.pdf>
- Hogeschool Utrecht. (n.d.). *Verpleegkunde*. Retrieved February 28, 2022, from Hogeschool Utrecht: <https://www.hu.nl/voltijd-opleidingen/verpleegkunde>
- Holmbeck, G. N., Jandasek, B., Sparks, C., & Zukerman, J. (2008). Theoretical Foundations of Developmental-Behavioral Pediatrics. Retrieved June 30, 2022, from <https://www.sciencedirect.com/topics/psychology/person-environment-fit#:~:text=The%20adequacy%20of%20this%20fit,the%20individual%20may%20experience%20maladaptation.>
- Hoogers, R. (2011, 11 02). *Stoppen met studie*. Retrieved September 14, 2022, from InfoNu: <https://educatie-en-school.infoanu.nl/diversen/86011-stoppen-met-studie.html>
- Jansen, C. (2021, 12 22). *Een ic-verpleegkundige uit Azië aan je bed in strijd tegen het personeelstekort in de zorg? 'Wen er maar aan'*. Retrieved March 17, 2022, from EenVandaag: <https://eenvandaag.avrotros.nl/item/een-ic-verpleegkundige-uit-azie-aan-je-bed-in-strijd-tegen-het-personeelstekort-in-de-zorg-wen-er-maar-aan/>
- Kluijver, B. (2018, march 19). *'Halveer studiekosten verpleegkunde-opleidingen'*. Retrieved August 16, 2022, from nursing: <https://www.nursing.nl/halveer-studiekosten-verpleegkunde-opleidingen/>
- Mcnaughtan, J. (2017). Applying a Fit Perspective to College Presidential Turnover and Selection. *Journal for the Study of Postsecondary and Tertiary Education*, 2:077 - 093. Retrieved June 30,

- 2022, from https://www.researchgate.net/publication/320655348_Applying_a_Fit_Perspective_to_College_Presidential_Turnover_and_Selection
- Memon, M. A., Salleh, R., Nordin, S. M., Cheach, J.-H., Ting, H., & Chuach, F. (2018, April 9). Person-organisation fit and turnover intention: the mediating role of work engagement. *Journal of Management Development*, 2. Retrieved April 26, 2022, from <https://www.emerald.com/insight/content/doi/10.1108/JMD-07-2017-0232/full/pdf?title=person-organisation-fit-and-turnover-intention-the-mediating-role-of-work-engagement>
- Middleton, F. (2022, February 17). *Reliability vs Validity in Research | Differences, Types and Examples*. Retrieved March 18, 2022, from Scribbr: <https://www.scribbr.com/methodology/reliability-vs-validity/>
- Noorderpoort. (n.d.). *Combi Mbo-verpleegkundige / Persoonlijk begeleider maatschappelijke zorg - verkort*. Retrieved April 12, 2022, from Noorderpoort: <https://noorderpoort.nl/voor-studenten/opleidingen/combi-mbo-verpleegkundige-persoonlijk-begeleider-maatschappelijke-zorg-verkort-bbl>
- Noorderpoort. (n.d.). *Mbo-Verpleegkunde*. Retrieved April 11, 2022, from Noorderpoort: <https://noorderpoort.nl/voor-studenten/opleidingen/mbo-verpleegkundige-bol>
- Noorderpoort. (n.d.). *Mbo-Verpleegkunde*. Retrieved April 12, 2022, from Noorderpoort: <https://noorderpoort.nl/voor-studenten/opleidingen/mbo-verpleegkundige-bbl>
- Noorderpoort. (n.d.). *Mbo-verpleegkunde verkort*. Retrieved April 12, 2022, from Noorderpoort: <https://noorderpoort.nl/voor-studenten/opleidingen/mbo-verpleegkundige-verkort-bbl>
- NOS. (2022, January 20). *Onderzoek: tekort aan zorgpersoneel op lange termijn alleen maar groter*. Retrieved February 28, 2022, from NOS: <https://nos.nl/artikel/2413851-onderzoek-tekort-aan-zorgpersoneel-op-lange-termijn-alleen-maar-groter>
- Opleiding.com. (n.d.). *MBO Verpleegkundige*. Retrieved February 28, 2022, from Opleiding.com: <https://opleiding.com/opleiding/mbo-opleiding-verpleegkundige/>
- Personio. (2021, December 15). *Human Resource Management (HRM): wat is het?* Retrieved May 10, 2022, from Personio: <https://www.personio.nl/hr-woordenboek/human-resource-management-hrm/>
- promedico. (n.d.). *Toenemende en complexere zorgvraag richting 2030*. Retrieved April 1, 2022, from promedico: <https://www.promedico.nl/wp-content/uploads/2017/01/Diagnose-Transformatie-Toenemende-en-complexere-zorgvraag-richting-2030.pdf>
- Qualtrics. (2022). *How to increase survey response rates*. Retrieved Juli 21, 2022, from Qualtrics: <https://www.qualtrics.com/experience-management/research/tools-increase-response-rate/#:~:text=Typically%2C%20the%20figures%20seem%20to,rate%20of%20response%20or%20completion.>
- Qualtrics. (2022). *How to increase survey response rates*. Retrieved August 9, 2022, from Qualtrics: <https://www.qualtrics.com/experience-management/research/tools-increase-response-rate/#:~:text=Estimates%20and%20ranges%20abound%20online,rate%20is%20anything%20above%2050%25.>

- Sawyer, K. (2021, March 14). *The Importance Of Person-Job Fit*. Retrieved June 30, 2022, from Workr Beeing:
<https://workrbeeing.com/2021/03/14/personjobfit/#:~:text=Person%2Djob%20fit%20is%20important,fit%20well%20with%20your%20job>.
- Sekiguchi, T. (2004). person-organization fit and person-job fit in employee selection: a review of the literature. *Osaka Keidai Ronshu*, 179-184. Retrieved May 10, 2022, from https://www.i-repository.net/il/user_contents/02/G0000031Repository/repository/keidaironshu_054_006_179-196.pdf
- Stichting Kind en Ziekenhuis. (2016, May 18). *Kinderen onnodig lang in ziekenhuis door tekort kinderverpleegkundigen*. Retrieved June 30, 2022, from Kind&Zorg:
<https://kindenzorg.nl/kinderen-onnodig-lang-ziekenhuis-tekort-kinderverpleegkundigen/>
- UMCG. (n.d.). *Het Beatrix kinderziekenhuis UMCG*. Retrieved February 23, 2022, from Intensive Care Kinderen: <https://ick.nl/umcg-beatrix-kinderkliniek/>
- UMCG. (n.d.). *Kinderverpleegkunde*. Retrieved February 23, 2022, from UMCG:
<https://onderwijs.umcg.nl/-/kinderverpleegkunde>
- UMCG. (n.d.). *Kinderverpleegkunde*. Retrieved April 12, 2022, from UMCG:
<https://onderwijs.umcg.nl/-/kinderverpleegkunde>
- V&VN. (2020, November 10). *Advies aan kabinet: Maak werk in zorg aantrekkelijker*. Retrieved June 30, 2022, from V&VN: <https://www.venvn.nl/nieuws/advies-aan-kabinet-maak-werk-in-zorg-aantrekkelijker/>
- Wagemaker, J., & Wulferink - Elzink, G. (2015). *Expertisegebied kinderverpleegkundige*. Loosdrecht: Drukkerij ten Herkel. Retrieved June 30, 2022, from <https://www.venvn.nl/media/e4bojrl/expertisegebied-kinderverpleegkundige.pdf>
- Willems, D., & Zwieten, M. V. (2004, December 10). *Waardering van kwalitatief onderzoek*. Retrieved August 12, 2022, from Huisarts en Wetenschap: <https://www.henw.org/artikelen/waardering-van-kwalitatief-onderzoek>
- Zorg voor het Noorden. (n.d.). *Wat is de EPA in je opleiding?* Retrieved May 19, 2022, from Zorg voor het Noorden: <https://www.zorgvoorhetnoorden.nl/ervaringen/de-epa-in-opleiding/#:~:text=Wereldwijd%20maken%20steeds%20meer%20zorgopleidingen,werk%20van%20de%20zorgprofessional%20vormen>.

