Nurses' current and future eHealth competencies for patients' education.

Recommendations for eHealth curriculum development.

TIIVISTELMÄ

Tämän tutkimuspohjaisen kehittämishankkeen tarkoituksena oli tuottaa uutta tietoa nykyisestä ja tulevaisuudessa tarvittavasta eHealth – osaamisesta potilasvalmennuksesta. Tämä tieto on tärkeää kehitettäessä Lahden ammattikorkeakoulun maisteriohjelmien opetussuunnitelmien eHealth-osaamista. Tavoitteena oli antaa suosituksia siitä, miten tässä tutkimuksessa tuotettua uutta tietämystä voitaisiin soveltaa opetussuunnitelman kehitykseen.

Kehittämishankkeen tutkimusosiossa käytettiin sekä kvantitatiivisia että kvalitatiivisia tutkimusmenetelmiä tutkimaan nykyistä ja tulevaa eHealth-osaamista, jota sairaanhoitajat tarvitsevat potilasohjauksessa. Tutkimusosioon osallistui 101 sairaanhoitajaa Helsingistä. Tiedot kerättiin kesäkuun ja marraskuun välisenä aikana vuonna 2015.

Tulosten mukaan sairaanhoitajien nykyinen tietämys ja käytännöt sähköisessä terveydenhuollossa vaihtelivat yksilötasolla. Potilasohjauksessa tarvittavaan terveydenhuollon eHealth – osaamiseen sisältyvät; 1) eHealth-tiedot 2) eHealth- tietojen soveltaminen hoitotyön rooleissa 3) internetin turvallisuus ja 4) eHealthiin liittyvät sosiaaliset, eettiset ja oikeudelliset kysymykset.

Tämä kehittämishanke suosittelee, että oppilaitokset sisällyttävät edellä mainitut osaamiset opetussuunnitelmaansa. Tämä mahdollistaa sairaanhoitajien harjaantumisen asiaankuuluviin taitoihin. Erinomainen osaaminen on tärkeää potilasohjauksen hyvälle lopputulokselle. Tulevien tutkimusten tulisi jatkossakin päivittää tietoa sairaanhoitajien eHealth - osaamisesta, koska tekniikka muuttuu jatkuvasti.

Avainsanat: harjoittelu, sähköinen terveydenhuolto, sähköiset palvelut, potilasohjaus, osaaminen, opetussuunnitelman kehittäminen

Lahti University of Applied Sciences

Master's Degree in Social and Health Care Development and Management

Catherine Kuria: Nurses' current and future eHealth competencies for patients' education.
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ABSTRACT

The purpose of this research-based development project was to generate new knowledge of current and needed future eHealth competencies for patient education. This knowledge is important for developing masters in eHealth curriculum of Lahti University of Applied Sciences. The objective was to provide recommendations on how the new knowledge generated in this study could be applied in the curriculum development.

The study used both quantitative and qualitative research design to examine current and future eHealth competency that nurses need in patient education. 101 nurses from Helsinki, Finland participated in the study. Data was collected between the month of June and November 2015.

According to the results, nurses current level of knowledge and practice in eHealth varied from one nurse to another. The future eHealth competencies required in patient education are 1) Application of eHealth in nursing roles and 2) Social, ethical, legal and safety issues associated with eHealth.

This study recommends educational institutions to integrate the above-mentioned competencies into the nursing education curriculum. This will enable nurses to be equipped with these relevant skills. Future studies should update eHealth knowledge regularly so as to keep up with recent technologies as they arise.

Key words: eHealth, eService's, patient education, eHealth literacy, nurses' competence, curriculum development

APPENDIX 1. Consent letter and letter of information

APPENDIX 2. Consent for data collection

APPENDIX 3. Questionnaire

ABREVIATIONS

HISs- Health Information Systems

ICTs- Internet and communication technologies

LUAS- Lahti University of Applied Sciences

EPR- Electronic patient record

EQF- European qualification framework

NQF-National qualification framework

WHO-World Health Organization

1   INTRODUCTION

The use of eHealth is growing fast in the Finnish healthcare sector (Finnish Nurses Association 2014). Due to this effect, the Finnish healthcare sector is undergoing some transformation. The transformation target to enable citizens to take care of their life and health independently and through support by professionals if needed. Reliable information on well-being and online services will play a major part in achieving this objective. (Ministry of Social Affairs and Health 2013, 4.)

Nurses need to update their eHealth competencies in order to be familiar with the changes caused by growth in technology. Technological growth brings along new healthcare innovations and strategies of care delivery. Nurses will not be able to utilize the benefits of eHealth if their eHealth competencies are not enough. (Finnish Nurses Association 2014.)

Nursing education institutions has a role to update nurses' knowledge. In Finland, eHealth has not been integrated in the nursing education. There are twenty two Universities of Applied Sciences currently offering master's program in social and health care but only two programs focus on nursing and health informatics and eHealth service planning. (Rajalahti & Saranto 2016.)

If eHealth can be integrated into the Finnish nursing curriculum, nurses would have the expertise they require in order to use eHealth in nursing roles. (Rajalahti & Saranto 2016.) By this, nurses would save more time in their roles. A good example of an eHealth tool that nurses can benefit from is a smart phone. Smartphone can save time because nurses can distribute information through phone calls or through messaging. (Wu et al. 2011, 59.) Healthcare would experience many benefits if eHealth could be utilized more. The benefits of eHealth outweighs the costs (Healy 2008). The market of eHealth has been growing regardless of economic crises. (European commission 2012.)

Currently, Finnish healthcare sector has many challenges. In some rural areas, healthcare facilities are far away from the people. Accessibility during hours when public transport does not operate is a challenge for some people. Peoples' demands for quality, affordable and personalized care are rising as the technology advances. Advancing technology has forced Finnish healthcare sector to undergo some transformation in order to enhance the quality of services delivered to the citizens. Implementation and management of these changes is expensive. Medicalization of the sick and taking care of an ageing population also present a difficult equation to Finnish healthcare funding. (Finnish Nurses Association 2014.)

In the future, Finland will face a challenge of lack of enough healthcare professionals. This problem will be contributed by the fact that there is many healthcare staff retiring from the profession due to age than the number of healthcare staff joining the profession. In Finland, the number of aging people are also more that the people who are born. (Finnish Nurses Association 2014.)

Finland has to be prepared to solve future healthcare problems. eHealth is a good option because it can help to solve current and future challenges of healthcare sector. This is because accessibility of care is made easy. (European Commission 2012.) eHealth has been known for its ability to offer individualized and cost effective care to the patients. (Royal College of Nursing 2013; European Commission 2012.)

The delivery of individualized and cost effective healthcare care services is important currently and in the future. (Ministry of Social Affairs and Health 2013, 4.) The future challenges should not cause the quality of healthcare delivered to the patients to be compromised. Healthcare is a sector that deals with people who are suffering. Compromising the quality of care delivered will alleviate patients suffering. (American Nurses Association 2012.)

eService's should be user friendly. In fact, patients should be involved in the development of eService's. Creating eService's together with the patients enhances customer satisfaction. It also enables the development of user-friendly patient interfaces. (Kelleher & Peppard 2009.) The needs of the elderly and disabled patients should be considered during the development of eService's so as to prevent the formation of a "digital divide". (Finnish Nurses Association 2014.)

"Digital divide" is a separation that is caused by digital illiteracy. In this case, lack of knowledge on how to use internet and communication technology can create a gap between patients who know and patient who do not know. "Digital divide" can affect both healthcare professionals and patients. Serious problems for example resistance to use the eService's developed can occur if the "Digital divide" problem is not handled well and on time. Equipping both nurses and the patients with the necessary eHealth skills that they require in their role is a good way of preventing this problem. (Nelson, Joos & Wolf 2012, 22.)

In the future, Finnish healthcare sector will have to deliver their services online more than they do today. This approach will help cope with the problem that will be caused by lack of enough human resource in healthcare sector. If eHealth approach will not be adopted, a strategy that will work without compromising the quality of care will be required.

Countries with ageing populations for example Finland, can benefit from eHealth. This is because eHealth can improve the access of healthcare services. Improved access to healthcare can empower old people to continue living at home instead of moving to elderly care nursing homes and hospitals. (Finnish Nurses Association 2015.)

Finnish healthcare sector should have the knowledge about the problems that will come along with eHealth beforehand. This will enable them to be prepared on how to deal with those problems when they arise. Example of challenges that can occur due to eHealth include; population growth due to immigration and structural reforms due to changes caused by technological growth. (Hyppönen, Hämäläinen & Reponen 2015.)

Knowing the status of the current healthcare staff as eHealth competency is concerned is important. Future eHealth competency needs for nurses should also be identified. Nurses will not be able to achieve their full potential if the skills that they require in their roles are not enough. (Smith, 2012, 173.)

The title of this study is ``Nurses' current and future eHealth competencies for patients' education. Recommendations for eHealth curriculum development´´. This study is about the current and future eHealth that nurses require in patient education. Information about nurses' current and future eHealth competencies is important for generating an eHealth curriculum for Lahti University of Applied Sciences. The eHealth curriculum is purposed to equip nurses with the competencies that they require in order to work in demanding expert development and management position in the field of digitalization of the health care organizations and environments.

This study is important because nurses' knowledge should be updated regularly with the new technologies and strategies as they arise. (Doswell et al. 2013, 9.) Nurses' have a lot to gain from eHealth and for that reason it is important to carry out this study. (Royal College of Nursing 2013.)

Nurses are the main focus in this study. Healthcare is very broad and focusing in that broad sector can limit the quality of this study. Carrying out a nursing study was interesting because nursing is familiar to me. However, Convincing nurses to participate in this study was challenging because some Finnish nurses were not confident about their English language skills.

The desire to carry out this study arose after attending a seminar about the future challenges of Finnish Healthcare sector. This seminar was held in Lahti University of Applied Sciences in autumn 2014. Lahti University is a University of Applied Sciences in Finland that is situated about 100 km northeast of the capital of Helsinki. Finnish healthcare sector is one of the main partners of Lahti University of Applied Sciences.

As a nurse living and working in Finland, I was challenged to take part in bringing a solution to this future problem. At the end of the seminar, I took an action by joining a team of healthcare professionals who were working on a project whose purpose was to generate knowledge about the current and future competencies that will enable nurses to work in eHealth context. This project is hosted by Lahti University of Applied Sciences.

My task in this project was to generate new knowledge about future eHealth competences that nurses' need in patient education. After that, I was supposed to offer recommendations on how the new knowledge created by this study can be adopted in the curriculum development.

In this project, evaluating nurses' current and future competencies is important in generating new knowledge required in developing the eHealth curriculum. Nurses know their roles better. They also know their clients or patients better as they spend a lot of time together.

The contents of this study comprises of theoretical framework which consists of a discussion about eHealth, eHealth literacy, eHealth in Finland, Patient education, use of eHealth in patient education, competencies of masters level nurses in Finland and Lahti University of Applied Sciences, Finland. This study also contains a discussion on the purpose and objective of the study, research question, methods used in data collection and analysis, results of the study, conclusion, recommendations to consider when applying the results generated in this study in the curriculum development and concluding remarks.

This study explores nurses' perspective regarding their future eHealth competencies needs. Having information straight from nurses themselves is a big success in this development project. Engaging nurses in the curriculum development project is an act of honor and respect. This is because the curriculum that will be created will be used by nurses.

