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UNIVERSITY OF APPLIED SCIENCES

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Facilitating Learning Among Nursing Students -Safe Administration of Asthmatic Children's Medication

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Abstract

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Facilitating Learning among Nursing Students -Safe Administration of Asthmatic Children's Medication.

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The aim of this thesis is to describe how learning of safe administration of asthmatic children's medication can be facilitated amongst nursing students through planning, implementing, and evaluating learning sessions.

This thesis was an action based research which was carried out in collaboration with Laura University of Applied Sciences, Otaniemi. The thesis aimed to find out how students learning can be facilitated therefore playing the role of facilitators during two (2) interaction sessions in autumn 2011. The participants of the interaction session were a second year nursing student group which consisted of eleven (11) students. Data was collected qualitatively through open-ended questionnaires. An inductive qualitative approach was used to analyze data collected.

The findings were represented in seven (7) main categories; Competences and Abilities of Facilitators, Supportive Learning Environment, Encourage learner's competences and abilities, Using Multicultural and Group Learning Strategies, Consistency of Content and Good Timing, Practical and Clarifying Learning Strategies. The findings made it evident to researchers that participants of the project came in with varying experiences and knowledge that really served as a filter for constructions of new knowledge. The study also showed that the facilitation of students learning is greatly dependent on the facilitator's skills and competence in planning, implementing and evaluating learning sessions.

The results from the thesis may be used for curriculum development for the Degree Program in Nursing at Laurea Otaniemi. The thesis also describes the third-year nursing students values during facilitation and thus may also allow to understand the student learner and facilitator relationship.

Key words: Facilitating learning, Asthmatic child, Safe medication administration, Nursing students, Action Research

Laurea-Ammattikorkeakoulu
Otaniemi
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Tiivistelmä

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Sairaanhoitaja opiskelijoiden oppimisen edesauttaminen lasten turvallisessa astmalääkehoidossa

Vuosi 2012 Sivumäärä (77)

Tämän lopputyön tarkoitus on kuvata miten sairaanhoitaja opiskelijoiden oppimista voidaan edesauttaa lasten turvallisessa astmalääkehoidossa suunnittelun, toteutuksen ja arvioinnin avulla.

Lopputyö on toteutettu kvalitatiivista toimintamenetelmää, ”action research;ä”, käyttäen yhteistyössä Laurea Ammattikorkeakoulun Otaniemen yksikön kanssa. Opiskelijafasilitaattorin tavoite oli selvittää kuinka opiskelijoiden oppimista voidaan edesauttaa kahden (2) vuorovaikutteisen session avulla syksyllä 2011. Vuorovaikutteisten sessioiden osaanottajat koostui yhdestätoista (11) toisen vuoden sairaanhoitaja opiskelijasta. Aineisto kerättiin avoimella kyselylomakkeella. Aineistoanalyysin tehty kvalitatiivista induktio päättelyä käyttämällä.

Löydökset on esitetty seitsemässä (7) kategoriassa; Fasilitaattorien kompetenssit ja ominaisuudet, Tukea antava oppimisympäristö, Opiskelijoiden kannustavat kompetenssit ja ominaisuudet, Monikulttuurinen ja ryhmä oppimisstrategioiden käyttö, Johdonmukainen sisältö ja hyvä ajoitus, Käytännölliset ja selventävät oppimisstrategiat, ja Johdonmukaiset oppimateriaalit. Vuorovaikutteisten sessioiden pohjalta nämä löydökset osoittavat edesautettuun oppimiseen ja tiedon rakentamiseen. Seitsemästä (7) kategoriasta jokainen kategoria täydentää toinen toistaan, saavuttaen tuloksellisemman oppimistuloksen.

Tämän opinnäytetyön tuloksia voidaan hyödyntää Laurea Otaniemen hoitotyön opetussuunnitelman kehittämisessä. Opinnäytetyö kuvaa kolmannenvuoden opiskelijoiden oppimisedesauttamisen arvoja jotka myös kuvaavat opiskelija ja opiskelijafasilitaattorien keskenäistä suhdetta.

Avain sanat: Edesauttaa oppimista, Astma lapsi, Turvallinen lääkehoito, Sairaanhoitaja opiskelijat, Toiminta menetelmä.

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1 Introduction

This thesis forms part of the larger project of Laurea, Otaniemi with the aim of facilitating learning of pharmacology and medication. Laurea Otaniemi is a University of applied sciences (UAS) located in Espoo Finland. Laurea UAS educates students in Bachelor degree programs in Nursing, Business Administration and Social Services.

The aim of the study is to describe how nursing students learning of safe administration of asthmatic children's medication can be facilitated through planning, implementation and evaluation of learning sessions. As an Action- based project, the thesis was implemented through two interaction sessions where student facilitators acted as facilitators and nursing student group as learners at Laurea Otaniemi.

For learning to become more meaningful and purposeful for student learners, their learning will have to be facilitated among them. Students will have to take responsibility and develop their own role for their learning by planning, implementing and evaluating. Students have to be assisted to use their experiences as learning resources in constructing their knowledge so that these will assist them in real life situations. This will help to prepare students for life-long learning with increased critical thinking skills. It will also increase the confidence of students. Therefore, Constructivism as a learning theory has been chosen as a method of facilitation

“Medication and Pharmacology in Family Care” is a one (1cr) credit study unit which form part of the main ten (10cr) units “Working with Families” offered at Laurea Otaniemi during the autumn of 2011. The purpose of this study unit is to ensure safety, accuracy and sterility of pharmacotherapy. Enrollment of the course is mainly for third year students in the first semester. The course ends with a clinical placement whereby students mainly work with families with children. (Laurea, 2011)

The content of the learning session “Safe Administration of Asthmatic Children's Medication” was chosen due to observations from student's pediatric placements where most children had difficulty administering their own asthma medications correctly and efficiently. The asthmatic child or the care taker must be able to recognize the symptoms and the threat of an asthma attack so that they can administer the prescribed dose for such situations.

The sessions were then planned to enable nursing student's acquire the skills and knowledge needed to educate and administer these medications safely. The sessions were also designed to help learners understand the value of family involvement in the care of Asthmatic child.

The session also helped student facilitators to acquire more knowledge and skills due to extensive literature search and practice in preparation for the sessions.

Data was collected qualitatively through Open-ended questionnaires a. An inductive qualitative approach was used to analyze data collected and conclusions made to answer the research questions.

The results from the thesis may be used as basis for curriculum development for the Degree Program in Nursing at Laurea Otaniemi. To the writers, the thesis is going to help build their knowledge greatly due to constant reading of various sources needed for writing a thesis as well as help improve on their critical thinking, which is very vital especially in today's nursing.

2 Facilitating the Learning among Nursing Students

In the last decades, nursing education, as many other fields is undergoing various changes in order to meet the needs of a rapidly changing society. (Quinn, 1995) These changes entailed the adaptation of new roles for all those who were actively involved in nursing education. The term facilitator was then considered by teaching circles as more affirmative term than the term teacher, although this does not release the facilitator from the process of teaching. Facilitating learning as a teaching method is recommended for nursing students learning because it enables students to be more responsible for their learning (Lister, 1990).

According to Rogers (1969, 1983), we cannot teach another person but we can only facilitate learning and thus, the teacher who acts as a facilitator of the learning is a provider of learning resources and as a person who simultaneously shares his knowledge and his feelings with the learners. Other studies explained facilitation as the process by which a facilitator acts as a catalyst to stimulate discussion in a group rather than to impart knowledge. Emphasis is placed on the importance of the relationship between the learner and the facilitator characterizing it as a central element for meaningful learning (Quinn, 1995). Brookefield (1986) also considers facilitation to be a complex teaching method in which the facilitator and students are seen to work together in collaboration, sharing themselves and their experiences in a process of critical reflection thus, learning results from that innate desire for development and it's aimed towards self-direction.

2.1 Constructivist Theory in Facilitation

As a result of the characteristics of facilitation, Constructivism as a learning theory has been chosen as a method of facilitation. Cognitive theories and adult learning is closely related to constructivism. Many others have given different definitions to it. Among these are Jean Piaget (1972) who described the act of learning as the act of accommodation, assimilation and equilibrium. The fundamental basis for learning was to discover; to understand is to discover. If individuals are to be formed who are capable of production and creativity and not simply repetitious beings, then that must be complied with. Understanding is built step by step through active involvement. As an individual is involved in a step by step activity, new information is filtered through existing conceptions or formed knowledge known as the schema and that helps to build understanding. Education is also seen by most theorists as action based, knowledge and ideas are associated to experiences that learners draw only from current situations they are involved in. Constructivism has also been seen to be conceptual theme where human learning is constructed and built upon previous knowledge. It makes learners active creators of their own knowledge. (Brandon & Anita, 2010)

Constructivism is based on four assumptions. 1) Students form new knowledge which is interpreted based on previous knowledge, 2) assimilation and accommodation of information helps the learner to develop cognitively and to produce new constructs, 3) learning becomes the process of invention. When nursing students go through such a process, they are likely to come out as graduates with critical thinking skills who are able to search for and gather information analyze it critically, evaluate it experientially and come out with their own inventions or frameworks. 4) Meaningful learning occurs through reflection and linking new knowledge to the existing framework of knowledge. (Brandon et al 2010)

Facilitation is initiated through contact lessons guided by the principles of Facilitation. Active Learning as part of constructivist theory is also used as a guide. "Active learning "derives from two basic assumptions: (1) that learning is by nature an active endeavor and (2) that different people learn in different ways" (Meyers and Jones, 1993; McKinney, 2011). Cooperative learning is also utilized in the context of the thesis to complement active learning during the implementation. Cooperative learning is the instructional use of small groups through which students work together to maximize their own and each other's learning. (Johnson and Holubc, 1994)

Since nursing is a life-long profession, the need for a shift from the former traditional teaching method to a more concept based approach in order to accommodate the changing needs of the nursing profession. This is because nurses today are seen as beings that are far more than memorization. They are expected to be lifelong learners who are capable of engaging in reflective thinking. This requires that student nurses develop skills that will serve them in and

out of school. Students need to develop lifelong learning skills, such as self-critiquing, self-directional skills, information synthesizing skills, concept linking skills and critical thinking skills. For these to happen, an active learning approach is needed whereby the teacher acts as a facilitator. The facilitator allows students to make a connection between what they are learning to what they know in the past and to apply it in various contexts. Learners are also able to understand the interrelatedness of concepts. (Brandon et al 2010) This bestow on students long term understanding of concepts to help them to connect the information they receive in school to the interpretations of the world around them. This will produce nurses who are knowledgeable, and demonstrate skills at assessing and using information in relation to the ever changing society.

Defining characteristics of Facilitation

The defining characteristics of facilitation are; Genuine mutual trust and respect, the development of partnership in learning, dynamic goal-oriented process and the practice of critical reflection. (Burrows, 1997)

Genuine mutual trust and respect is the quality or state of being esteemed which also involves consideration and positive regard. Respect offered must be sincere and mutual to make facilitation effective. In dictionaries, mutuality is used to describe feelings that two or more people have for each other equally, or actions that affect two or more people equally (Oxford Learners Dictionary, 2011). In facilitation, these feelings described in mutuality should incorporate an acknowledgement of the student's self-worth and uniqueness. This demands that facilitators create an open learning climate in which students are able to share their thoughts and feelings. There should be also room for sharing tentative opinions, acknowledging good points and limitation.

Partnership suggests that an association involving close corporation whereby students work together to learn. The partnership involves the facilitator as a co-learner who either takes or delegates leadership, but responsibility is shared through negotiation (Brookefield, 1986). Emphasis is laid on the need for students' guidance and support to accept responsibility and to avoid being overwhelmed by frustration and anxiety.

The dynamic goal oriented process means that the facilitation process is a proactive and dynamic not only involving stepping back and simply providing resources. Some educational theorists stress that facilitators must recognize their knowledge and share their experiences. Facilitators also assist students with goal identification; encourage investigation and giving meaning to activities and indicating appropriate resources.

Practice of critical reflection is dependent on the existence of genuine mutual respect. This demands that supportive climate where students feel comfortable to be challenged and to challenge each other. This environment should also promote strategies for questioning, probing and debating so that with increasing experience and confidence, learners are able to question their own and others assumptions, thoughts and attitudes. The above mentioned strategies enhance growth, significant learning and promote self-direction. (Burrows, 1996)

2.2 Safe Administration of Asthmatic Children's Medication

2.2.1 Asthmatic Child

In Finland 5-7% of children suffer from asthma. It is the third-ranking cause of hospitalization among children under 15-years of age. (Kajosaari, 2011) Children with asthma may experience wheezing, coughing, chest tightness and trouble breathing, especially early in the morning or at night (KTL, 2011). Untreated asthma is a greater risk for the child's growth and development than proper safe medication administration (Haahtela, 2009)

Children with asthma are more likely to experience frequent hospital or visits to the doctor. Asthma has different impacts on different developmental stages in childhood; understanding of illness and coping strategies change as children they grow i.e. "the younger the child the less they will comprehend about asthma". Comprehension of the particular needs of children and how these change through each developmental stage are essential in nursing among children. One must understand that a child thinks differently and is in the process of continuous physical change (Huttunen, 2002). These stages are defined below using Erikson's theory of psychosocial development.

Infants and toddlers: the infants or toddler are in the stage of developing an overall sense of security. Generally infants and toddlers have little or no understanding of their condition. They experience pain, restriction of motion, and separation from parents which are all disadvantages to developing trust and security.

Preschool Children: At this stage children begin to develop a sense of independence. They might understand the meaning of sickness but not the cause, effect and nature of the condition. Being in the hospital or adjusting to medical schedules is a challenge the developing independence of the child.

Early School-ages children: This group, are developing a sense of mastery over their environment. They can describe reasons for illness but these reasons may not be entirely logical. They might begin to sense that they are different from their peers. They have begun to use

their consciousness more than before making them more vulnerable to radical changes in everyday life.

Older School-aged children: Self-management becomes more evident. These children have a greater understanding towards their condition and its treatment, but they are not expected to carry total management of their condition. The parents of these children may feel the natural need to over protect by limiting their activities. This can interfere with the child's independence and sense of mastery.

Adolescents: They begin to develop their own identity separate from their families where self-image plays an important role. This might lead the adolescent to be more conscious about their altered appearance due to their condition. Many adolescents go through times of denial of their condition and may neglect their medications or follow guidelines of treatment. This rapid growth of the adolescent may lead to the change of symptoms and doses medication. Transfer or the will of transfer of responsibility of care is evident. (Erikson, 1950)

Asthmatic children have the same positive potentials as other children, only their lung function is different. Asthma, like most syndromes, has many symptoms and possible causes and effects. This is why more support, assessment, education and guidance are needed to ensure the wellbeing of their child and family. (WHO, 2006) The care has to be continuous and the child must cope with knowing that the illness might impact the rest of their lives and sometimes get worse. A young child's main duty is to focus on normal factors in life not focus on the illness. (Eiser, 2001)

According to the principles of pediatric nursing the interest of the child covers the array of a fortunate development, the insurance of wellbeing; the child's interests are set afore the parents or caretakers. The child's best cannot actualize without the parents as the Childs wellbeing depends on the family's wellbeing. Family nursing regards the parents as the professionals in taking care of their own child. A child client involves the parents as they are responsible for the wellbeing of the child at home. The parents or care takers administer and provide the medication needed for the treatment of the child according to the developmental stage. Children's attention span, vocabulary and cognitive functions are developing (Kozier et al., 2004). According to the study "At what age do children start taking daily asthma medicines on their own?" an article from Official journal of American Academy of Pediatrics, states that depending on the cognitive functions related to the age of the child, responsibility of medication administration can be increased. At the age of 7, 20% of the children performed their responsibility with the administration of medication. As opposed to 19-year-olds 100% performed their administration of medication. "In multivariate models, child age and male gender remained significantly associated with child daily controller-medication respon-

sibility, and child's age and parents' race/ethnicity remained significantly associated with daily controller-medication adherence.” (Orell-Valente, Jarlsberg & Cabana, 2008)

The parents and care-givers, as mentioned before, are constant in the child's everyday life and often become experts in the delivery of care. Healthcare providers are adjuncts to the child's care thus effective communication and negotiation between parents and the nurse are important in forming relationships. The goal of the relationship is to find out the best possible ways and interventions to manage the needs of the child and family. A good therapeutic relationship is shown to improve health-related outcomes. Nurses assist the family in the normalization of the child's life; encouraging the parents while finding the abilities and resources to abbreviate the disruptive impact of the child's condition on the family. (Hockenbury, & Wilson, 2009)

Due to the nature of asthma the essential regular care for asthma happens at home, in schools etc. Asthma management requires a multi-faceted approach, including an effective educational component. Empowering the parents through asthma education and guidance increases the parents' sense of control of handling their child's illness. It also allows the parents to be more confident in making decisions concerning everyday life with an asthmatic child and the feeling of being able to provide care. These factors promote the wellbeing of the whole family.

