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Facilitating the learning of safe administration of sedatives in elderly care.

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Facilitating the learning of safe administration of
sedatives in elderly care.

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Learning of pharmacology and medication is a very challenging area of study to the nursing student. The ability to administer medications safely is also an important aspect of the nursing students' study of the subject. The purpose of this study was to facilitate students' learning of the safe administration of sedatives in elderly care through planning, implementation and evaluation of learning sections.

This thesis was part of facilitating learning of pharmacology and medication in the degree program of nursing, which is the bigger thesis project at Laurea University of Applied Sciences, Otaniemi. It aimed at enhancing and developing students' skills and abilities as well as developing curriculum implementation of pharmacology and medication.

The research question for this thesis is how to facilitate nursing students in the safe administration of sedatives through planning, implementation and evaluation of learning sessions? Qualitative research method was used in this research. Therefore an action based method of research was used to plan, implement and evaluate three learning sessions. The topics covered during the lessons include; the elderly client, facilitating learning and safe administration of sedatives. The data collected from the students as well as a critical self evaluation of the facilitators during the evaluation phase was then analysed and interpreted using the inductive method.

At the end of the study, the findings were represented in three categories, after a careful consideration of the subcategories which were derived from the raw data collected. This includes; facilitators' competence and implementation method, supporting of students' individual learning styles and concise contents of the safe administration of sedative. These three categories describe students best learning methods of the safe administration of sedatives, according to the findings.

These findings indicated that the students had learnt better from the learning sessions implemented. The findings showed that the students had a fair idea on how and when they learnt pharmacology and medication best. This was especially evident in the recommendations they made towards the teaching of pharmacology and also on their different learning styles.

Findings indicate that there is great need to do more research on the learning and teaching of pharmacology and medication.

Key words: Facilitating learning, safe administration, sedative medication, elderly care.

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1 Introduction

The facilitation of learning through safe administration of sedative medication in elderly clients is a project aimed at contributing towards the achievement of new knowledge through student skills and abilities in nursing. The project is part of a bigger project at Laurea university of applied sciences, which is called facilitating learning of pharmacology and medication in degree programme in nursing. The project seeks to develop a curriculum implementation of pharmacology and medication studies in the degree programme in nursing. This thesis is also intended to contribute towards the achievement of the objectives of the bigger project through an action based research method.

Safe administration of sedatives in elderly care is a Laurea thesis project and part of a two credit study unit, called the fundamentals of pharmacology. Fundamentals of pharmacology fall under the medical assessment and therapeutic methods in the curriculum. Medical assessment and therapeutic methods constitute the 2010 degree programme nursing curriculum at Laurea University of applied sciences. (www.Laurea.fi)

The implementation of the study unit of fundamentals of pharmacology is conducted by the soon to be graduated nursing students of year two thousand and eight (SNG08SN). It is being facilitated to the second year nursing students of two thousand and ten year group (SNG10SN). The facilitation is the implementation phase of the action based thesis process, which begins after the planning phase. The evaluation of action is then a representation of the thesis findings.

The thesis project is action based, meaning that data is collected and analysed qualitatively. During the whole process of data collection, students were given non structured questionnaires to evaluate their learning experience honestly and anonymously. The collected information was analysed and presented as thesis findings.

The Findings of the thesis work indicate that the facilitator's personality and method of facilitation motivate and ease the learning. There is a clear indication in the finding that students learn pharmacology better from qualified nurse than pharmacist because, the nurse introduces the subject from a nursing point of view. A clear and concise content of the lesson promotes learning of pharmacology and medication.

2 The purpose of the study and research question

The thesis seeks to facilitate the effective ways by which nursing students learn pharmacology and medication, while administering sedative medications. This thesis is conceptualised in three ways, facilitating learning, elderly clients and safe administration of sedatives. These concepts are the basis of the literature search that is used to plan the contents and learning objectives of the learning sessions.

The purpose of the thesis is to facilitate student learning of the safe administration of sedatives in elderly care, through planning, implementation and evaluation of learning sessions. The research question is “How to facilitate nursing students in the safe administration of sedatives through planning, implementation and evaluation of learning sessions?”

3 Facilitation of safe administration of sedatives in elderly care

3.1 Facilitation of learning

Facilitating learning is one important concepts of this project. This chapter aims at explaining how the learning process can be facilitated in order to achieve the desired goals of both the tutor and the students in understanding pharmacology and the safe administration of medication. In its' simplest form, a successfully facilitated learning is where the students were encouraged to take more control of their personal learning process. Facilitating learning activities therefore, involves more than simply giving the learners directions as in for example, instructional assignments. (Dunn, 2002)

Learning is a relatively permanent change in behavior over a period of time which may include both observable activity and internal processes such as thinking, attitudes and emotion. He further states that learning might not manifest itself in observable behavior until sometime after the educational program has taken place. To be able to give a good definition to learning, it may be necessary to identify and analyze the process an individual goes through as a learner. For instance, an individual or a student's way of perceiving, thinking, feeling, and doing may change as a result of a learning experience. Learning can also be defined as a change in behavior as a result of experience. This can be physical and overt, or it may involve complex intellectual or attitudinal changes which affect behavior in more subtle ways. Despite the numerous theories and contrasting views, psychologists generally agree on many common characteristics of learning. Individuals learn differently with regards to the various stages of their human development. (Burns, 1995)

According to Lave and Wenger, learning involves the whole person acting in the world in terms of an increased participation in different 'communities of practice.' They further ex-

plain that, learning is an integral part of all types of social practice, where 'learning, thinking, and knowing are relations among people in activity in the world, rather than something static that is to be internalized'. Many factors therefore come into play if learning has to take place and the learner must be able to identify these factors and know how to appropriately apply them to the learning process. (Lave et al, 1998)

The facilitator has a big challenge of understanding how people learn and the appropriate methods to use. This is necessary as it goes a long way into helping the students identify their strengths and weaknesses with regards how to learn new things. The learner might experience difficulties when it comes to learning new things since he or she might not have the appropriate skills on how to master the new situation. It is therefore one of the responsibilities of the facilitator to help the learner identify the best and easiest way of learning which will become part of the students life. (Burns, 1995)

In the facilitation of the learning process the environment which is the physical environment, plays a major role. For the student nurse to understand pharmacology or any other related subject much better, the environment has to be conducive enough for the desired purpose. In clinical teaching, there are a wide variety of physical environments in which teaching and learning can occur. Clinical teachers may be required to deliver forms of teaching in a lecture, theatre or classroom. Much of the day-to-day teaching goes on at the bedside in clinics, consulting rooms or in operating theatres. Some facilitators are constantly involved in developing open learning resources such as e-learning resources which utilize a virtual environment. Therefore, being aware of the resources available to learners can help to enhance teaching and therefore, facilitate learning. These influencing factors may include: the venue, the impact of room placement, seating arrangements and other factors which makes learning easier. (Judy et al, 2003)

There are various theories on learning that a learner could make good use of in the learning process and this depends on the student's strengths and abilities. Learning theory may be described as a body of principles advocated by psychologists and educators to explain how people acquire skills, knowledge, and attitudes. Various branches of learning theory are used in formal training programs to improve and accelerate the learning process. Concepts such as desired learning outcomes, purpose of the training, and depth of training also apply when discussing learning theories. One important learning theory is the constructive learning theory or method. (Dunn, 2002)

3.1.1 Constructive learning

Constructive learning theory is defined as the philosophy of learning founded on the premises that, by reflecting on our experiences, we construct our own understanding of the world we live in. Each of us generates our own rules and mental models which we use to make sense of

our experiences. Learning, therefore, is simply the process of adjusting our mental models to accommodate new experience. (Thanasoulas, 2000)

Constructive learning method is the type in which learning is an active process by which knowledge is constructed and shaped by experience. For constructivism, it pays much attention to the fact that students have different levels of perception and understanding. This type of learning method gives students the opportunity to share ideas with their peers in order to be able to clarify thoughts that may seem confusing. Learners' therefore one way or the other could be thinking in the same manner but they may be learning new ideas in ways that are meaningful to them. The facilitator in this case is seen as an expert who knows the teaching subject better than the students. (Christie, 2005)

Constructive learning method plays a major role in the nursing field of study. The view of constructivism is that learning is acquired from the learners own mental construction and this is where the individual matches new ideas against readily available information and establishing meaningful logics rather than by knowing facts to be later digested upon. This type of learning method helps the student to build his own concepts which goes a long way in fostering logical thinking and also finds his own solutions to problems which correspondingly, establishes critical thinking and decision making. (Thanasoulas, 2000)

It is also important to note that, clinical nursing education is the ideal environment for the application of constructive learning method where real meaning of facts is linked with experience. This simply means that embracing the students approach to learning in which students actively make use of knowledge, connect it with prior knowledge and proceed to construct personal meaning. This is why it is important to make good use of this type of leaning method. The principal role here lies in providing stimulating, motivating learning experiences in a real world context in order to facilitate the learning process since becoming a nurse requires education and the nursing field of study or practice makes a great deal of the application of the educated mind. (Peters, 2000)