2   EHEALTH AND PATIENT EDUCATION IN NURSING

2.1   eHealth

eHealth is the adoption of internet communication technology (ICT) in health products, services and procedures connected with organizational adjustment in healthcare systems and new skills. (European Commission 2012.) eHealth, involves interaction between patients and health care providers, institution-to-institution or peer-to-peer communication between patients and/or health professionals. (European Commission 2012.)

There are different types of eHealth (See table 1). Telephone conversation, text messaging and video conferencing are examples of types of eHealth. Types of eHealth comprises of any type of internet communication technology between the patient and a healthcare professional for treatment or health promotion reasons. (Peate 2013, 18.)

TABLE 1.Types of eHealth (Peate 2013, 18)

Types of eHealth
• A telephone conversation between patient and a health professional to sort symptoms, provide advice, monitor vital signs and provide guidance on the use of medication
• Telephone or text on health promotion advice and management or appointment reminders
• Patient-submitted health information using a mobile device. For example, a mobile phone or hand-held computer applications (apps), resulting in a referral or consultation appointment
• A remote consultation between a patient and nurse using video conferencing
• Patient-initiated contact with practitioners
• Local internet-based support group with a chat room, blog or social network for sharing information with other users

eHealth should be used properly in solving healthcare problems of the society. In this case, after implementation of eHealth, evaluation should be carried out to ensure that the benefits of eHealth have been realized. If the benefits of eHealth has not be realized, an action should be taken in order to investigate the reason why the benefits has not been realized. (Hyppönen et al. 2015.)

eHealth has many benefits both to the nurses and patients when it is well implemented. It enables healthcare providers to monitor patients' conditions easily. This is because the access to service providers and patients has improved due to the use of digital technology for example smartphones. Patients do not require traveling in order to have access to healthcare services. (Royal College of Nursing 2013.)Team relationships have also improved because regular interaction has been made possible through the use of emails. (O'Connor et al. 2009, 708.) eHealth has enabled healthcare providers to save on time because clinical communications through phone calls reduces the number of patients visiting the healthcare facility. (Wu et al. 2011, 59.)

On the other hand, eHealth has some disadvantages. Disadvantages of eHealth includes safety of information stored and transmitted through the internet and information overload. Safety issues can arise because technologies are progressing faster than related legal framework. The healthcare information is increasing in a fast rate thus causing information overload. Organizing this information requires some resources. If information is not well managed, a lot of time resource will be wasted when searching and retrieving information. Lack of proper management of healthcare information makes the stored and transmitted information vulnerable to hackers. (Finnish Nurses Association 2014.)

2.2 eHealth literacy

There is no exact literature about the eHealth competencies that nurses require in their roles. However, there is a lot of literature relating to how nurses have benefited from eHealth strategies.

There are some eHealth competencies that are required in order to use the social media tools successfully. These competencies includes basic literacy, computer literacy, information literacy, digital literacy and health literacy. These literacies are both overlapping and inter related. Basic literacy is fundamental and the other literacies are irrelevant without it. Basic literacy is the ability to understand both text and numerical information. The assessment of patient possibility to gain from social media tools begins with evaluating basic literacy. (Nelson, Joos & Wolf 2012, 11.)

Eheals and Lily model were the only tools and scales for guiding and assessing competence that this study came across. The efficiency of these tools in relation to recent technological and patients' needs is in questions. There is no clarity whether these tools are good with the social media because they were created before the social media and before the newest technologies. (Norman 2011, e125.)

Eheals is a strong tool for assessing competence with web 1.0 related technology. It was developed by Harvey skinner in 1990's and 2000's. It provided the population with the study skills required in order to access and fully engage with what is now known as eHealth. (Norman 2011, e125.)

Lily model is a combined feature of the six forms of literacy that includes essential skills that users require in order to directly benefit from eHealth. These skills include traditional literacy and numeracy, computer literacy, media literacy, science literacy, information literacy and health literacy. (Norman & Skinner 2006, e9.)

The structure of the lily model is presented by a flower which has the inner most part surrounded by six petals. The six petals represent the six categories of the essential skills that users require in order to directly benefit from eHealth. The petals are connected to each other which are symbolic as it holds the meaning that the skills are interconnected to each other. This is an indication that all the skills are equally important. (Norman & Skinner 2006, e9.) The figure below illustrates the Lily Model.
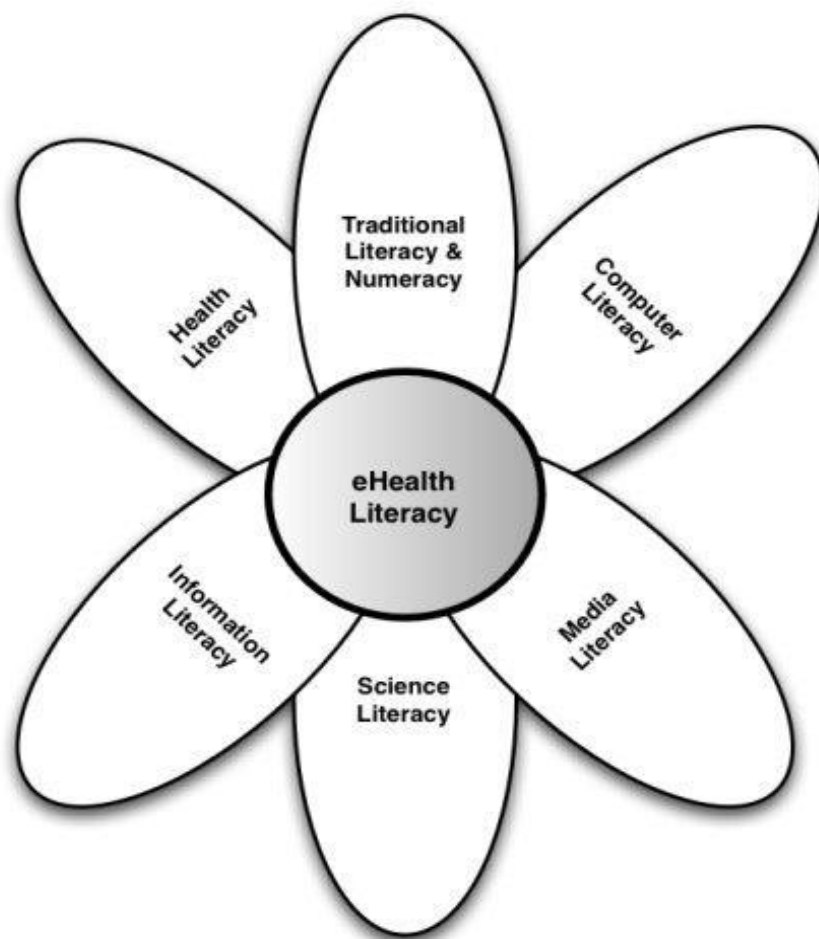
Traditional
Literacy &
Numeracy

Computer
Literacy

Health
Literacy

eHealth
Literacy

Information
Literacy

Media
Literacy

Science
Literacy

FIGURE1. Lily Model (Norman and Skinner 2006, e9).

2.3 eHealth in Finland

eHealth has already been adopted in Finland (Hyppönen et al. 2015). eHealth technology is growing in a fast rate and bringing a lot of transformation in the Finnish healthcare sector. (Ministry of Social Affairs and Health 2013, 4). Transformation that healthcare is experiencing has led to some reforms in the healthcare law. The purpose of healthcare law reforms is to enhance patient's safety. The reforms are also purposed to improve the quality of healthcare services. (Finnish Nurses Association 2014.)

Healthcare sector in Finland has been working to ensure that information is well organized and easily accessible. The ability of health information to be shared smoothly between different systems has been a concern in Finland in the recent decades. (Finnish Nurses Association 2014.)

The figure 2 below offers a clear overview of timeline of Finnish ICT standardization for interoperability. Interoperability refers to smooth transfer of health information from one health system to another. (European Union 2012.)
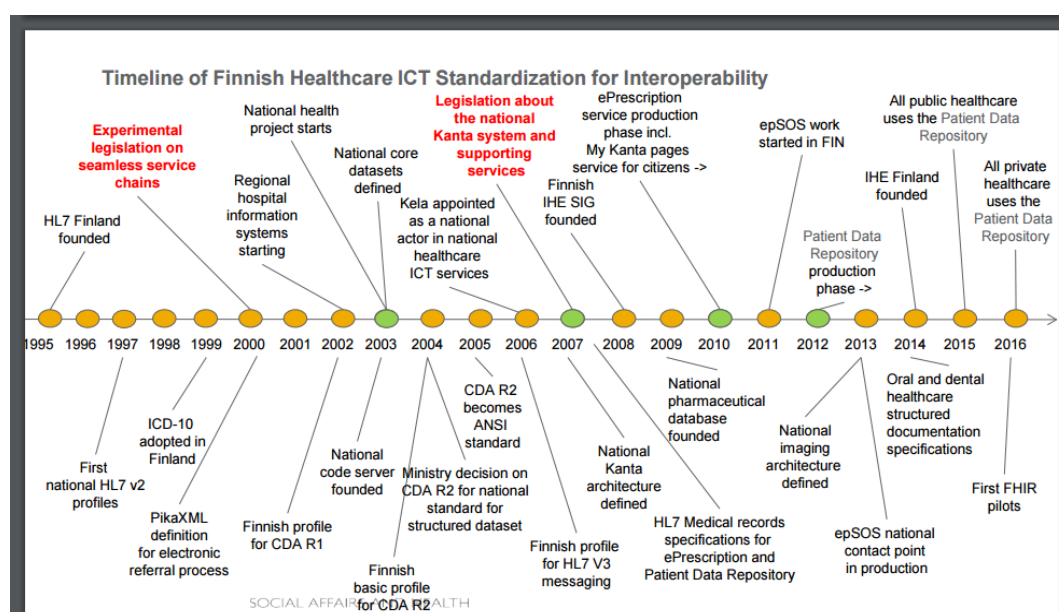

FIGURE 2. Timeline of Finnish Healthcare ICT standardization for interoperability (KANTA 2017).

The implementation and use of eHealth has improved over the years. Physician and citizen's experiences towards eHealth has improved. There has also been successful eHealth projects that the ministry of Social affairs and healthcare in Finland has implemented. An example of a successful eHealth project in Finland is the implementation of an electronic patient record (EPR) system. (Hyppönen et al. 2015.)

Electronic patient record in Finland started first in 2002 with the Gorvement decision to introduce a nationwide electronic patient record (EPR) system. The aim was to enable exchange of information between regions. In 2005, a national archive for health information (KANTA) was made enabling eService's for example prescription, eAccess, and eArchive. (KANTA 2017.)