Appendix A Informed consent form interviews Dutch version

Titel van het onderzoek

Het verbeteren van de route om kinderverpleegkundige te worden in het Beatrix Kinderziekenhuis (Universitair Medisch Centrum Groningen).

Doel van het onderzoek

Het onderzoek wordt uitgevoerd door Manon Klein Teeselink, master student Gezondheidswetenschappen aan de Universiteit Twente. De opdracht wordt uitgevoerd in opdracht van het Beatrix Kinderziekenhuis. Op dit moment is er landelijk al een groot tekort aan verpleegkundigen en de verwachting is dat dit tekort in de komende jaren nog verder zal gaan toenemen. Op dit moment heeft het Beatrix Kinderziekenhuis nog genoeg kinderverpleegkundigen en het ziekenhuis wil voorkomen dat zij grote capaciteitsproblemen ontwikkelen in de toekomst. Waar het Beatrix Kinderziekenhuis ook tegenaan loopt is dat de route die afgelegd moet worden om als kinderverpleegkundige te kunnen gaan werken, te lang duurt. Middels dit onderzoek wordt onderzocht of het mogelijk is om de route die afgelegd moet worden om te kunnen werken als kinderverpleegkundige verkort kan worden, zodat het aantrekkelijker wordt om deze route af te leggen en te voorkomen dat het Beatrix Kinderziekenhuis met capaciteitsproblemen te maken krijgt in de toekomst.

Het interview

Voorafgaand aan het interview zal de onderzoeker een kleine inleiding geven over wat de bedoeling is van het interview. Hierna wordt door de proefpersoon het informed consent ondertekend. Tijdens het interview zal de onderzoeker open vragen stellen over hoe de opleidingen verpleegkunde en kinderverpleegkundige op dit moment georganiseerd zijn, wat er de afgelopen jaren allemaal veranderd is aan deze opleidingen en wat de bijbehorende effecten daarvan waren.

Potentiële risico's en ongemakken

Er zijn geen economische, juridische of fysieke risico's of ongemakken bij deelname aan dit onderzoek. Indien er door de onderzoeker vragen worden gesteld waarop u geen antwoord wilt/kunt geven, dan mag u dit aangeven. Uw deelname aan het onderzoek is geheel vrijwillig en u kunt op ieder moment dan ook besluiten om het interview te stoppen.

Vergoeding

Voor de deelname aan dit onderzoek is geen enkele vergoeding verbonden.

Vertrouwelijkheid

Belangrijk om te vermelden is dat de onderzoeker vertrouwelijk om zal gaan met de informatie uit het interview. Bij het ondertekenen van het informed consent krijgt u een bijbehorend nummer, die alleen bij de onderzoeker bekend zal zijn. In de data zal u dan ook niet met naam genoemd worden, maar zal er verwezen worden naar het nummer. Op deze manier zal uw privacy volledig gewaarborgd worden. De geanonimiseerde data zal opgeslagen worden in de database van de Universiteit Twente en zal alleen gedeeld worden met het Beatrix Kinderziekenhuis en Universiteit Twente. Het onderzoek is daarnaast goedgekeurd door de ethische commissie van de Universiteit Twente.

Vrijwilligheid

U mag geheel vrijwillig deelnemen aan dit onderzoek. Als proefpersoon kunt u op elk moment besluiten om uw deelname te stoppen. Mocht u om wat voor reden dan ook besluiten om de toestemming tot het verwerken van uw gegevens te willen intrekken, dan is dit mogelijk tot maximaal 7 dagen na deelname. Uw gegevens zullen dan verwijderd en vernietigd worden uit het databestand. Na de termijn van 7 dagen zal alle data die verzameld is gebruikt worden in het onderzoek. Mocht u uw deelname aan het onderzoek willen stoppen, een vraag of klacht hebben over het onderzoek, uw zorgen willen uiten over het onderzoek, of enige vorm van schade of ongemak ervaren voorafgaand, tijdens of na het onderzoek, dan wordt u vriendelijk verzocht om contact op te nemen met de onderzoeker door middel van de contactgegevens die hieronder vermeld staan.

Toestemmingsverklaring

Indien u dit formulier ondertekent, geeft u aan dat u goed geïnformeerd bent over het onderzoek, de onderzoeksmethode en het gebruik en verwerking van de data die tijdens het onderzoek verkregen worden. U bent op de hoogte van de risico's of ongemakken die mogelijk verbonden zijn aan het onderzoek. Daarnaast geeft u aan dat al uw mogelijke vragen met betrekking tot het onderzoek beantwoord zijn en dat u vrijwillig deelneemt. Wanneer u dit formulier ondertekent heeft, zult u een kopie van het ingevulde document ontvangen.

Het doel van dit formulier is dat de voorwaarden van deelname vastgelegd worden. De vragen die hieronder staan opgesteld zijn voor de proefpersoon bedoeld. Indien u het eens bent met de stelling en/of u bent op de hoogte van de gegeven informatie in de vraag, dan geeft u dit weer met 'JA'. Indien u het niet eens bent met de stelling en/of u bent niet op de hoogte van de informatie in de vraag, dan geeft u dit weer met een 'NEE'.

	JA / NEE
Ik heb voldoende informatie ontvangen over het onderzoek dat uitgevoerd wordt door Manon Klein Teeselink. Het doel van deelname van mij als proefpersoon is duidelijk.	
Mijn deelname aan het onderzoek is vrijwillig. Dat betekent dat ik me op geen enkele manier verplicht of geforceerd voel om aan dit onderzoek deel te nemen.	
Mijn deelname aan het onderzoek betekent dat ik geïnterviewd zal worden door Manon Klein Teeselink. Het interview duurt maximaal 45 minuten. Ik geef Manon Klein Teeselink toestemming om tijdens het interview de audio op te nemen. Het is mij bekend dat ik op elk willekeurig moment zonder opgave van reden mijn deelname kan stoppen.	
Ik heb het recht om vragen niet te hoeven beantwoorden. Indien ik mij ongemakkelijk voel tijdens het interview, heb ik het recht om mijn deelname aan het onderzoek te stoppen.	
Manon Klein Teeselink heeft mij op de hoogte gesteld over het feit dat de gegevens die verspreid worden door het onderzoek, niet herleidbaar naar mij zullen zijn. Mijn privacy wordt gewaarborgd.	
Manon Klein Teeselink heeft mij op de hoogte gesteld over dat het onderzoek is goedgekeurd door de ethische commissie van de Universiteit Twente.	

Ik heb dit formulier volledig doorgelezen en begrepen. Al mijn vragen zijn beantwoord en ik ben mij ervan bewust dat mijn deelname aan dit onderzoek volledig vrijwillig is.	
Na het ondertekenen van dit formulier zal ik een kopie ontvangen van dit formulier die dan ook ondertekend zal zijn door de onderzoeker (Manon Klein Teeselink).	