According to a study about “Children with asthma and their families” by Kjell Reichenberg states parents being on their guard constantly concerning the health of a child with asthma. Parents of these children are mostly attentive to situations at school, play, work and home. Some have described their experiences with asthma as exhausting, stressful, anxiety provoking and frightening. Most families are advised by healthcare personnel to reorganize their households to prevent asthma exacerbations, focusing on decreasing allergens, asthma triggers and improving indoor air quality. Most parents have to clean, vacuum and dust their homes to decrease asthma triggers. Many also carry the stress of their inability to keep their homes and air clean enough to prevent an asthma attack.

Living with asthma demands great effort that affects every member of the family. While physicians and other health providers can and do help, they often add to the struggle with families living with asthma and want their concerns to be acknowledged and questions answered in a clear and consistent manner. In particular, fear and concerns about medication side effects must be addressed by physicians, nurses and pharmacists, not ignored or downplayed. Physicians and nurses who provide written information and advocate for necessary medical devices increase a family's sense of control, as the advocacy provides support. Coaches, teachers and school nurses often frustrate attempts to "normalize" the life of children with

asthma, but when knowledgeable and responsive to the child's needs enhance the family's sense of well being. Communities are also important, either increasing the struggle or facilitating the family's and child's ability to adapt and live well with asthma. These parents expressed concerns that are very similar to those reported from parents in European and African countries suggested that the health care community has not done as well translating the asthma care guidelines into supportive and desired. Being able to communicate appropriately with children and their parents or guardians is a key part, as is working in partnership with other health care professionals to ensure continuity of care. (Eiser, 2001)

Majority of the asthma medications are self-administered or administered by the caretaker. Therefore the people involved in the treatment of the child should be educated on the importance of the safeness of administration of medication. The aim of asthma management is to achieve a symptomless state. This means not letting asthma control the life of the child rather managing asthma efficiently to prevent these symptoms. (Partridge, 1995)

Many children had an insufficient inhaling technique that led to imbalance in the care of asthma. That is why more emphasis needs to be placed on the nurse-family relationship. In family nursing, the parents and nurses play a big role as children are not fully capable or understanding the importance of medication, neither might they be physically equipped to perform inhalation. An education of self-care given by a health-care professional can prevent unwanted effects of asthma; asthma symptoms, the exacerbations, and problems in oral health. Adequate education helps to find balance in treatment of asthma, which has a positive effect on patient's quality of life. (Leyshon, 2007) The commitment to care and good cooperation by the family between nurse and doctor, allow for example the use of PEF-measurements to give valuable information to care. Self-adjustment with the aid of a written action plan or by regular medical review appears to have similar efficacy in the treatment of adult asthma. The doctor is in charge of prescribing the medication, assessing changes in the treatment plan, the nurses carry-out these actions. Every patient and family need individualized guidance about their care plan and the use of their medications, as they differ from each other. (Bracken et al 2009)

2.2.2 Safe Administration of Asthmatic Children's Medication

For the successful treatment of asthma, medications have to be administered safely to control symptoms, prevent exacerbations and achieve best possible lung function. The role of drug therapy in asthma is to reduce the inflammation and swelling in the airways leading to less bronchial hyper reactivity and therefore less symptoms. (Vanto, 2009) Inhaled medications are vital and the most common medication in the treatment of childhood asthma, although they are only effective if they are used properly. Using an inhaler correctly delivers the medication to the lungs and leads to a better response. If the medication is used incorrectly,

little or none of it reaches the lungs. Thus the drug therapy will not reach its goal failing to successfully reach the individualized goals in the holistic treatment. Unfortunately, many do not use the best inhaler technique, including children. The proper inhaler technique can be learnt with training, practice and guidance. (Chen, Yin, Jing-Long, 2002)

Safe Administration of medication is a health care activity that is implemented by professionals in health care with training in pharmacotherapy which should be promoted to clients (National guide for pharmacotherapy Finland, 2009). It is not solely a mechanistic task to be performed in strict compliance with the written prescription of a medical practitioner, but guided by principles of pharmacotherapy. In Finland, the National Guide for Pharmacotherapy in Social and Health Care provides these principles. The national safe medication guidelines 2009 show that health-care professionals are responsible for patient guidance. Possessing the knowledge, skills and abilities required for effective and safe practices including safety in administering asthmatic children's medication is essential. With this knowledge, nurses can correctly and safely administer asthma medications to children as well as be capable of teaching patients, parents /guardians of asthmatic children the proper way of administering the asthma medications.

Finnish and international studies suggest that approximately 10% of patient's experience a medical error during their treatment, of these, a significant proportion is pharmacotherapy related (Mustajoki, 2005). The European Union, (Legido-Quigley, Mckee, Nolte & Glinos, 2008) the Council of Europe and the World Health Organization are working together to reduce the incidence of medical errors and to improve patient safety. The Finnish Ministry of Social Affairs and Health has gathered national guidelines for the provision of pharmacotherapy in public and private social and health care units. These guidelines provide a framework for executing safe medication administration. The guidelines include ensuring and maintaining the knowledge and skills in pharmacotherapy with the personnel's responsibilities and obligations in guiding patients. The guidelines also emphasize on the evaluation of the effectiveness of pharmacotherapy and the documentation. Nurses must be skilled, trained and educated to guide and teach this information or skills on the use of medication, including Asthmatic children's medication. (Safe Pharmacotherapy in Social and Health Care, 2009)

Asthma medicines can bring confusion to healthcare workers and clients as they differ by manufacturers brand (outlook of the inhaler i.e. color), type of medicine, and inhalation technique. In Finland there are currently approximately 45 different inhaled asthma medications. (Pharma Fennica, 2012) This is due to the increasing amount of choices provided by manufacturers. The manufacturers also have the tendency to make metered-dose inhalers mechanism of use different. Most of the 45 different medications can be categorized under the main types of asthma medicines; β_2 -adrenergic receptor agonists, anticholinergics, gluco-

corticoids, and the combination; glucocorticoids and β_2 -adrenergic receptor agonists. The onset of action, duration and half-time of the medication also varies. The form of the medicine can be in inhaled dry-powder, aerosol (spray), or liquid form. Tablets such as montelukast and oral liquids in the treatment of pediatric asthma are becoming more researched and furthermore used in the treatment of the child. The choice of asthma medication for the client varies, even physicians working on the same ward or clinic, choose different drug delivery devices for their clients, and, not surprisingly, nurses and are often confused about which device which strength and daily technique.

Parents or children old enough can be helped to train safe medication administration and asthma self-management which involves self-monitoring: daily/weekly symptoms, seasonal symptoms and peak expiratory flow. Monitoring together with regular medical review and a written action plan to adjust medication improves health outcomes for children and adults. The individualized guidance of safe medication administration and written care plan of the patient and family can improve health outcomes. "Nurse-led assessments can help identify potentially modifiable factors for poorly controlled symptoms in children with problematic asthma." (Bracken, M., Fleming, L., Hall, P., Stiphout, N Van., Bossley, C., Wilson N.M., Bush, A, 2007). A study by Van der Palen J., Klein, J.J., Van Herwaarden, C.L., Zielhuis, G.A., Seydel, E.R (1999) "Multiple inhalers confuse asthma patients" indicates that the use of multiple asthma inhalers bring confusion inadequacy of inhalation technique among adult asthmatics. There was no adequate study found on the difficulty of multiple asthma inhalers for small children. Nevertheless, critically thought about if it is difficult for adults it is difficult for children, and confusing for student learners.

The medicine prescribed determines which inhaler must be used. Inhaler types differ from producing company. The right inhaler device is chosen according to the child's age and physical abilities. Usually children above 5 years are able to use an aerosol inhaler and a dry-powder inhaler. Children younger than then the preschool age are usually prescribed aerosol medication where a spacer is needed to administer the drug. A mask can be attached to the spacer making inhaling the medicine easier and efficient. Without the mask the child would have close their mouth around the mouth piece remembering not to hold their tongue in front of the opening. Choice of device to be made within the metered-dose inhaler and spacer range should be primarily governed by specific individual need and the likelihood of good compliance. Once these factors have been taken into account, choice should be made on the basis of cost minimization.

New skills and knowledge are vital when it comes to administering medication especially for an asthmatic child. Asthma is the most common chronic illness of childhood, despite the availability of effective medications to manage the disease. Factors contributing to this include; inadequate facts about asthma, inadequate skills in symptoms monitoring, patient and family education, the role of medications and its safe administration. It is the responsibility of the nurse to ensure that the patient (Child) and guardian are properly and correctly educated on the above mentioned topics as this helps to improve asthma management skills and help reduce asthma severity in children (National Asthma education and prevention program (NAEPP, 2002).

3 Process of Action

Action research has been widely used in education research over the years to improve teaching and learning due to its cyclic process. Many scholars have characterized Action Research as Participant-driven and reflective; collaborative and implying system development leading to change. It has also been seen as a way of improvement of practice and not just knowledge in itself. In most situations, Action Research generates theory grounded in action.

Action Research aims to contribute to the practical concerns and of society, groups and individuals in an immediate problematic situation and the general goal of social science. It also aims to develop the self help of people facing problems by joint collaboration within a mutually acceptable ethical framework. Considering these aims and characteristics of Action research above, there was no doubt it was the exemplary model for our research as we sought find out how Nursing Student's Learning of Safe Administration of Asthmatic Children's Medication be facilitated.

This thesis adapted the Gerald Susman's (1983) Action Based Research model as a guide for the process. Action research suits educational research since humans are recognized as purposeful systems, and their actions are guided by goals, objectives and ideals. The plan generated during the early stages of this thesis through action research guided researchers to the theory behind facilitation. The theory guided us to take action, which in this thesis, was the implementation of learning sessions and evaluating its consequences.

In the first stage of the study, which was the diagnosing phase, student's facilitators were able to find basis of the Laurea project on pharmacology and medication. After some deliberations, they were able to foresee which aspect of the above project needed attention. However, student facilitators were also aware of their limitations as students who were going to be in the facilitator's role. They considered the safe medication administration of an asthmatic

child because all four student facilitators were in their final year intensive courses in Family Nursing. Thus, they felt the need to explore new knowledge in their own field of study. Preliminary investigations through gave a clear picture of the situation and also help clarify the nature of the problem which resulted to the research question.

During the second phase, researchers explored concepts through literature review. Main concepts of the thesis were explored by collecting numerous research literature related to the concepts. The data was then analyzed and interpreted critically as student facilitators discovered how previous action research studies on education were established and also know about procedures and problems that were procured during those studies. Literature review also enlightened the student facilitators on some of the facts of the problem. Action planning was carried n order to decide on the course of action, a number of strategies were revised for the planning of implementation and evaluation of the thesis. Resources were located to help address the problem during the implementation stage.

In the third stage, implementation took place in the form of two learning sessions with student learners. In the Evaluation stage, Data collected during implementation was analyzed by using the inductive qualitative analyses.

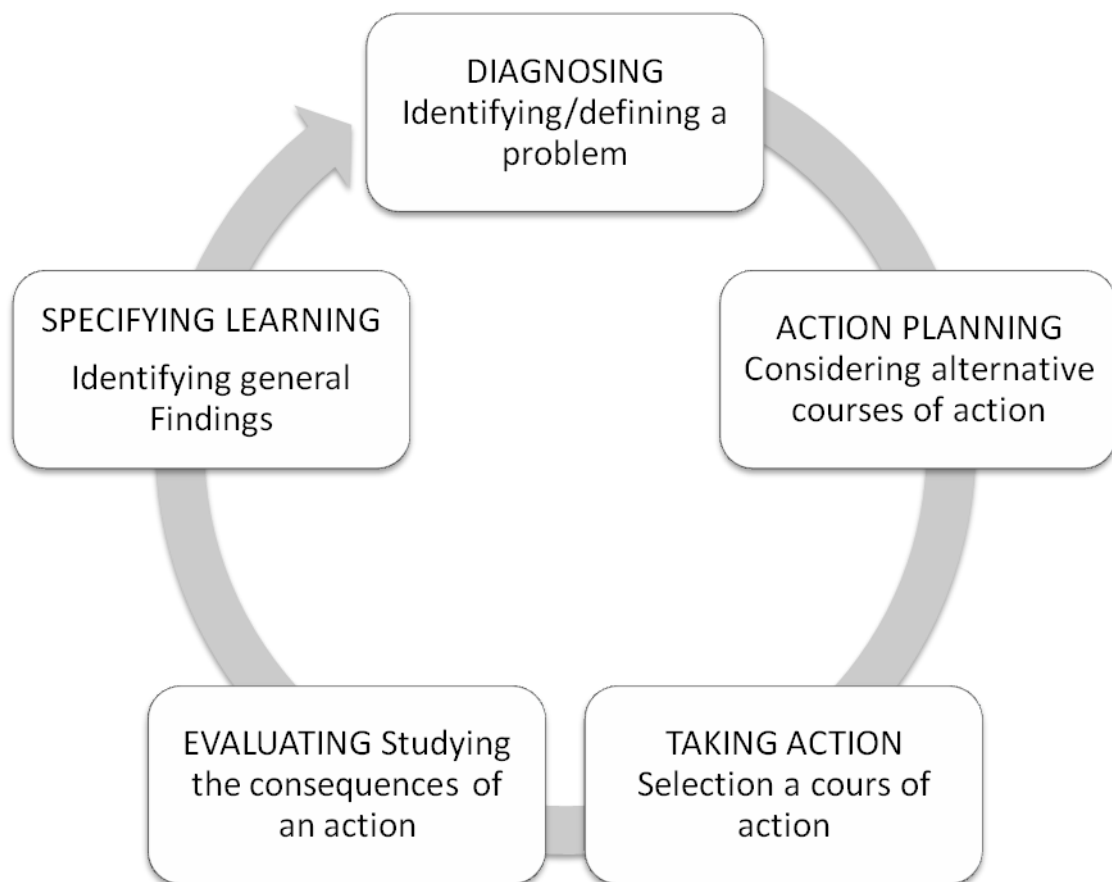


Figure 1 Detailed Action Research Model (Adapted from Gerald Susman 1983)

3.1 Planning the Learning Session

The learning sessions took place on the 3rd and 6th of October. Each lesson was from 12:30 to 15:45 in the afternoon. The classroom 216 was booked beforehand. There were two learning sections each of four hours. The accurate lesson plan (appendices 1) will be developed before the learning sessions. Session one will begin with brainstorming with the students seated, all facing the student facilitators. The student learners will be then given an opportunity to familiarize themselves about the topic under discussion. The most significant aspect of learning is acquired through doing, particularly when learning sessions include demonstrations of a skill within a practice based profession. Therefore, student learners were put into groups of four, each to practice the skill of administering asthma medications safely which facilitators will demonstrate. Student learners who have background knowledge of the topics under consideration will be mixed with those who do not have previous knowledge to aid in supportive learning. Ethnicity and culture of learners will be taken into consideration during the group formation.

The four hour session allow for interaction, and at the end of each session written feedback were collected from learners. The feedback from the first session will be used to refine the second session, and a final report written from analysis of feedback collected from both sessions.

Since this is a learner centered approach, the volume of our content will be dependent on the direction of learners' discussion with the student facilitators. If Learners will have general knowledge about asthma and its symptoms for example, the content on symptoms will be mentioned but not discussed in detail. Lesson will be student centered. The first lesson on the 3rd October, 12:30 to 15:45 began with brainstorming about the learners understanding of who an asthmatic child is. Brainstorming was used as a tool to assess prior knowledge of learners at the beginning of the learning session upon which knowledge building took place. Based on the feedback given from learners, facilitators guided the sessions helping students to build on the knowledge. Facilitators used the lesson plan as a guide in this respect.

The use of questions in an interactive dialogue where student's opinions will be respected and an atmosphere created where there is mutual trust and respect. Learners will be guided here to understand the nature of the asthmatic child and how to administer their medications safely. The importance of including the family in the process will be highlighted. There will be a break and after the break, the chairs will be rearranged so that learners will be in four groups and at the same time be able to see a slide show for demonstration of how to administer the asthmatic medication for children safely. Learners will sit in a way that will make it easy for them to see the demonstration by facilitators. A slide show will be used to assist

with the demonstration. During the demonstration, indication that determines safe and good administration will be highlighted and learners will be given the opportunity to practice. At the end of the session feedback will be collected with an open ended questionnaire and the groups will be presented with the case studies for the next session. Groups will be given the opportunity to select an opposing group.