3.1.2 Evaluation of learning

The effectiveness and quality of facilitation can be improved through the evaluation of students' learning experiences. Evaluation of learning can be termed as a measurement, where advocates of constructive learning suggest that whatever that exist can be measured in a quantified or descriptive manner. Constructive learning also demands that evaluation becomes a continuous process of learning and not a single event during the learning process. In constructive learning, evaluation of outcomes is intended to represent the new meaningful building blocks that have transformed or have been derived from the process of learning. These meaningful themes have to hold sense to the individual or group of people in that particular situation. In other wards evaluation of learning is a toll for measurement of the results

of your action as well as showing the direction in which you need to go, hence set goal for future actions in the development and improvement of learning. (Reeves et al, 2003)

Evaluation of learning is used for different purposes, among which is to improve the learning quality through facilitator skills and knowledge, taking into consideration of the participants learning methods. Evaluation can also be used as an assessment tool in the effectiveness of learning and teaching in an education programme. There are several reasons as to why evaluation of learning should be performed and for any evaluation to hold meaning, it should have a purpose in order to make the whole process legitimate, orderly and meaningful to both those that participating in the evaluation as well as those performing it. (Frances et al 2000)

Evaluation is used often in education institutions, from the top management level to the classroom level. The main purposes for evaluation in educational institutions are, to streamline a continuous improvement process for the institution in addition to continuous monitoring of results. (Barkslade et al 2001)

Evaluating the learning of a bigger number of students can be challenging. A clear and effective method of evaluation has to be chosen in order to achieve concrete and precise understanding of the students' learning experiences. In order to intensively and practically evaluate a big group of students, questionnaires are employed; they can be open or closed ended depending on the goal of evaluation. They give every student an opportunity to evaluate their learning experiences anonymously. Depending the goal of evaluation the questionnaires can be structured (closed) or non-structured (open); unstructured questionnaires, offer a deeper insight into the participants' opinions and also allowing for new knowledge about a particular issue to come up. Questionnaires as a form of evaluation are a quick way by which a group can be evaluated anonymously, hence encouraging openness and honesty. It also offers data that may be later analysed to seek solutions to a problem and take action. (Oermann et al 2009)

Self evaluation is a tool used to evaluate both students' learning experiences as well as facilitators' skills and knowledge. The facilitator is able to evaluate his/her competences on the basis of student evaluation form to identify the need for improvement and level of success of a learning session. Self evaluation develops from the first session of learning through the continuous session through both self and student evaluation. In a supportive learning environment, a facilitator is able to plan and develop strategies of successfully achieving the outcomes of learning on the basis of feedback. (Oermann et al 2009)

3.2 Elderly clients

3.2.1 Aging and the process of aging

Aging is a continuous process by which cells lose the capacity to maintain stable conditions within the cell and body as a whole; this can be referred to as homeostasis. During aging there are universal changes that occur in the body without necessarily being caused by disease or environment; these can be classified as primary aging. On the other hand there are changes that occur due to an interaction or primary changes with environmental and disease influences. These changes can be classified as secondary aging. (Masoro et al, 2006)

The Biology of aging, i.e. Senescence describes a concept of biological changes in the body as a result of maturation. The type of changes referred to are those that affect the body cells directly and its function. Every normal human body cells experience a change in the cell bodies and their functions, usually altering system performances.

The aging process to a chain reaction that goes on unabated, destroying the integrity of all cells along its path through a process called oxidation. It is through this process, which also generally encompasses the disease process, which the free radical pathology leads to the breakdown, deterioration and aging of cell systemically and organically in the human body. (Icheku, 2006)

The free radicals damage cells, thereby causing diseases and aging at the same time. These free radicals contain renegade oxygen which causes the mutation of genes. They as well lead to damages of the cellular membranes, breaking the proteins doing cellular work, thereby causing multiple and overlapping cellular injury. Due this process of cell destruction, cells become less able to replace themselves and accumulate lipofuscin. Lipofuscin is a brownish pigment left over from the breakdown and absorption in the cytoplasm of muscles and nerve cells affecting almost all organs in the body. The degradation of elastin and collagen (proteins) causes connective tissue to become stiff and less elastic.

(<http://publications.nigms.nih.gov/insidethecell/chapter5.html>)

Due to aging the bodies undergoes several somatic changes due the persistent action of stress. Stress conditions over power body cellular repair, which leads to altered performance of the organs. These somatic changes are however not the same for all individuals, this is explained as heterogeneity; this refers to the quality of being diverse and not comparable. This explains why the aging process affects individuals different physiologically, psychologically and socially. Due to aging, the skin layers become thinner, affecting the skin function, resilience and appearance in the form of wrinkles. This is caused by reduced subcutaneous fat, elastic fibres and stiffening of collagen. On the other note, the hairs begin greying due to a decrease or depletion of hair pigmentation. (Conn, 2006)

As the human body goes through the process of aging, there are prominent organs that undergo tremendous and irreversible changes. The brain for instance, shrinks at a rate of 2g to 3g every year from the original weight leading a reduced brain to skull volume. This decline is responsible for neuron loss, and since memory relies on neuronal circuits, their progressive damage leads to several neurological malfunctions and organ function impairments. (Masoro et al, 2006)

Other systems of the body are also affected by the changes due to aging; there is an increase in cardiovascular disease due to the progressive thickening and stiffening of heart muscles as well as arteries. The respiratory system is also affected in different ways ranging from the reduced lung capacity to susceptibility of infection. The lungs diminish in rigidity causing an increased residual volume and a decreased vital volume. Owing to reduced ciliary activity and increased respiratory dead space, elderly people are more vulnerable to respiratory infections. (Suzanne et al 2004)

Decreases physical activity and slower metabolic rate reduce the number of calories needed by older adults to maintain an ideal weight. Apathy, immobility, depression, loneliness, poverty, inadequate knowledge, lack of oral health also contributes to suboptimal nutrient intake. (Masoro et al, 2006)

Sleep disturbance frequently occur in older people due to variation in normal sleeping cycles. Some elderly suffer from the sundown syndrome, although not a sleep disorder directly, which is a condition or onset of confusion and agitation. This is usually caused by the changes in the sleep wake-cycle (changes in the circadian cycle), a decrease in the sensory stimulation at the end of the day or mental conditions related to Alzheimer's. Sleep problems in old age also be related to medication side effects, organic and systemic diseases, pain, depression and confusion related to delirium or dementia. Sleep disorders tend to call for an increased usage of drugs in order to promote quality life. The use of sedatives is on increase among the elderly, either to contain sleep disorder, pain, anxiety and other associated symptoms. (Kozier et al 2004)

3.2.2 Medication and old age

Old age is a predisposing factor in adverse drug interaction. This is mainly explained by the multiple and chronic illnesses, which results in reliance on medication. Due to an increased drug exposure and age related pharmacokinetic changes; there is an increased incidence of adverse drug reactions. There are particular drugs that commonly cause problems in older people, e.g. hypnotics, diuretics, non-steroidal anti-inflammatory drug, anti-hypertensives, psychotropics and digoxins. "The physiological changes in old age have an impact on the distribution and metabolism of drugs. In old age total body mass, lean body mass and total body

water decrease and these changes can affect the drug concentrations in the body.” (Downie et al, 2003)

A decrease in the total body water and lean tissue make the water soluble drugs to concentrate themselves in blood, hence a high blood drug concentration. This calls for a decrease in the dosage taken by old people. Old people have a higher proportion of body fat and the fat soluble drugs get distributed to the fatty tissues; this situation could lead to an increased drug dosage caused by inaccurate drug levels in the blood. Fatty tissues slowly release stored drugs into the blood stream, which is why fat-soluble sedatives tend to produce a hangover effect. (Nimmo et al 1990)

Diminished Albumin levels in the plasma affects the protein binding of some drugs e.g. Warfarin, this results in more non bound drugs ready to act at receptors sites which cause toxicity. This situation would also call for a dosage reduction. The above examples try to explain how the physiological changes in aging affect drug administration in general. The body changes lead to several alterations of dosaging; these effects on dosage coupled with a combination of drugs taken due to several medications take by old people, is the very reason why care and guidance on the administration of medication among old patients is very vital.