Currently electronic patient records are saturated and the data are widely utilized at the regional level and increasingly on the national level. Electronic patient record distribution covers 100% of both specialized care (hospital districts) and primary care (healthcare centers). Electronic patient records are used as the only source of patient narratives in more than 90% of the entire primary healthcare centers, and in most of the hospitals. (Hyppönen et al. 2015.) See figure 3 in order to have a clear picture about how Finnish electronic patient record system works
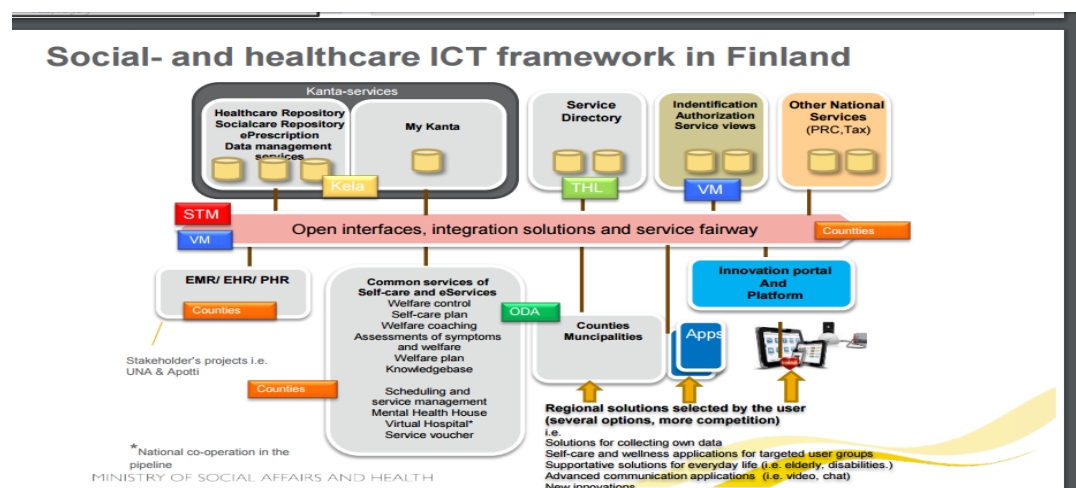
FIGURE 3. Social and healthcare ICT framework in Finland (Korhonen 2016).

In Finland, there are many healthcare needs currently and in the future (SITRA 2015). However, the future of eHealth is promising. The user penetration of the Internet in Finland has been rising over the years and the rise is expected to continue in the future. Internet user penetration means the individuals of any age who use the internet from any location via any device at least once per month. Globally, the amount of people using internet has also grown. (Statista 2016.) See figure 4 for the information on internet user penetration in Finland from 2014 to 2017.
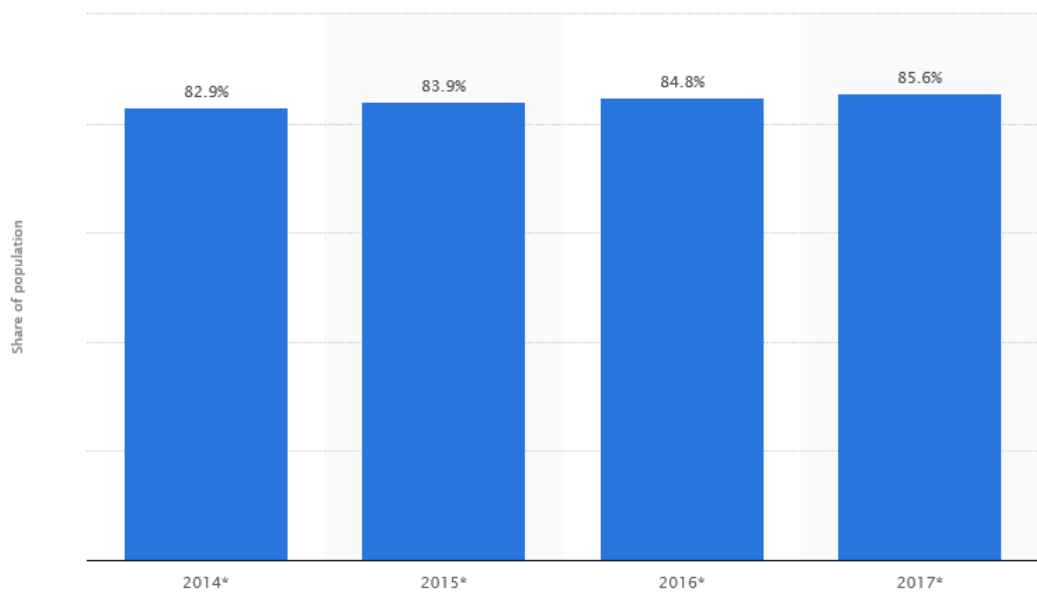
The vertical axis represents the share of population while the horizontal axis represents the year.

FUGURE 4. Internet user penetration in Finland from 2014 to 2017(Statista 2016).

The ministry of Social affairs and health believes that eHealth has a potential to improve the healthcare sector (Ministry of Social Affairs and Health 2013). In order to improve healthcare sector through eHealth, educational institution has a responsibility to develop an eHealth curriculum. The curriculum will help update nurses' knowledge with the essential eHealth competencies that they require in their roles. (Rajalahti & Saranto 2016.)

2.4 Patient education in Nursing

In nursing, patient education is defined as the process of informing a patient about a health matter to secure informed consent, patient cooperation, and a high level of patient compliance. Patient education depends on the needs of the patients. Patients' needs vary from one patient to another. Nurses should interact with the patient in order to be able to access their learning needs. After accessing the needs, nurses should communicate about the importance of learning the required knowledge. If the patient is motivated to learn, both the nurse and the patient should set the goals on what the patient want to achieve together. If the patient is not motivated, nurses should try to motivate them. Patients should not be forced to learn against their will. (Redman 2007.)

Patients' education allows patients to manage their health better. Just as the saying goes that ``Knowledge is power´´, this applies also in nursing. The knowledge about healthcare that is beneficial to patients is a good empowerment tool. Nurses should not hesitate to carry out this important role that is capable for empowering the patients. (Ryhänen et al. 2012, 270.)

In Europe, patients do not have enough healthcare knowledge that they require in order for them to manage their health better. In fact, data from the European Health Literacy survey showed that nearly half of the Europeans who were surveyed had inadequate or problematic health literacy. Health literacy is the knowledge and skills required to understand and use information relating to health issues such as drug and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies and staying healthy. (Adams et. at 2009, 530.)

In Finland, patient education has also not been enough. Finnish healthcare has not put enough effort in health promotion. Instead, more concentration has been in treating illnesses and less focus in preventing them. (SITRA 2015.)

All countries globally regardless of their economic factors or any other factor should consider the importance of patient education. Health education promotes better health for the citizens. The benefit of patients' education outweighs any costs that its implementation can occur. (WHO 2014.)

Improvement of patient education will save on healthcare costs. It will also help in solving health inequality problems and in improving patients' health and wellbeing. Weak health literacy skills are associated with riskier behavior, poorer health, less self- management and more hospitalization and costs. (WHO 2014.)

2.5   Use of eHealth in patient education

There have been many actions that have been taken in order to educate patients using eHealth. This action includes the supply of health publications of health guidelines, use of monitoring devices for managing personal health and the adoption of web-based health education and advice. (Ozbolt et al. 2012.)

Currently, many patients have an access to a computer, Smartphone and to the internet. Healthcare can utilize this opportunity in order to educate patients. Royal College of Nursing found that patient already uses computers to access online support websites, find information about their disease and its treatment and in order to access their health records. (Royal College of Nursing 2013.)

eHealth can enhance patient education (Doswell et al. 2013, 99). However, there are some tools and devices that are required in order to use eHealth for educating the patients. Patient portals, smart phones apps and secure messaging are the examples of eHealth tools that can benefit patient education. (Ricciardi et al. 2013, 377.) eHealth tools join patients and caregivers. This creates an opportunity for caregivers to educate the patients. This leads to improved healthcare service and patient satisfaction. (National Learning Consortium 2013.)

The choice of electronic device used in eHealth is related to the nature of the clinical task, degree of mobility required and device design. (Andersen et al. 2009, e32.) The procurement process for eHealth tools and devices has been made easier due to internet rating. Nowadays, customers can first read how the other customers have rated their experience towards the device in the social media beforehand. They can also compare prices of those tools and devices. (Rozenblum & Bates 2013, 182.)

Some eHealth tools are more preferred than others. Some patients prefer emails as opposed to telephone calls as the prime method of communication. (Wu et al. 2010.) Patient portals has also been preferred than face to face way by some patients because it make patients more active participants in their care. (Goldzweig 2012.)

There are many benefits of using eHealth tools in patient education. Portals offer a number of potential benefits to providers, including administrative efficiencies such as reduced call volume, improved responsiveness to patients' needs, decreased utilization of health services, more effective care, and cost saving. Patients can subscribe educational materials of interest and they can receive them through an email (Emont 2013, 3.) Peer support services can be offered online using eHealth tools. (Rozenblum & Bates 2013, 183.) Secure messaging can improve increase patient satisfaction. Patients can receive instructions and guidance through a phone call. (Doswell et al. 2013, 99; Goldzweig, 2012.)

3 COMPETENCIES OF MASTERS LEVEL NURSES IN FINLAND

Nurse competence is the ability to perform nursing tasks with the integration of knowledge to achieve desirable outcomes (Smith 2012, 172). Excellent competencies are required in nursing because nurse's work involves the safety of human being. Lack of enough nurse's competency can lead to poor quality services and even loss of lives. (Neilson & Lauder 2008, 688.)

In Finland, the criteria for describing the knowledge, skills and competences of Master's level nurses is determine by the competencies that nurses requires in their roles. European qualification framework (EQF) is also acknowledged during the curriculum development. (Ministry of Education 2009.)

Nursing education institutions and organizations do not have enough information on methods for how to predict excellent competencies of nurses. Generally, there are some competency models that guides on the important competences that nurses require in order to perform their work effectively. (Meretoja & Koponen 2012, 415.)

The subchapter 3.1 below discusses the models that are used to promote competence in nursing. The Subchapter 3.2 gives a broad picture about master's level nursing in Finland. The frameworks that guides the formulation of master's education curriculum are discussed. This gives the reader a better understanding about the competencies of master's level nurses in Finland.

3.1 Competency models that guides nurses' competence

Nursing educational institutions and agencies have been assisted by some competencies models in predicting the essential competencies that nurses require in order to perform their work effectively. Examples of the models that guides nurses' competences include 1.)Lenburg's Competency Outcomes and Performance Assessment Model (COPA); 2.) Strong model; and 3.) Hamric's Integrated Model. (Lenburg et al. 2009, 313.)

The COPA model symbolizes eight core practice competencies with examples of related affective, cognitive and psychomotor skills. In addition, it is a framework that promotes competence for practice. This is because it is based on the philosophy of competency-based, practice-oriented methods and outcomes. This model has been effectively adopted by many nursing programs and clinical agencies. (Lenburg et al. 2009, 313.) See table 2 below for COPA model.

TABLE 2. COPA model / Lenburg's Eight Core Practice Competencies with Sub skills (Lenburg et al. 2009, 313).

COPA model / Len burg's Eight Core Practice Competencies with Sub skill examples

1. Assessment and Intervention Skills

   a. safety and protection
   b. assessment and monitoring
   c. therapeutic treatments and procedures

2. Communication Skills

   a. oral skills
     1. talking, listening, with individuals
     2. interviewing; history taking
     3. group discussion, interacting
     4. telling, showing, reporting
   b. writing skills
     1. clinical reports, care plans, charting
     2. agency reports, forms, memos
     3. articles, manuals
   c. computing skills (information processing; using computers)
     1. related to clients, agencies, other authorities
     2. related to information search and inquiry
     3. related to professional responsibilities

3. Critical Thinking Skills:

   a. evaluation; integrating pertinent data from multiple sources
   b. problem solving; diagnostic reasoning; creating alternatives
   c. decision making; prioritizing
   d. scientific inquiry; research process

4. Human Caring and Relationship Skills

   a. morality, ethics, legality
   b. cultural respect; cooperative interpersonal relationships
   c. client advocacy

5. Management Skills

   a. administration, organization, coordination
   b. planning, delegation, supervision of others
   c. human and material resource utilization
   d. accountability and responsibility; performance appraisals and QI

6. Leadership Skills

   a. collaboration; assertiveness, risk taking
   b. creativity, vision to formulate alternatives
   c. planning, anticipating, supporting with evidence
   d. professional accountability, role behaviours, appearance

7. Teaching Skills

   a. individuals and groups; clients, co-workers, others
   b. health promotion; health restoration

8. Knowledge Integration Skills:

   a. nursing, healthcare and related disciplines
liberal arts, natural and social sciences, and related disciplines

2. Strong model identifies five domains of practice namely: Direct Comprehensive Care, Support of Systems, Education, Research and Publication and Professional leadership. Strong's Nursing Model focuses on patient and family-focused collaboration and informed decision-making that are facilitated by an organizational structure and support services that promote the generation of new knowledge, the development of highly competent care providers, and the incorporation of evidence into practice. It allows flexibility in accordance with department demands, while assuring hospital-wide consistency for expectations of quality patient care, effective and efficient work environment, and maximum care provider and patient/family involvement in care delivery processes and outcomes. (Upton, Alexander & Dunk 2015, 159.) Strong model is shown in the table 3.