Mocht u geïnteresseerd zijn in de resultaten van dit onderzoek, dan kunt u dit direct na het interview aangeven of tot uiterlijk augustus 2022 door contact op te nemen met Manon Klein Teeselink. De contactgegevens van haar staan hierboven vermeld. Uiterlijk in september 2022 zal zij dan een samenvatting van de resultaten van dit onderzoek naar u versturen.

Handtekening en datum

Naam proefpersoon:

Naam onderzoeker: Manon Klein Teeselink

Handtekening:

Handtekening:

Datum:

Datum:

Appendix B Informed consent form interviews English version

Title of the research project

Improving the route of becoming a pediatric nurse in the Beatrix Children's Hospital.

Goal of the research

The research will be conducted by Manon Klein Teeselink, master student of Health Sciences at the University of Twente. The assignment is being carried out on behalf of the Beatrix Children's Hospital. At the moment there is already a major shortage of nurses nationally and it is expected that this shortage will increase further in the coming years. At the moment, the Beatrix Children's Hospital has enough pediatric nurses and the hospital wants to prevent them from developing major capacity problems in the future. The Beatrix Children's Hospital also encounters problems that the route that must be taken to start working as a pediatric nurse takes too long. This research will investigate whether it is possible to shorten the route to be able to work as a pediatric nurse, so that it becomes more attractive to take this route and to prevent the Beatrix Children's Hospital from having to deal with capacity problems in the future.

The interview

Before the interview, the researcher will give a short introduction about the purpose of the interview. The informed consent is then signed by the subject. During the interview, the researcher will ask open questions about how the nursing and pediatric nursing study courses are currently organized, what has changed in these courses in recent years and what the associated effects were.

Potential risks and discomfort

There are no economic, legal, or physical risk or inconveniences in participating in this study. If the researcher asks questions that you do not want or cannot answer, you may indicate this. Your participation in the survey is completely voluntary and you can decide to stop the interview at any time.

Reimbursement

There is no compensation whatsoever for participating in this study.

Confidentiality

It is important to mention that the researcher will treat the information from the interview confidentially. When you sign the informed consent, you will receive a corresponding number, which will only be known to the researcher. In the data you will therefore not be mentioned by name, but reference will be made to the number. In this way your privacy will be fully guaranteed. The anonymized data will be stored in the database of the University of Twente and will only be shared with the Beatrix Children's Hospital and the University of Twente. The research has also been approved by the ethics committee of the University of Twente.

Voluntariness

You may voluntarily participate in this study. As a test subject, you can decide to stop participating at any time. If for whatever reason you decide to withdraw your consent to the processing of your data, this is possible up to a maximum of 7 days after participation. Your data will then be removed and destroyed from the database. After the 7-day period, all data collected will be used in the research.

Should you wish to stop your participation in the study, have a question or complaint about the study, would like to express your concerns about the study, or experience any harm or discomfort before, during or after the study, you are kindly requested to contact the researcher using the contact details listed below.

Statement of consent

By signing this form, you indicate that you are well informed about the research, the research method and the use and processing of the data obtained during the research. You are aware of the risks or inconveniences that may be associated with the study. In addition, you indicate that all your possible questions regarding the study have been answered and that you are participating voluntarily. When you have signed this form, you will receive a copy of the completed document.

The purpose of this form is to establish the conditions of participation. The questions below are intended for the test subject. If you agree with the statement and/or you are aware of the information given in the question, please indicate this with 'YES'. If you do not agree with the statement and/or you are not aware of the information in the question, indicate this with a 'NO'.

	YES / NO
I have received sufficient information about the research being conducted by Manon Klein Teeselink. The purpose of my participation as a test subject is clear.	
My participation in the study is voluntary. This means that I do not feel obligated or forced in any way to participate in this study.	
My participation in the study means that I will be interviewed by Manon Klein Teeselink. The interview lasts a maximum of 45 minutes. I authorize Manon Klein Teeselink to record the audio during the interview. I am aware that I can stop my participation at any time without giving any reason.	
I have the right to not answer questions. If I feel uncomfortable during the interview, I have the right to stop participating in the study.	
Manon Klein Teeselink has informed me that the data disseminated through the research will not be traceable to me. My privacy is guaranteed.	
Manon Klein Teeselink has informed me that the research has been approved by the ethics committee of the University of Twente.	
I have fully read and understood this form. All my questions have been answered and I am aware that my participation in this study is completely voluntary.	
After signing this form, I will receive a copy of this form, which will also be signed by the researcher (Manon Klein Teeselink).	

If you are interested in the results of this study, you can indicate this immediately after the interview or until August 2022 at the latest by contacting Manon Klein Teeselink. Her contact details are listed above. She will then send you a summary of the results of this investigation by September 2022 at the latest.

Signature and date

Name participant:

Signature:

Date:

Name researcher: Manon Klein Teeselink

Signature:

Date:

Appendix C Informed consent form surveys Dutch version

Titel van het onderzoek

Het verbeteren van de route om kinderverpleegkundige te worden in het Beatrix Kinderziekenhuis (Universitair Medisch Centrum Groningen).

Doel van het onderzoek

Het onderzoek wordt uitgevoerd door Manon Klein Teeselink, master student Gezondheidswetenschappen aan de Universiteit Twente. De opdracht wordt uitgevoerd in opdracht van het Beatrix Kinderziekenhuis. Op dit moment is er landelijk al een groot tekort aan verpleegkundigen en de verwachting is dat dit tekort in de komende jaren nog verder zal gaan toenemen. Op dit moment heeft het Beatrix Kinderziekenhuis nog genoeg kinderverpleegkundigen en het ziekenhuis wil voorkomen dat zij grote capaciteitsproblemen ontwikkelen in de toekomst. Waar het Beatrix Kinderziekenhuis ook tegenaan loopt is dat de route die afgelegd moet worden om als kinderverpleegkundige te kunnen gaan werken, te lang duurt. Middels dit onderzoek wordt onderzocht of het mogelijk is om de route die afgelegd moet worden om te kunnen werken als kinderverpleegkundige verkort kan worden, zodat het aantrekkelijker wordt om deze route af te leggen en te voorkomen dat het Beatrix Kinderziekenhuis met capaciteitsproblemen te maken krijgt in de toekomst.

De vragenlijst

De eerste vragen in de vragenlijst zijn een paar algemene vragen die gaan over de inclusiecriteria voor dit onderzoek. Daarna volgen de vragen gericht op de onderzoeksvraag. De vragenlijst zal in totaal uit [NUMMER] vragen bestaan.

Potentiële risico's en ongemakken

Er zijn geen economische, juridische of fysieke risico's of ongemakken bij deelname aan dit onderzoek. Indien er door de onderzoeker vragen worden gesteld waarop u geen antwoord wilt/kunt geven, dan mag u dit aangeven. Uw deelname aan het onderzoek is geheel vrijwillig en u kunt op ieder moment dan ook besluiten om het interview te stoppen.

Vergoeding

Voor de deelname aan dit onderzoek is geen enkele vergoeding verbonden.