As a consequence of ageing, there is a reduction in the hepatic metabolism of some drugs. This is influenced by the reduction in liver mass and liver blood flow. Although not so many directly visible effects are seen in reduced liver drug metabolism, this condition however results in longer half-life of the drug. On the other hand, effects on reduced renal excretion are more determined, i.e. glomerular filtration rate by the age of 80 may have fallen by 50ml/min. Therefore drugs which are excreted by the urine may have to be reduced, especially those with a narrow therapeutic effect e.g. Warfarin, digoxin, lithium, phenytoin and carbamazepine. It is also noted the tetracycline should be avoided by patients with poor renal function, as they have dire effects when they accumulate. They can cause nausea and vomiting, resulting in dehydration and deterioration of the renal function. (Downie et al, 2003)

Continues usage of drugs could bring about drug tolerance. This means that the body develops physiological adaptation of the drugs, whereby the body and brain establish a balance, when new chemicals are sensed. This makes the original dosage to produce a lessened effect, hence, to achieve the desired effect a larger amount of drug has to be taken. Tolerance can develop in varying ways, to some effect, though not to all, tolerance can develop to the sedative, sleep-inducing effect of valium but not usually to its anxiety reducing effects. (Denning et al 2004).

3.3 Safe administration of sedatives

3.3.1 Sedatives

Sedatives are medications used in the form of pills which calms to the nerves. It acts on the body decreasing vital functions which determines its soothing properties. It is a drug taken for its calming or sleep-inducing effects. (www.oxforddictionaries.com)

Sedative, under this study is divided into two type categories, although there are several other types; the Barbiturates and the Benzodiazepines (anxiolytics).

The sedative type barbiturates, act by depressing the central nervous system at particular portions although tends to depress the functioning of the entire body tissues causing relaxation and possible induction of sleep. When taken in small quantities; they produce a tranquilizing effect; sedative effect and with increased doses induce sleep; hypnotic property.

The other sedative type which is the benzodiazepines, are needed for prolonged use and replaces barbiturates if prolonged use is indicated to sleep at night or treatment of anxiety related problems. The effect of this sedative type is to ease anxiety and nervousness. Diazepam is a major example.

According to the 2006 National Guide for Pharmacotherapy, sedatives and hypnotics are intended typically for only short term use. Prescribers are already urged to do so, with caution concerning the elderly clients in the prescription of sedative medication. (Safe Pharmacotherapy, 2006)

All sedatives can cause physiological and psychological dependence when taken continuously over a period of time, even at therapeutic doses. Restlessness, insomnia, convulsion and death are the ranges of withdrawal symptoms most dependent users encounter. When users feel they need the drug to function then they are psychologically dependent although there is no physical dependence present, especially if used in a short term. In both dependency types, the focus of the individual usually is to find and use the sedative at all cost. With therapy both types are treated and managed therapeutically. (Sola, 2010)

3.3.2 Safe administration of drugs in elderly care

The study of drugs, its preparation, uses and effects defines the science of Pharmacology. Statistics show that while the importance of this definition cannot be over emphasized, separate studies needs to be conducted on the medications used by the elderly clients, especially those with sedative effects.

The most medicated group of patients or clients who receive the highest proportion of medicines are the people above 65 years of age: consuming up to twelve (12) types drugs in a year on average. (www.healthinzen.com)

Degenerative changes occurring in the elderly as well as advancing aging leads to poor metabolism of various substances including the medications they use. The action of the drug can therefore vary in comparison with others of the same age depending on their state of health. Old age is said to be the second childhood and there is no doubt that geriatric care needs to be as gentle as paediatric care. It is for this reason that administration of medication in this client category needs to be properly reviewed and safely administered. (Potter et al 2003)

The indiscriminate use of multiple medications at the same time is not advisable as it makes it difficult to predict how their aging and frail bodies may respond to them (www.healthinzem.com). These multiple medications may involve sedatives, painkillers, antibiotics, heart regulating medications and others. All these may cause harm directly or through interaction. “This trend must not be encouraged. Logically speaking, clinical trials for every new drug entity must be conducted separately for the geriatric group, on the basis of which the safe dosage of drugs for the elderly can be ascertained. Only this will help to ensure that they are being treated and not drugged”.

(Safe Pharmacotherapy. 2006: National Guide for Pharmacotherapy)

3.3.3 Interaction of sedative medications

The appropriate use of sedation and analgesics can attenuate stress response, alleviate pain and anxiety, and improve compliance with care. Agitation and fear responds to anxiolytics while pain is best relieved with analgesics. A combination of these drugs can act synergistically, since most analgesics provide some degree of sedation. Use of these medications in the elderly should be tailored to the needs of the individual client including: indication, anticipated length of need and underlying organ system effects are important considerations. (Sola, 2010)

Tricyclic antidepressants (TCAs) example of which includes amitriptyline, doxepin and trimipramine has a higher sedative to stimulant ratio which leads to a higher sedation compared to the other antidepressant class. Use with alcohol causes pharmacodynamic interaction increasing the sedative effect of TCAs. Alcohol may also interfere with the liver metabolism of TCAs (pharmacokinetic interaction). The interference may result in increased levels of TCA in the bloodstream causing convulsions and disturbances in heart rhythm. When taken with sedatives, most muscle relaxants e.g. cyclobenzaprine, baclofen and tizanidine may cause narcotic type reaction. The effects include dizziness, weakness, agitation, confusion and euphoria. (Sola, 2010)

3.3.4 Alternative Nursing therapeutic methods

Stimulating effect is the direct opposite of a sedative effect. Stimulating effects increase vital capacity while sedative effect decreases it. To achieve this it is important to remove the cause of any factor causing the increase so as to achieve a decrease, sedative effect. Indiges-

tion and constipation require special attention so is pain and nervousness not to talk about insomnia. In these cases the diet might have to be modified and other proper treatment of the source of these uncomfortable situations checked. Worry leading to anxiety as well as close, prolonged and overindulgence of social activities must also be regulated. When such causes are removed, the direct nerve sedatives may then be relied on to produce satisfactory results. (Abbott, 2007)

Alternative nursing therapeutic methods includes, neutral or warm bath, warm or hot shower, sponging (cool, tepid or warm), Heating compresses. The following are directed towards decreasing the congestion of nerve centres and includes; Hot foot-bath with cold to the head, Cold sitz bath, Cold-water coil to the abdomen or head and Alternate cold and hot foot bath or percussion douche to the feet. (Abbott, 2007)

In nearly all the sedative treatments, the derivation is all important in that the brain and other nerve-centres are relieved of congestion are less irritable and this together with the relaxation effect produces effective sedation. The Neutral bath causes a decided decrease in the amount of blood in the brain. This is the normal condition essential for sleep. The cold sitz bath decrease the amount of blood in the abdomen and pelvis thereby lessens irritability of the sympathetic nerves in these regions. (Abbott, 2007)

Normal fatigue is what actually accounts for normal rest and sleep. Nature demands relaxation because we are tired by the work of the day hence we sleep. Usually this kind of sleep after a hard days work is often sound and refreshing. People like the elderly, whose activity is limited and sedative in nature are liable to insomnia and nervousness because of insufficient physical exercise. In such cases tonic measures are conducive to rest and sleep as a result of the fatigue they produce. The following are useful treatments: Hot and cold to the spine, massage, Hot and cold spray, shower or douche and cold mitten friction.

Extreme measures are necessary to relief pain. The cause of pain usually dictates the measures to be used or treatments to be employed. Heat has a special pain relieving action and a hot application in order to effectually relieve pain, must be as hot as the patient can tolerate. The following are useful treatments: Hot immersions as foot bath, sit bath, hot pack, local or full blanket pack, hot enema, Extreme cold, as ice bag, ice compress use of ice-water or cracked ice by mouth and cold immersion as of hand or foot or sit bath. (Abbott, 2007)

The inability to sleep is usually due to a combination of nerve exhaustion and nerve irritability. As sleep comes as a natural result of normal fatigue, it is necessary in some treatment to only produce such fatigue. This may be brought about by exercise aided by tonic measures. Alternative hot and cold foot bath or hot and cold douche to the feet, together with cold to the hand and neck are excellent means of relieving congestion of the brain. (Abbott, 2007)

4 Planning the learning sessions

Research is a systematic process of acquiring new knowledge and solutions through data collection, data analysis and interpretation of data. Qualitative research is where in-depth information is acquired inductively by focusing on a group in order to get the groups point of view or its experiences. (Miles et al, 1994)

Basing on the purpose statement and research question, this study is carried out qualitatively. The study involves planning, implementing and evaluating learning sessions; therefore methodologically an action based research suits it more. Action research is defined as a reflective process where the core of the research is based on inquiry and discussion in a school setting. According to Ferrance, an action based research ends with findings that will be able to uncover new information which could change future practice. (Ferrance, 2000)

Figure 1 a, illustrates how an action based research is carried out. This thesis has logically preceded through the Ferrance model of action research stages from problem identification (which is explained more by the research question) to the evaluation of the findings. According to the Ferrance model, the problem identification phase is represented by the theoretical framework of the thesis. In this phase the topic of the thesis, the purpose of the thesis and the research question are clearly defined in order to give guideline for proceeding with the research.