TABLE 3.Domains of Advanced Nursing practice (APN): Strong Model (Ackerman et al. 1996).

Domains of advanced nursing practice: Strong Model	
Direct comprehensive care	procedures, assessment, interpretation of data, patient counseling
Support of systems	professional contribution to optimal functioning of the institutional nursing service
Education	enhancement of caregiver, student, and public learning related to health and illness
Research	supports a culture of practice that challenges the status quo and seeks better patient care through scientific inquiry
Publication and professional leadership	promote dissemination of nursing and health care knowledge beyond the individuals practice setting

3. Hamric's integrated model of advanced practice was developed with the aim of synthesizing a model of advanced practice that would apply to all advanced practice nursing roles. Hamric came up with a conceptual definition of advanced practice nursing and defining characteristics that included primary criteria and a set of core competencies. The primary criteria includes: graduate education, certification in the specialty, and a focus on clinical practice with patients. The core competencies include: direct clinical practice, collaboration, guidance and coaching, evidence-based practice, ethical decision making, consultation, and leadership. (Cooke, Gemmill, & Grant 2008, 218.)

TABLE 4. The advanced practice nursing core competencies presented in Hamric's Model (Cooke et al. 2008, 218).

The advanced practice nursing core competencies	
Expert coaching & guidance	Demonstrated by knowledge expertise, the ability to tailor evidence-based educational interventions based on individual patient and family needs, and the ability to use adult teaching principles.
Consultation	Demonstrated by utilizing the specialties of other disciplines such as psychology, social work, physical therapy and medicine to enrich and design a comprehensive teaching intervention
Research Skills	Demonstrated by the ability to be the "intervention nurse" in a research study. This involves knowing the aims and purpose of the study, being a part of the research team, helping to design the evidence-based intervention content, delivering the content and maintaining the patient relationship according to the goals of the study, and using evidence-based literature to impact the tailored intervention for the benefit of her patient
Clinical and professional leadership	demonstrated by interacting with medical center staff to implement the study, serving as an advance practice nurse role model and providing feedback as needed
Collaboration	Demonstrated by partnerships and utilization of other health care team members to impact care for the patient's benefit
Ethical Decision-Making skills	Demonstrated by designing informed consent documents, identifying potential areas for ethical concerns concerning patient care during study implementation, and reporting patient concerns to administration

3.2 Masters level nursing education in Finland

Masters level nursing education in Finland is provided by Universities and Universities of Applied Sciences (UAS). Both Universities and Universities of Applied Sciences (UAS) have their own assignments. Universities are research oriented while universities of Applied Sciences education are professionally oriented. The Aim of universities is to conduct scientific research and to provide postgraduate education. Universities of Applied Sciences train professionals in response to labor market needs and conduct research and development. (Ministry of education and culture 2017.)

The knowledge, skills and competences of a Master's degree program is described in the national qualification framework. In the European Union countries, the criteria for describing the knowledge, skills and competences of Master's in Healthcare are agreed upon in European cooperation based on the European qualification framework (EQF) levels. European qualification framework (EQF) was a translation device developed by the European Union to make national qualifications more readable in order to promote workers' and learners' mobility and facilitating their lifelong learning across Europe. (European commission 2015.) The goal of the EQF is to improve the transparency, comparability and portability of qualifications. (Ministry of Education 2009.)

According to European Qualifications Framework, master level graduates have hugely specialized knowledge, some of which is at the frontline of knowledge in a field of work or study, as the basis of actual reasoning of research. They also have knowledge about their main field. They are able to cooperate with experts from other fields. Other competencies of master level graduates includes: good problem solving skills, research skills, skills in innovation, ability to integrate knowledge from different fields, management skills and good decisions making skills. See table 6 below in order to have a clear overview of qualifications of master's level graduates according to European qualification framework. (European commission 2015.)

TABLE 6. Descriptors defining levels 7/ Master's level in the European Qual-
ifications Framework (European commission 2015).

Knowledge	Skills	Competence
Students should have: - Highly specialised knowledge relating to their work or study field - Critical awareness of knowledge issues in a field and at the interface between different fields	**Students should have:** - Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	**Students should :** - Be able to manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches. - Be able to contributing to professional knowledge and practice. She should also be able to review the strategic performance of teams

In Masters Level nursing education, there are subject specific competencies and common competencies. Common competencies are also known as generic competencies, shared competencies or universal competencies. This are competencies are valid for all working environments. (Auvinen et al. 2010, 9.)

Common competences are also important because they lay the foundation for working life, cooperation and the development of expertise. Common competencies can be achieved from different programs. However, the specific content of these programs may vary depending on the occupation. The descriptions for general competencies takes into account the anticipated skills are targeted expectations. Achievements of both specific and common competencies can be easily measured because the learning outcome has been formulated in understandable manner. See table 5 for a clear understanding of common competencies. (Auvinen et al. 2010, 9.)

TABLE 5. Description of generic competencies (Auvinen 2010, 9).

Description of the competence, master level	
COMPETENCE	**Student is be able to:**
LEARNING COMPETENCE	-self- evaluate and develop their expertise -Acquire, process, produce and critically evaluate information from the perspective of different fields - Take responsibility for a community's target-oriented learning
ETHICAL COMPETENCE	-Take responsibility for a community's actions and their consequences -Apply the ethical principles of the field as experts and workplace developers. -Make decisions with awareness of the individual and community points of view -Promote the fulfillment of equality ideals in a workplace community --Promote the fulfillment of sustainable development principles and social responsibility - Manage socially impactful activities based on ethical values

WORKPLACE COMPETENCE	-Develop the operations and wellbeing of a workplace community
	  -Develop multidisciplinary communications and interaction in the workplace
	 -Utilize information and communication technologies in their work
	  -Build partnerships and networks
	 - Manage and reform operations in complex and unpredictable operating environments
	 - Work in demanding expert roles, management roles or as entrepreneurs

INNOVATION COMPETENCE	-Generate new information and renew ways of working, - combining competence from various sectors - Lead projects -Manage research, development and innovation projects and master research and development methods -Develop customer-oriented, sustainable and financially viable operations
INTERNATIONALIZATION COMPETENCE	-Carry out international communications in their work and in operational development. -Operate in international environments -Anticipate the effects and opportunities of internationalization in their field

4 LAHTI UNIVERSITY OF APPLIED SCIENCES (LUAS)

Lahti University of Applied Sciences is a multidisciplinary institution of higher professional education located in Finland. It is a regional center of expertise with over 5,000 students and approximately 400 personnel. Its' competence areas includes: welfare, business, design, and technology. Lahti University of Applied Sciences profiles are integrated pedagogy, practice-based innovation, and student entrepreneurship. (Kotonen 2013, 12.)

Health care sector is among the essential stakeholders in Lahti University of Applied Sciences. The social and healthcare courses offered in this learning institution include bachelor and master program in Nursing. These programs are both in English and in Finnish. (Lahti University of applied science 2017.)

As a university of applied sciences, Lahti University of Applied Sciences has a duty to train experts in accordance to the labor market needs. In this case, Lahti University of Applied Sciences has to be actively involved on the community issues in order to be familiar with current and the future problems affecting the community. (Ministry of education and culture 2017.) Examples of challenges faced by health care in Finland includes: Inequality and the lack of customer-orientation, coordination, incentives and transparency regarding quality and costs. (SITRA 2015.) Examples of challenges faced by health care in Europe includes: increased pressure on public budget, a steady decline in the number of health care personnel, higher incidence of chronic diseases and growing demand and expectation from citizens for higher quality services and social care. (European Commission 2012.)

Lahti University of Applied Sciences coordinates and participates in many development projects. Example of this healthcare projects is a Care man project whose aim is to prepare individuals to effectively manage an integrated health and social care service. The objective of this project is to produce an educational program that will educate social and healthcare professional about a cultural and value-driven leadership, quality of care, and quality management. (Lahti University of applied science 2017.)

Lahti University of Applied Sciences offer global education services and internationalization is an important element to them. Lahti University of Applied Sciences students, staffs and partners are from diverse cultural backgrounds. Lahti University of Applied Sciences education is internationally recognized as their educational expertise is based on worldwide known Finnish pedagogical system. (Lahti University of applied science 2017.)

5   AIM OF THE STUDY AND RESEARCH QUESTION

This thesis is part of the development project for the Master's program in eHealth for Lahti University of Applied Sciences. The program is aimed to equip students with knowledge that they require in order to work in demanding expert development and management position in the field of digitalization of the healthcare organizations and environments.

The purpose of this research-based development project was to generate new knowledge of current and needed future eHealth competences for patient education. The objective is to provide recommendations on how the generated knowledge can be applied in the curriculum development for master's program in eHealth for Lahti University of Applied Sciences.

The development project included a survey as a way of gathering information. In the survey the research question was: what are the eHealth competencies needed currently and in the future by nurses who educate patients?

6   RESEARCH METHODOLOGY

6.1   Design

The research approach and associated methods was based on a research problem. Both quantitative and qualitative methods were adopted in this study (See subchapter 6.4). Combination of both quantitative and qualitative help in getting many different aspect and deep knowledge regarding the subject situation. (Kananen 2015, 65.)

Quantitative research enable a researcher to understand the altitudes and pattern regarding a subject situation. The altitude and pattern about nurses' current knowledge and practice on eHealth was important for answering the research question. Nurses' knowledge and practice was compared against social demographic characteristics in order to check for any data patterns. (Kananen 2015, 63.)

Qualitative research method provides a good and detailed description of a phenomena and do not generalize the results (Kananen 2015, 64). In this study, understanding nurses' future eHealth competency needs was important. Reliable, lived and experienced data was required in order to be able to establish the eHealth competencies that nurses require in the future.

Quantitative research use structured questions while qualitative use unstructured questions. Structured questions enable counting the number of response options. Unstructured questions increases an overall understanding of the situation in question by helping the research to dive into the problem. (Kananen 2015, 93.) In this study, unstructured question was used in question eight. This was the question about nurses' future eHealth competency needs. This question granted the participants an Opportunity to give describe their opinions in details as compared to structured questions which does not allow explanation. (Thorogood & Green 2013).

6.2 Sampling strategy

Purposive sampling was used to obtain the participants in Helsinki metropolitan area, Finland between the months of June and November 2015. Purposive sampling helps to achieve a targeted sample quickly. (DePoy & Gitlin 2015, 199.) In this study, purposive sampling was used because the researcher wanted a quick access to the nurses due to a limitation of time.

Purposive sampling is also known as judgmental, selective or subjective. It is a non-probability sampling method. It is known as non-probability sampling method because there is no random selection of the sample. The researcher makes a decision on the components of the sample chosen. (DePoy & Gitlin 2015, 199.)