Vertrouwelijkheid

Belangrijk om te vermelden is dat de onderzoeker vertrouwelijk om zal gaan met de informatie uit de vragenlijst. Na het invullen van de vragenlijst krijgt u een bijbehorend nummer, die alleen bij de onderzoeker bekend zal zijn. In de data zal u dan ook niet met naam genoemd worden, maar zal er verwezen worden naar het nummer. Op deze manier zal uw privacy volledig gewaarborgd worden. De geanonimiseerde data zal opgeslagen worden in de database van de Universiteit Twente en zal alleen gedeeld worden met het Beatrix Kinderziekenhuis en Universiteit Twente. Het onderzoek is daarnaast goedgekeurd door de ethische commissie van de Universiteit Twente.

Vrijwilligheid

U mag geheel vrijwillig deelnemen aan dit onderzoek. Als proefpersoon kunt u op elk moment besluiten om uw deelname te stoppen. Mocht u om wat voor reden dan ook besluiten om de

toestemming tot het verwerken van uw gegevens te willen intrekken, dan is dit mogelijk tot maximaal 7 dagen na deelname. Uw gegevens zullen dan verwijderd en vernietigd worden uit het databestand. Na de termijn van 7 dagen zal alle data die verzameld is gebruikt worden in het onderzoek. Mocht u uw deelname aan het onderzoek willen stoppen, een vraag of klacht hebben over het onderzoek, uw zorgen willen uiten over het onderzoek, of enige vorm van schade of ongemak ervaren voorafgaand, tijdens of na het onderzoek, dan wordt u vriendelijk verzocht om contact op te nemen met de onderzoeker door middel van de contactgegevens die hieronder vermeld staan.

Toestemmingsverklaring

Indien u dit formulier ondertekent, geeft u aan dat u goed geïnformeerd bent over het onderzoek, de onderzoeksmethode en het gebruik en verwerking van de data die tijdens het onderzoek verkregen worden. U bent op de hoogte van de risico's of ongemakken die mogelijk verbonden zijn aan het onderzoek. Daarnaast geeft u aan dat al uw mogelijke vragen met betrekking tot het onderzoek beantwoord zijn en dat u vrijwillig deelneemt.

Het doel van dit formulier is dat de voorwaarden van deelname vastgelegd worden. De vragen die hieronder staan opgesteld zijn voor de proefpersoon bedoeld. Indien u het eens bent met de stelling en/of u bent op de hoogte van de gegeven informatie in de vraag, dan geeft u dit weer met 'JA'. Indien u het niet eens bent met de stelling en/of u bent niet op de hoogte van de informatie in de vraag, dan geeft u dit weer met een 'NEE'.

	JA / NEE
Ik heb voldoende informatie ontvangen over het onderzoek dat uitgevoerd wordt door Manon Klein Teeselink. Het doel van deelname van mij als proefpersoon is duidelijk.	
Mijn deelname aan het onderzoek is vrijwillig. Dat betekent dat ik me op geen enkele manier verplicht of geforceerd voel om aan dit onderzoek deel te nemen.	
Mijn deelname aan het onderzoek betekent dat ik een vragenlijst toegestuurd krijg door Manon Klein Teeselink. Het invullen van de vragenlijst duurt maximaal 20 minuten. Het is mij bekend dat ik op elk willekeurig moment zonder opgave van reden mijn deelname kan stoppen.	
Ik heb het recht om vragen niet te hoeven beantwoorden. Indien ik mij ongemakkelijk voel tijdens het invullen van de vragenlijst, heb ik het recht om mijn deelname aan het onderzoek te stoppen.	
Manon Klein Teeselink heeft mij op de hoogte gesteld over het feit dat de gegevens die verspreid worden door het onderzoek, niet herleidbaar naar mij zullen zijn. Mijn privacy wordt gewaarborgd.	
Manon Klein Teeselink heeft mij op de hoogte gesteld over dat het onderzoek is goedgekeurd door de ethische commissie van de Universiteit Twente.	
Ik heb dit formulier volledig doorgelezen en begrepen. Al mijn vragen zijn beantwoord en ik ben mij ervan bewust dat mijn deelname aan dit onderzoek volledig vrijwillig is.	

Mocht u geïnteresseerd zijn in de resultaten van dit onderzoek, dan kunt u dit aan het einde van de vragenlijst aangeven of tot uiterlijk augustus 2022 door contact op te nemen met Manon Klein Teeselink. De contactgegevens van haar staan hierboven vermeld. Uiterlijk in september 2022 zal zij dan een samenvatting van de resultaten van dit onderzoek naar u versturen.

Naam proefpersoon:

Datum:

Appendix D Informed consent form surveys English version

Name of the research project

Improving the route of becoming a pediatric nurse at the Beatrix Children's Hospital.

Goal of the research

The research will be conducted by Manon Klein Teeselink, master student of Health Sciences at the University of Twente. The assignment is being carried out on behalf of the Beatrix Children's Hospital. At the moment there is already a major shortage of nurses nationally and it is expected that this shortage will increase further in the coming years. At the moment, the Beatrix Children's Hospital has enough pediatric nurses and the hospital wants to prevent them from developing major capacity problems in the future. The Beatrix Children's Hospital also encounters problems that the route that must be taken to start working as a pediatric nurse takes too long. This research will investigate whether it is possible to shorten the route to be able to work as a pediatric nurse, so that it becomes more attractive to take this route and to prevent the Beatrix Children's Hospital from having to deal with capacity problems in the future.

The survey

The first questions in the questionnaire are a few general questions about the inclusion criteria for this study. This is followed by questions related to the research question. The questionnaire will consist of [NUMBER] questions in total.

Potential risks and discomfort

There are no economic, legal or physical risks or inconveniences in participating in this study. If the researcher asks questions that you do not want or cannot answer, you may indicate this. Your participation in the survey is completely voluntary and you can decide to stop the interview at any time.

Reimbursement

There is no compensation whatsoever for participating in this study.

Confidentiality

It is important to mention that the researcher will treat the information from the questionnaire confidentially. After completing the questionnaire, you will receive a corresponding number, which will be only be known to the researcher. In the data you will therefore not be mentioned by name, but reference will be made to the number. In this way your privacy will be fully guaranteed. The anonymized data will be stored in the database of the University of Twente and will only be shared with the Beatrix Children's Hospital and the University of Twente. The research has also been approved by the ethics committee of the University of Twente.

Voluntariness

You may voluntarily participate in this study. As a participant, you can decide to stop participating at any time. If for whatever reason you decide to withdraw your consent to the processing of your data, this is possible up to a maximum of 7 days after participation. Your data will then be removed and destroyed from the database. After the 7-day period, all data collected will be used in the research. Should you wish to discontinue your participation in the study, have a question or complaint about the

study, would like to express your concerns about the study, or experience any harm or discomfort before, during or after the study, you are kindly requested to contact the researcher using the contact details listed below.

Statement of consent

By signing this form, you indicate that you are well informed about the research, the research method and the use and processing of the data obtained during the research. You are aware of the risks or inconveniences that may be associated with the study. In addition, you indicate that all your possible questions regarding the study have been answered and that you are participating voluntarily.

The purpose of this form is to establish the conditions of participation. The questions below are intended for the participant. If you agree with the statement and/or you are aware of the information given in the question, you indicate this with 'YES'. If you do not agree with the statement and/or you are not aware of the information in the question, indicate this with a 'NO'.