The second stage of gathering data was systematic and related to the plan of evaluation. Qualitative research method is utilized in order to gather reliable and trustworthy data for the next stage of the thesis, according to figure 1 a. The next stage of data interpretation focused on the scientific research methods used in analysing data from its raw stage to a more meaningful form. The fourth stage of Ferrance model is the action on evidence, this phase represents the findings phase of the thesis, in which all the analysed data is presented in its meaningful form. After the action on evidence then come the evaluation of findings, in the thesis, this phase is represented by the discussions. In this phase the findings are discussed in relation to the purpose statement and research question.

The reflection phase in the Ferrance model is not reflected the thesis; this shall be used in the future for curriculum development.

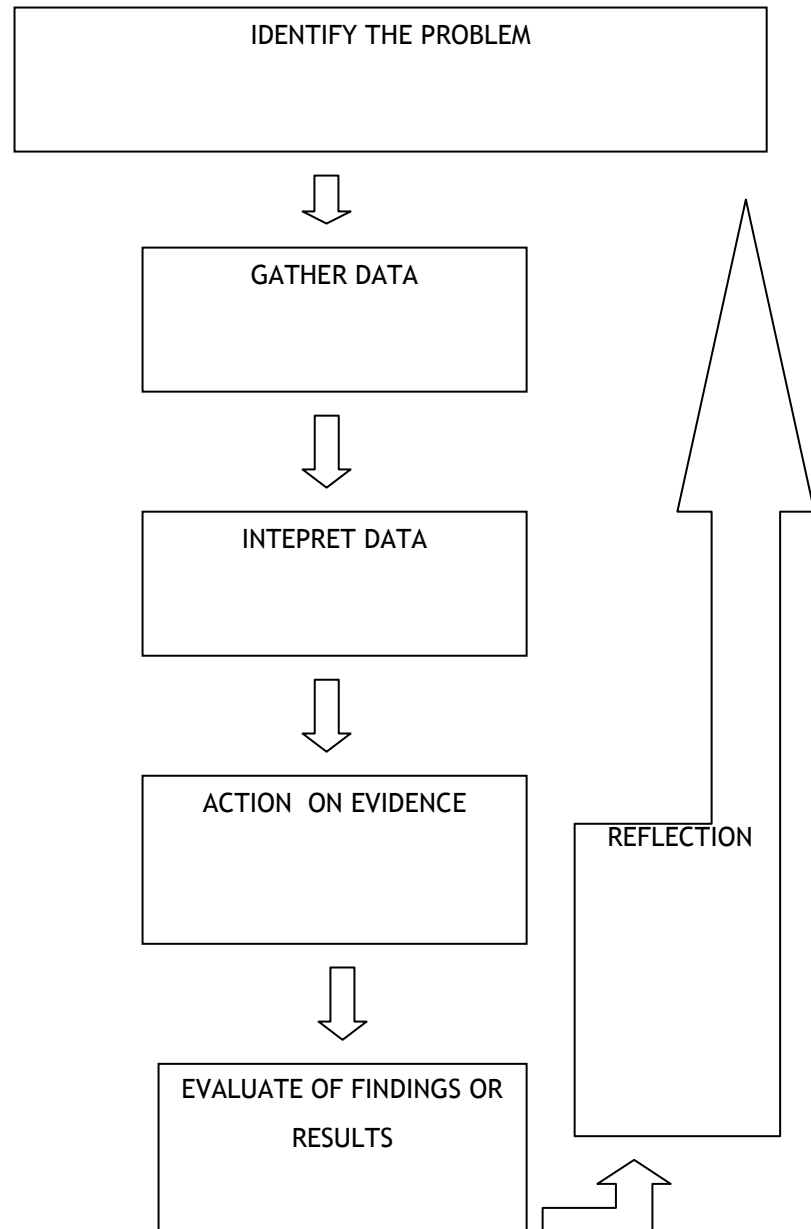


Figure 1 a: Action based research cycle (Ferrance, 2000, pg 9.)

4.1 Planning learning sessions

The contents of the presentations are in line with the Laurea University of Applied Science Curriculum 2010, under the study unit, Medical assessment and therapeutic methods. The specific area of focus is on the safe medication of sedatives in elderly care. There are different sources of the literature like journals, textbooks, in addition to facilitators' experience in elderly care and medication. References to sources are attached herewith. The content is to

be conducted through three learning sessions, each lasting two hours. Each learning session shall be evaluated by a written questionnaire and also a self evaluation. The learning sessions are divided into three two-hour learning sessions with the second year degree programme students, 2010 group. The schedule for the learning sessions is illustrated in figure 2.

The method of carrying out the learning sessions is planned to be constructive. Overhead projector, the writing board and handouts with diagrams shall be used for better illustration and learning. Besides facilitation material, the students' previous knowledge and a student centred style shall facilitate the learning. Interaction and group work shall promote learning and also ease the stress of a single source of information, which tends to be boring and limiting the students' abilities.

The evaluation which is going to be the basis of our research findings will focus mainly on the student feedback. A questionnaire will be formulated and given to students and the end of every learning session to give feedback after every consecutive presentation; this shall be the core basis of our evaluation. There will also be a self-evaluation about the performance of the presenters by the presenters themselves. All this, together with a combination of observations made by the individual presenters during the learning sessions, will be the basis of learning evaluation.

Date	Time and place	Content of session
30-8-2010	Laurea (Otaniemi) 8:30 - 10:00 Room: 216	Facilitating Learning: - Definition of learning. - Learning styles. - Facilitating learning
1-9-2010	Laurea (Otaniemi) 8:30 - 10:00 Room: 216	Aging and medication among the elderly: - Aging and effects of aging. - Drug mechanism among in an elderly person's body. - Effect of medication on the brain kidney and liver.
7-9-2010	Laurea (Otaniemi) 8:30 - 10:00 Room: 216	Safe administration of sedatives in elderly care: - Rights of drug administration. - Routes of drug administration. - Sedative medication. - Alternative methods of sedation.

Figure 2, Implementation of the learning sessions.

The learning sessions

The first learning session is about the facilitation of learning of pharmacology. The course among which is intended to define the concept of learning to students after which focus on the styles of learning pharmacology as a subject. The last bit of this unit will be what it means to facilitate learning of pharmacology to nursing students.

At the end of this learning session the students are expected to be able to define learning, let alone being able to experience learning. The idea behind this is for the students to appreciate the fact that learning has degrees and that regardless of how little one learns, he or she has learnt. This understanding is aimed at motivating probably slow learners to even the little knowledge acquired in the process of learning compared to the fast. The second object is to explore the different learning styles that can be employed while learning pharmacology. The constructive learning method in particular shall be introduced, since it caters for students with different learning abilities and methods. (Sternberg, 2000)

The second learning session is about aging and medication in elderly care. In the second session the main objectives were have a deeper focus on aging and its effect on the body organs in relation to absorption, digestion and elimination of medicine. The lesson will begin with a clear defining of aging and the different classification of the elderly. The second goal is also to analyse what happens to body organs and their abilities among the elderly. Special emphasis shall be put to organs like the brain, liver and kidney because they are the most common one that get affected the medications. The last phase of the lesson will help the students learn how these different organs contribute towards the absorption, digestion and elimination of medication. The main objective of this lesson is to prepare the students for the main subject of administering sedatives safely. In order to learn how to safely administer sedatives among the elderly, a good knowledge of the anatomy plus the challenges of medicating elderly people is very vital; this particular session specifically addresses that area. (Kozier, 2004)

The third and last session is about the safe administration of sedative among the elderly. This session is planned so that at the end, students are in position to utilise particular skills and knowledge to protect elderly people from the effects of medication. Students will be able to utilize the rights of drug administration, to learn the different routes of drug administration. The students will also learn about sedative medications, the drug actions and side effects, but also learn about the alternative methods of sedation. Though the lesson is focusing on how to safely administer sedative medication among the elderly, the lesson will also highlight better patient diagnosis in order to eliminate medication as a whole. On the hand, alternative method of achieving sedation among elderly people having problems related to insomnia, anxiety, restlessness and other related behavioral symptom, instead of medication. (Wick, 2006)

4.2 Planning the implementation of learning sessions

Three presentations would be carried with the 2010 degree programme students and each would last for two hours. In these presentations we intend to make possible by consideration the various concepts of our thesis work which are elderly clients and medication, facilitating learning and safe administration of sedatives in the elderly care. A PowerPoint presentation would be given with the aid of pictures and all the necessary aids that would facilitate students' learning.

On the first day of the learning sections, we plan on giving a PowerPoint presentation on anatomical changes of organs mainly involved in drug metabolism, especially with elderly clients. This is to help the students understand the reasons behind some of the difficulties associated with administration of drugs among elderly clients. The second lecture will base much emphasis on the pharmacology noting some of the commonly used sedatives on the ward and other alternatives ways of achieving the sedation action in the elderly and not necessarily concentrating of the medicinal effects.