The second session was on the 6th of October from 12:30 to 15:45) Learners were given the opportunity to present their case studies along with role play. The opposing group was given the opportunity to comment on the chosen groups work. The session ended with a roundup of the main points learned and data collected in the form of a written feedback from learners.

As a major part of active learning, problem based learning in these problems in the case studies may not have a single correct answer but require learners to consider and negotiate between alternatives and to provide a reasoned argument to support the solution they generate. The solution is a conceptual artifact in that it involves constructing an explanation. This allows the opportunity for learners to develop skills in reasoning, self-directed learning as well as to build a solid knowledge base. This require also for learners to be responsible for their own learning and take collaborative responsibility for their groups progress as it is a characteristic of knowledge building.

Active and Cooperative Learning will be seen through interpersonal and small group skills and positive interdependence. In the project, active learning was seen as the engaging factor of our projects purpose of study. During guidance of learners, greater emphasis is placed on students' exploration of their own attitudes and values, thus promoting action research. Meaning that, the reflective process is progressive and problem solving led by individuals working with others in teams. (Riel, 2010)

Brainstorming will be used as a tool to assess prior knowledge of learners at the beginning of the learning session upon which knowledge building will take place. Brainstorming will be encouraged during the case studies requiring problem solving skills. The discussion session will allow for questioning and answering and will also help the student facilitators to expand on the contents. Case studies will be developed on the basis of experiences of the student facilitators during their clinical placements and literature. The case studies will be given to the learners before the end of first interaction session. It will be used as a tool to assess interaction and learnt knowledge of interaction Sessions.

Assessment will be based on the concepts of cooperative learning. The case studies will allow the learners to interact with each other and use their critical thinking skills and developed knowledge during the first interaction session to elaborate on the nursing interventions. As

the questions of the case studies are broad, there is no requirement of a correct answer. Case studies are an effective tool for facilitation because it cuts down on information given to learner but involves learners in problem-solving in order to develop their critical thinking skills (Baumberger-Henry, 2003). This will provide an opportunity for learners to apply theoretical knowledge to real-life experiences. It is an effective way of both disseminating and integrating knowledge. (Clough et al 1999). Learners will be encouraged to use Role play in the presentation of the solved case studies. Learners will assume certain roles, which increases students involvements and learners are not passive recipients of knowledge. Learner's interest is raised and this will also teach empathy and understanding of different perspective.

The information used in the case studies are gathered from pediatric asthma case studies found with added aspects and guidelines of pharmaceutical companies, concerning the administration of asthma medications and spacer devices. Information and nursing interventions perceived in previous practice placements by the student researchers have also been used and tailored to fit each case study. Each case study has an emphasis on a different subject concerning safe Medication administration, caring for an asthmatic child and family nursing; PEF-meter, Baby haler, Nebunette and combination medications. Safe medication administration is slightly more visible whilst family nursing occurs as an ongoing process, together depicting a holistic portrayal of the case studies. There focus concepts, help to depict the main area of focus within each case study, they are stated at the top of the case study. There are also guiding questions which assist the students into putting the main concepts into action in their role play. The guiding questions are open-ended and are intended to help the learners in filling out the question sheet. The case studies are meant to assist the learners in distinguishing these concepts with the function of being an evocative factor with the learnt new knowledge during the interaction sessions. As There is no ideal answer for these cases, only guidelines which will be elaborated on by questioning the learners in an unbiased manner. The guidelines will enable the student researchers and learners to brainstorm the best possible form of action in each case study, thus focusing on facilitation of learning.

3.2 Planning the Implementation

3.2.1 Informants

The focus groups are two groups of nursing students labeled “Student Facilitators” and “Learners”. The student facilitators consist of four all-female- final-year nursing students in Laurea Otaniemi. These students assume an important role of facilitators and play a key role by promoting problematizing, as they encourage learners questions, proposals, challenges and other intellectual contributions. They will take advantage of the social aspect of learning to help students take on different roles by positioning themselves as learners and the learners as teachers because of the expertise they have developed through their own research. The student facilitators’ contributions will be largely in form of questions and non-judgmental feedback, providing opportunity for knowledge building. Thus student facilitators provide learning opportunities for learners by asking questions rather than providing answers and explanation. The second group labeled “Learners” is the-third-year nursing student group. The group is a 3rd year group which consists of international and Finnish students. The language of communication is English. This information will be acquired through a questionnaire and a consent form attached as appendices 3 and 4.

3.2.2 Content of Learning Session

The content of the learning sessions will be in line with the study unit “medication and pharmacology” as stated in the curriculum of Laurea University of Applied Sciences, Otaniemi. The objective of the learning session was to facilitate the learning of safe administration of asthmatic children s' medication. Learning sessions were to help learners to understand the importance of the safe administration of asthmatic children s medication and the importance of family involvement in this aspect pharmacotherapy. The topics chosen for the presentation of Safe administration of asthmatic child’s medication were related to the pharmacological aspect, asthmatic children, nursing interventions, and family care. The chosen topics were meant to give a more holistic view concerning the treatment and care of asthmatic child. They also were chosen on the basis of student facilitator experience of pediatric placements; these were the most common topics which arose daily in the care of an asthmatic child. The information of each topic was linked with other learning materials or examples of experiences with asthmatic children in the form of short demonstration or elaboration trying to bring meaning and correlation of theory and practice.

Case studies were developed by the student facilitators own experiences during previous practice placements and from pediatric asthma case studies by Christine Pintz and also as-

pects from the article ‘Why more asthma cases?’ by Janice C Simmons. There were added aspects and guidelines from pharmaceutical companies, concerning the administration of asthma medications and spacer devices were included to specify the correct doses administered. The names of the characters in the case studies are made up by the student researchers. Each case study was had an emphasis on a different subject concerning safe medication administration and family nursing. Safe medication administration is slightly more visible whilst family nursing occurs as an ongoing process, together depicting a holistic portrayal of the case studies. The case studies are meant to assist the learners in distinguishing concepts with the function of being an evocative factor with the learnt new knowledge during the interaction sessions. As mentioned before there is no ideal answer for these cases, only guidelines which will be elaborated on by questioning the learners in an unbiased manner. The guidelines will enable the student facilitators and learners to brainstorm the best possible form of action in each case study, thus focusing on facilitation of learning.

3.2.3 Learning Environment and Materials

As we quoted above, the facilitator in learning is the provider of learning resources. Learning sessions were arranged in designated classrooms beforehand. All resources in the form of teaching aids and materials will be gathered and their state of functioning checked to prepare them beforehand for the teaching sections.

The physical environment plays an important role in facilitation of learning. Rearrangement of the seating in the classroom may minimize some of the barriers between the facilitator and the learners. During the two learning sessions, classroom seating will be rearranged to suit the particular learning method. The preferred arrangement would allow a degree of openness where each member of the group can have eye contact with the other members and would be able to participate. Classrooms were checked for adequate lighting and good ventilation to make the environment conducive for learning and also to allay any anxiety that could be brought about by poor lightening and ventilation. This should create a more supportive climate for learning. Appropriate and enough seats will be made ready in advance and room numbers of classrooms for teaching will be handed over to the student office for display for student to easily gain assess before the section starts.

Gathering of learning materials:

The learning materials were to support and promote the learning needs of the student learners. They also aided the student facilitators by reinforcing the spoken word aiding the learner’s memory through repetition in a different medium. The purpose was to peak interest and motivate the student learners learning and also to allow critical thinking and brainstorming to

take place. The development of the power point presentation and the case studies began in august 2011.

The materials for the case studies consisted out of; asthma devices with placebo medication, safe medication information, Baby haler ©, Nebunette©, PEF meter with follow-up charts, and real size infant dolls. Some of the placebo medications were only inhalers without a specific medication barrel inside. For these unlabeled inhalers, small stickers were developed, to help the student learners distinguish the difference between the inhalers, as to which medicine would be needed in the specific case study.

Laurea University of Applied Sciences, Otaniemi, provided the asthma inhalers with the placebo medicine and spacers excluding the Nebunette ©. The Nebunette© was bought from a pharmacy and then given to the school s array of asthma equipment. Laurea UAS did refund the costs of the Nebunette© back to the student researchers. The information how to use the inhalers was referred from the manual of the spacer. The PEF-meters' information sheet and exhale charts were referred from ©Suomen Lääkäri Seura Duodecim -guidelines. Additional information on the use of PEF-meter use and follow-up sheets were printed out from the National Asthma Council of Australia. This was to provide the students an insight to the similarity and differences in the care of an asthmatic child.

The safe medication information leaflets of the certain types of medication used in the case studies were printed out from Pharmafennica©, due to the reason that the information about certain medications on the power point presentation was not so precise. The purpose of this information was to support safe medication administration by allowing to the students to read the exact information about the medication; qualitative and quantitative composition, pharmaceutical form, therapeutic indications, posology and method of administration, the typical doses (adults, children and infants), contraindications, special warnings and precautions of use, interactions with other medications, use during pregnancy and lactation, effects on ability to drive machines, and undesirable effects and overdose.

Two videos were shown during interaction session to help student learners see and hear when a real child has an asthma attack. The first video showed a small child having an asthma attack which was filmed by the mother. The other video told about the life of multicultural asthmatic children and showing the 'ups and downs'. The video focused on the child's potentials in a positive aspect which promoted the understanding that asthmatic children are normal children with a different lung function.

All learning materials were studied by the student facilitators to make the demonstration and guidance of the use of the material more consistent and enjoyable for the student learners

during the interaction session. Extra information on the pharmacological topics and an extra case study was produced in case of the need of further elaboration of the pharmacological topics or unexpectedly more students would arrive during the lesson.

3.3 Planning the evaluation of Learning Sessions

Evaluation is integral to action research. Ongoing evaluation process in action research has to do with making ongoing judgments about the worth of the actions taken to date and involves the systematic gathering of appropriate information. There are different approaches used, however, the evaluation element must reflect the research question and aims of the research (Froggatt et al 2011).

Evaluation of learning is a value judgment concept that measures the merit, worth and value of an activity and involves the use of value judgment questions. Value questions help to understand the cognitive and interpretive processes of an audience involved in an activity, at the same time bringing out their individual and subjective experiences. These individual and subjective experiences help in determining the value of an activity to each one in the audience. Such questions enable participants to give their own subjective expressions about skills and knowledge learnt and the extent to which what has been taught and learned is worthwhile. It also includes statements about the extent to which the audience are satisfied with facilitator's skills and knowledge.

Value questions in the form of open ended questionnaires will be used to collect data from the learners after each learning session. This makes it easier to collect feedback from a larger audience. As part of the cyclic process of action research, the data gathered will be considered and learner's expressions will be used as a means of judging the level of success from the first lesson and for refining the next lesson. Statements about facilitator's competences will be used by facilitators to better the next lesson with the goal of improving the lesson and aiding students learning.

Another means of evaluation is the use of behaviorally stated objectives as criteria for evaluation. Value judgment questions based on the objectives and content of the study as well as the methodological processes will be used in this study to evaluate the extent to which the objectives has been attained.

Facilitation of learning is participatory activity and involves student learners throughout the learning process. This means that evaluation methods must have some element of freedom and a sense of democracy to allow learners to evaluate their own success. This will enable students to display a high level of flexibility and serve as a principal criterion of success of

the extent to which they felt themselves a part of the group. This makes learners participant observers. (Brookfield 1986)

Case studies are an effective tool for facilitation because it cuts down on information given to learner but involves learners in problem-solving in order to develop their critical thinking skills (Baumberger-Henry, 2003). This will provide an opportunity for learners to apply theoretical knowledge to real-life experiences. It is an effective way of both disseminating and integrating knowledge (Clough et al 1999).

Learners will be encouraged to use Role play in the presentation of the solved case studies. Learners will assume certain roles, which increases students involvements and where they are not passive recipients of knowledge. Learner's interest is raised and this will also teach empathy and understanding of different perspective.

Case studies will be used in the second lesson to engage learners in a kind of participatory evaluation. Cases will be given in advance and learners will work in groups to solve those cases. There will be no definite answers to the cases, but learner groups will work and present their cases using information attained during the first lesson on administration of medication with the various devices. Individuals in the groups will they have the freedom to assess themselves as they work together and also assess the other groups during the presentation in class. Evaluation in the form of discussion of group performance will be after each presentation.

Data Collectoin and Analysis

The data collected from the student learners at end of each learning session were in the form of questionnaire which were then typed into a word document disregarding the actual questions. Color-coding was the initial method of starting the analysis of the data but due to the abundance of data from the student learners, it became impossible. Thus another method of separating reoccurring ideas from the data was to cut each sentence separately as a single strand of paper. These strands of paper were then organized in a manner of similar patterns which were glued onto cardboards. The cardboards made the groups visible for further assessment and critical analysis. The final cardboards with the similar patterns were then typed into a new document and named to be 'raw data'. Similar patterns were then coded into categories. Themes were then derived from these categories.

4 Implementation of action

4.1 Learning Session 1

The first lesson was to introduce learners to asthma in children and its impact on the family, safe administration of asthmatic children's medication and an introduction to some of the short, long acting medications. The objectives of the lesson were that by the end of the lesson, students are able to explain how to correctly recognize the signs and symptoms of an asthmatic child, to identify and describe correctly asthma treatment and the two main types of asthmatic inhalers, demonstrate correctly the technique for administering asthma medications through inhaler devices and last but not the least be able to give correct guidance to the asthmatic child and family on asthma. There were eleven students present during the session.

The first lesson began with a short introduction of the student facilitators to the learners as well as description of the purpose statement and the aim of the thesis. Consent forms were distributed to the students to seek their permission before commencing with the session. Facilitator A and B stimulated the class with questions to start the brainstorming section.

Open ended questions as "what do you know about asthma?", "what are the signs and symptoms of asthma?", "any ideas about asthma treatment and medication?", "has anyone had an experience with an asthmatic child and is willing to share with the group?", were used to draw the learners out and to initiate the learning relationship and also to help refresh students memories and establish their level of understanding. This enabled facilitators to know where to emphasize more and which repetitions to avoid.

Students responded very well by giving their understanding about what asthma is. Some stated that it was inflammation of the airways and gave some trigger factors such as pets, smoke and dust. There were some firsthand experiences. Some students related their own personal struggle with asthma in childhood and related the symptoms they had then. One student related how her friend's mother had to move away during winter to avoid the trigger factor which was the cold. Students also commented on the impact of asthma on the family. One student also commented on the stress that asthma has on the parents of an asthmatic child, especially when the child is away from home. Such parent worries about what can happen if the child has an attack.

A warm atmosphere was created by this interaction with a free expression of ideas. Facilitators listened carefully to each student's comment and acknowledged each response from students. Unclear responses were reframed into more simple questions and directed

back to the students to give their opinions. Comment from students gave the same basic idea of what asthma is; an inflammation of the airways.

Concise, brief and well prepared power point slides were used to introduce the main objectives of the lesson as above and the relevance of the sessions and where it fits into the ongoing nursing studies. It was also highlighted that the sessions were in line with the Laurea curriculum. Student facilitators, using the prepared PowerPoint slides emphasize on what asthma is and the signs and symptoms by way of summarizing them for emphasis for students. The lesson progressed to the guidance section, facilitators invited students comments about the importance of guidance in asthma for children. One student said that depending on the age on the child, correct language is very important because sometimes the child is too young to understand the concept of the illness. Also visual aids are helpful when guiding children. Another stated that direction of the use of medication is important to the family because it might be all new that the need too much information on how to use it. In the course of the discussion, one student mentioned that her sister could not take the medication in front of people but gradually she can now due proper guidance and education.

During the discussion it was noted that some students were not contributing at all. Students in the front roll did all the talking whereas those in the back roll were silent and listened. Facilitators invited these back roll students to take part in the discussion. During the presentation of the PowerPoint slide for summary, students questioned one of the statements on the slide about why babies should not be made to inhale vaporized air or warm water from the shower. Students were assured that this was to be made clearer in the next lesson. The discussion progressed to the type of medications in asthma with attention directed to the placebo medication types on display in the classroom. Student facilitators invited the class to talk about why preventers are important. Personal experience was given by some of the students about their encounters with preventers. Students pointed out some the medications that they have had the opportunity to help patients with. Some gave their ideas about some the side effects of corticosteroids like thrush, hoarse throat in children which can be noticed by asking the child to open her mouth for inspection. Another said that in the elderly, it can cause thinning of the skin. They also gave ideas on prevention such as proper rinsing of the mouth after taking the medication. Another student also mentioned of the fact that she had experienced a bronchodilator being administered intravenously and also the short acting is for acute cases.