Purposive sampling does not intend to make generalizations but to target on appropriate characteristics of a population that are of interest. Understanding the characteristic of a population of interest is important in answering the research question of this study. (DePoy & Gitlin 2015, 199.)

All the nurses in the metropolitan area of Helsinki are the study population for this particular project. A study population is the group of people who are the target of the study. (Kananen 2015, 174.)

Nurses were informed about the inclusion criteria before participating in the study. All the nurses who met the following inclusion criteria were included in this study while those who did not meet the criteria were excluded.

The inclusion Criteria were that they should be working in Helsinki area, should have 6 months' work experience or more, and are willing to participate in the survey. Registered nurses who were not from Helsinki region, with less than 6 months' work experience, not willing to participate in the survey were excluded. A total of 101 nurses participated in the study.

Sampling of the participants was carried out based on inclusion and exclusion criteria listed above. The questionnaire was visited by 365 nurses. 101 nurses participated in the survey.

6.3   Data collection

Data was collected using a questionnaire which comprised of both structured and unstructured questions. The questionnaire was developed by the researcher and it was aimed at capturing data regarding the competencies that nurses might require currently and in the future when educating patients in the context of eHealth (See appendix 2).

The first five questions were multiple choice questions and they were about the background information of the nurses. Information related to nurse's pre-registration qualification, gender, age, length of time spent in the nursing field, and current area of practice was collected in this section. Question six and seven was close - ended. Question six was gauging nurses' knowledge relating to eHealth in patient education. Question seven was assessing nurses' experience relating to eHealth in patient education. Question eight was open– ended that collected data relating to the kind of future eHealth competences required by nurses in patient education.

Questionnaires were distributed to the participants through the email and through the social media. About 75 nurses were contacted through emails while other participants visited the questionnaire through a link that was published in the social media. Those nurses who were contacted through the emails are the nurses who I knew and who my friends knew. The nurses contacted though the social media were the nurses who were in the professional nursing face book groups for example TEHY(Nurses union) members face book group , Hämeen University of Applied Sciences and Lahti University of Applied Sciences social and healthcare 2014 students face book group (Ham/Lank 2014), and International Nurses in Finland face book group.

The participants were presented with a letter of consent and a letter of information before participating in the survey. The purpose of the study was clearly indicated in that letter. The letter also assured the participations that their privacy and confidentiality will be maintained. See appendix 1 for information and consent letter.

Participation of this study was voluntary. Participants offered their consent by accepting to fill and to submit the questionnaires. Respondents were encouraged to fill in the questionnaire and they were revisited at least twice. The respondents were encouraged to respond to all items in the questionnaire within the given time so as to minimize non-response rate.

6.4   Data analysis

Both quantitative and qualitative data analysis methods were adopted. Data from close-ended questions was analyzed using quantitative methods while data from an open-ended question was analyzed using qualitative method. In quantitative method the descriptive statistic method was used while in qualitative method content analysis was used.

Quantitative Method provide us with an extremely powerful set of tools for generating and analyzing data in scientific terms. Quantitative method enables classification and comparison of data. It also helps to explore and extract patterns of data. Descriptive statistic is the quantitative data analysis method adopted in this study. Descriptive statistic utilizes numerical and graphical methods to look for patterns in a data set and to summarize the information revealed in a data set. The summarized infor mation is presented in a convenient form. (Tolmie, McAteer & Muijs 2011.)

In this study, Percentages and frequencies were the main descriptive Statistical analysis technique used for all the questions except question eight because question eight data was inform of text. Data was Summarized by using a combination of tabulated description i.e., tables and statistical commentary i.e., a discussion of the results.

Content analysis is a research technique for making accurate interpretation from text to the background of their use. This technique may be used with either qualitative or quantitative data and in an inductive or deductive way. Its main phases are preparation, organizing and reporting.

Preparation involves selecting the unit of analysis, making sense of the data. Organizing involves open coding, coding sheets, grouping, categorization process, abstraction and forming categories. (Elo & Kyngäs 2007, 110.)

To make valid and reliable assumption, qualitative content analysis needs to entail a set of systematic and transparent procedures for processing data. (Moretti et al. 2011, 428.) In this study, the steps followed during the data analysis were clear. The data collected through the survey was read and reread couple of times to grasp the overall meaning of the contents. The meaningful units for example phrases and/or sentences were identified in the text and then developed into codes. The codes were compared based on their differences and similarities and then sorted into sub-categories. The sub-categories were then examined and compared of which the categories were then formulated and finally, an overall theme was formulated based on the interpretations of the codes, sub-categories and categories. (Elo & Kyngäs 2007, 111.) See figure 5 below so as to get a clear overview about the phases of content analysis.

Outcome

Process

Categories

Abstraction

Categorization

Grouping

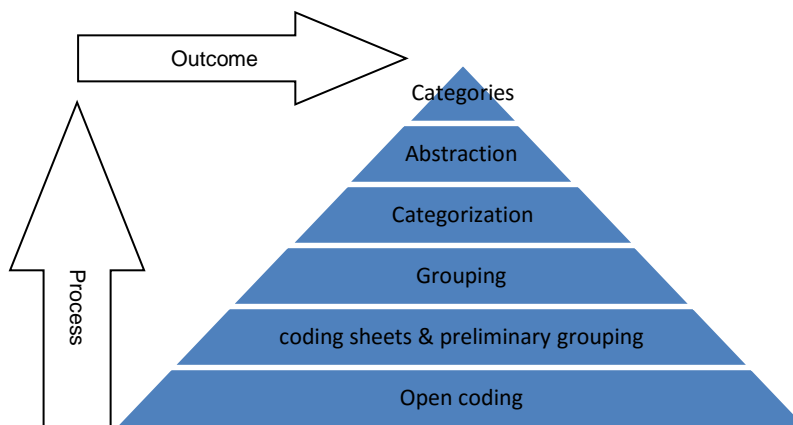coding sheets & preliminary grouping

Open coding

FIGURE 5. Content analyses (Elo & Kyngäs 2007, 110.)

7   RESULTS

7.1   Social demographic characteristics

101 nurses from Helsinki region in Finland participated in this study. These nurses were from different social demographic characteristics. Most of the participants were female. The age limit between 31 and 43 had the highest participants. Most participants acquired a bachelor level education. Nurses with less than 5 years were more. Elderly care specialty was more represented compared to other specialities. The table below represents the frequency and percentages of nurses who participated in this study according to social demographic characteristics.

TABLE 7. Social demographic characteristics

Social dermographic characteristics		
Characteristics		**Frequency (%)**
1 Gender	Male	31 (31)
	Female	70 (69)
2 Age	18-30	39 (39)
	31-43	48 (48)
	44-56	8 (8)
	>56	6 (6)
3 Work experience	<5 years	56 (55)
	5-10 years	20 (20)
	10-15 years	12 (12)
	15-20 years	5 (5)
	>20 years	8 (8)
4 Educational level	MSC	22 (22)
	BSC	53 (52)
	Vocational	26 (26)
5 Specialty	Elderly care	35 (35)
	Internal medicine	14 (14)
	Pediatrics	12 (12)
	Mental Health	12 (12)
	Surgical Care	11 (11)
	Others	17 (17)

7.2 Nurses' current eHealth competencies for patients' education

After carrying out the analysis of the data, two tables namely; nurses' knowledge in eHealth (Table 8 below) and nurses' practice in eHealth (see table 9 below) were established based on descriptive statistical techniques according to Tolmie et al.2011.The table below shows Nurses' knowledge relating to eHealth against social demographic characteristics.

TABLE 8. Nurses knowledge on eHealth.

NURSES KNOWLEDGE ON eHealth.				
		Yes	Somewhat	No
Characteristics		Frequency (%)	Frequency (%)	Frequency (%)
1 Gender	Male	10 (56)	13 (24)	8 (29)
	Female	8 (44)	42 (76)	20 (71)
2 Age	18-30	10 (43)	20 (35)	9 (43)
	31-43	10 (43)	30 (53)	8 (38)
	44-56	2 (9)	4 (7)	2(9.5)
	>56	1 (4)	3 (5)	2 (9.5)
3 Work experience	<5 years	10 (58.8)	41 (59.4)	5 (33)
	5-10 years	2 (11.7)	14 (20.3)	4 (27)
	10-15 years	3 (17.6)	7 (10.1)	2 (13)
	15-20 years	1 (5.8)	3 (4.3)	1 (7)
	>20 years	1 (5.8)	4 (5.8)	3 (20)
4 Educational level	MSC	15 (52)	7 (16.6)	0 (0)
	BSC	10 (34)	23 (54.7)	20 (67)
	Vocational	4 (14)	12 (28.5)	10 (33)
5 Specialty	Elderly care	3 (25)	17 (27)	15 (56)
	Internal medicine	2 (17)	8 (13)	4 (15)
	Pediatrics	1 (8)	10 (16)	1 (4)
	Mental Health	1 (8)	9 (15)	2 (7)
	Surgical Care	2 (17)	6 (10)	3 (11)
	Others	3 (25)	12 (19)	2 (7)

Nurse's perspectives towards their current level of knowledge on eHealth varied from one nurse to another. Some nurses were knowledgeable, while others were partly knowledgeable. In addition, there were also nurses who confessed that they were not knowledgeable at all. There was no clear evidence regarding gender, age, work experience and specialty on nurse's knowledge.

Results further shows that some nurses who participated in this study had an experience in eHealth. On the other hand, there were nurses who did not have any experience. The table below illustrates nurse's practice relating to eHealth.

TABLE 9. Practice in eHealth

PRACTICE IN eHealth			
		Yes	No
Characteristics		Frequency (%)	Frequency (%)
1 Gender	Male	20 (31)	11 (30)
	Female	44 (69)	26 (70)
2 Age	18-30	9 (31)	30 (41.6)
	31-43	12 (41)	36 (50)
	44-56	4 (14)	4 (5.5)
	>56	4 (14)	2 (2.7)
3 Work experience	<5 years	25 (48)	31 (63.3)
	5-10 years	11 (21)	9 (18.3)
	10-15 years	7 (13)	5 (10.2)
	15-20 years	3 (6)	2 (4.1)
	>20 years	6 (12)	2 (4.1)
4 Educational level	MSC	10 (14.9)	12 (35.3)
	BSC	43 (64.1)	10 (29.4)
	Vocational	14 (20.8)	12 (35.3)
5 Specialty	Elderly care	30 (40)	5 (18.5)
	Internal medicine	10 (14)	4 (14.8)
	Pediatrics	8 (11)	4 (14.8)
	Mental Health	7 (9)	5 (18.5)
	Surgical Care	6 (8)	5 (18.5)
	Others	13(18)	4(14.8)

7.3   Nurses' future eHealth competencies for patients' education

As a result of data analysis, two categories namely: application of eHealth in nurses' roles and social, ethical, legal and safety issues associated eHealth with 2 subcategories each were developed (see figure 10). The sub categories consisted of: Information about eHealth, eHealth and nursing roles, Social, ethical and legal issues relating to eHealth and internet safety. The categories and sub categories were formulated according to Elo & Kyngäs 2007, 111.See the figure below for the categories and sub categories of the findings.

TABLE 10. Categories and subcategories of the Findings

CATEGORIES AND SUB CATEGORIES OF THE FINDINGS	
Sub category	**Category**
1. Information about eHealth 2. eHealth and Nursing roles	Application of eHealth in nurses' roles
1. Social, ethical and legal issues relating eHealth 2. Internet safety	Social, ethical, legal and safety issues associated with eHealth

7.3.1   Application of eHealth in nursing roles

According to the results, application of eHealth in nursing roles is a category. This category is composed of two sub categories namely; Information about eHealth and b) eHealth and nursing roles. See the table in order to get a clear overview on eHealth and its application in nursing roles.