The final session, will be the implementation of acquired knowledge and evaluation stage where the students will be divided into groups and given a case study involving all the concepts. Questionnaires shall be given out for feedback. This is to help with the evaluation of the whole presentation.

4.3 Planning the evaluation of Learning Pharmacology and data collection

Evaluations aims at collecting data for analysis during the thesis process and also improve the facilitation of the other learning sessions. Owing to the big number of students, the evaluation shall be done through open ended questionnaires, in an honest and open manner. The evaluation questionnaires shall be the same for the three sessions and shall be done at the end of each session. The evaluation shall be both for the students and the facilitators; to the facilitators, it shall be a form of self evaluation. (Barkslade et al, 2001)

5 Implementation of action

The implementation of action was supposed to follow the planned schedule as illustrated in table 1b. This was however not possible to go on as planned due to unforeseen circumstances, hence, the aging and medication session was handled first followed by the facilitation of learning of pharmacology. The learning of safe administration of sedatives was however handled last, as per the plan.

5.1 Implementation of aging and medication use lesson

The first lesson was about the Aging and medication use among the elderly. This was the preparatory phase into the learning of safe administration of sedatives in elderly care. The learning objectives of the lesson were that, at the end of the lesson, the student would be able to

the determine the range and limit of old age, both numerically and by physical appearance. The student would also be able to understand why most people in the old age bracket use several medications, hence the focus on this age group. Lastly the lesson focused on the factors that influence medication absorption, digestion and excretion of medication in an elderly person body.

The lesson was prepared in form of PowerPoint slides and there was a computer and projector to be used for instruction. There were not so many instruction materials like pictures or diagrams for instruction because the assumption was that, since the students had already studied Anatomy and Pharmacology lessons were at their conclusion phase. The slides were organised in a way that was brief and focusing mainly on the most important areas of the study. This was intended to stimulate debate and discussion among the students, rather than students struggling to write down notes, but instead, that they would use their previous knowledge.

The lesson began with an introduction of the aging and medication use among the elderly, it proceeded with a brief history of whole work that had been done and what would be done. After this history then came the area real subject of the day, the objectives of the lesson, as outlined above. The class was attentive but seemed to but be either inquisitive or unsure of themselves or whatever that was going on. It was a bit hard to interact with the audience, but along the way it was observed that the students were more comfortable to discuss anything other than anatomy or pharmacology. This was mainly reflected by the fact that students enjoyed to discuss anything general, many wondered if there were capable of advising a doctor about medication, since they were mere nurses. Another group brought about another interesting topic about doctors receiving kickback from drug manufacturers in order to keep elderly people medicated. Those that didn't feel competent enough to advise doctors, failed to comprehend that role of nurses in the observation of patients under medication. During the lesson the students were empowered and encouraged to realise that the nurse's duties contribute so much towards good and safe medication of patients. This would be in the form of observing the adverse effects of particular drugs and also thinking of alternative ways of avoiding such drugs, especially sedatives. This is could be done in consultation with the doctor who prescribes these drugs, the patient who uses the drugs and the relatives of the patient.

The Slides were organised to be so brief and offer enough time for discussions and contributions, however the class seemed to have a group of students who were outspoken and those that avoided any form of contributions. Where as the active participants concentrated more on general issues, others had little contribution in the lesson. When asked about what they thought about the discussion or if they hadn't understood anything they gave an impression that they had understood everything well. The lesson was summarised with the collection of

feedback from the students. The feedback was collected through questionnaire that the students filled. At the end of the lesson, the feeling of satisfaction whether the lesson had been well understood was not concrete, though several clarifications were made and many questions were asked, though most of which were in dispute of nurse's role in medication administration.

5.2 Implementation of learning pharmacology

The Learning style lesson was the second proceeding after the aging and medication lesson. It was implemented through a lecture that began by defining learning and then going ahead to look at the different learning styles as per references used. The lesson was entirely theoretical and presented using PowerPoint slides. It began with an introduction of the learning objective and then its relationship with the previous lesson. Although it was hard to concretely relate the need for students to know their learning, to the learning of safe administration of sedatives; the idea behind it was, if students knew how and when they learn best, then it would promote their learning. The centre of discussion was around the use of constructive learning method. The constructive learning method was the focus of discussion because it's an umbrella of different learning styles of students with different learning abilities and capacities.

The lesson proceeded well although the students seem to have trouble comprehending why and what they were learning, this was evident from the silence and facial appearance of the students. There were a few contributions from the students, ofcourse from the common faces that had been actively participating in the previous lesson.

During the last phase of question and answer however, students started giving their contributions about learning and how they would want to be assisted to learn and some of their challenges about learning. At this point the tutor in charge of supervision of the session suggested to the facilitators that each one of them should share his learning of pharmacology during their duration of study. At this stage students started connecting the need to evaluate and assess own learning techniques. At the end of the lesson, students discussed courageously about learning pharmacology and some appeared have less anxiety for their inability to comprehend their inability to learn pharmacology easily. Atleast they realised that they were not the only ones having difficulties and besides, special skills have to be developed both the teachers and the students themselves in order to learn pharmacology.

5.3 Implementation of safe administration of sedatives lesson

This lesson was planned to be the last after the discussion of elderly client and medication use as well as the styles involved in learning especially, pharmacology. The purpose of this was to bring understanding and study of the safe administration of sedatives in elderly care. The lesson was carefully planned to be systematic and easy to follow. The constructive

method of learning was applied where there were open discussions, shared experiences and interaction. (Christie, 2005)

The use of picture models of the sedative in question was very helpful to the students as they familiarize with the medication and also made it easy to follow the discussion. A video coverage on patients' right to medication usage was rather easy to follow and to learn. The objectives were clear and to the point and includes: understanding the principle behind safe administration of medication, defining and having a general idea on sedatives and what they do, identifying common sedatives, knowing about sedative interaction with selected other medication and lastly understanding alternative nursing therapeutic methods of relaxation and inducing sleep.

5.4 Implementation of Evaluation of learning sessions and data collection

The evaluation of implementation was done by the students and facilitators through the answering of questionnaires. At the end of every lesson students were requested to fill in the evaluation form and then the facilitators also filled a similar questionnaire. With the collected evaluation information, it was observed that there were some questions to which students gave a yes or no answer; this was not particularly good for a qualitative method of data collection. The questionnaires had to be updated in order to eliminate short and non informative data. The questions, to which students were giving a yes or no answer, were rephrased in order to enable the students give more descriptive opinions about the whole learning experience.

At the end of the third learning session, concrete and complete data had been collected which not only reflected the students personal opinions but also, showed that the method of the whole process would continue to be qualitative. (Denzin et al 1994)

5.4.1 Data collection

An open ended questionnaire is designed to stimulate the participants writing interest. Owing to the limited time available for the data collection, the questionnaire method is employed in this particular thesis. This is mainly facilitated by the fact that data will be collected at the end of each learning session. (Denzin et al ,1994)

Participants are guided to answer to a set of open ended questions, while given ample and quiet atmosphere to express a personal view based on own experience and concern. The questionnaire is designed to answer the research questions of our thesis and focus on the guiding the informant to give feedback without extreme deviation. (Denzin et al ,1994)

Self-evaluation of the facilitators shall also be another way through which data is to be collected. Similar to the participants, the facilitators shall evaluate the process on the basis of

questionnaires. Data collected from the evaluation questionnaires from the participants and the facilitators shall be the basis of the thesis findings after analysis.

5.4.2 Data analysis

There are several ways of analysing data in a qualitative research, however the goal of data analysis is to transform raw data into meaningful patterns. The guidelines to achieving meaningfulness from raw data are always the project's goals and the research questions. Qualitative research is a study conducted to explain the whys and hows of a problem rather than the what and when, hence it investigates answers to particular trends of behavior; its results can not be generalised. According to Miles and Huberman, there are no agreed-on canons for data analysis which would lead to concrete conclusions. (Miles et al, 1994).

Data collected in the thesis process is analysed qualitatively by an inductive data analysis method. An inductive data analysis is defined as a systematic method of analysing data qualitatively, where specific objectives are the framework that form the basis of thesis analysis. The inductive data analysis method permits the emergence of findings from the frequently appearing themes of raw data. These dominant themes are then linked to the research objectives in order to come up with a theory or answer that addresses the problem that is being researched. (David.R.T, 2003).

These findings are based on feedback questionnaires of the three learning sessions. The first session concentrated on aging and medication which was followed by the facilitation of the learning of pharmacology session while the last was on the safe administration of sedatives in elderly care.