Facilitators distributed asthma plans to students for observation. The discussion progressed to the management of asthma in schools where the parents are not available. One student mentioned the fact that it could be wise if Finland could adopt a plan whereby, in schools, teachers are trained on how to access and keep control of an asthmatic attack. Another also

said that such an action plan could help the parents to feel less stressful at home knowing that the child is in school but everything is in control. Facilitators asked for students views about the Epipen and its use. Student knew about its use and for how long.

Picture slides about some inhalers were shown to students and invited to comment on these. The importance of the use of inhalers was stressed with pictures. There were comments about why children need baby haler, one of the reasons being that, children do not understand the mechanism of breathing through the device. Another also made mention of the fact that powder medication is not the best option for children since the medication can easily get clumpy when they exhale into it and children do not understand this. Students emphasized the importance of empowering the parents not to be overly protective and temper with the care by making them understand that sometimes the child can control the situation. In the nurse- parent interaction the nurse is responsible for giving information to children and the parents and also to find out the reasons for overprotection. Special details such as governmental support in Finland were given by facilitators. Students went out for a short break of fifteen minutes.

Facilitators at both tables welcomed students and reintroduced the equipment by asking students to identify them. The use of these equipments was explained and demonstrated. Students was encouraged to practice and ask questions. The groups switched places and the same procedure repeated with the group. Facilitators wrapped up the process and distributed questionnaires with the assistance of facilitators 3 and 4. During the process of filling, a video was shown about children with asthma and their families. Lights were dimmed to make viewing easier. During the presentation, learners paid attention and did not interact with each other. Some students concentrated on the filling while some watched the video. After the process, groups were formed for the case studies and cases distributed for the next lesson. Students were encouraged to apply points learned from the first lesson in the case studies. Numbering was used to form the groups and learners encouraged to work together and report back on the group working process.

4.2 Learning Session 2

A total of eight students showed up at the beginning of the second session. Facilitators 3&4 were the facilitators of this session whilst Facilitators 1& 2 observed the session. There was a brief introduction of the Facilitators, the schedule and objective of the session to the students. Student learners were then advised to be in the groups which were previously formed in the first session and continue to work on their individual Case-Studies. The devices, safe

medication information leaflets and other materials needed were distributed in accordance to the Case- Study groups. Student facilitators then offered their guidance if needed and circulated around the room.

After 30- 40 minutes, all groups confirmed to be ready and the groups agreed to the order of presentation.

Group 1

Consisted of two girls who were from two different continents. They finished working as the last group. The student learners both investigated the case study thoroughly. They used a PEF-meter with instructions of use, PEF flow chart, and medication information leaflet. Both student learners spent time focusing on the equipments and its usage. Verbal interaction however was minimal, whilst one of them was inquiring overall information about the Broncodialators from Student Facilitators.

The group presented their case study in a manner of which an individual student focused on one area of the case study. The student learners mentioned the developmental stages of the asthmatic child, and their importance considering safe medication administration. Emphasis was laid on how to approach and guide the child of the case study. Asthma triggers and their meaning in holistic care were presented by the student learners. Empowerment of the child, family and close environment were highlighted in a positive manner. The student learners presented the PEF-meter its use and the new EU standards of it. The medication prescribed with the PEF-meter including its side-effects were also presented. The student learners laid out emphasis of an adult accompanying the child to whom guidance should be given and how to be assured that they understood it. Both students were active during the presentation. Student Facilitators gave time for questions and discussion. Student were then applauded for their good work and finished their presentation.

Group 2

Consisted of two females and a male and finished working second last. The student learners group worked with a babyhaler with instructions, the medication information leaflet and an infant doll. One of the girls had to leave but contributed to the case study and presentation. The student learners focused both on the spacer and the doll. They used the doll to practise how the spacer should be held and how to comfort the doll in the situation of safe medication administration as if it was a real-life case. There was a lot of verbal and physical interaction, and all materials were practised efficiently. The student learner group presented their case study with role play. The case study was read out aloud in front of the class before the role play. Each student took roles in the role play and contributed in presenting the solve case. The student who acted as nurse showed how to receive infant as a patient, for example; the

manner of speech to the mother/child. Abstract details in holistic care on how to nurse children with asthma was emphasized. The whole group emphasized on the mother, the baby and the family as a unit. Careful guidance to the mother and other members of the family were presented with future plans and assessments. The group had ideas on how improve the wellbeing of the child by improving the child's environment (Ventilation of the home, animal dander, etc). They also highlighted how to ease the situation for mother /caregiver to take sickleave from work if their child suffers from asthma. They reviewed the importance of comforting the child when administering medication. The student learners took both side effects of medication and the use of the babyhaler and its cleansing as an essential part of care.

After the role play, the all student learners participated in the discussion in form of answering questions from the audience and student facilitators. The Student were then applauded for their good work and went back to their seats.

Group 3

Consisted of two girls and one boy and finished working as the first group. They worked with a nebunette with instructions, the medicine included the medication information leaflet, and an infant doll. Each member contributed to the task equally and took turns in answering the case study individually. The group focused mainly on the nebunette and the function of the spacer. One student was more active verbally than the others but gave opportunity for others opinions as well.

The student learner group presented their case study in a manner of which an individual student focused on one area of the case study. The individual findings of the student learners chosen area had also an emphasis on holistic care and empowerment of the family. The asthma childs medication was brought under a positive focus. Other specific information on oral thrush The student learners held the medicaiton as an empowering factor for the asthmatic child. Each student learner pointed out detailed information on the prevention of the asthmatic childs condition worsening pinpointing out seasonal changes, smoking, animal dander and unclean soft toys that may carry allergens. Prevention of oral thrush was also discussed. The severity of asthma exarbatations were presented with some assesment indicators.

The student facilitators gave room for discussion of the overall session and questions, although there were no inquiries about the subject. The SF's then thanked the Student learners and the teachers observing the lesson. Student learners gave a talk of appreciation of the interrraction sessions . Open -ended Questionnaires about group work and learning

outcomes were then handed out to students. Students filled the questionnaire and were then allowed to leave in their own time because we were ahead of schedule.

5 Evaluation of Action

5.1 Data Collection

The choice of a data collection method required careful analysis of the research question and the type of information required to answer the research question. An open ended questionnaire helped to collect detailed and subjective experiences of people involved in an activity. The questionnaire is an appropriate means of collecting data from a large audience. Value questions in the form of open ended questionnaires were used to collect data from the learners after each learning session. These value judgment questions were based on the research question. As part of the cyclic process of action research, the data gathered will be considered and learner's expressions were used as a means of judging the level of success from the first lesson and for refining the next lesson.

Statements about facilitator's competences were used by facilitators to improve the second session and aid students learning. The feedback collected was analyzed for findings to help answer the research question.

5.2 Data analysis

Qualitative Content analysis is an ongoing process that begins in the early stages of data collection and continues throughout the study. It is a process of deriving meaning from the data gathered (Bradley et al., 2006). The extent to which the research question is answered and a high quality research work is achieved will be dependent on the selection of an appropriate analytic method.

Qualitative inductive analysis is one method for analysis that enables researches to analyze and gather meaning from the data collected from the learners. It helps to discover patterns, themes and categories and to organize and to describe what happened during the implementation. A code also called an index or node is a label that is attached to a piece of data. This piece of data can be single word a group of words or a sentence. A theme is a label that summarizes the essence of a number of related codes. A category is a group of related themes (Fade & Swift, 2010).

Data bits gathered were reduced and then separated into piles and a comparison was made within data bits in each pile and also between data bits in other piles to look for patterns and variation. This gave rise to a set of sub categories and allowed for a more detailed comparison of the data. The subcategories were grounded conceptually and also empirically with the research question also in mind. The subjective distinctions drawn out in the data by learner's experiences were noted and well as other suggestive distinctions and ideas. Reoccurring subcategories overlapped and helped student facilitators to see the conceptual connections in the data bits. Some subcategories also concurred. A hyperlink was done conceptually to connect the subcategories to achieve the main categories and these were unified or connected to answer the research question (Fade & Swift 2010).

Student facilitators also took into consideration particular aspects of learner's experiences that fall outside the scope of the research. The differences in background of facilitators will also be a useful tool to help to improve the breadth and depth of the analysis and findings.

6 Findings

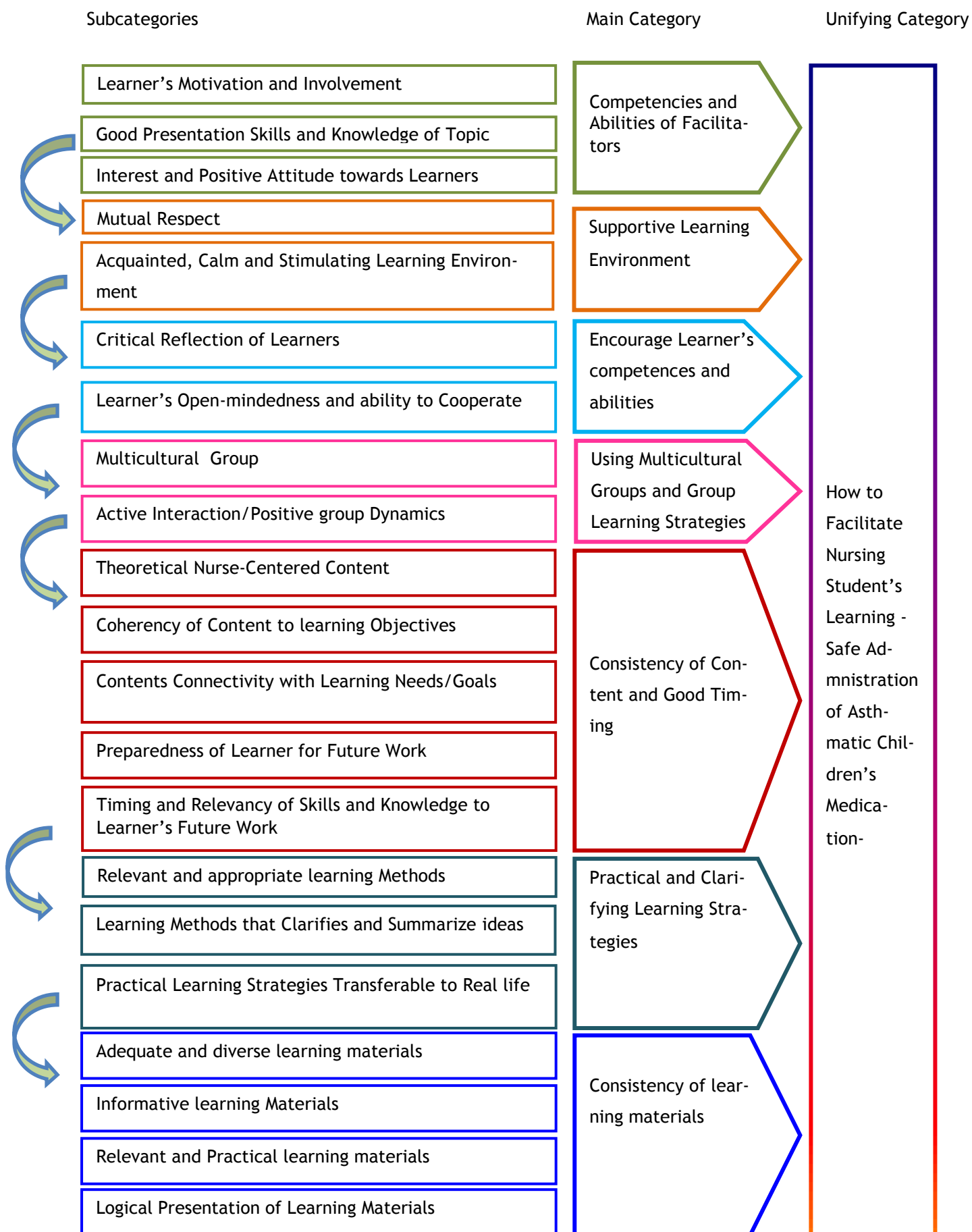


Figure 2; Process of Data Analysis to Answer the Research Question

The findings produced the following connecting categories: Competences and abilities of facilitators; Supportive learning environmental; Encourage Learners competences and abilities; Using Multicultural and Group learning strategies; Consistency of content and Good timing; Practical and clarifying learning strategies; Consistency of learning materials.

6.1 Competences and Abilities of Facilitators

This main category was derived from three subcategories after a step by step analysis of the raw data collected from the students. The three subcategories that formed this category were; Good presentation skills and knowledge of topic, Interest and positive attitude towards learners and learners motivation and involvement. Students noted that facilitator's competence and abilities exhibited during implementation had a great impact on their learning. They stated that, the facilitator showed good presentation skills and knowledge of the topic. The facilitators demonstrated this by stating specific learning objectives, paying attention, asking questions and good time consumption. Students also pointed out that the facilitators had good knowledge of the topic and this was demonstrated in the fact that they answered well to questions asked.

"The lectures stated specific learning objectives that should be achieved; I felt that the learning objectives were met by the lecturers"

They answered well and covered all the areas possible. Gave time to answer the questions"

"student lecturer were actively listening and paid attention to the information stated during the lectures made by the participants"

According to the student learners, interest and positive attitude shown towards them also contributed to their learning. Learners stated that facilitators demonstrated these by giving time to ask and answer questions and considering even small and weak points made by learners. Learners also stated that facilitators were polite, respectful and open minded towards them. The following statements by learners are reflective of the above;

"The provision of time to ask questions chances not to leave me with any doubt"

"Honestly, my small and weak points were well considered"

"The polite way of asking comments allows the learner to get his or her point said"

Learners also pointed out that facilitators motivated and involved them in the learning session which contributed to their learning. Students stated that facilitators did this by asking

for a lot input from the class and encouraging students to express their opinions. They were also supportive in getting the audience. Student's quotes like these supports the above:

"The session did a good job of involving the learners into the session"
"Presenters tried to involve the audience in the participation of the progress of the learning"
" The lecturers were very supportive in getting the audience involved"
" Students were encouraged to expressed own opinions"

Students were also very inspired to see fellow students in class so much that some students also stated:

"students support students learning which can encourage us more active in the class."
"Inspiring to see students as future teachers"

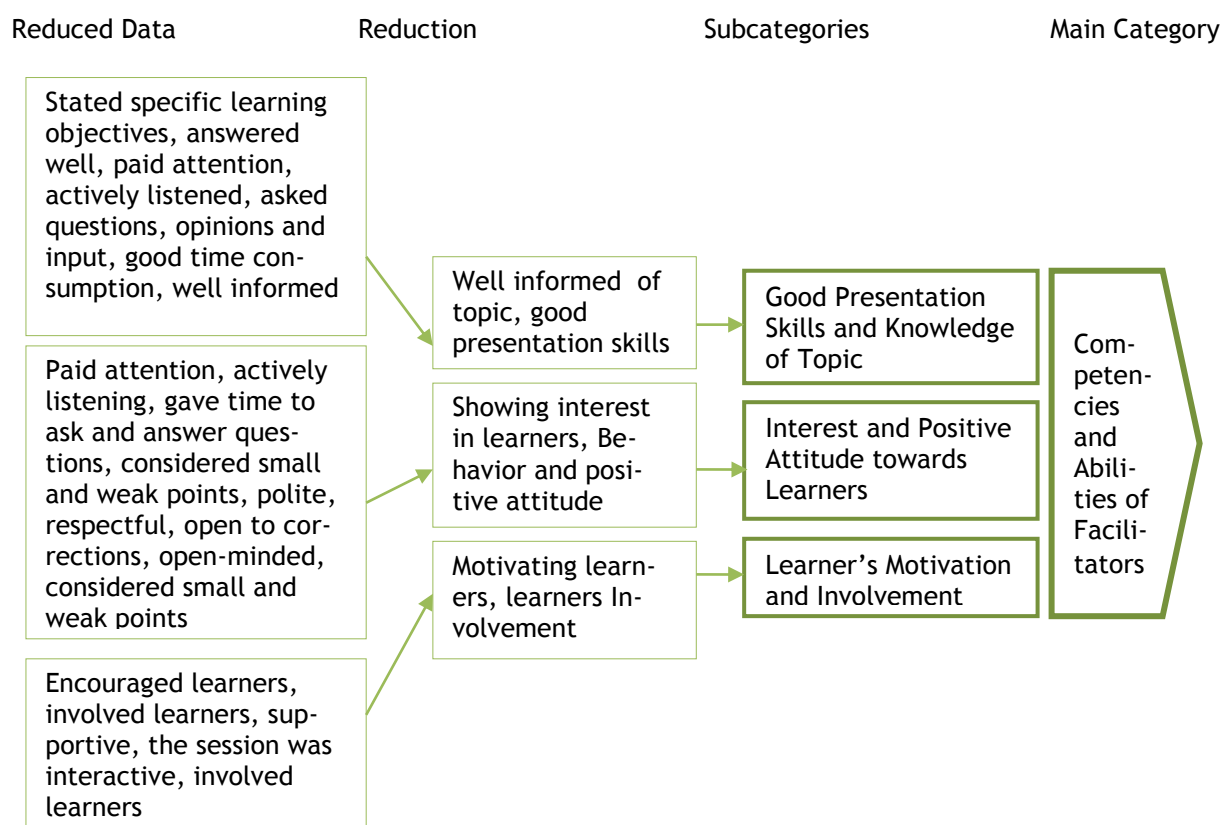


Figure 2.1; Competencies and Abilities of Facilitators

6.2 Supportive Learning Environment

This main category was derived from two subcategories; "Mutual Respect" and "Acquainted, Calm and Stimulating Environment". The subcategory "Mutual Respect" was derived from student's statements that describe the atmosphere that was created as a result of interaction

between learners and facilitators. According to learners the an interchange of respect between facilitators and a high regard for each other’s opinions created an open environment that was free for active participation.