TABLE 11. Application of eHealth in nursing roles

PRELIMINARY GROUPING	GROUPING	SUB-CATEGORY	CATEGORY
-Giving simple guidelines to the patients	Use of eHealth in Patient education	About eHealth	Application of eHealth in nurses' roles
-Patient engagement			
-Guiding patients from other cultures & languages			
Searching information	Research	eHealth and Nursing roles	
Good sources of eHealth knowledge			
eHealth on improving nursing research			
Knowledge on what is eHealth	About eHealth in nursing		
Benefit of eHealth to nursing			
Nurse's role in eHealth			
Skills on how to use and development of eHealth tools			
Meeting growing healthcare needs through eHealth	Improve Healthcare		
Easily accessible nursing care			
Nursing Skills	Other skills		
Computer skills			
Transcultural skills & Interpersonal skills			

Nurses identified information about eHealth as worth learning. The knowledge nurses would like to learn about eHealth includes: eHealth in nursing, how eHealth can improve healthcare, what is eHealth, benefits of eHealth on nursing, how to use eHealth at work and skills on how to use eHealth tools.

Nurses argued that technology is growing fast and causing a change on the way things are done. A good attitude towards new things is fundamental for nurses to be able to benefit from eHealth.

Information about how patient education can be enhanced through eHealth and eService's will be beneficial in solving the future problems. Evidence about healthcare services that has improved though the use of eHealth can act as a good tool for motivating nurses to start using eHealth.

Many nurses confessed that they have little knowledge on eHealth. They then added that they are interested to learn more. However, they contributed their opinions depending on the knowledge they had on the subject. The knowledge and the skills that nurses required varied from one nurses to another.

Refresher courses were mentioned as a way to update nurses' knowledge. Nurses stated that they require a proper training on eHealth during the initiation phase. In addition, they should keep updating their knowledge because digital technology is changing all the time. Examples of quotes from nurses are:

>*Skills on use of first hand technological devices is vital. Technology is growing fast. The ways things are done is also changing.*

>*Awareness of improved services in eHealth is needed. This will motivate nurses to use the skills. Positive testimonies are always a good motivator.*

> *I think I´m doing quite fine with the overall thing, so the educa-tion for the certain equipment/software should probably be enough.*

> *Nurses will need more training in eHealth. Also nurses would benefit from their own positive attitude towards new things.*

Some nurses did not answer this question due to lacked knowledge relating to this topic. Examples of quotes from those nurses are:

> *I guess I have to research so much about it to know what it is all about before I know what I would need in the future.*

> *I don't know.*

> *Am not familiar with eHealth.*

> *I need Education on the subject and also how to participate in eHealth as a nurse.*

Nurses in this study identified information about how eHealth can be applied into the nursing roles as important in solving the future healthcare problems. Competencies on the use of eHealth in patient care, research, manage-ment, education and to improve healthcare was mentioned. Many nurses expressed their interest on learning how to use eHealth tools at work. Many nurses would like to know their role in eHealth.

The ability to engage patients and ability to give simple guidelines to the patients was highlighted. Nurses explained that they require a good source of knowledge in order to have enough information required for educating the patients.

There was a discussion about how the knowledge on the use mobile tech-nology at work will help to reduce hospital waiting ques. Some nurses' pointed out that some patients' needs can be met though eService's.

Some nurses mentioned that they require knowledge on how to meet growing healthcare needs. Knowledge on how to make healthcare services easily accessible to people living in various different life conditions was highlighted. Examples of nurses' quotes regarding this are:

> *Nurses need to know how they can use the mobile technology more. They should teach patients on how they can receive some services through the phone instead of them visiting the hospital. There are no enough doctors and nurses and the ques are long.*

> *I need to be able to guide my patients in the use of such of eService's, so I need good knowledge on eService's and also good knowledge on how to teach.*

> *Better knowledge of how to use computer software's that is used in eHealth. Guidance on how to seek for the right information is important. Patients expect nurses to answer their questions relating to nursing care.*

> *eHealth competences are not beneficial if they are not applied. Nurses should be taught on how to be practical. They should apply the skills in their roles otherwise they will forget.*

Nurses understood that eHealth will bring about taking care of patients from different cultures and languages. Transcultural skills and language skills will be vital when guiding patients from other cultures and languages. Other skills that were indicated by many nurses include nursing skills, computer skills, interpersonal skills, and teaching skills.

Nurses expressed their interest towards having a better understanding of the healthcare system, holistic knowledge about diseases and knowledge about healthcare problems & how they can be solved using eHealth. Examples of quotes from nurses are:

> *The demand of care is increasing, so technology should be in a position to meet the growing demand.*

I need to understand the healthcare system better, in order to have Knowledge pertaining to eHealth and eService's.

Nurses should learn how to develop eHealth tools.

7.3.2 Social, ethical, legal and safety issues associated with eHealth

After data analysis, social, ethical, legal and safety issues associated with eHealth has also been identified as a category (See table 12). This category was composed of two sub categories namely; a) internet safety, and b) social, ethical and legal issues associated with eHealth.

TABLE 12. Social, ethical, legal and safety issues associated with eHealth

PRELIMINARY GROUPING	GROUPING	SUB-CATEGORY	CATEGORY
Technical issues associated with eHealth: Data loss due to system failures, virus attacks,-Digital devices as health hazards Proper use of eHealth tools and devices	Technical problems	Internet safety	Social, ethical, legal and safety issues associated with eHealth
Risks of sharing information in the web & how to avoid those risks Fake & unreliable websites Manipulation of distributed information & internet bullying	Cyber crime		
law on patients privacy rights in eHealth Confidentiality of patient information How to ensuring web safety measures	Patient data protection	Social, ethical and legal issues relating to eHealth	
law about eHealth Discrimination due to lack of skills Loss physical contact; patient to nurses, nurses to nurses & patients to patients	Social & legal problems associated with eHealth		
Nursing guidelines relating to eHealth eHealth guidelines Ethical guidelines in eHealth	Guidelines in eHealth		

Internet safety issues highlighted by nurses include; cyber bullying and data loss due to system failures and virus attacks. Other topics featured were: information about proper use of eHealth tools and devices, the risks of sharing information on the web and information on how to identify genuine websites.

Results highlighted an increase in healthcare related websites. There was a big concern about the ability to identity genuine and reliable websites. Many nurses were aware of unreliable websites. The risk of sharing information over the internet was discussed.

According to the findings, nurses expressed an interest to acquire some competences on safety of patient information. Nurses mentioned that patient information that is stored should be safe. Importance of safety during distribution of information was also mentioned. Nurses were worried that patient information might be manipulated if it falls into wrong hands. There was a discussion about the use of passwords and other methods of preventing access to patients' information that is stored and distributed through the internet.

Knowledge about patients' rights relating to eHealth was highlighted. Nurses knew that patients have a right to confidentiality. This means that patients' information should not be accessed by a third party without their consent. Nurses knew that they have to respect patients' rights when delivering healthcare services through eHealth. Examples of quotes from nurses are:

> *Good eHealth skills are important for nurses in the future. On the other hand, nurses in the future should learn on how to switch to traditional methods in case of failures. Technology can fails sometimes. Computer failures can cause loss of healthcare information. Effective delivery of information can also be hindered when the internet is low.*

Hacking of information distributed through the web is a common problem. I would like to get Knowledge on how to protect Patient data from hackers.

I do not know how to identify a reliable internet site for there are many healthcare websites today. Nurses need skills on how to identify the source of the information to be used in patient education. Wrong information can negatively affect the quality of healthcare services.

Nurses should know about the risk of sharing information and how they can avoid those risks.

Based on the results, it was clear that some nurses are afraid of using eHealth in care delivery due to internet safety. This was evident in nurses' comments. The importance of motivating and encouraging nurses to use the eHealth in their nursing roles was pointed out. Examples of quotes from nurses are:

Nowadays somebody can steal your passwords and commit some cyber-crimes using your identity. How can we use internet safely without the fear of cyber bullying.

Information sent in the internet can be manipulated and therefore it cannot be fully trusted.

Expertise and experience is needed to be able to treat patients safely without actually meeting them. I will need all the required skills since I have the basic knowledge at the moment.

According to the results, nurses identified that they would like to learn about the social, ethical and legal issues associated with eHealth. This involves patient data protection, social problems associated with eHealth and guidelines in eHealth. Nurses argued that this information will enable them solve the social, ethical and legal problems that eHealth will bring about in the future.

Reduction on physical contact was mentioned as a social problem that will occur due to eHealth. Patients and nurses will not meet physically often. Nurses to nurses' physical contact will also reduce. Nurses were interested to learn on how they will deal with these problems when they arise. They quoted that:

> *eHealth will cause fewer patients to nurse and nurse to nurse physical contact.*

Nurses pointed out that a patient has a right to receive clear information about her care. Patients should also receive the care in the language that they understand. Some nurses therefore quoted that:

> *Knowledge on how to give clear guidelines will be good. Patients have the right to information about their care. Am not good in phone conversations. This will be something to learn.*

Nurses discussed that eHealth will cause a division between those who know and those who do not know. Nurses mentioned that this is will cause social problems for example social isolation and bullying. Nurses should treat both the patients who know how to use eService's and those who do not know equally. Lack of equal treatment can cause ethical problems. Discrimination is against nursing standards (See nurses quote below).

> *Some patients might be discriminated because of lack of skills. Some patients will be slow to learn how to use eService's. Some will not like to use eService's. Can the patients be forced to receive the care using the means that they do not like? Will patients feels discriminated if care delivery method is patients' oriented? There will be some social and ethical dilemmas.*

Nurses mentioned that they do not know about the ethical guidelines that they should observe when using eHealth. Nurses understood that they should follow some standards while working in eHealth context. They pointed out that they would like to know about the nursing sector and Gorvement views on eHealth ethics. Examples of nurses' quotes relating to ethical guidelines are:

> *What does the nursing ethics say about eHealth?*

> *Internet is not easily available in some areas due to many factors. Some patients may not be computer literate. Nurses should learn how to offer their services to this two different groups.*

> *I will not like to be held responsible if patient information get lost. Someone may pretend to be the right recipient. How will the nurses confirm patients' identity in eHealth?*

A lot of nurses indicated that they require competences relating to patient's data protection and Clients rights in relation to eHealth in order for them to able to work as experts in and eService's context. Examples of nurses' quotes regarding patients' rights and privacy are:

> *What does the law say about patients' rights in relation to eHealth?*

> *What does the law say about privacy of patients' information in relation to eHealth?*

8 DISCUSSION

8.1 Conclusion

The researcher accessed nurses' current and future eHealth competencies that are required by nurses for patient education. From the findings, nurses have described their views very well. These results are important for developing eHealth curriculum for master's program of Lahti University of Applied Sciences.

In relation to the results, it was clear that nurses understood nurses' competencies differently. Nurses' gave different answers for the same question. The literature review stated that nurses' experiences differ from one nurse to another due to their different nursing roles and working environments. (Andersen et al. 2019, 32e; Smith 2012, 172.)

Based on the findings, it was clear that there was deficiency in current eHealth competencies of nurses. According to the literature reviewed, excellent competence can enhance patients' satisfaction. (Meretoja & Koponen 2012, 415). Nurses should have enough competencies for them to be able to carry out their roles effectively (Smith 2012, 173). Nurses will not be able to reap the benefits of eHealth if they do not have the necessary competencies. (Norman 2011, 125e.)