The final process of evaluation of action started with the collection of feedback from the students and from the implementers of the project. Data collected from the whole process was collectively gathered together and it constituted raw data. The facilitation of learning of safe administration of sedatives was derived from a bigger project at Laurea University of applied science, whose main aims were to develop curriculum implementation of pharmacological studies in the degree programme in nursing; the other aim was to enhance and develop students' skills and abilities. The general purpose of the project was to facilitate the student's professional learning in pharmacology and medication.

The research question of the thesis was, "how to facilitate student learning of the safe administration of sedatives in elderly care, through planning, implementation and evaluation of learning sessions?" The whole procedure from planning, implementation and evaluation of the learning sessions, was done to help provide answers to the research question.

Learning sessions were carried out to facilitate the learning of safe administration of sedatives. In each session there was an average of fifteen participants and facilitators, from whom

feedback questionnaires was collected at the end of the sessions. After the questionnaires were filled and collected from the informants, all their answers were collected together as the raw data for the research.

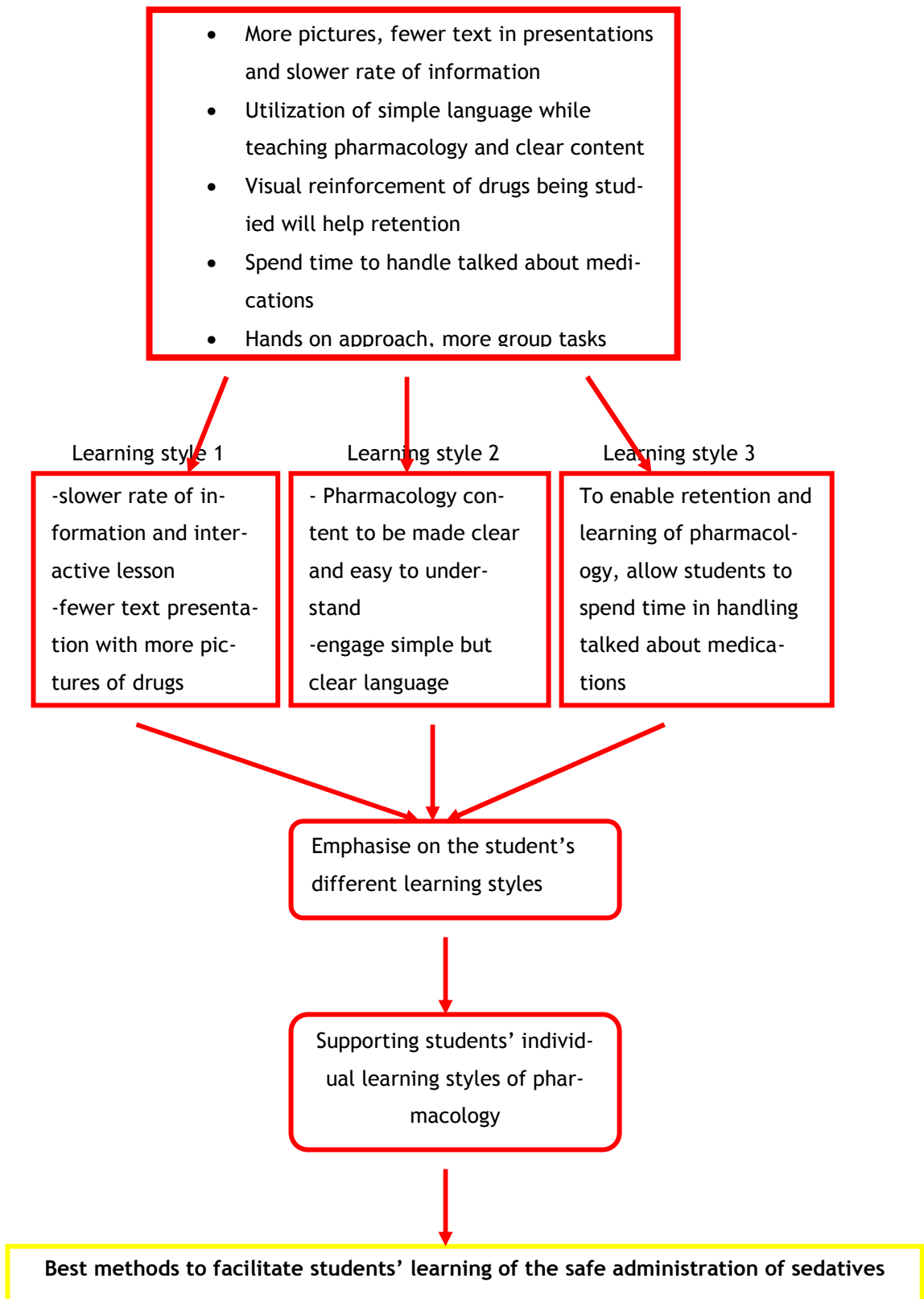


Figure 2a, Interpretation and organizing themes from raw data

Figure 2a, is used to illustrate how data was handled from the raw form into meaningful themes that constitute the findings. The data questionnaires were put together without any considerations. This constituted the data for analysis. It is at this phase that the coding process began. Data bearing particular relationship to answering the research question was colour coded and then organised into the first stage category; further analysis of the first stage category was done bearing in mind the research questions. Further data that had related meaningful statements were grouped together to form subcategories.

The table show that data collected from students was digested and coded into different subcategories that were bearing the same opinion. Subcategories were derived and labelled as learning style 1, 2 and 3; each having a set of ideas on how students learn best. For example learning style 1, describes a focus on the students learning speed or rate. Students emphasised that if a facilitator offers knowledge at the students' rate of understanding, it promotes their learning. In learning style 2, students suggest that when the contents are simplified and presented in the simplest language or method of presentation, they learn well. Learning style 3 describes how students learning through their practical engagements. This they said helps promote retention of the learned knowledge and skills.

A category called emphasis on the students' different learning style was synthesised from the three subcategories described as learning styles 1, 2 and 3; which in turn was summarised as a final research theme called "supporting the students' individual learning styles of pharmacology.

6 Findings

6.1 Facilitator's competence and implementation method

This theme was derived from three different categories after a series of interpretation of the raw data from the informants, who were second year nursing students. Students observed that the facilitator influences their learning in many ways, through his personality and skills, the facilitator's lesson preparation and his or her previous professional experience.

The categories that constituted this theme were that, "pharmacology lessons should be practice oriented, clear and easy to understand". Then, "carefully plan learning objectives and contents in a pharmacology lesson" and that "Pharmacology lessons should be evidence based and implemented by a registered nurse". (Figure 2b pg.32)

Under the theme pharmacology lessons should be practice oriented, clear and easy to understand, students gave a lot of feed back which in a way reflected their fear of a hard subject which was introduced so fast yet taught in the same manner as other subjects. In their feed-back they felt that probably this hard subject should be taught in a more simpler way, using

simple language and introduced in a more pictorial or physical form. Quoting some students below:

“.....the teacher should Atleast have more pictures and less text in a pharmacology presentation...”, “....teachers should offer hands on approach lesson with more group tasks and a practical presentation of the real drugs...”

In the above statement students are trying to show how a teacher should conduct a pharmacology lesson and they reflect that a lecturer who prepares a practical lesson is more likely to achieve or promote learning. They feel that they learn better when the approach to feeding them is information has less text but more pictures together with the real drugs that are to be studied. The students also felt that group tasks promote the learning of pharmacology and medication; this encourages learning from fellow student.

The effects of a more pictorial lesson were expressed more vividly when a video showing the ten patients’ rights of medication was used in class. Students expressed satisfaction about this video through the feedback and also during the presentation. The video made the learning of the rights so effective and easy, at least almost all informants gave good feedback about the video, like *“...the video made the ten rights were very easy to understand...”* The students also felt that the presentations were very interesting because of the method used while presenting, where there was an interesting flow of ideas from one presenter to the other and the confidence with which presenters answered their questions. To the students, the ability of a teacher to discuss issues without reading a slide showed that he or she was confident and better prepared. The confidence of the teacher while answering questions and the use of a clear and simple language at the same time allowing the students to participate in the lesson was a strong factor in their evaluation of the presenter.

Student emphasized the need to have their learning simplified by the facilitator through the careful planning of learning objectives and contents in a pharmacology lesson. The student identified areas that made the facilitation easier for them to understand as being related to a well organised lesson. The lessons were organised in a way that learning objectives were introduced to them so that they knew what they would expect from the lecture within that particular time. The learning objectives provoked the students to think and imagine but also in anticipating how the current information can be connected to the previous knowledge or to that which they already know.

The objectives made the contents easy to understand and comprehend; students also suggested that more detailed content was good for them. Owing to their different learning abilities, it would help some of them to go and make revision on their own. In addition to the contents, students felt it would be appropriate if the facilitators would offer them up to date references.