“Others paid attention and listened while I was speaking and I was not interrupted”

“my opinions were very well respected. Because I was talking about my practical placement and how the asthma can effect on my friends family. So, I was really free to participate in the discussion”

“Opinions were respected and listened”

“Honestly even my small and weak points were well considered”

This made the already familiar environment comfortable and relaxed, thus the second subcategory “acquainted, calm and stimulating learning environment”. The following student quotations are reflective of the above;

“The learning environment was relaxed and prompted class and audience participation”

“It was a relaxed and open for discussion and questions compared to the normal class”

“The environment was comfortable and familiar and allowed me to actively participate in discussion”

“The environment helped me to consolidate my previous knowledge of the disease (asthma).”

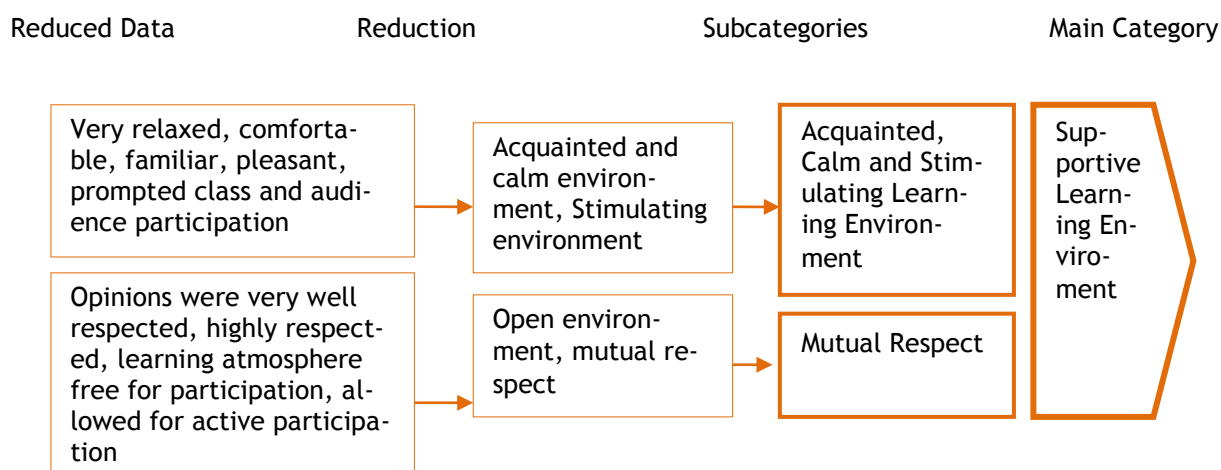


Figure 2.2; Supportive Learning Environment

6.3 Encourage Learners Competences and Abilities

The main category “Encourage Learners competences and abilities” was derived from two main subcategories; “critical reflection of learners” and learners' open mindedness and ability to cooperate. The subcategory “critical reflection of learners” was derived from student’s statements that describe the role they played in building their knowledge. Student’s statement reveals that they contributed to their knowledge building by making a conscious effort to link new information to what they already know by reflecting on what they know already about the new information being presented to them.

This emphasizes internal characteristics which are more like individually learned behaviors that learners bring to the learning process. The following quotes are reflective of the above;

“The content helped me to renew my memory about the asthma medication and treatment. I tried to evaluate my knowledge about asthma after 2,5 years studying nursing”

”It was good to memorize the use of my asthma medication devices and contribute to family life”

”It was quite good because it helped to refresh he memories and also it helps to learn the new things from the lesson during the family nursing”

The subcategory “ open mindedness and ability to cooperate” is derived from students statement about learner characteristics which is a trait of learners which they bring to the learning process , that promotes learning. Such statements by students were seen as giving corrections, happily accepting corrections from each other, listening to what everyone has to offer and listening to the opinions of others. This shows that apart from motivation from facilitators and the provision of a good environment, learners also contribute to their own learning. The following statements show that;

”all three members of the group actively participated in discussing all case studies and related guidance. Everyone had something to offer and each opinion was heard and considered. The group dynamics were amicable and environment comfortable enough for us to participate.”

”we were respecting each other’s opinions very well and in giving correction each one was so grateful and happily accepting the given information”

“Due to positive group dynamics, everyone’s opinions were heard, considered and respected. We actively discussed the each point brought up by the individual and reflected on the relevance to the case study as well as the information learned during the lectures”

The above characteristics or traits of learners also helped them to learn in groups as well.

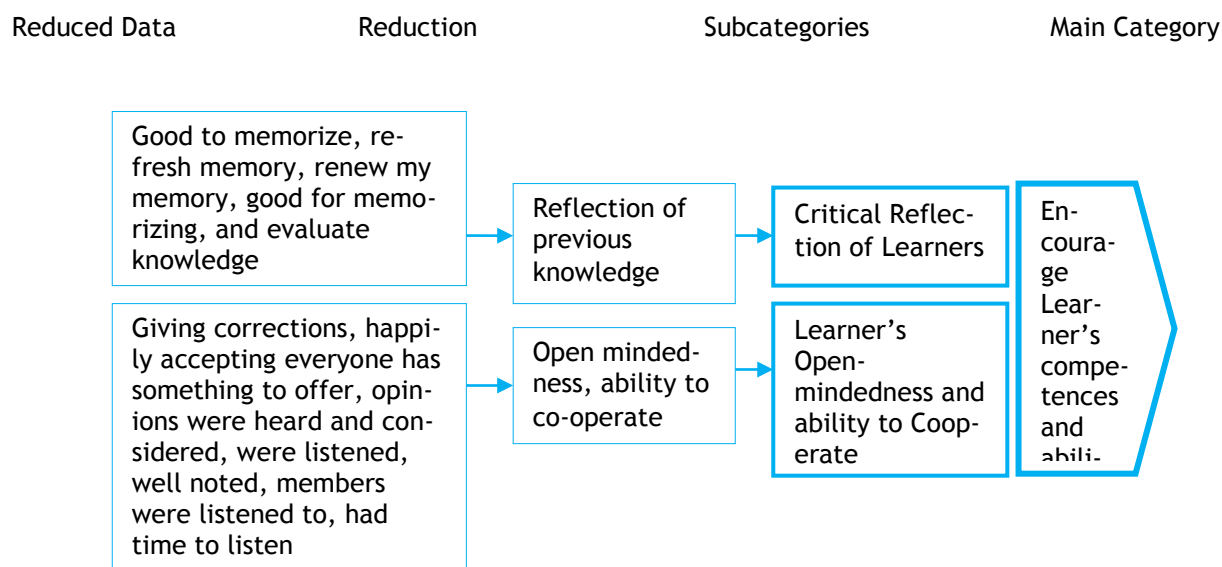


Figure 2.3; Encourage Learner's competences and abilities

6.4 Using Multicultural Group and Group Learning Strategies

This main category was derived from two subcategories, namely multicultural group and positive group dynamics. The subcategory "Multicultural group" is derived from students statements that revealed that members in the groups were multicultural and had different backgrounds.

The subcategory "positive group dynamics" is derived from students' statements that revealed the nature of the group activity. Students' statements revealed that there was active discussions and participation within the groups. This is reflected in the following student statements.

*"We came from different cultures and experiential backgrounds"
"all three members of the group actively participated in discussing all case studies and related guidance"*

"The group were active and participation was evident. The group had peaceful flow of information and it gave us to strengthen our previous knowledge"

"The participation of the students equally gave the group work a sense of responsibility and through practical presentation brought a feeling of being in a nurse -patient relationship situation"

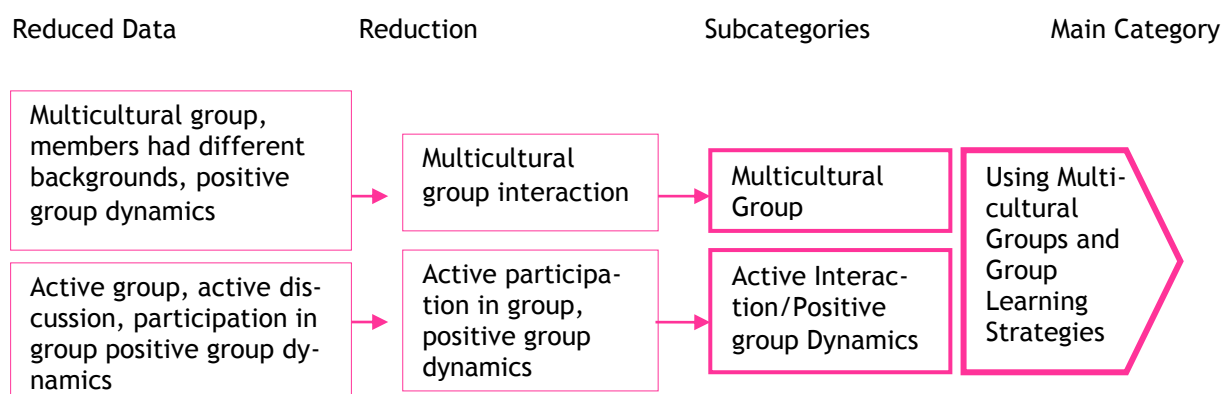


Figure 2.4; Using Multicultural Groups and Group Learning Strategies

6.5 Consistency of Content and Good Timing

This main category was derived from five subcategories; Theoretical Nurse-Centered Content, Coherency of Content to Learning Objectives, Contents Connectivity with Learning Goals and Needs, Preparedness for Future work, and Timing and Relevancy of Skills and Knowledge to Learner's Future Work.

The subcategory "Theoretical Nurse Centered Content" is derived from student's statement that described the nature of the content. Student's statements revealed that content had theoretical elements that were nurse centered which revolves on asthma medication administration and treatment. They also stated that the content gave them information that was specific to pediatric nursing and family nursing. This helped to get them interested in the session. This is reflective the following statements;

"personally I think all the core points were greatly addressed, but since asthma cases are accelerating ,what we are supposed to do as nurses is to try to prevent or minimize the risk of the disease especially among children beyond giving guidance after they have been attacked with the inflammation"

"It gave the basis or importance of having a family oriented background. It provided the need for nurses to have knowledge of how to handle different age groups in an appropriate way while teaching (guidance importance) they covered the importance of use of a PEF meter. Importance of recognizing the symptoms before they are worse"

"Especially the topic was nurse- centered; it was precise information on how to deal with asthma from the pharmacological perspective. In fact it touches my area of learning as asthma cases are increasing gradually nowadays"

" In this session I became more familiar with the types of medicines, bronchodilators and which one is short acting and which long acting and why we

have to use the baby inhaler. I learn about the side effects and also common side effects of not correct administration"

"Safe administration of asthmatic children's involves right medication, right route, right patient right documentation and right dose etc"

"How to efficiently administer medication (when and how) and how to guide someone in using different methods of medication administration"

However, for some students that was not the first encounter with the asthma topic. However, the added information that was given about the nurses' role peaked their interest. Some students also suggested that, they will like to hear about asthma in other developing countries since asthma is global as well as the elaborate content of the psychological and emergency support in handling asthma situations.

"As this was the fourth time we're gone over asthma during the education there wasn't much more information to be learned. Also considering the fact I know a lot more about medication there wasn't much more information acquired. However, knowing about the role of the nurse and giving guidance really helped me take the new perspective on the topic".

"I would like to hear about how the asthma is under the treatment in other countries. For example in developed or developing countries not only about Finland because we have several studies and data about Finland but not about the other side of the world and asthma is such an international disease and we are international nurses"

"There are contents which are related to family support especially in the last video program. But since the course is family nursing, then the psychological support or emergency situation handling can be more developed"

The subcategory "Coherency of Content to Learning Objectives" is derived from students' statements that reveal the connectivity of the content of the sessions to the objectives that were stated in the beginning of the sessions as a guide. Statements by students revealed that the content addressed the learning objectives. The following quotes taken from students' feedback reveal that.

"The course content was congruent with the objectives. I would recommend it to our teachers"

"The content was well planned according to the learning objectives told at the beginning of the class"

The subcategory Contents Connectivity with Learners Learning Goals and Needs was derived from learner's statements that show how connected that content was to the learning needs. Feedback from students revealed that the content addressed and supported their learning goals or needs. The following quotes are reflective of the above;

"Despite some repetition, the content supported our learning goals prior to pediatric practice"

"The content are of course directly related to the learning needs. It encompasses pharmacological, family guidance and community nursing as well"

"I thought the contents were very suitable for my own needs"

The subcategory "Preparedness of Learners for Future Work" reveals students statements about how information gained can be used by students. Students stated the content provided them with information that will prove useful to them later on when opportunities present themselves. Data analyzed revealed that information gained from the content was to help them cope with situations they are likely to encounter. The content, they stated was also easy to apply and will help them in further development. The following quotations from students are reflective of the above;

"The studies prepared me and made me able to predict problems in management and planning the care of asthma patients"

"We will be doing our pediatric practice placement soon where we are likely to encounter asthma children"

"Helpful -for further development, motivating-to know more and to provide guidance, alerting-about the mistakes in taking asthma medication"

The subcategory "Timing and Relevancy to Students Future Work" is derived from student's statements that reveal the usefulness of the content of the sessions to the learners. Students emphasized that it was good timing to obtain such knowledge prior to pediatric practice or rotation. They also emphasized that such knowledge will be put to good use or transferred to real life situations. The following quotations from student's statements reveal the above;

"Asthma is in Finland common among children as well as adults, so it is very useful to have more information about it"

"With the pediatric clinical rotation coming soon, I will be able to use the knowledge acquired to keep any possible situations that may arise with asthmatic children."