	YES / NO
I have received sufficient information about the research being conducted by Manon Klein Teeselink. The purpose of my participation as a participant is clear.	
My participation in the study is voluntary. This means that I do not feel obliged or forced in any way to participate in this study.	
My participation in the survey means that I will be sent a questionnaire by Manon Klein Teeselink. It takes a maximum of 20 minutes to complete the questionnaire. I am aware that I can cancel my participation at any time without giving any reason.	
I have the right not to answer questions. If I feel uncomfortable during the interview, I have the right to stop participating in the study.	
Manon Klein Teeselink has informed me that the data disseminated through the research will not be traceable to me. My privacy is guaranteed.	
Manon Klein Teeselink has informed me that the research has been approved by the ethics committee of the University of Twente.	
I have fully read and understood this form. All my questions have been answered and I am aware that my participation in this study is completely voluntary.	

If you are interested in the results of this survey, you can indicate this at the end of the questionnaire or until August 2022 at the latest by contacting Manon Klein Teeselink. Her contact details are listed above. She will then send you a summary of the results of this research by September 2022 at the latest.

Name participant:

Date:

Appendix E Topic list semi-structured interview

Two research questions that need to be answered:

1. How are the studies nursing and pediatric nursing currently organised? (Chapter 1)

- ❖ Nursing study
 - Mbo nursing
 - How is the first year of the nursing study organised?
 - How is the second year of the nursing study organised?
 - How is the third year of the nursing study organised?
 - How is the fourth year of the nursing study organised?
 - What are the current bottlenecks in the mbo nursing study?
 - What is exactly the difference between the shortened trajectory and the 'normal' mbo nursing study?
 - How much students are following the fulltime nursing study, parttime nursing study and the shortened nursing studies?
 - If students want to follow the BBL nursing track, do they need to find a training company by themselves or can the college also help them find a training company?
 - Hbo nursing
 - How is the first year of the nursing study organised?
 - How is the second year of the nursing study organised?
 - How is the third year of the nursing study organised?
 - How is the fourth year of the nursing study organised?
 - What are the current bottlenecks in the hbo nursing study?

2. Which changes have been made in the nursing and pediatric nursing study programs in recent years? (Chapter 2)

- ❖ Which changes have been made in the mbo nursing study program in recent years?
 - What were the associated effects?
- ❖ Which changes have been made in the hbo nursing study program in recent years?
 - What were the associated effects?

Interview questions minor child and youth (Hanzehogeschool)

1. How is the minor child and youth currently organised?
2. What has changed in the minor with associated effects in the past 5 years?
3. What kind of problems are you currently encountering in the minor child and youth?
4. Where do you see room for improvement?
5. How are students currently being recruited for this minor? How do you ensure the right match between education (work) and person?
6. What concrete actions are there at the moment to continuously improve the minor for children and youth (think of evaluation surveys to students, within staff etc)
7. Is there currently a collaboration with the postgraduate education in pediatric nursing? How is this collaboration organised now?
8. Is it currently possible that if a student has taken the minor child and youth, this has positive consequences for the further education to become a pediatric nurse (e.g. less longer follow-up training time, exemption from certain tests)?

Interview questions pediatric nursing study

1. How is the pediatric nursing study currently organised?
2. What concrete changes have been made within the program in the past 5 years? And what were the effects?
3. What organisational problems is the study facing now?
4. What concrete actions are there at the moment to continuously improve the pediatric nursing study (think of evaluation surveys to students, within staff etc)
5. How are the students currently recruited for this further education? How do you ensure the right match between education (work) and person?
6. How many students have started annually in the past 5 years, is this fairly the same or is there a big difference?
7. Do you have insight into student satisfaction with the pediatric nursing course? (and work future)
8. Is there a turnover within the further education (that students transfer to other follow-up programs?)
9. Is there currently a collaboration between the minor child and youth and the post-secondary education in pediatric nursing? Why is this collaboration there or not? And what benefits will be gained from the collaboration? Can students move on to further education more quickly if they have completed the minor or does this make no difference?
10. Is there a collaboration between the further education in pediatric nursing and the various mbo and hbo studies to become a nurse? How? What benefit is gained from this?

Appendix F Online survey research question 3

English version

1. Are you a specialized nurse (in training) working within a different specialization than pediatrics in the University Medical Centre Groningen?
 - A. Yes
 - B. No

2. In which specialization do you work as a nurse (in training)?
Explanation...

3. What is your genderidentity?
 - A. Man
 - B. Woman
 - C. Intersekse
 - D. Other, or do not prefer to answer

4. What is your age?
 - A. 16 – 20 years
 - B. 21 – 30 years
 - C. 31 – 40 years
 - D. 41 – 50 years
 - E. 51 – 60 years
 - F. 61 – 67 years

5. How long have you been working as a nurse?
 - A. 0 – 5 years
 - B. 6 – 10 years
 - C. 11 – 20 years
 - D. More than 20 years

6. Were you able to become acquainted with the profession of pediatric nursing during your nursing study? (selecting multiple answers is possible)
 - A. Yes, through one or more theoretical courses on pediatric nursing
 - B. Yes, through an internship in a children's hospital or children's home care
 - C. Yes, through a minor in youth and children
 - D. Yes, through another possibility, namely... (explanation)
 - E. No

7. Have you ever considered taking a specialization as a pediatric nurse?
 - A. Yes
 - B. No

8. If you have considered specializing as a pediatric nurse but have not started it yet, what is the reason you have not started it yet? (selecting multiple answers is possible)
 - A. I do not want to start a new study
 - B. My salary will be less when I'm starting a new study compared to what I'm earning now

- C. I do not have time to combine work and study together with my personal life at the moment
 - D. I'm still not sure if I really want it, explanation...
 - E. Other reasons, namely.... (explanation)
9. What were or are the reason(s) you choose another specialization than pediatric nursing? (It is possible to select multiple answers)
- A. The study pediatric nursing takes too long for me
 - B. I didn't think the specialization in pediatrics was interesting enough for me
 - C. I do not like to work with children
 - D. The working conditions (salary, working hours, work pressure) at another specialization were better for me
 - E. Other reason, namely... (explanation)
10. Do you have any comments or questions that you would like to write down about completing this survey?
- A. Yes, explanation...
 - B. No

Dutch version

1. Ben je een gespecialiseerde verpleegkundige (in opleiding) werkend in een andere specialisatie dan kindergeneeskunde in het Universitair Medisch Centrum Groningen?
 - A. Ja
 - B. Nee
2. Binnen welke specialisatie ben je werkzaam als verpleegkundige (in opleiding)?
Toelichting...
3. Wat is je genderidentiteit?
 - A. Man
 - B. Vrouw
 - C. Intersekse
 - D. Anders, of ik prefereer deze vraag niet te willen beantwoorden
4. Wat is je leeftijd?
 - A. 16 – 20 jaar
 - B. 21 – 30 jaar
 - C. 31 – 40 jaar
 - D. 41 – 50 jaar
 - E. 51 – 60 jaar
 - F. 61 – 67 jaar
5. Hoelang werk je al als verpleegkundige?
 - A. 0 – 5 jaar
 - B. 6 – 10 jaar
 - C. 11 – 20 jaar
 - D. Meer dan 20 jaar

6. Heb je tijdens je opleiding verpleegkunde kennis kunnen maken met het beroep kinderverpleegkundige? (meerdere antwoorden selecteren is mogelijk)
 - A. Ja, via een of meer theoretische vakken kinderverpleegkunde
 - B. Ja, via een stage in een kinderziekenhuis of kinderthuiszorg
 - C. Ja, via een minor gericht op kinderverpleegkunde
 - D. Ja, via een andere mogelijkheid, namelijk... (toelichting)
 - E. Nee