Students observed that they learn best when they share knowledge with someone of the same professional background. Nursing students observed that lessons conducted by people of other professional background tend to be complicated and not exactly connected to their professional requirements as nurses. They therefore felt that it would be better to have experienced registered nurses handling pharmacology. They supported their reason by writing that since they have unique nursing responsibilities in medication; they would want to concentrate on areas that of greater importance to them as nurses; which experienced nurses are more aware of than physicians or pharmacists. Students also identified the need to have lessons based on current evidence based nursing researches compared to past researches in pharmacology. They noted that lessons conducted by nurses are proof of evidence based knowledge, as its knowledge based on their daily experiences as practising nurses. Students expressed a fear that probably facilitators who are not nurses by profession may not be in position to understand the nurse's experiences, duties and responsibilities; hence not focus on the relevant challenges that they are likely to face on a daily basis.

6.2 Supporting students' individual learning style of pharmacology

Nursing students identified and described their learning styles in many different ways, where as some felt that the style of teaching influences their learning; others showed that certain aspects of the lesson work better with them. Students wrote that shorter learning sessions with several intervals of break time promoted their learning. By this they meant that after every learning objective, they needed time to reflect on what they have learnt and possibly discuss among themselves; rather than piling a heap of information that they will never understand. Students also described the effect of promoting the learning and retention of new knowledge by spending time handling the talked about medications.

Lessons approached through the active involvement of the students were a good way for students to learn. Among the many styles that students felt work best for them was when they participated effectively in classroom discussion. Through these discussions, they were able to make learned knowledge concrete. Their views and others' contributions helped them to discover the different points of view about a concept. They also talked about group tasks, which would also be similar to learning by doing as being an effective learn style. In group tasks they talked about independent learning; that is independence from a facilitator improved their self-confidence and problem solving capacity.

In particular to pharmacology, students uniformly noted that they had learnt better whenever the lesson was interactive and the rate of giving information was slow, after a preview of the previous lesson. In addition to the rate of giving information, students felt a well prepared and well-studied facilitator influences their learning, especially if he or she can motivate the class from beginning to the end. By this, they felt that it keeps them alert and interested throughout the lesson.

6.3 Concise Contents of the Safe administration of sedative

This theme was derived from two categories after a critical analysis of raw data. The students observed that knowledge of the nurse's role and responsibility in the administration of medication of the elderly is relevant for their future practice. The sub-categories that constituted this theme includes, "support professional development by emphasizing on safe administration of sedatives" and "discussion about the non-pharmacological therapeutics". Figure 2b

While supporting own professional development on safe administration of sedatives, the students made a lot of remarkable statements which demonstrated that a careful planning of lessons can go a long way in promoting professional growth. This was promoted by the concrete knowledge from student nurse facilitators, owing to their previous practical experience in pharmacology. This became a point of interest since the nurses know the extent to which medication administration should go and also what limits are necessary to ensure safe administration of sedatives and other medication in general. In one of the students own words,

".... it is nice to have nurses teaching the topic instead of pharmacist or other professionals because nurses have nurse related experience or studies to share and also know the extent we need to know pharmacology".

To enable support of in-class professional development which becomes evident in practice and work life, most students stated clear and concise as well as interactive and practical lessons with videos and case studies in order to be acquainted with real life situation. In addition to this, a proper description of the content in the safe administration of medication is required to motivate learning.

Diving a little into how the lessons were conducted with the study of sedative, the major types were discussed into detail which includes the barbiturate and the benzodiazepines. The different types of sedatives were discussed as well as their use. Also, the pictures of these medication types were projected together with the packaging; in that sense the students got a near to real pictorial example. This was evidence in the repeated statement from the feedback as, *"barbiturates and benzodiazepines were clearly distinguished....."*

To support understanding of safe medication and the rights of patient in medication, the seven minute video was very helpful and most students expressed satisfaction of the contents and how concise it was to their understanding and professional development.

By putting the students to work so they find information by themselves develops their professional ability of information acquisition. As the trends in pharmacology keep changing with newly developed medication and treatment regiments, this skill is vital for students. Hence,

class assignments, home work, group tasks and interactive class discussions may be important tools in promoting learning this skill.

Non-pharmacological nursing therapeutic methods are basically the nursing measures other than sedative medication rendered to achieve same effects as the medication, sedative. The effects of these nursing actions include relieve of stress, promotion of rest, sleep and bringing some form of calmness and relaxation. This is similar to what sedative medication would achieve but because of the side effects and other several medication interactions, it makes the non-pharmacological therapeutic methods so important in the care of elderly clients. One feedback as quoted reads,

“...for the improvement of nursing care and client safety, alternative therapeutic nursing methods facilitated learning...”

As this was a new idea to most of the students they took time to analyse and realized that it was the most informative and that would themselves apply it in future practice. It was evident from the collected data that it supported and motivated learning.

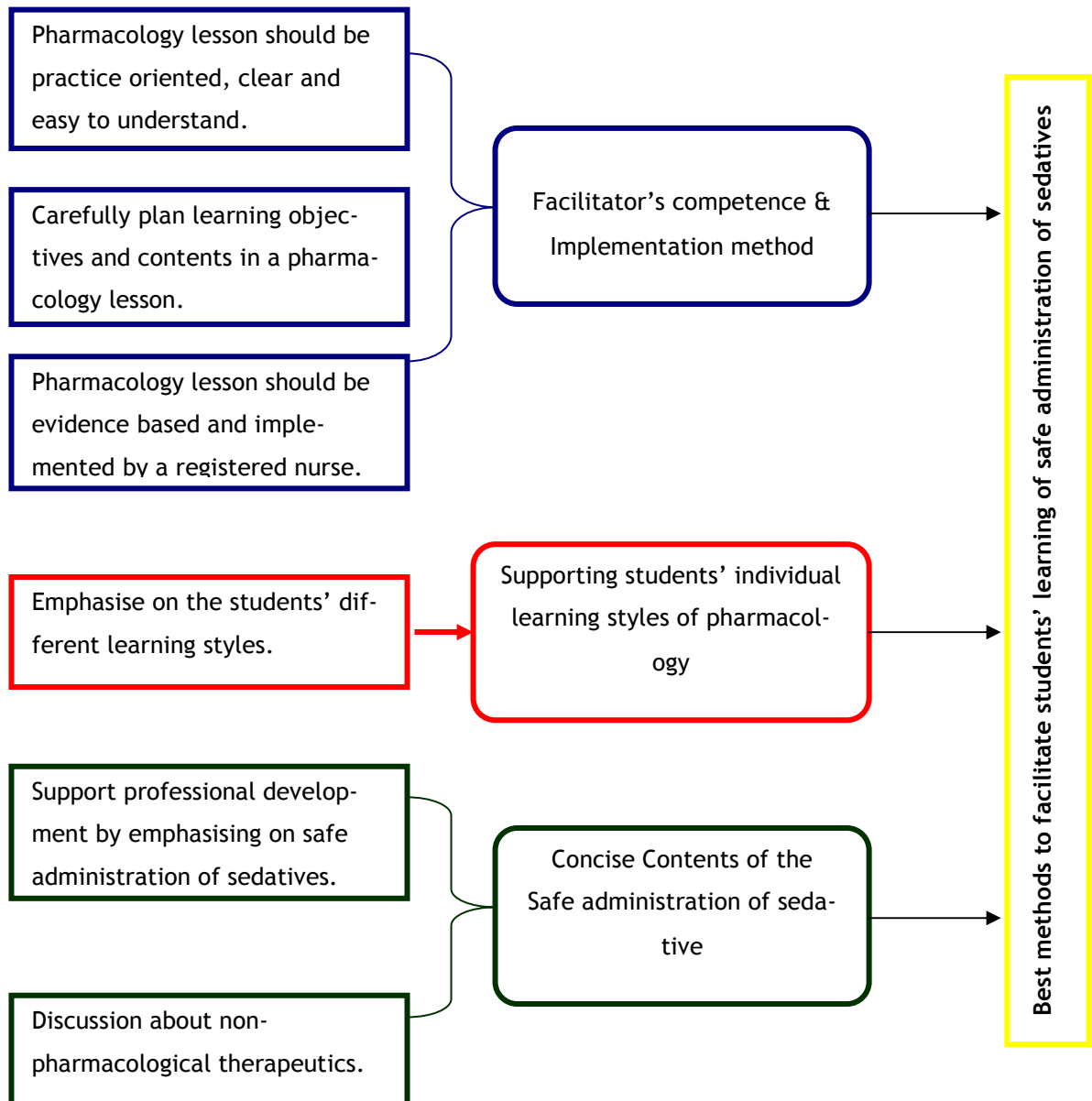


Figure 2 b, Categorization of subcategories

7 Discussion

The purpose of the thesis was to facilitate nursing students in the learning of the safe administration of sedatives in elderly care, in line with the pharmacology curriculum of Laurea University of applied sciences. As stated above, this particular thesis project was part of the bigger project at Laurea, whose aim was to enhance students' skills and abilities and also promote the curriculum of pharmacology and medication.