"The knowledge acquired can be transferred to real life by using the concrete examples from the sessions to draw from in professional life"

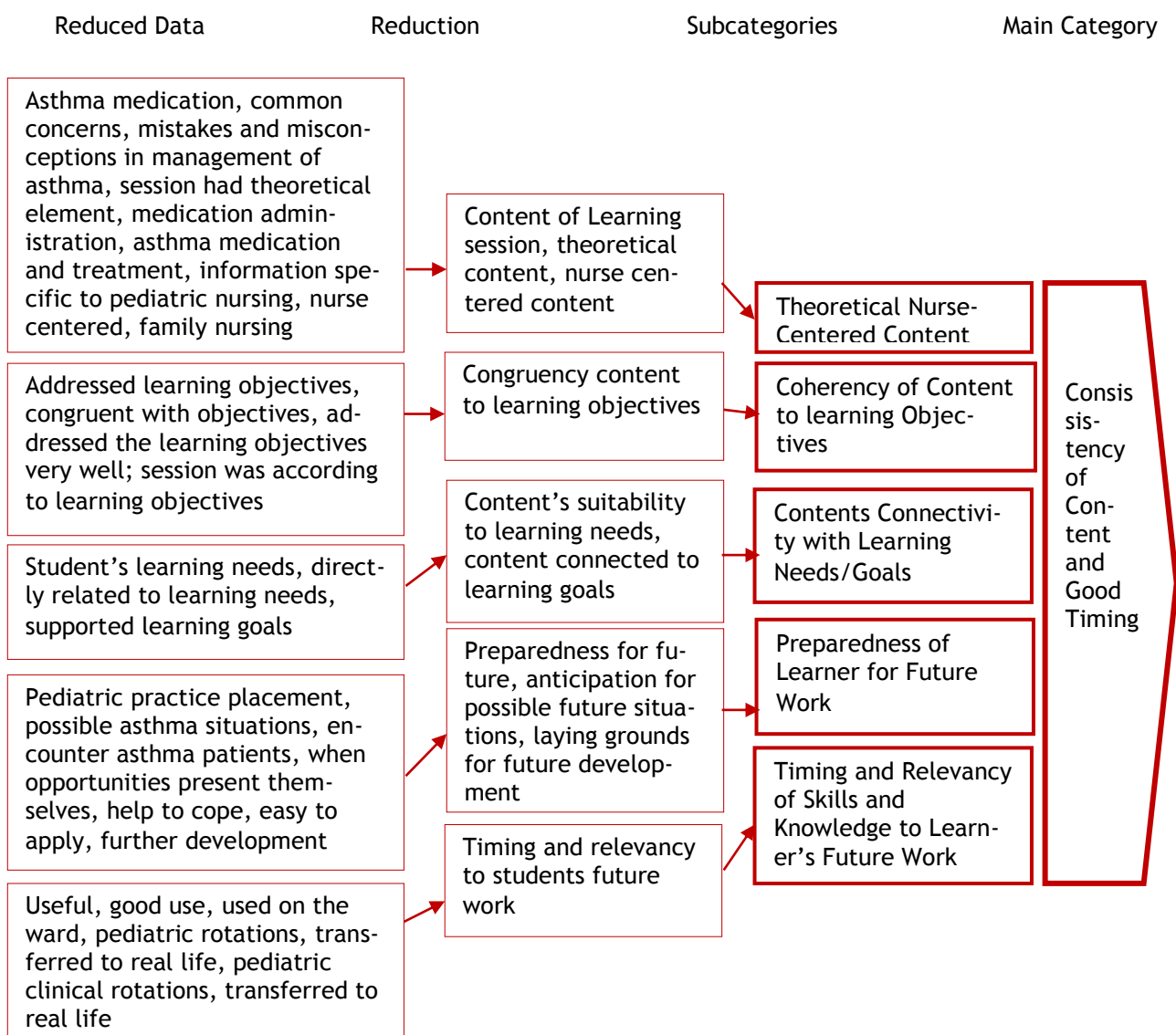


Figure 2.5; Consistency of Content and Good Timing

6.6 Practical and Clarifying Learning Strategies

The main category “Practical and Clarifying Learning Strategies” was derived from three main subcategories “Relevant and Appropriate Learning Methods, Learning Methods that Clarifies and Summarizes Ideas and Practical Learning Strategies Transferable to Real Life”.

The subcategory “Relevant and Appropriate Learning Methods” was derived from student’s statements that described the learning methods used as very relevant and effective in facilitating their learning. They also stated that the methods of learning used were suited to the learning session. The following students used are reflective of the above;

“Personally I propose that the learning methods were very much relevant to our studies and for further development in our learning.

“The teaching methods were very relevant as medication administration is very much a practical skill best shown”

“Having an active discussion helps in facilitating the learning of a subject”

“I found the learning methods very well suited for the learning session”

The subcategory “Learning Methods that Clarifies and Summarizes Ideas” is reflective of learners subjective statements about how the methods used helped them to understand ideas discussed. Students also stated that the methods used helped to clarify all ideas. The following student’s quotes are reflective of the above;

“The case studies clarified everything and were therefore very effective in facilitating our learning”

“The use of demonstrations and illustrations were about enough to make me understand the ideas being discussed”

“all the information was explained in the previous class but the case studies was a good “sum up” of the learned things and facts”

“case studies or any form of practical learning always help in making theory concrete”

Students feedback also revealed that the learning methods used were very practical and transferable to real life situations. The subcategory “Practical and Transferable to Real Life” was derived from such statements. Learners described the methods used as very practical, easy to apply later and having assisted them to bridge the gap between theory and practice. The following quotations of students are reflective of the above;

“As pre-registered nursing students, it is absolutely imperative that we are able to take the knowledge and skills acquired during studies and apply

them to real life situations. Case studies for nursing students are the best example to bridge the gap between theory and practice”

”The case studies gave good practical examples of common mistakes, concerns and misconceptions regarding asthma medication and management. The studies prepared me and made me able to predict problems in management and planning the care of asthma patients”

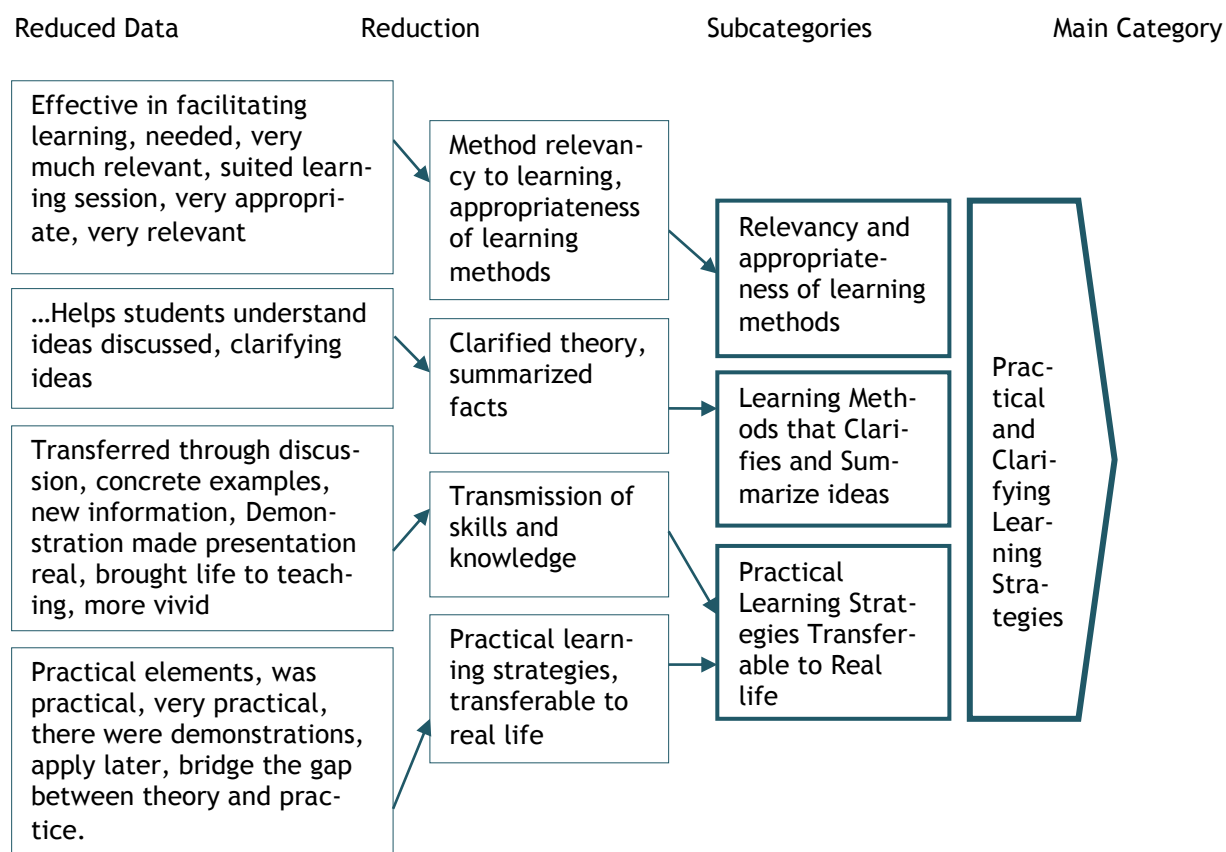


Figure 2.6; Practical and Clarifying Learning Strategies

6.7 Consistency of Learning Materials

This main theme was derived from the subcategories;” Adequate and Diverse Learning Materials”, “Informative Learning Materials” , “Relevant and Practical Learning Materials” and “Logical Presentation of Learning Materials”.

The sub category “Adequate and Diverse Learning Materials” was derived from learner’s statements that describe learning materials used as enough and different. According to learners the different was good for practice and contributed to their learning.

"Enough materials were provided for the purpose of practice to recognize learning"

"... There were enough materials to practice with"

"The materials were very appropriate as both videos and examples of various types of medications and associated items were used to demonstrate".

The subcategory "Informative Learning Materials" was also derived from student's statements that describe learning materials as providing information and thus contributing to their learning. The following student's quotations are reflective of the above;

"The materials, video and flow (of information) helped to enhance the amount of information and skill imparted in our parts."

"Learning materials aids in facilitation by allowing for the retention of knowledge".

"there were direct information between the learning materials and the session. Also the explanation about the materials were good"

The students felt that the provision of relevant and practical learning materials was aid in helping them to understand the subject. The subcategory "Relevant and Practical Learning Materials" was derived from subjective statements by learners. The following quotations from students manifest this;

"The learning materials such as the PowerPoint presentation as well as the medical devices contributed to the content of the lectures by making the information more concrete. This aids in the facilitating of learning by allowing for the retention of information"

"It was the provision of practical items that enabled and improved my understanding"

"the session was very practical as it incorporated numerous visual aids and items in addition to the power point presentation".

Some of the students however sated that there were no provision of handouts for future reference;

"the teachers should provide materials to give to students to take with them. That was not provided."

The subcategory "logical presentation of learning materials" was derived from student's statement of how the materials were presented in the sessions. According to learners, the materials were organized and easy to read and follow. The following are student's quotes that reflect the above;

"the power point slides were very informative and well organized. They were easy to read and and follow"

"It was very well organized season"

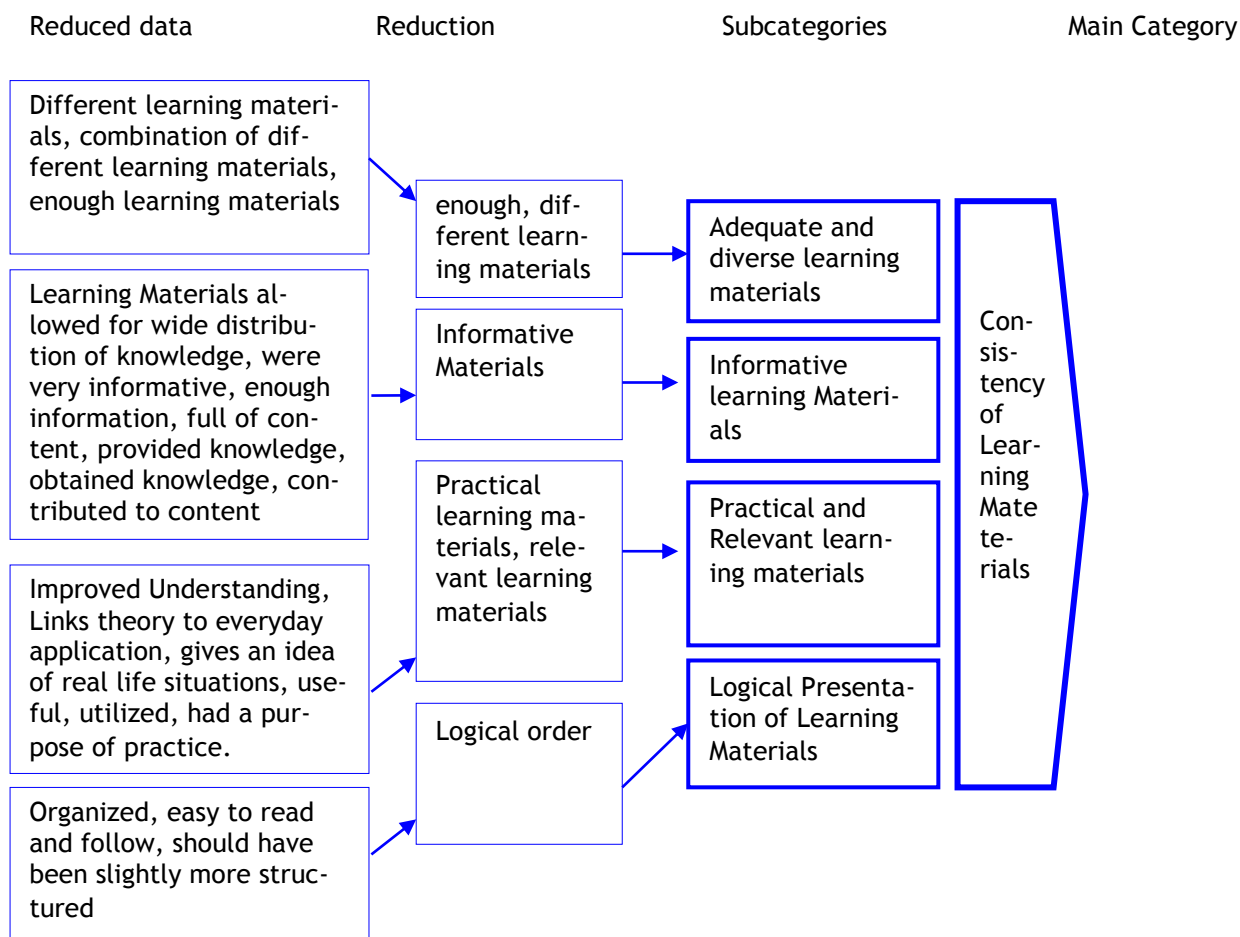


Figure 2.7; Consistency of Learning Materials

7 Discussion

7.1 Ethics

Action research should conform to ethical guidelines as it is dealing with human subjects although there are no agreed guidelines for judging the ethics of qualitative research proposals. Most of the ethical guidelines found during the study were based on BERA's (British Education Association) Revised Ethical Guidelines for Educational Research.

Ethics is regarded as an intellectual honesty and rigor on the part of student facilitators, both in carrying out the research and in presenting the results in thesis form. The ethical considerations have been considered from the planning to the dissemination of the study. The focus of ethical considerations has different emphasis and scope in different phases and segments of the thesis; due to the nature of action research. Ethics in research refers to a number of key issues that must be taken into consideration to protect the rights of the participants. These issues range from a number of aspects including: voluntary participation or the right to withdraw, risk of harm, informed consent confidentiality and anonymity, the role of the researcher, not distorting data and honesty, and right to service (Williamson 2002) (Löfman et al 2004).

Academic freedom protects the rights of the members conducting the study in the field of higher education research; human subject protection ensures that research causes as minimal risk as possible to study participants. The two principles are mutually important, but regarding academic freedom Laurea Otaniemi has placed guidelines that students have to follow for the thesis process.

Since the study is action based, facilitators followed the action research process of planning, implementing and evaluating the process. The lessons were planned and implemented in line with the curriculum of Laurea University of Applied Sciences. Value judgment questions in the form of a questionnaire were used to collect data from participants about their subjective views of the facilitation process. Data was analyzed using the qualitative inductive analysis method. Evaluation was carried out at every stage and subsequent refinement was used to refine the next implementation.

An informed consent is an ethical principle that requires researcher's to obtain the voluntary participation of subjects after informing them about possible risks and benefits. (Polit et al 2001). The Informed Consent agreement provided information about the ongoing project and their meaning of participation. It included participation agreement between the facilitators, participants and the study. The written consent form includes voluntary participation, anonymity, dignity, privacy and confidentiality. The voluntary participation means in the scope

of the research that, informants are allowed to participate in the research based on free will. An informed consent form was handed out to the participants whereby they are informed about the procedures and risks involved in the study's participation. During interaction session 1 the goals of the interaction session were stated out verbally and showed on the Power-Point presentation. The aim of the study and the collection of data by questionnaire were stated so that the student learners would have a more precise view in how the lesson was going to be 'evaluated'. The consent forms were collected by the student facilitators (3&4) during the interaction session 1, in case of some student learners declining participation. The student learners were given the opportunity to ask questions about the thesis in the beginning of the interaction session. Learners were also given time to read the consent form and to make their choice. It was verbally stated that they can decline to take part during the lesson, if they wanted to. All students, however, accepted to take part in the research. This aided the student facilitators observations as all interaction during the class could be considered in the final data.