7. Heb je ooit de vervolgopleiding tot kinderverpleegkundige overwogen?
 - A. Ja
 - B. Nee

8. Als je hebt overwogen om je te gaan specialiseren tot kinderverpleegkundige maar daar nog niet mee bent gestart, wat is de reden dat je dat nog niet begonnen bent? (sla deze vraag over indien je B als antwoord hebt gegeven op de vorige vraag)
 - A. Ik wil geen nieuwe studie starten
 - B. Mijn salaris zal lager zijn als ik aan een nieuwe studie begin in vergelijking met wat ik nu verdien
 - C. Ik heb momenteel geen tijd om werk en studie te combineren met mijn persoonlijke leven
 - D. Ik twijfel nog of ik het echt wil, toelichting...
 - E. Andere reden, namelijk... (toelichting)

9. Om welke reden(en) heb je voor een andere specialisatie dan kinderverpleegkundige gekozen? (meerdere antwoorden selecteren is mogelijk)
 - A. De vervolgopleiding tot kinderverpleegkundige duurt voor mij te lang
 - B. Ik vond de studie kinderverpleegkundige niet interessant (genoeg)
 - C. Ik werk niet graag met kinderen
 - D. De arbeidsvoorwaarden (salaris, werktijden, werkdruk) bij een andere specialisatie waren beter voor mij
 - E. Andere reden, namelijk... (toelichting)

10. Heb je nog op- of aanmerkingen die je graag kwijt wilt naar aanleiding van het invullen van deze enquête?
 - A. Ja, toelichting...
 - B. Nee

Appendix G Online survey research question 4

English version

1. Are you a pediatric nurse (in training) working at the Beatrix Children's Hospital?
 - A. Yes
 - B. No

2. What is your gender(identity)?
 - A. Man
 - B. Woman
 - C. Intersex
 - D. Other, or do not prefer to answer

3. What is your age?
 - A. 16 – 20 years
 - B. 21 – 30 years
 - C. 31 – 40 years
 - D. 41 – 50 years
 - E. 51 – 60 years
 - F. 61 – 67 years

4. How many years of work experience do you have as a pediatric nurse?
 - A. I am a pediatric nurse in training
 - B. 0 – 5 years
 - C. 6 – 10 years
 - D. 11 – 20 years
 - E. 21 – 30 years
 - F. More than 30 years

5. At which school did you complete your nursing degree?
 - A. Hanzehogeschool Groningen
 - B. Alfa-college
 - C. Noorderpoort
 - D. Other school, namely...

6. Which study route did you follow?
 - A. Mbo nursing
 - B. Mbo nursing shortened route
 - C. Hbo nursing
 - D. Mbo nursing and hbo nursing
 - E. Mbo nursing shortened route and hbo nursing
 - F. Other, namely..

7. Why did you (at the time) want to study nursing?
Explanation.....

8. Was it attractive for you at the time to start the study nursing? Why/why not?
- A. Yes, explanation...
 - B. No, explanation...
9. What did you find attractive (after completing the nursing study) and what less attractive about the study? (both answers can be selected)
- A. Attractive: explanation....
 - B. Less attractive: explanation...
10. What did you think of the courses and internships that were covered within the nursing study program?
Explanation.....
11. Were you able to become acquainted with the profession of a pediatric nurse during your nursing study? (multiple answers are possible)
- A. Yes, through one or more theoretical courses on pediatric nursing
 - B. Yes, through an internship in a children's hospital or children's home care
 - C. Yes, through a minor focused on pediatric nursing
 - D. Yes, in a different way, namely... (explanation)
 - E. No, but I would have liked that at the time
 - F. No, and I didn't want that at the time either
12. How many years did you study nursing?
- A. two and a half years
 - B. 3 years
 - C. 3.5 years
 - D. 4 years
 - E. 4.5 years
 - F. 5 years
 - G. Other, namely... year (explanation)
13. Did you feel competent as a nurse when you completed your nursing study?
- A. Yes
 - B. No, explanation...
14. What did you dislike about the study nursing?
Explanation.....
15. Did the study nursing meet your expectations? Why / why not?
- A. Yes, explanation...
 - B. No, explanation...
16. Did you ever consider quitting the study nursing at the time? If yes, why?
- A. Yes, explanation...
 - B. No
17. Would you recommend your nursing study to prospective students?
- A. Yes, explanation...

- B. No, explanation...
18. What could the nursing study improve to make it more attractive to follow this study?
Explanation...
19. When did you find out you were interested in **pediatric nursing**?
- Before I studied nursing
 - During the study nursing
 - While working as a nurse (certified nursing degree obtained)
 - Other, namely.. (explanation)
20. Did you immediately start the study in pediatric nursing after completing your nursing study?
- Yes, I started the study pediatric nursing at the first registration opportunity after completing my nursing study
 - No, I had to wait until a study place became available for the study pediatric nursing
 - No, I first wanted to gain general work experience as a nurse
 - No, for another reason, namely.. (explanation)
21. Where did you follow (or are you following) your study for pediatric nursing?
- Wenckebach Instituut
 - Other, namely... (explanation)
22. Why did you (at the time) choose to start studying pediatric nursing?
Explanation.....
23. Was it attractive for you (at the time) to start the study pediatric nursing? Why / why not?
- Yes, explanation...
 - No, explanation...
24. What did/do you find attractive and what less attractive about the study pediatric nursing?
(both answers can be selected)
- Attractive: explanation...
 - Less attractive: explanation...
25. How many months did it take you to finish your pediatric nursing study?
- 12 months
 - 13 months
 - 14 months
 - 15 months
 - Other, namely Months (explanation)
 - I am still a pediatric nurse in training
26. Did you feel competent as a pediatric nurse when you completed your pediatric nursing study?
- Yes
 - No, explanation...
 - I am still a pediatric nurse in training

27. Does (did) the study pediatric nursing meet your expectations? Why / why not?
A. Yes, explanation...
B. No, explanation...
28. Did you ever consider (at the time) or are you considering to stop the study pediatric nursing?
If yes, why?
A. Yes, explanation...
B. No
29. What could the study pediatric nursing improve to make it more attractive to follow this study?
Explanation
30. Would you recommend the study pediatric nursing to prospective students? Why/ why not?
A. Yes, explanation...
B. No, explanation...
31. Do you have any comments that you would like to write down about completing this survey?
A. Yes, explanation...
B. No

Dutch version

1. Ben je een kinderverpleegkundige (in opleiding) werkend in het Beatrix Kinderziekenhuis?
A. Ja
B. Nee
2. Wat is je genderidentiteit?
A. Man
B. Vrouw
C. Intersekse
D. Anders, of geef er de voorkeur aan deze vraag niet te beantwoorden
3. Wat is je leeftijd?
A. 16 – 20 jaar
B. 21 – 30 jaar
C. 31 – 40 jaar
D. 41 – 50 jaar
E. 51 – 60 jaar
F. 61 – 67 jaar
4. Hoeveel jaar werkervaring heb je als kinderverpleegkundige?
A. Ik ben nog in opleiding tot kinderverpleegkundige
B. 0 – 5 jaar
C. 6 – 10 jaar
D. 11 – 20 jaar
E. 21 – 30 jaar
F. > 30 jaar