Nurses require a lot of support from various organizations such as educational institutions, healthcare organizations among others, to be able to develop the competences that are relevant to the healthcare needs of the society. (Petrakova & Sadana 2007, 964.) Cooperation in competency development is important currently and in the future. Multidisciplinary experts in the care context should come up with a common understanding of the future competency needs of patient care. (Meretoja & Koponen 2012, 421.) Nurses require support and motivation to be able to use their competencies. An effort in developing the necessary skills is also required. Lack of necessary competency will hinder nurses from achieving an optimal work capacity. (Smith 2012, 173.)

Nurses' future eHealth competencies identified in this study includes; 1) application of eHealth in nursing roles and, 2) social, ethical, legal and safety issues associated with eHealth. There was no literature about eHealth competencies that nurses require in order to work in eHealth context. However, the literature mentioned traditional literacy and numeracy, computer literacy, media literacy, science literacy, information literacy and health literacy as the general competencies that are required in order to directly benefit from eHealth. (Norman & Skinner 2006, e9.) In addition, basic literacy, computer literacy, information literacy, digital literacy and health literacy were highlighted as the eHealth literacy required in the successful use of social media tools. (Nelson, Joos & Wolf 2012, 11.)

Education about social, ethical, legal and safety issues associated with eHealth is important. Nursing involves advocacy in the care of individuals, families, communities, and populations. Ethics and healthcare law will enlighten nurses' knowledge about patients' rights. (American Nursing Association, 2012.) Ethical issues should be considered in the educational programs in order to ensure good standards in the areas where those skills are applied. (Lenburg et al. 2009, 313.)

Literature review states that eHealth will bring about several benefits and challenges that will affect the security, social life, ethics and legal system of the population. (Hyppönen et al. 2015, 133.) The literature further argues that lack of a good legal system can cause privacy and security problems. (Finnish Nurses Association 2014.) Future eHealth curriculum will be relevant if nurses are taught about the future challenges of eHealth and how they can solve them. (Zwanikken 2013, 18.)

Maintaining and developing patients' knowledge is also important. Educating patients on how to use eService's can improve their health outcome and make them satisfied about the health care services offered to them. (Goldzweig 2012.) Patient education strengthens patients to take care of their life and health (Ryhänen et al. 2012, 270). This is the objective of healthcare in the future (Ministry of Social Affairs and Health 2013, 4).

Knowledge about eHealth and eHealth tools will not only help reduce hospital waiting ques as nurses have stated in this study but it will also enhance patient education.(Doswell et al. 2013, 99.) Use of eHealth competencies in patient education will ensure delivery of personalized care to the patient. Results will be improved healthcare system and good patients' experience. Nursing educations institutions should take a role to ensure that these important competences have been delivered to their nursing students. (Healy 2008.)

Results indicated that nurses would like to apply eHealth skills into their nursing roles. Nurses' roles as mentioned in this study are: research, patient education, management, improving healthcare and patient care. The key nursing roles according to the reviewed literature are: advocacy, promotion of a safe environment, research, management, leadership, supervision and education. Nurses also participate in policy making that helps in the development of quality service. (Department of Health 2008.)

The findings shows that nurses mentioned some other skills that will enable them work effectively in the eHealth context. These skills are: transcultural skills, nursing skills, problem solving skills, teaching skills, good communication skills, and interpersonal skills. All this skills that nurses stated have been mentioned as the core competencies to promote practice in the COPA model (see table 2). The literature reviewed stated that continuing professional education programs must include common skills so that nurses from different working context will be able to benefit. (Lenburg et al. 2009, 313.)

Respect and flexibility was also stated in the reviewed literature as a common competence. Respect and professionalism is the cornerstone of every interaction in nursing. This means that nurses should always behave in a professional manner. They should also apply respect in all situations. (Purtilo, Haddad & Doherty 2014, 3.) Nurses should also have an ability to be flexible. The context where eHealth knowledge is applied in the future is dynamic and evolving due to evolving nature of internet and communication technologies. (Norman 2011, 125e.)

Many nurses in this study suggested for refresher courses. The reviewed literatures supports continual upgrading of the knowledge. Nurses might forget some of the skills that they have learnt. This can occur as time goes if the skills learnt has not been used in their duties. Regular assessment of nurses' competences is important. Nurses' should continually learn as the nursing technologies and strategies are changing as the technologies grows. (Meretoja and Koponen 2012, 421.) Nurses should also assess whether the skills that they leant are enough for their roles. Curriculum should be evaluated regularly to ensure that it is equipping nurses with the relevant competencies that they require in their nursing duties. (Zwanikken 2013, 18.)

The new competencies developed in this study are not enough without support from management and also from all the other parties that are involved in patient care. Successful patient care requires a smooth cooperation across organizational boundaries throughout the whole nursing process. Management and superiors has a huge influence in promoting good practices that improves patientcare. (Lipponen et al. 2013; Henderson & Winch 2008, 168.)

The new competencies that have been identified should be taken into consideration when developing a curriculum. These competencies came from nurses view point based on how they understand their roles and patient's needs. Patients' opinions as well as opinions of all the experts that are involved in patient care should be considered during curriculum development. Educational institution should conduct other studies in which they will involve the patients and other experts. By doing this, they will be able to involve the community in the curriculum developments. The reviewed literature stated that there should be a collaboration of different experts during the development of a curriculum. (Petrakova & Sadana 2007, 964.)

During the implementation of the new findings, higher nursing education should consider the competencies that master level nurse graduates should acquire. Master level competences are important because they lay a foundation for the person's participation and collaboration in their work life as well as for their professional development. (Auvinen et al. 2010, 9.) According to the Literature, a master's level graduate should acquire an in-depth knowledge needed for critical thinking, analytical skills, autonomy, ability to use clinical inquiry and judgment. (Mantzoukas & Watkinson 2007, 32.) Master level nurses should also have skills on how to carry out research, how to use and analyze the available research. (European Union 2015.)

8.2   Reliability and validity of the study

Reliability refers to the consistency of the results. Consistency means that the results are the same with the results of the earlier studies. Validity indicates that the findings of the study compare with the situation also in practice. Validity also refers to the fact that the research has been conducted correctly. (Kananen 2015, 272.)

In this study the analytical procedure was consistent. The findings are accurate because the findings reflects the data which came from nurses perspectives. The results are not biased because the researcher did not force her experiences to the respondents.

Up to date literature from reliable sources were used in this study. The official thesis process guideline was followed step by step. The study was frequently reviewed by a qualified lecturer. Mistakes which were pointed out during the study were rectified.

Data quality control was carried out. A pilot test was carried out in order to refine the questions. A prototype was developed and sent to 11 nurses. These nurses were contacted through email. After completing the questionnaire, nurses offered their feedback concerning the questionnaire. The feedback was based for example on clarity of the questions, length of the questionnaire, understability of the question, importance of the content of the questionnaire, time taken to complete the questionnaire and the correctness of the English language grammar. The questionnaire was refined based on the feedback. Nurses who participated in pilot testing did not participate in the main questionnaire.

Pilot testing intends to find out if the survey will work in by trying it out first on a few people. The purpose is to make sure that everyone in your sample not only understands the questions, but also understands them in the same way. (Van Teijlingen et al. 2010.) The investigator checked the questionnaires for completeness to make sure that data was accurate. Questionnaires with missing data were omitted from the survey.

8.3   Ethical Consideration

Researchers need to gain ethical approval and trust authorization before they can begin recruiting participants (Bowrey & Thompson 2013, 21). In this study, an approval was sought from the administrative personal before the participants were recruited. Survey was approved before being posted in the social media group for nurses. See Appendix 3

Participants must consent to taking part in research (Bowrey & Thompson 2013, 21). In this study, the participants were presented with a letter of information and the consent letter. The objectives and the expected outcomes of the study was indicated in the letter. In addition, participations were informed that their participation is voluntary and that their privacy and confidentiality will be maintained. This letter was delivered to the participants before the questionnaire. See appendix 5 for the letter of information and the consent letter.

Participation was voluntary and Participants gave informed consent by completing and submitting the questionnaires through Webropol survey tool. This study did not incur any cost or expenses on the study participants apart from their time. There were no potential risks that may have caused any harm in any form to the study participants. Privacy and confidentiality of all participants was guaranteed and maintained.

8.4   Limitations

There was no literature about eHealth curriculum for nurses. Literature on eHealth in patient education was limited. Most of the literatures on eHealth were not related to this study topic.

Lack of good English skills limited some nurses to participate in the study. Some nurses refused to participate in the survey because they were not confident about their English skills.

There was poor cooperation between the researcher and some healthcare facilities. The healthcare managers who were approached did not offer permission for their nurses to participate in the study. They gave a reason for the refusal of permission as lack of enough time due to nurses being busy with the nursing roles.

Some invitation to participate in the survey did not reach the respondents because the emails were interpreted as spam. Loss of invitation sent through emails is a challenge for online research. (Kananen 2015, 285.) Some respondents also did not check the invitation on time due to various reasons.

9 RECCOMENDATIONS WHEN APPLYING THESE FINDING IN THE CURRICULUM DEVELOPMENT

The new eHealth competences that have been created should be assessed regularly. This is because technology is changing. Nurses should update their knowledge with the new technologies and strategies as they arise. Education institutions should be updated with the recent technologies. The curriculum should be up to date with the new technologies and strategies. A good curriculum will equip students with excellent competences that are required in the working life. Excellent competence is important to patient outcome.

The results and the impact of a curriculum should be clearly defined. This will enable students to be aware of the knowledge they will score after their studies. Students will also be able to know how that knowledge will help them. Application on that knowledge at the workplace should also be taught. Workplace sceneries can be used during discussions and during the assignments.

Curriculum should equip nurses with the other common skills that are required in order for nurses to work effectively in their roles. The common skills mentioned in this study were; teaching skills, interpersonal skills and transcultural skills among others. Without these supporting skills nurses will not be able to apply their skills into practice effectively.

A curriculum should be essential in solving the healthcare problem. In this case, it should match with the skills required in the practice. Educational institutions can apply the competences that nurses have suggested in this study. Additional research on population's health needs and competencies required to address those needs are required.

This study recommends a cooperation between policy-makers, public health managers, communities, researchers, educators and public health practitioners. This cooperation will help make a curriculum that is relevant in solving the needs of a community.

Competence based teaching approach should be used to ensure that each student receive the competence that they require for their nursing roles. Nursing roles are changing and working environments are different. Nursing education should consider individual competence needs for nurses working in different healthcare contexts.

The success of nurses in working as experts in eHealth context will be attributed by a curriculum that will offer nurses excellent skills. A deficit in nurse's knowledge will hinder them from reaching an optimal work capacity.

eHealth curriculum will have a good impact in the nursing field. The role of eHealth in improving the quality and effectiveness of patient care has been evidence in this study according to the results and also in the reviewed literature

10 CONCLUDING REMARKS

The rate at which social and healthcare education institutions in Finland are diffusing informatics contents into nursing curriculum should improve. Recently, there are only two out of twenty two universities of Applied Sciences that are offering social and healthcare has developed eHealth related curriculum. (Rajalahti & Saranto 2016.)

Education institutions have a role to play in solving the problem of a community. They also have a role in equipping nurses with excellent skills that they require in their roles. This study encourages educational institutions to examine community needs and the strategies that could help meet those needs. (Zwanikken et al. 2013, 18.)