Democracy is a familiar term in Finland and is seen as an important characteristic of empowerment. In adult education, individuals are aware of democratic values, and in most cases in Finland, individuals are 'too aware' that they tend to 'forget' the actual characteristic completely as it is so normal. Democratic values such as freedom, equality, and justice were present during the interaction sessions. Freedom can be related to the participant's voluntary participation and the freedom of speech enabled by the open atmosphere, described in the findings by the learners. Equality of all participants were facilitated by mutual respect and seen in the way participants functioned. The quality of fairness and justice was a character promoted by the student facilitator's actions in facilitation; this was noticed when analyzing the findings. Fairness was also one of the characteristics noticed in the group work of the learners; there was not a group where one student learner would have solely guided the whole group; participation was equal. (Bera 2011)

In action research the learners are the participants interacting with each other and the student facilitator, who also are participants. The students have not been viewed as subjects of the research but participants called learners. Each student (learners and student facilitators) learner is an independent variable who participates in class. The term used in this research is learner to diminish confusion among the reader. The ideological shift needs to stand out to prevent misinterpretations of roles and goals of the interaction session. Facilitators also gave consideration to the roles of the facilitator during the implementation phase. This calls for presenting oneself as a resource person in a helping relationship. The facilitator is warm, loving, caring and accepts learner's individuality. The facilitator is also open to change, new experiences and seeks to learn from the helping relationship. (Brookefield, 1986)

Student facilitators gave consideration to nursing ethics, especially that which goes with medication administration and reviewed appropriate scientific based material to help them present information that is concrete. Skills for demonstration were sought from books and practiced beforehand. Student facilitator also reflected on the value of this research in their studies as well. It served to help them develop skills that come with the research process. Such skills included the planning and implementation of the research, close cooperation with the Laurea and applying research methods in order to produce new knowledge. As insiders, student facilitators learn how to cooperate with each other as well as supervisors and participants. Student facilitators being in a similar situation with the participants also contributed positively to the development of the thesis. The content of the learning session “Safe Administration of Asthmatic Children’s Medication” was chosen due to observations from student’s pediatric placements where most children had difficulty administering their own asthma medications correctly and efficiently. The sessions were then planned to enable nursing student’s acquire the skills and knowledge needed to educate and administer these medications safely. The sessions were also designed to help learners understand the value of family involvement in the care of Asthmatic child. The session also helped student facilitators to acquire more knowledge and skills due to extensive literature search and practice in preparation for the sessions.

The purpose of the information used for referral has been studied to fit the specific theme in this research. Meaning, that the information used for the thesis does not bring out any other meaning than its own, even if it has been abbreviated to fit the context. Text abbreviations and quotations are supporting the thesis by their context and theoretical framework and ethics, as the references of this study are all from a valid source. Information has been used in a respectful way by understanding the whole article when abbreviated text has been used; making the text more valid, universal and righteous towards the authors of referred information. Specific information about the pharmacological aspects was referred from valid and up-to-date guidelines to support current knowledge and consistency towards a more meaningful outcome of the thesis. References such as KTL, Duodecim and information provided by Allergia and Astma Liitto were used and then translated into English as they were found to be the most reliable source of information regarding asthmatic child’s safe medication administration.

7.2 Trustworthiness

Trustworthiness is an essential component of qualitative research that is seen in the form of findings reflecting the reality of the experience. Watkins (1991) suggests that trustworthiness should be assessed according to the purposes and circumstances related to the study. It includes the following: validity, credibility, conformability and transferability (Shanton 2004). The following will present concepts related to the adoption of action research and its preference to external validity.

The research question was to describe how nursing students learning of safe administration of asthmatic children's medication can be facilitated through planning, implementation and evaluation, this ensured that subjective experiences of nursing students will be collected as data to help answer the research question. The selection of nursing students as participants for the study also helped to make the study trustworthy.

The thesis adopted the Gerald Susman's action research model as a guide from planning, through implementation and evaluation of the thesis. Thus, the model includes diagnosing of a problem, action planning, taking action, evaluating and specifying learning (Susman 1983). This led to a qualitative process of inquiry. The Implementation sessions involved two learning sessions. Feedback from the first session was used to refine the second session. The learning sessions were planned according to the Guidelines in the Laurea curriculum (Laurea 2011). Concepts from the research question were used to refine literature search from reliable primary and secondary sources of information and these have been referenced in the thesis. Specific information about the pharmacological aspects was referred from valid and up to date guidelines to support facilitators' current knowledge of safe administration of asthmatic children's medication towards a more consistent outcome of the thesis. Supervision by tutors from Laurea University of Applied Sciences from the planning phase through to the evaluation phase also contributed to the validity of the research.

Materials used during the interaction sessions consisted out of; asthma devices with placebo medication, safe medication information, Baby haler ©, Nebunette©, PEF meter with follow-up charts, and real size infant dolls. Some of the placebo medications were only inhalers without a specific medication barrel inside. For these unlabeled inhalers, small stickers were developed, to help the student learners distinguish the difference between the inhalers, as to which medicine would be needed in the specific case study. Laurea University of Applied Sciences, Otaniemi, provided the asthma inhalers with the placebo medicine and spacers excluding the Nebunette ©. The Nebunette© was bought from a pharmacy and then given to the school's array of asthma equipment. Laurea UAS did refund the costs of the Nebunette© back to the student researchers. The information how to use the inhalers was referred from the manual of the spacer. The PEF-meters' information sheet and exhale charts were

referred from ©Suomen Lääkäri Seura Duodecim -guidelines. Additional information on the use of PEF-meter use and follow-up sheets were printed out from the National Asthma Council of Australia. This was to provide the students an insight to the similarity and differences in the care of an asthmatic child.

The safe medication information leaflets of the certain types of medication used in the case studies were printed out from Pharmafennica©, due to the reason that the information about certain medications on the power point presentation was not so precise. Also it made the material up-to-date with the current medications available. The purpose of this information was to support safe medication administration by allowing to the students to read the exact information about the medication; qualitative and quantitative composition, pharmaceutical form, therapeutic indications and method of administration, the typical doses (adults, children and infants), contraindications, special warnings and precautions of use, interactions with other medications, use during pregnancy and lactation, effects on ability to drive machines, and undesirable effects and overdose. All materials had the purpose to facilitate learning as all the information could not be discussed and gone through during the lessons as there was limited time.

Ongoing evaluation process in action research has to do with making ongoing judgments about the worth of the actions taken to date and involves the systematic gathering of appropriate information. Value questions in the form of open ended questionnaires were used to collect data from the learners after each learning session. As part of the cyclic process of action research, the data gathered was considered and learner's expressions used as a means of judging the level of success from the first lesson and for refining the next lesson.

Qualitative inductive analysis is one method for analysis that enables researches to analyze and gather meaning from the data collected from the learners. It helps to discover patterns, themes and categories and to organize and to describe what happened during the implementation (Fade & Swift 2010). Qualitative inductive analysis process was used to analyze data collected as feedback. These were put into reduced statements. Data bits gathered from theses reduced were then separated into piles and a comparison was made within data bits in each pile and also between data bits in other piles to look for patterns and variation. This gave rise to a set of sub categories and allowed for a more detailed comparison of the data. The subcategories were grounded conceptually and also empirically with the research question also in mind. Reoccurring subcategories were overlapped and helped student facilitators to see the conceptual connections in the data bits, some subcategories also concurred. A hyperlink was done conceptually to connect the subcategories to achieve the main categories and these were unified or connected to answer the research question.

7.3 Discussion of the findings.

The purpose and aim of the thesis was to describe how nursing students learning of safe administration of safe administration of asthmatic children's medication can be facilitated through planning, implementation and evaluation of learning sections. This was planned and implemented in line with the Pharmacology curriculum of Laurea University of Applied Sciences. It was part of the bigger project at Laurea and was aimed at improving student's professional skills of students and also a means of curriculum development in pharmacology and medicine.

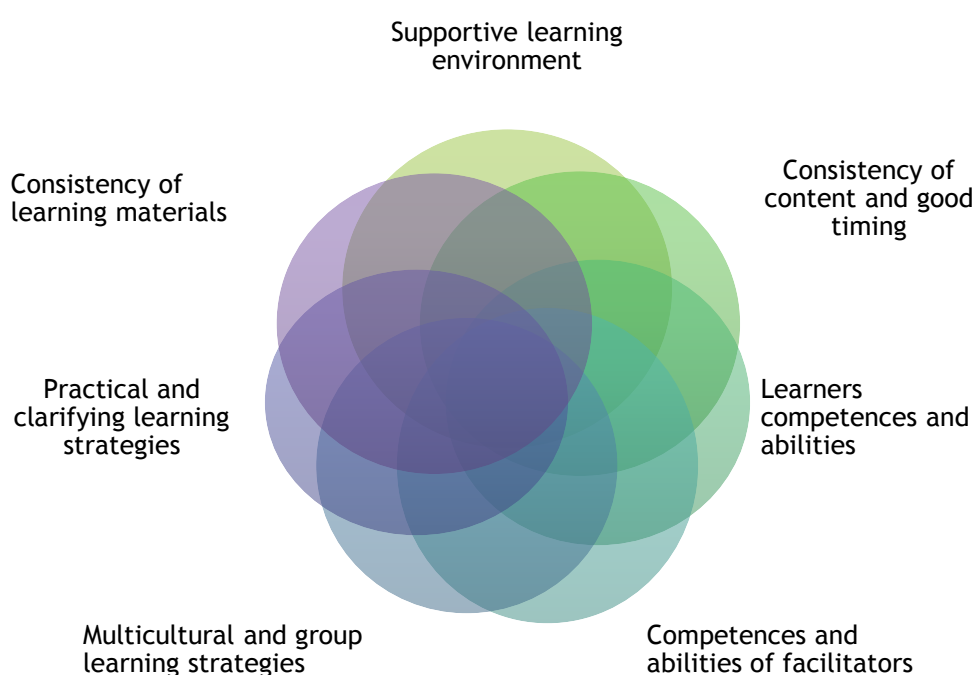


Figure 3. Interrelatedness of the Main Findings

To answer the research question; how can students learning of safe administration of asthmatic children's medication be facilitated through planning, implementation and evaluation of learning sessions; two learning sessions were planned, each of four hours, in real classroom setting. The findings represented are solely based on analyzed raw data from participants.

According to the study, students learning of safe administration of asthmatic children's medication can be facilitated by ; Competences and abilities of facilitators, Supportive learning environmental, Learners competences and abilities, Multicultural and Group learning strategies, Consistency of content and good timing ,Practical and clarifying learning

strategies, consistency of learning materials. These elements contribute a great deal to students learning.

Learners' feedback was analyzed using the qualitative inductive analysis method to produce the above main categories to answer the research question. From the findings it could be seen that learning took place. Learners' statements also directly and indirectly showed how best to facilitate their learning. It was also evident that facilitators' competence and abilities are indispensable in facilitating students learning. Abilities and competences such as good presentation skills, showing interest and positive attitude towards learners and learners' motivation and involvement during a learning session contributes greatly to learning. The findings showed that, the facilitators' role contributed to the creation of a supportive learning environment in which learners were motivated to critically reflect and learn.

Constructivism has been defined in the framework is conceptual theme where human learning is constructed and built upon previous knowledge. It makes learners active creators of their own knowledge (Brandon & Anita 2010). Constructivism is based on four assumptions. 1) Students form new knowledge which is interpreted based on previous knowledge, 2) assimilation and accommodation of information helps the learner to develop cognitively and to produce new constructs, 3) learning becomes the process of invention. When nursing students go through such a process, they are likely to come out as graduates with critical thinking skills who are able to search for and gather information analyze it critically, evaluate it experientially and come out with their own inventions or frameworks.4) Meaningful learning occurs through reflection and linking new knowledge to the existing framework of knowledge. (Brandon et al 2010)

Critical reflection is the process of analyzing, reconsidering and questioning experiences within a broad context of issues (Murray et al 2005). The findings showed that apart from the abilities and competences of the facilitator, students also have their own abilities and competences which must be put to use to help them to learn. This was represented by critical reflection of learners and learners open mindedness. Critical reflection of learners' is a learner characteristic which the individual learner has as a trait and has cultivated over a period of time. It is the learner's skill and experience in reflective thinking. This shows that even though the facilitator might do his or her part, it is also left to the individual learner to make a conscious effort to reflect on his or her previous knowledge. This however is dependent on the breath of the learner's knowledge of the content area or how much the learner already knows despite the fact that it can be made up for by other people's experiences. The findings also showed that learners demonstrated open mindedness and ability to cooperate and this was demonstrated by giving corrections and happily accepting corrections. Learners participated in discussions and groups by offering ideas and each other's

opinions were considered. Learners' had time to listen to each other. Such traits lead to cooperation and promote learning among students. In the framework, Jean Piaget (1972) is quoted as describing learning as the act of accommodation, assimilation and equilibrium. According to him, the fundamental basis for learning was to discover; to understand is to discover. If individuals are to be formed who are capable of production and creativity and not simply repetitious beings, then that must be complied with. Understanding according to him is built step by step through active involvement. As an individual is involved in a step by step activity, new information is filtered through existing conceptions or formed knowledge known as the schema and that helps to build understanding. Facilitators can use their skills and knowledge that they possess to encourage learners to use their abilities and competences. This in agreement with the framework, where Page and Thomas (1977) defines facilitation as the process by which a facilitator acts as a catalyst to stimulate discussion in a group rather than to impart knowledge. Emphasis is placed on the importance of the relationship between the learner and the facilitator characterizing it as a central element for meaningful learning (Quinn 1995). Brookefield 1986 also considers facilitation to be a complex teaching method in which the facilitator and students are seen to work together in collaboration, sharing themselves and their experiences in a process of critical reflection, thus, learning result from that innate desire for development and it's aimed towards self-direction.

The findings revealed that, students were able to listen to others points of view about the topic under discussion. It also made that presentation real and close to normal life experiences because information shared were other learners' real life experiences from childhood and other practice placements. This also created an atmosphere where students challenged each other opinions in a respectful way and contributed to critical reflection and knowledge building.

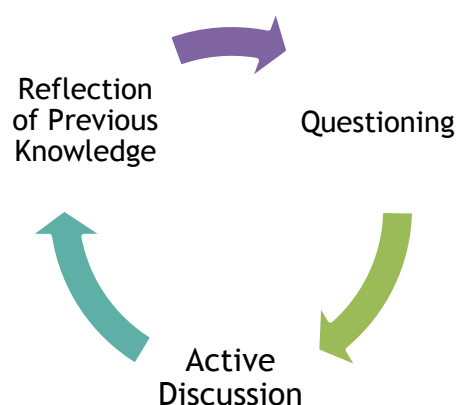


Figure 4. Student learner's description of how critical reflection happened

Learners also revealed that learning methods used were very practical and easy to transfer to real life settings. It helped to clarify information given and summarized all the facts

presented. They were also relevant and appropriate, to their learning. Methods used by facilitators included brainstorming, active discussion, demonstrations and case studies. Students described the use of questioning and active discussion as helping them to reflect on what they already know, thus aiding in critical reflection. For the facilitators, it gave them the platform to know the level of student's knowledge of the topic so as to avoid repetition. It also helped to draw learners out and contributed to the sharing of experiences which contributed to knowledge building. Learner's also stated that facilitators had a good knowledge of the topic, answered well and managed the time well. Learners emphasized that facilitators shared their experience with them.

Genuine mutual trust and respect is one of the defining characteristic of Facilitation and was explained in the Framework as the quality or state of being esteemed which also involves consideration and positive regard. Respect offered must be sincere and mutual to make facilitation effective. In facilitation, these feelings described in mutuality should incorporate an acknowledgement of the student's self-worth and uniqueness. This demands that facilitators' create an open learning climate in which students are able to share their thoughts and feelings. There should be also room for sharing tentative opinions, acknowledging good points and limitation (Brookefield, 1986). Respect shown by facilitators towards learners' was returned by learners and led to the creation of an environment where there is mutual respect and a high regard for each other's opinions. This allowed for active participation and prompted the audience to take part in the discussion at hand. According to learners, the environment was also familiar. This shows that an unfamiliar environment can interfere in learning. The familiar environment and the mutual respect that was created, contributed to a supportive learning environment which helped learners to learn.