5. Op welke school heb je de studie verpleegkunde afgerond? (meerdere antwoorden selecteren is mogelijk)
- A. Hanzehogeschool Groningen
 - B. Alfa-college
 - C. Noorderpoort
 - D. Andere school
6. Welke studieroute heb je gevolgd?
- A. Mbo verpleegkunde
 - B. Mbo verpleegkunde verkorte route
 - C. Hbo verpleegkunde
 - D. Mbo verpleegkunde en hbo verpleegkunde
 - E. Mbo verpleegkunde verkorte route en hbo verpleegkunde
 - F. Anders, namelijk...
7. Waarom heb je (destijds) ervoor de om verpleegkunde te studeren?
Toelichting.....
8. Was het voor jou destijds aantrekkelijk om te starten met de opleiding verpleegkunde?
- A. Ja, toelichting
 - B. Nee, toelichting
9. Wat vond je (na het afronden van de opleiding verpleegkunde) wel aantrekkelijk en wat vond je minder aantrekkelijk aan de opleiding? (beide antwoorden kunnen geselecteerd worden)
- A. Wel aantrekkelijk: (toelichting)...
 - B. Minder aantrekkelijk: (toelichting)..
10. wat vond je van de vakken en de stages die aan bod kwamen binnen de opleiding verpleegkunde?
Toelichting.....
11. Heb je tijdens je opleiding verpleegkunde kennis kunnen maken met het beroep kinderverpleegkundige? (meerdere antwoorden selecteren is mogelijk)
- A. Ja, via een of meer theoretische vakken over kinderverpleegkunde
 - B. Ja, via een stage in een kinderziekenhuis of kinderdthuiszorg
 - C. Ja, via een of meer theoretische vakken en een stage in een kinderziekenhuis of kinderdthuiszorg
 - D. Ja, op een andere manier, namelijk... (toelichting)
 - E. Nee, maar dat had ik destijds wel graag gewild
 - F. Nee, en dat wilde ik destijds ook niet
12. Hoeveel jaar heb je gedaan over de studie verpleegkunde?
- A. two and a half jaar
 - B. 3 jaar
 - C. 3.5 jaar
 - D. 4 jaar
 - E. 4.5 jaar
 - F. 5 jaar

G. Anders, namelijk jaar (toelichting)

13. Voelde jij je bij het afronden van de studie verpleegkunde startbekwaam als verpleegkundige?
A. Ja
B. Nee, toelichting..
14. Wat vond je **niet** leuk aan de studie verpleegkunde?
Toelichting.....
15. Voldeed de opleiding verpleegkunde aan jouw verwachtingen? Waarom wel/niet?
A. Ja, toelichting....
B. Nee, toelichting....
16. Heb je er destijds weleens over nagedacht om te stoppen met je studie verpleegkunde? Zo ja, waarom?
A. Ja, toelichting...
B. Nee
17. Zou je de studie verpleegkunde aanbevelen aan toekomstige studenten? Waarom wel/niet?
A. Ja, toelichting....
B. Nee, toelichting....
18. Wat kan de studie verpleegkunde verbeteren om deze studie aantrekkelijker te maken?
Toelichting.....
19. Wanneer kwam je erachter dat je geïnteresseerd was in **kinderverpleegkunde**?
A. Al voordat ik verpleegkunde studeerde
B. Tijdens de studie verpleegkunde
C. Tijdens het werken als verpleegkundige (diploma verpleegkunde behaald)
D. Anders, namelijk.. (toelichting)
20. Startte je direct met de vervolgopleiding kinderverpleegkunde na het afronden van je studie verpleegkunde?
A. Ja, ik startte met de vervolgopleiding kinderverpleegkunde bij de eerste aanmeldingsmogelijkheid na het afronden van mijn studie verpleegkunde
B. Nee, ik moest wachten tot er een studieplek vrijkwam voor de vervolgopleiding kinderverpleegkunde
C. Nee, ik wilde eerst algemene werkervaring opdoen als verpleegkunde
D. Nee, om een andere reden, namelijk.. (toelichting)
21. Waar heb je de vervolgopleiding tot kinderverpleegkundige gevolgd (of ben je nu aan het volgen)?
A. Wenckebach Instituut
B. Anders, namelijk... (toelichting)
22. Waarom heb je er (destijds) voor gekozen om kinderverpleegkunde te studeren?
Toelichting.....

23. Was het voor jou (destijds) aantrekkelijk om de vervolgopleiding tot kinderverpleegkundige te gaan volgen? Waarom wel/niet?
- A. Ja, toelichting.....
 - B. Nee, toelichting....
24. Wat vond/vind je wel aantrekkelijk en wat minder aantrekkelijk aan de vervolgopleiding kinderverpleegkunde? (beide antwoorden kunnen geselecteerd worden)
- A. Wel aantrekkelijk: toelichting..
 - B. Minder aantrekkelijk: toelichting..
25. Hoeveel maanden heb je gedaan over de vervolgopleiding kinderverpleegkunde?
- A. 12 maanden
 - B. 13 maanden
 - C. 14 maanden
 - D. 15 maanden
 - E. Anders, namelijk ... maanden
 - F. Ik ben nog in opleiding tot kinderverpleegkundige
26. Voelde jij je bij het afronden van de vervolgopleiding kinderverpleegkunde startbekwaam als kinderverpleegkundige?
- A. Ja
 - B. Nee, toelichting..
 - C. Ik ben nog in opleiding tot kinderverpleegkundige
27. Voldoet (voldeed) de vervolgopleiding tot kinderverpleegkundige aan jouw verwachtingen? Waarom wel/niet?
- A. Ja, toelichting...
 - B. Nee, toelichting...
28. Heb je (destijds) overwogen om te stoppen met de vervolgopleiding tot kinderverpleegkunde? Indien ja, waarom?
- A. Ja, toelichting...
 - B. Nee
29. Wat kan de vervolgopleiding kinderverpleegkunde verbeteren om het aantrekkelijker te maken om deze opleiding te gaan volgen?
- Toelichting.....
30. Zou je de vervolgopleiding kinderverpleegkunde aanbevelen aan toekomstige studenten? Waarom wel/niet?
- A. Ja, toelichting...
 - B. Nee, toelichting...
31. Heb je nog op- of aanmerkingen die je graag kwijt wilt naar aanleiding van het invullen van deze enquête?
- C. Ja, toelichting...
 - D. Nee

Appendix H Ethical approval

APPROVED BMS EC RESEARCH PROJECT REQUEST

Dear researcher,

This is a notification from the BMS Ethics Committee concerning the web application form for the ethical review of research projects.

Requestnr. : 220347
Title : Improving the route of becoming a pediatric nurse in the Beatrix Children's Hospital
Date of application : 2022-03-25
Researcher : Klein Teeselink, M.
Supervisor : Hans, E.W.
Commission : Bruinsma, G.W.J.
Usage of SONA : N

Your research has been approved by the Ethics Committee.

The BMS ethical committee / Domain Humanities & Social Sciences has assessed the ethical aspects of your research project. On the basis of the information you provided, the committee does not have any ethical concerns regarding this research project.

It is your responsibility to ensure that the research is carried out in line with the information provided in the application you submitted for ethical review. If you make changes to the proposal that affect the approach to research on humans, you must resubmit the changed project or grant agreement to the ethical committee with these changes highlighted.

Moreover, novel ethical issues may emerge while carrying out your research. It is important that you re-consider and discuss the ethical aspects and implications of your research regularly, and that you proceed as a responsible scientist.