In this study, nurses stated that they require; information about how eHealth skills can be applied in nursing roles and knowledge about the social, ethical, legal and safety issues associated with eHealth. Nursing education institutions are lucky to have this information from the nurses themselves. Nurses know their roles well as well as their strengths and weaknesses. Providing nurses with these competencies that they have requested will help meet their needs. It will also be a good way of involving them in the Curriculum development. Earlier studies have highlighted the benefit of co-operating between experts from different fields and sectors and with the communities in order to come up with a curriculum that is relevant. (Petrakova & Sadana 2007, 964.) Nurses are part of a community. They live in the community and they work closely with the patients.

Nurses' perspectives relating to their current and future eHealth in patient education competencies needs were examined and the new knowledge was created. A recommendation was offered on how the findings could be used in the curriculum development and in the working life. In this case, the purpose of the study was accomplished.

Future research studies should investigate more on the competences that nurses require in order to effectively utilize internet and communication technologies in the roles. Technology is constantly changing. Research should keep on updating knowledge about nurses' eHealth competency.

Other experts and the community should be included in the future studies. There are many experts who are involved in patient care other than nurses. A wide view of perspectives on nurses' eHealth competencies will enhance the quality of the curriculum that will be developed.

More information on nurses' eHealth competencies will enable educational institution gain clarity on what to include in the curriculum. It will also enable comparison of findings from different authors.

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11 APPENDIX

APPENDIX 1

LAHDEN AMMATTIKORKEAKOULU
Lahti University of Applied Sciences

CONSENT FORM AND LETTER OF INFORMATION

Dear Sir / Madam,

 eHealth is a rapidly growing area where novel information and communication technologies are used to deliver healthcare at distance. It's popularity is growing due to its' role in improving treatment, lowering health care costs and increasing access to health care services.

The purpose of this research-based development project is to generate new knowledge of the future eHealth competences needed for nurses. This knowledge is important for curriculum development for master's program in eHealth for Lahti University of Applied Sciences. The objective is to provide recommendations on how the generated knowledge can be applied in the curriculum development.

Only nurses from Helsinki metropolitan area of Helsinki with 6 months of experience and above should participate. Participation is voluntary. Participation indicates your consent to contribute in this study.

Your help and support in this regard will be appreciated. The privacy and confidentiality of all participants is guaranteed.

Thank you for your time and support in completing this questionnaire.

Catherine. K,

Master's in Social and Health Care Development &management,
Lahti University of Applied Sciences (UAS).

Please confirm that you have read the above information and that you have given your consent in participating in this study.
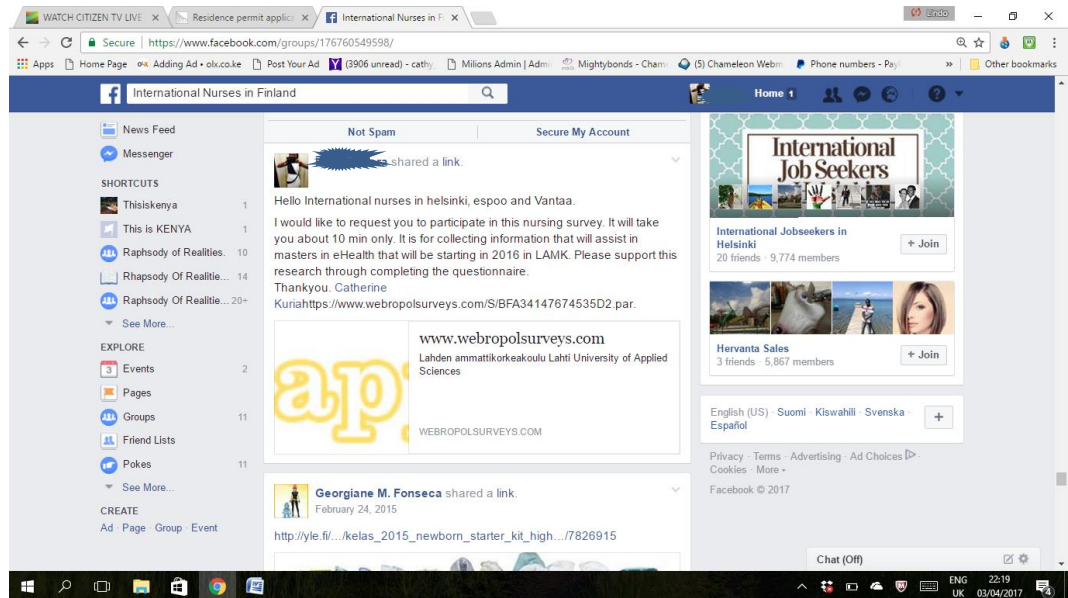
Names and signature--

Date--

In case of any questions please do not hesitate to contact me through   Catherine.kuria@student.lamk.fi,

APPENDIX 2

CONSENTS FOR DATA COLLECTION

International Nurses in Finland Face Book Group.


International Nurses in Finland

A Facebook Group

15 April 2016

To Whom it May Concern, In Autumn 2015, I gave Catherine Njeri permission to gather data from my Facebook group, International Nurses in Finland for her thesis which was being completed at Lahti University of Applied Sciences.
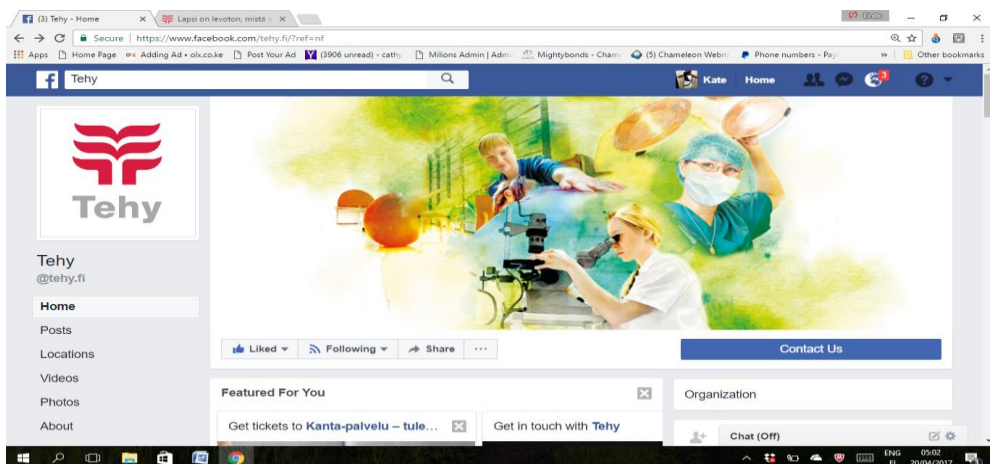
Sincerely,

GEORGIANE FONSECA, Sairaanhoitaja AMK

Hämeen University of Applied Sciences and Lahti University of Applied Sciences Social and Healthcare 2014 Students Face Book Group (HAMK/LAMK 2014)
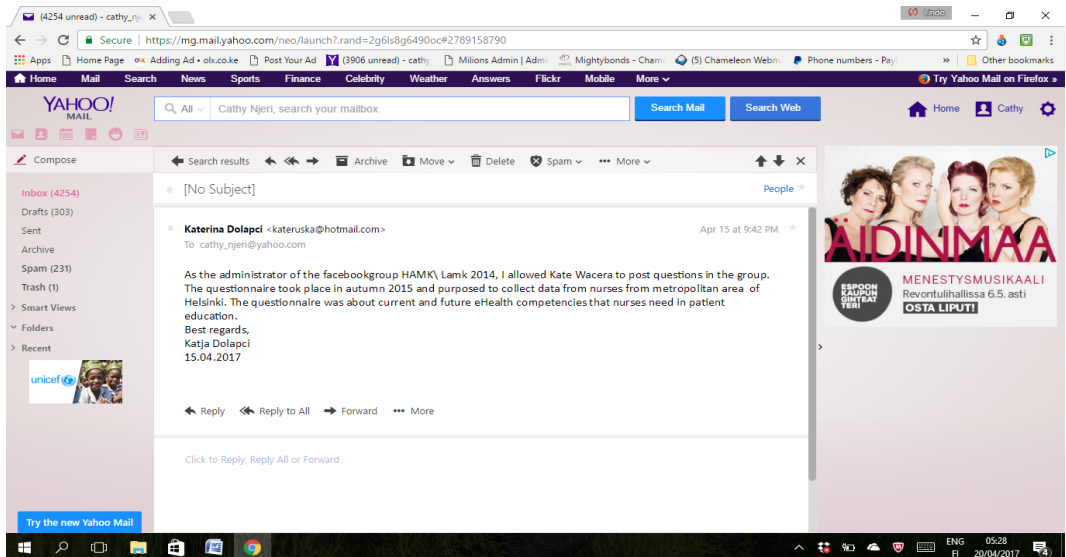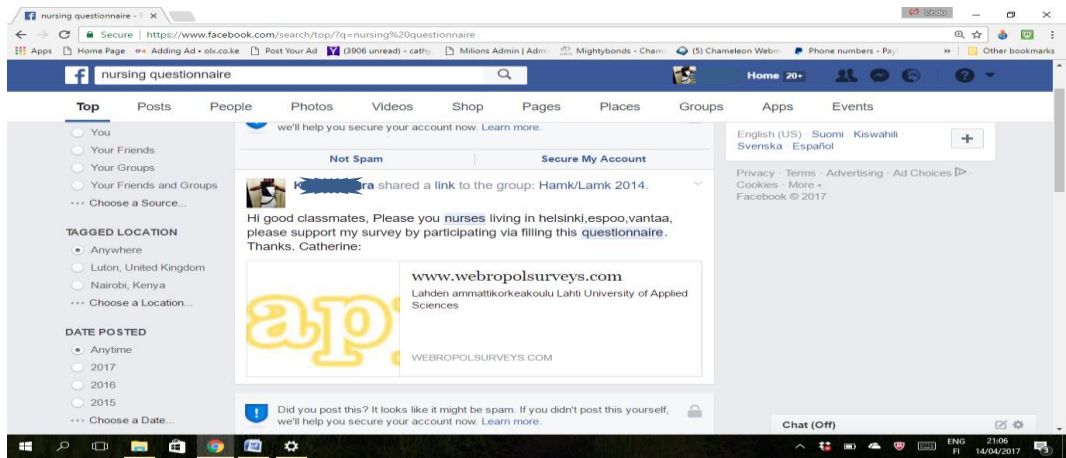
TEHY (Nurses union) members face book group

APPENDIX 3

THE QUESTIONNAIRE

QUESTIONNAIRE FOR EVALUATING KNOWLEDGE AND SKILLS OF NURSES RELATING TO EHEALTH IN PATIENT EDUCATION AND GUIDANCE

1. What is your pre-registration qualification?

○ Masters degree in nursing

○ Bachelor degree in nursing

○ Vocational or diploma in nursing

2. What is your gender?

○ Male

○ Female

3. What is your age group?

○ 18 - 30y

○ 31 - 43y

○ 44 - 56y

○ over 56y

4. How long have been working in nursing?

○ Less than 5y

○ 5 - 10y

○ 10-15y

○ 15-20y

○ Over 20y

5. What is your current area of practice?

○ Child health / Peditrics

○ Elderlycare

○ Mental healthcare

○ Emergency medicine

○ Internal diseases / Internal medicine

○ Surgical care

○ Orthopaedics

○ ICU

◯ Obstetrics and gynecology department

◯ Oncology department

6. Do you have knowledge in the use of eHealth in patient education and guidance?

◯ Yes

◯ Somewhat

◯ No

7. Do you have experience relating to eHealth in patient education and guidance?

◯ Yes

◯ No

8. Please describe the competencies you might require in future when guiding/educating clients/patients in the context of eHealth/eService

_____

_____