The dynamic goal oriented process is facilitation process is proactive and dynamic not only involving stepping back and simply providing resources. Good all (1990) stresses that facilitators must recognize their knowledge and share their experiences. Facilitators also assist students with goal identification; encourage investigation and giving meaning to activities and indicating appropriate resources. Practice of critical reflection is dependent on the existence of genuine mutual respect. This demands that supportive climate where students feel comfortable to be challenged and to challenge each other. This environment should also promote strategies for questioning, probing and debating so that with increasing experience and confidence, learners are able to question their own and others assumptions, thoughts and attitudes(Burrows 1996). The above mentioned strategies enhance growth, significant learning and promote self-direction. (Burrows E.D, 1997)

The framework also highlighted that Partnership as one of the characteristic of facilitation, suggest an association involving close corporation whereby students work together to learn.

The partnership involves the facilitator as a co-learner who either takes or delegates leadership, but responsibility is shared through negotiation (Brookefield 1986). Townsend (1990) emphasizes the need for students' guidance and support to accept responsibility and to avoid being overwhelmed by frustration and anxiety. "Active learning was described in the framework as based on two basic assumptions: (1) that learning is by nature an active endeavor and (2) that different people learn in different ways" (Meyers and Jones, 1993) (McKinney, 2011). Cooperative learning was utilized in this context as an active learning strategy during the implementation. The findings showed that Cooperative learning in the form of instructional use of small groups through which students work together to really help to maximize their own and each other's learning.

Findings revealed that, the group work were designed to bring out different opinions and experiences within the group which helped in growing and combining the existing knowledge within the group. Learner's competences and abilities also helped them respect and listen to the opinions of other people, even from different cultures and backgrounds. According to learners, it was an interesting way of learning and for some; it kept them interested for the whole time. This shows that, well designed active learning strategies such as group work can greatly help to facilitate the students learning. It also shows that for group learning to be effective, learners must be willing and ready to cooperate together and be open minded to work with people from other cultures and experiential backgrounds. It also shows critical reflection can be encouraged in the group setting and contribute to student's knowledge construction. This is also in line with the theory of constructivism in the framework.

The findings showed that, learner's competences also helped them to work in multicultural groups and to actively participate. The group work gave the learners the opportunity to apply knowledge gained in real life setting and act them out as role play. According to the learners, participation of the students equally, gave the group work a sense of responsibility and through practical presentation, brought a feeling of being in the nurse client relationship. Learners also stated that there was also peaceful flow of information and it helped learners to strengthen previous knowledge.

The findings also showed that, for students learning to be facilitated, the content the learning session should be consistent and learning sessions have to be in good time. According to learners the content's connectivity to their learning goals prepared them for their future work, especially on-coming practice placements. The content also created grounds for their future development. The information provided prepared them to deal with future situation, should they encounter an asthmatic patient. Learning is facilitated when the learning goals are related to learner's goals and the timing is such that, it prepares them for possible situations and their future work. Apart from the consistency of the content, it was also

evident that practical and clarifying learning strategies contribute to students learning. According to learners, the use of demonstrations made the learning session practical and transferable. It also helped them to understand the ideas discussed and made the session lively. The case studies and role-play made the session real for learners and clarified the theoretical part of the session. It contributed to learner's preparation for common future encounters as well. The use of case studies, role play and the collaborative evaluation carried out during the session created an atmosphere for group and self analysis. The case studies also helped learners to develop critical thinking skills.

Learning materials used in the learning process were also described by the learners as adequate and diverse, informative, relevant and practical. Learners also stated that materials used in the facilitation process such as PowerPoint presentation were presented in a logical manner. The diversity of materials also helped to support the various learning abilities of learners. The consistency of the learning materials helped learners' to improve their understanding, thus contributing to their learning.

7.4 Conclusions

The above implies that, the atmosphere within which learning takes place plays a big role in helping to facilitate student's learning. Apart from the physical environment, interaction between learner and the facilitator plays a major role in creating such an atmosphere. The facilitators' skill and competences is very important then it comes to creating such an environment. Learners also possess various learner traits and abilities but the skills and competences of the facilitator plays a big role by encouraging learners to put their skills into good use. One major resource for learners is their personal experiences. Learners must be encouraged to share these experiences with others in the learning environment to contribute to learning and knowledge building.

The analysis of the feedback helped to answer the research question to a larger extent and provided answers which may be used to facilitate students learning. However, there were some limitations and challenges that show that further research in this area can be carried out. Students' turnout was low in the second session and that limited the feedback from the second session. Facilitators were also not professionals but tried to follow ethically, the role of the facilitators. The findings revealed that adult learners have high expectations and that individual learners have different requirements as to how best learning can be facilitated, therefore another research done under different circumstances will yield valuable information to better practice.

To work in collaboration requires that partners share mutual respect and understanding to successfully and trustworthily proceed towards goals. The study might help to understand the third-year nursing student's values. Meaning what they regard as meaningful related to their own learning and what helps to support their creativity to complete tasks, build on knowledge and their own professional competences. The study can help direct specific learning and its timing to support preparation of the students before attending their practice placements.

To succeed in facilitating learning at Laurea, it takes some understanding of how critical thinking, problem-solving skills, self-directiveness, proactive attitudes and co-operation skills appear during learning. The study elaborates on similar concepts and can be used to help plan interaction sessions. The learning environment has its role in regards to knowledge building. The findings describe how the student learners were a part of the learning environment and the role of the facilitators. The study describes roles of the participants during the interaction sessions and can be used to help build strategies to initiate active discussion. It also helps to the students and facilitators understand their roles and what they can learn from each other in the process of learning

Implications for the students can be related to their learning needs of action research and the process of implementing it. It can also help students to understand elements of facilitating learning and grounds for critical thinking to improve or transfer the study. The findings could also be applied as a means of improving nurse-patient as well as tutor-student learning relationships on the ward.

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Appendices

Appendice 1. Lesson Plan

LEARNING SESSION PLAN

Session Title: Safe Administration of Asthmatic Children's Medication **Date:** October 3 & 6 2011

Number of Learners:

Student Facilitators: Anna-Lotta, Amida Cynthia, Sarah,

S.F=Student Facilitator

Time:

S.F(s) =Student Facilitators

Previous Relevant Knowledge: Third year student nurses who have completed internal medicine and pharmacology study units in first and second years and have been in medical nursing clinical practice

Aim: Students will acquire and apply the safe principles of guiding the asthmatic child and/or family on the safe administration of asthmatic medications through the inhaler devices.

Learning Objectives	Outline of Content	time	Learning Strategies	Rationale
By the end of the session the student will be able to	SESSION ONE INTRODUCTION All learners and facilitators introduce themselves and their country of origin.	10mins	INTRODUCTION(All S.F.s)	-To initiate the learning relationship and familiarize with one another
-Explain how to correctly recognize the signs and symptoms of an asthmatic child.	Brainstorming Questions: - What do you know about asthma? - What are the signs and symptoms of Asthma? - Any ideas about Asthma treatment and medications (and the various types of Asthma medications)? - Has anyone had an experience(s) with an asthmatic child and is willing to share that with the group?	15mins	Brainstorming:(led by S.F.1) the learners will be guided to answer open ended questions on the topic.	-To identify knowledge and understanding from previous knowledge and experiences.
	INTRODUCTION TO LEARNING SESSIONS -Outline of Learning Session a. Aims and objectives of Learning sessions. b. where the sessions fit into the ongoing family nursing studies.	<5mins	INTRODUCTION TO LEARNING SESSIONS The student facilitator provides information on the general objectives and highlights of the structure of the learning sessions. The facilitator also gives basis on why and how the sessions are relevant to the learner's studies.	-Reinforces learning and gives the facilitator an opportunity to Access the parts/aspects of the content that needs more emphasis.

<p>-Identify and describe correctly asthma treatment and the two main types of asthmatic Inhalers.</p>	<p>Discussion -Asthmatic child(ren) Impact of childhood asthma on the family.</p> <p>-Different Asthma Medications and Inhalers</p> <p>-Medication Effects and adverse effects -Safe administration of asthmatic children's medication -Skill and knowledge needed for guidance -Follow up care</p>	30-60mins	<p>Information on asthmatic child, their medications, side effects, safe administration of medications. There will be information on why the family is relevant in the care of asthmatic child. Video of a child with asthma attack</p>	<p>-Highlight the structure of the and its connection to ongoing nursing studies.</p> <p>DISCUSSION(led by F.S 2) This session allows for learners to listen with the opportunity to ask questions. S.F also asks questions and share opinions about the topic. The facilitators allow room for learner's answers. This also gives the facilitator an opportunity to expand on the subject matter to emphasize on the real symptoms, severity and situational response.</p>
-----Break-----	-----Break-----	15mins	----Break-----	-----Break-----
<p>-Demonstrate correctly the technique of administering asthma medications through inhaler devices.</p>	<p>Demonstration(F.S.1&F.S2) -How can asthmatic children's medications be administered safely? -Follow guidelines on inhaler devices -What information is required before the patient leaves the ward? (guidance for the asthmatic child and family)</p>	30-60min	<p>Demonstration</p> <p>The facilitators demonstrate the use of various asthma inhaler devices and the Pef meter</p> <p>Practical Exercise Group work: Students are grouped to practice the skill on each other. Circulate and facilitate.</p>	<p>Highlights the importance of patient safety when devices are used appropriately or not. -Demonstration enhances transmission of information by the use of tangible equipment. Learners are given the opportunity to practice this psychomotor skill in a safe environment. Providing an opportunity for Learners to apply what they learn in the classroom to real-life experiences is an effective way of both disseminating and integrating knowledge.</p>
<p>-Give correct guidance to the asthmatic child (and family) on Asthma.</p>	<p>Introducing the four (4) case studies</p> <p>SESSION TWO</p>	15min		<p>The case method is an instructional strategy that engages students in active discussion about issues and problems inherent in practical application. It can highlight fundamental dilemmas or critical issues and provide a format for role playing scenarios.</p>

<p>-Give correct guidance to the asthmatic child (and family) on Asthma.</p> <p>-Give correct guidance on how to safely administer different asthma medications through the inhaler devices.</p>	<p>Learners are given 30 minutes to write up their solutions. (S.F 3&4)</p> <p>Presentation of solved cases to the rest of the groups Opponents give their evaluation. Questions and answers</p> <p>-Case 1- Presentation of case study(Role play) -opponents evaluation/ questions</p> <p>-questions and answers/overall comments and contributions from learners and F.S 3&4</p> <p>-Case 2- Presentation (Role play), opponents evaluation/ questions</p> <p>-questions and answers/overall comments and contributions from learners and F.S 3&4</p> <p>-----Break-----</p>	<p>30min</p> <p>15mins</p> <p>5mins</p> <p>15mins</p> <p>5mins</p> <p>-----</p>	<p>Students groups randomly choose case studies to work on. They also choose opponents randomly Instructions for case studies. -Solve the case from the family nursing perspective - Safe administration of medication guidance ROLE PLAY</p> <p>DISCUSSION F.S. 3&4 circulate to help out and observe students discussions</p> <p>ROLE PLAY</p> <p>DISCUSSION</p> <p>-----</p>	<p>-Fosters learners critical thinking abilities</p> <p>-----Break-----</p>
<p>- Give correct guidance to the asthmatic child (and family) on Asthma.</p>	<p>Case 3 -Presentation (Role play), opponents evaluation/ questions</p> <p>-questions and answers/overall comments and contributions from learners and F.S 3&4</p> <p>Case 4- Presentation (Role play), opponents evaluation/ questions</p> <p>-questions and answers/overall comments and contributions from learners and F.S 3&4</p>	<p>15mins</p> <p>5mins</p> <p>15mins</p> <p>5mins</p>	<p>ROLE PLAY</p> <p>DISCUSSION</p> <p>ROLE PLAY</p> <p>DISCUSSION</p>	<p>Reinforce lesson contents and highlights end of lesson. Questions allows for clarity on some aspects of the content which might not be understood.</p>

<p>-Give correct guidance on how to safely administer different asthma medications through the inhaler devices.</p>	<p>Summarize and state the main points of the session -Revisit learning outcomes and conclusion -Any questions or comments?</p>	15mins	5mins	<p>Reinforce lesson contents and highlights end of lesson. Questions allows for clarity on some aspects of the content which might not be understood.</p>
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Appendice 2. Consent Form

LAUREA
UNIVERSITY OF APPLIED SCIENCES

Consent form

Date

Title of Research: Facilitating Learning of Safe Administration of asthmatic children's medication among Nursing Students SNG09

Names of student researchers: Sarah Gyebi, Chinatou Cynthia Eyong, Amida Abdul-Rahman, and Anna-Lotta Antniemi

Institution: Laurea University of Applied Sciences, Otaniemi

Permission for research

I have understood the information about the research. I am aware that I can ask questions about the research. I know that participation is voluntary. I am aware that the interaction sessions are a part of my study unit and presence is obligatory; thus I agree to part in the lessons. Although, I have the possibility to withdraw from the research anytime. I acknowledge that material produced during the interaction sessions will be used as material for the research. I agree that my actions, habits, functionality, comments and quotes can also be assessed and used as material for the research. I understand that the material might be looked at by the student researcher's supervisors or peers for reviewing, without my identity being revealed. (Holloway I., Wheeler S., 2010)

I agree to take part in the research

I do not agree to take part in the research

Name of participant: _____

Appendice 3. Final Evaluation Questions

1. LEARNING ENVIRONMENT

Describe how the learning environment contributed to your learning?

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How was your opinions respected and acknowledged?

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2. LEARNING PROCESS

How suitable were the contents of the learning session to your learning needs?

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How practical was the learning session?

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Describe the appropriateness of the learning methods to the content of the learning sessions.

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How appropriate was the course content suited to the learning objectives?

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How learner-centered was the learning session?

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How did the learning materials contribute to the effectiveness of your learning?

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3. CONTENT OF LEARNING SESSIONS

Describe in your own words how knowledge and skills acquired during the session can be transferred to real life settings.

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How appropriate were the learning materials to the content of the lessons?

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How have you personally built on your knowledge of?

a) Asthmatic child and the impact of asthma on the Family?

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b) Safe administration of asthmatic children's medication?

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What would you like see improve in the learning sessions?

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4. GROUP ASSESSMENT

Describe how the following were evident in your group work;
Participation and interaction of group members;

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Accountability of members;

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Respecting individual's ideas;

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Appendice 4. Case studies

Case Study 1.

Introduction

Aki is a 7-year-old boy who lives with his mother and father. They have recently adopted a cat. The cat is allowed to be in every room in the house. Aki lives in an apartment building and has his own room. Aki loves playing with his stuffed animals and likes to have them in his bed.

Aki comes in for a follow-up after being in the hospital 2 days ago due to an asthma exacerbation. Aki was treated with a nebulized beta-2 agonist which resolved his wheezing. He was not given steroids. Lately Aki's mother has noticed that he has had trouble breathing a few times when playing and running outside. Aki's mother tells you that she has noticed that he has been waking up in the night 3-4 times due to coughing.

The doctor states that Aki might have mild persistent asthma and will possibly need daily inhaled corticosteroids, daily dose unconfirmed since severity still unidentified. Aki was given a PEF-meter to follow his asthma symptoms. The PEF-meter should be used daily, first without medication and then with the bronchodilating medicine. Another follow-up will be in 2 weeks.

How will you guide Aki to use the PEF-meter?

How will you guide the mother?

Review of the administration of medication

What other issues should be discussed? Identification of asthma triggers?

Case Studies 2.

3 year old Emily is brought to the urgent care center because she has a cold and low grade fever. Her mother tells that she has been sick for the past week and she awakens nightly with coughing. She is wheezing and her breathing is labored. Her mother says that she did the same thing last fall, when she had a cold.

Based on her age, inability to obtain peak flow values and the repeated nature of her symptoms. Due to her age the doctor prescribed a low dose inhaled steroid for two weeks due to flu induced asthma:

Flixotide 50mikrog daily using a baby haler for 14 days, 2 doses daily one in the morning and one in the evening

Emily and her mother have never used a baby haler before.

How do you guide the mother about the medication? what does it do?

How do you guide the mother in the use of the baby haler and take care of it

Right technique of administration

Action plan guidance

Case Studies 3.

Kalle is a 1.4-year-old infant who has asthma symptoms due to viral upper respiratory infection. Kalle is very distressed and cries a lot he also has not been eating. He occasionally has labored breathing 20-24/min. Kalle's mother and father are very worried about their son's condition. They have never used an asthma inhaler or a spacer before. The doctor prescribes Kalle a small dose of opener and a reliever that should be administered with a Nebunette.

10 days

Airomir 0.1mg x 1 spray when needed

Pulmicort 0.25mg x 2 spray

How do you guide the parents about the medications? What do they do?
when? Which order?

How to guide the parents in using the Nebunette?

Correct administration technique

How to take care of the Nebunette