Finally, your research is subject to regulations such as the EU General Data Protection Regulation (GDPR), the Code of Conduct for the use of personal data in Scientific Research by VSNU (the Association of Universities in the Netherlands), further codes of conduct that are applicable in your field, and the obligation to report a security incident (data breach or otherwise) at the UT.

Appendix I Time schedule

Week	Date	Tasks
1	28-02 to 04-03	Making appointments with all supervisors Start writing research proposal
2	14-03 to 17-03	Writing research proposal Sending research proposal to committee UT
3	21-03 to 25-03	Finishing research proposal Start writing topic list interview Start writing surveys
4	28-03 to 01-04	28-03: meeting with Gerda (UMCG) Contacting and making appointments with participants research question 1 and 2 29-03: meeting with Erwin (check complete research proposal) Finishing topic list interview Finishing writing surveys Literature study
5	04-04 to 08-04	Contacting and making appointments with participants research question 1 and 2 Sending e-mails to participants research question 4 Literature study Preparing interview
6	11-04 to 15-04	Literature study Sending surveys to participants research question 4 Appointments interviews Transcribing finished interviews
7	18-04 to 22-04	Sending surveys to participants research question 3 Appointments interviews Transcribing finished interviews Processing interview results
8	25-04 to 29-04	Appointments interviews Sending reminder surveys to participants research question 4 Transcribing finished interviews Processing interview results
9	02-05 to 06-05	Sending reminder surveys to participants research question 3 Appointments interviews Transcribing finished interviews Processing interview results
10	09-05 to 13-05	Start processing survey results Processing interview results
11	16-05 to 20-05	Processing survey results Finishing processing interview results
12	23-05 to 27-05	Finishing processing interview results Processing survey results
13	30-05 to 03-06	Processing survey results
14	06-06 to 10-06	Processing survey results
15	13-06 to 17-06	Processing survey results
16	20-06 to 24-06	Finishing processing survey results
17	27-06 to 01-07	Finishing processing survey results
18	04-07 to 08-07	Start writing research report

19	11-07 to 15-07	Writing research report
20	18-07 to 22-07	Writing research report
21	25-07 to 29-07	Writing research report
22	01-08 to 05-08	Finishing research project
23	08-08 to 12-08	Finishing research project Preparing master-colloquium
24	15-08 to 19-08	Preparing master-colloquium
25	15-09 to 16-09	Possible overrun of work tasks
26	19-09 to 23-09	Possible overrun of work tasks

Appendix J Overview nursing education possibilities

	Alfa-college	Noorderpoort		Hanzehogeschool Groningen
BOL study	Duration: 4 years Entry requirements: <ol style="list-style-type: none"> 1. Pre-vocational, mixed or theoretical learning path 2. Transition certificate class 3 to 4 havo or vwo 3. Mbo diploma level 2 or higher Duration: 2 years Entry requirement: <ol style="list-style-type: none"> 1. IG diploma in social care or nursing 	Duration: 4 years Entry requirements: <ol style="list-style-type: none"> 1. Pre-vocational, mixed or theoretical learning path 2. Transition certificate class 3 to 4 havo or vwo 3. Mbo diploma level 2 or higher 4. Other diploma or proof that the government has recognized 	Fulltime study	Duration: 4 years Entry requirements: <ol style="list-style-type: none"> 1. Vwo diploma 2. Havo diploma 3. Mbo 4 diploma 4. 21+ scheme
BBL study	Duration: 2 to 2.5 years Entry requirement: <ol style="list-style-type: none"> 1. IG diploma or another comparable diploma (social care study level 3 or 4) 	Duration: 3.5 years Entry requirements: <ol style="list-style-type: none"> 1. Pre-vocational, mixed or theoretical learning path 2. Transition certificate class 3 to 4 havo or vwo 3. Mbo diploma level 2 or higher Other diploma or proof that the government has recognized		Accelerated Duration: 3 years Entry requirement: <ol style="list-style-type: none"> 1. Mbo nursing diploma
		Duration: 2.5 years Entry requirements: <ol style="list-style-type: none"> 1. IG diploma or another comparable diploma 	Parttime study	Duration: 2.5 years Entry requirements: <ol style="list-style-type: none"> 1. Workplace of 20 hours in a care institution 2. Mbo nursing diploma
		Combi mbo nursing/personal counsellor Duration: 2.5 to 3 years Entry requirements: <ol style="list-style-type: none"> 1. IG diploma or another comparable diploma 		Duration: 3 to 4 years Entry requirements: <ol style="list-style-type: none"> 1. Workplace of 20 hours in a care institution 2. Vwo / havo diploma 3. Mbo care and welfare, social agogic work or social pedagogic work diploma 4. Hbo or wo diploma in care and welfare sector
			FastSwitch	Duration: not known Entry requirements: <ol style="list-style-type: none"> 1. Hbo or university diploma

Appendix K Suggestions to shorten the route and make it more attractive

Suggestions to shorten the route of becoming a pediatric nurse

1. Try to draw more attention to the shortened nursing courses so that more publicity is created and, as a result, students will sooner choose to follow the shortened nursing study
2. It seems very valuable to look for a collaboration of all the different schools (Wenckebach Instituut, Hanzehogeschool Groningen, Alfa-college and Noorderpoort) to be able to better coordinate education, for example by doing projects about pediatric nursing together and possibly also to enable accelerated trajectories towards the study pediatric nursing by means of the EPA education.
3. Another suggestion is to offer graduated nurses the opportunity to first gain general work experience within the pediatric nursing department (or more different departments) with the possibility to study pediatric nursing in the future

Suggestions to making the studies nursing and pediatric nursing more attractive

1. General:
 - a. Ensure that students (both mbo and hbo level) can already become acquainted with pediatric nursing during their nursing study, for example by means of theoretical courses, one or more projects, a follow-up day or a short internship. This allows them to discover whether they like pediatrics and whether it suits them. This increases the chance that they will eventually consider whether to specialize in pediatric nursing.
 - b. Make sure that when students are assigned for an internship, their wishes are taken into account. It has been mentioned several times that students had to do an internship that was completely out of their interest, as a result of which they miss relevant internship experience in a place where their interest lies and they may want to work later.
 - c. Create more internships in pediatric nursing, as it repeatedly emerged that students would like to do an internship in pediatrics, but that this was not possible due to a limited number of places.
 - d. Create more internships in the hospital, because it was repeatedly stated that students would like more hospital internships during their studies.
 - e. Less focus in the study nursing on the elderly, more variation in subjects/patient categories. It has been mentioned several times that it often concerns the elderly and that this is experienced as less attractive.
 - f. Students would find the study nursing more attractive if more income can already be generated during the study.
2. Noorderpoort
 - a. A suggestion to make the study more attractive is to offer more theoretical or practical courses about pediatric nursing.
 - b. Besides it would be nice to offer more pediatric nursing internships to let the students become familiar with this profession.

3. Wenckebach Institute

- a. Find out why there are actually high drop outs and student turnovers. You can possibly get a lot of points here to make the study (or work) more attractive.
- b. Try to find out why the written evaluations are not properly completed and try to respond to this. In this way, a better insight can be obtained into the quality of the study and the results of this can possibly be used to make the study more attractive.
- c. Students would like to see that there is a greater chance of job guarantee with attractive employment conditions upon completing the pediatric nursing study
- d. Another suggestion to make the study more attractive according to the students is to make the (online) study days shorter and also to create a better distribution in the number of hours that must be worked within a certain period. The study days were experienced as very long and some indicated that they found the number of hours they have to work quite tough.