The research question was seeking how to facilitate nursing students in the learning of safe administration of sedatives in elderly care. The process involved organizing three two-hour learning sessions, in a real classroom environment. There was an average of fifteen students from the international degree programme group that started its studies in the autumn of 2010. At the end of every learning session, feedback was collected from the students, who acted as the informants.

The outcome of the research has been reflected in the findings section. The findings were derived from raw data from the unknown phase to the known theme; qualitatively by an inductive data analysis method. The research findings answered the research questions and at the same time new knowledge was discovered about how students learn and the styles of teaching that promote their learning.

The findings showed that almost all students were subscribing to the second category of Kolb's learning styles, which is the diverger. According to Kolb, a diverger is "one who reports that he or she learns from concrete experience and reflective experience". Students reported that although they had learnt a lot during the learning sessions, they preferred to be engaged in more practical tasks and also have more reviews in all pharmacology lessons. (McAllister et al, 1997)

Learning styles have been conceptualized in McAllister's writing as "preferential or habitual strategies one uses, in information processing while solving a problem". The research findings also indicated that students employed different strategies to learn pharmacology in particular. Students talked about retention as a very important element while they study. They clearly described their learning as that, which depends not entirely on how they learn but also on who is facilitating. Students were very particular about how the teacher's personality motivated their learning. Regardless of how one planned a lesson, other factors like the facilitator's personality, facilitator's interaction with the students as well as the facilitator's motivation and openness during the lesson contributed highly to their learning.

There were challenges in the whole thesis process; naturally students were surprised to see fellow students facilitating a learning session. In a way this compromised their attention and

ability to learn especially in the first two sessions; that's why some students did not attend the remaining sessions. When the students learnt that the sessions were an implementation phase of thesis, it compromised their focus on their learning and feedback. Some students appeared to be advising, supporting and evaluating the facilitators' work, which made it rather hard to rely on their feedback as informants. However, that notwithstanding, all the feedback information indicated their views on how they learn best.

The findings reflected that there was new knowledge gained about the effective learning of pharmacology. The findings indicated that they learnt better from fellow nursing students or professional nurses. Findings further showed that, they acquire more knowledge from the fellow students' perspective and experiences; also from the nurse professional point of view. Reflecting on the research question, this particular feedback confirmed that the students enjoyed and learned a lot from the learning sessions; this was especially evident during the discussion and the level of interaction, especially in the last lesson. Students shared their knowledge and experiences in reference to the day's topic.

7.1 Ethics

Ethics is a moral philosophy that addresses the concept of norm of conduct or beliefs, assumptions and principles by which action may be deemed unacceptable or acceptable in society. The facilitation of administration of sedative medication in elderly care craved for a consideration of both the teaching and nursing ethics from the planning to the evaluation phase of the project. (O'Neill et al 2005)

In order to achieve our project goal, there was a great need to uphold the professional expectation of a facilitator. In order to guide students from the perspective of a nurse, a good knowledge of the patient's expectations of a nurse was relevant. Professional ethics are not laws written for or on behalf of the professional rather a moral obligation that society finds acceptable or unacceptable for an individual performing a certain role. This moral obligation influences the level of cooperation with other parties but also simplifies or promotes the achievement of the intended goals. (O'Neill et al, 2005)

The professional ethics of a facilitator would mean that, the particular individual involved in this kind of activity, would without any bias plan the lesson in accordance with the curriculum in order not to mislead the students; and the process goes on through the implementation phase to the evaluation phase. It is important to remember that, the way an individual presents him or herself influences the students learning. It is therefore important to realize that every action does affect the success of a lesson. Simple actions like treating all participants equally and respecting their points of view were very crucial ethical requirements during the process of implementation. (O'Neill et al, 2005)

As a one conducts a research, it is a basic necessity to have ethical guidelines upon which any particular work can be done. Research work involves dealing with the informants' particulars and the information gathered from them. A good level of confidentiality is necessary to protect the individuals offering the information from public humiliation in case of controversial information. In case any individual's identity or information is to be made public there is need to obtain permission. The empowerment of students, informing them of their rights, offering them the ability to make independent decisions and protection of their privacy through confidentiality permission adherence; was a guiding tool in the thesis process. At the start of the lesson, the students were informed about the purpose of the research and that the information they were to give at the end of every lesson would be used to justify our findings. There was no permission sought on using any particular person's detail and for that matter all answers to questionnaires were anonymous. Prior to the starting of the project, permission was sought from the Laurea University of Applied Sciences through the teachers, who gave the go ahead by approving the Thesis contract. Further permission was sought by the teachers from the students to have them as informants, which was later confirmed before the implementation phase of the project. (O'Neill et al 2005)

The second year degree programme students of group 2010, which acted as informers, constituted nursing students coming from different parts of the world. The cultural aspect in the project was considered as ethically challenging. Societies nurture children differently and their learning or teaching styles differ considerably. While the implementation phase was done, this aspect did not influence in any way the facilitation and actually it helped offer a more diverse perspective of learning pharmacology.

The other aspect of ethics was the honesty and respect for intellectual property; this entails avoiding plagiarism and fabrication. In the whole writing acknowledgement and credit has been given to writers and scholars whose works have been a basis for this research. The whole research has been based on scientifically approved methods of data collection, data analysis and presentation of research findings. The research findings are a product of thorough interpretation of the informants' feedback and no fabrications are involved. (O'Neill et al 2005)

7.2 Trustworthiness

Trustworthiness in qualitative research is also referred to as authenticity, she illustrates that for a research to be authentic it must show that the strategies used in the research, correctly and truly report the participants' views. Among the key areas that authenticate a research were fairness to the participants, in the sense that under no circumstances can they be party to manipulation of the results .The facilitation of nursing students on the learning of safe ad-

ministration of sedative in elderly care required a high level of trustworthiness from the beginning phase of planning to data collection and data analysis. (Holloway et al, 2010)

Trustworthiness was put into practice when literature search was being done. The project was done under the curriculum of the degree programme in nursing. It was very important to work within the curriculum and in order to be relevant to the institution, the students and the research findings. The literature search based on the curriculum was done using acceptable and credible sources; this helped to make the whole procedure credible and reliable. In a case where sources are not reliable the learning session would be compromised and it would affect the outcome of the research as the student would not be able to relate well with the lesson contents; or the students' trust in the facilitators would be questionable. Lesson content was based on up to date and standard scientific knowledge and researches and not on the facilitators' points of opinion on pharmacology. (Holloway et al, 2010)

The research findings of the project have been based on the data collected, analysed and interpreted scientifically using the inductive data analysis. After collecting data from the students there was an honest and sincere procedure used in upholding confidentiality, then the collected data was coded from the raw form to meaningful themes which reflected the students' opinions. The scientific method used in the thesis process, also upheld the credibility of the research, by eliminating manipulation, fraud and fabrications of data. Since the students had been aware of the purpose of the research and that it was done by fellow students as a final thesis, it gave more confidence to the informants to openly give their opinions about the whole research process.

The implementation phases were supervised by the tutors; they helped to guide both the facilitators and the nursing student who acted as informants. The supervision made the whole process credible as it eliminated issues of using wrong information or misleading the other nursing students, hence deeming the process trustworthy.

7.3 Conclusion and recommendation

Clinical educators need to let their students know how they think in relation to the clinical education values, philosophies and reasons of the clinical models in order to achieve a successful communication with the students. The advantage of the facilitators was their previous work experience in a clinical setting similar to what was being taught. In this particular sense, there was improved communication and interest to learn in each lesson; this led to a large extent, the achievement of the purpose of the research. (McAllister L et al 1997)

Although to a large extent, the research question was answered, there were hindrances like a lack of experience to plan, implement and evaluate a lesson; especially in specialized nursing training. Challenges notwithstanding, students' feedback showed to a greater extent that the teaching of pharmacology needs extreme attention because of its sensitivity as a subject and also that they as qualified nurses were going to be in charge of administering medication to patients.

As the findings indicate, it is strongly recommended that qualified nurse practitioners with adequate knowledge and experience in medication and pharmacology be used as facilitators and implementers of learning sections.

Also, students learning styles needs to be taken into consideration while facilitating pharmacology lessons as students may have different learning styles. This will ensure that all students get the best understanding out of the lessons.

Facilitators should seek to promote interaction and as has been evident in this thesis process, utilization of the constructive method of teaching and learning could be helpful and beneficial. This may include lots of group discussions and sharing learnt experiences with fellow students, making medications available during learning sessions and utilization of audio-visuals like videos and diagrams. The above mentioned, according to the findings, helps in the facilitation of the students learning of pharmacology.

To conclude, although the findings from this study will be utilized to promote and improve the teaching of pharmacology, this particular study needs to be further researched on under different settings so as to concretely promote learning of pharmacology. Professional nurses with requisite knowledge acting as facilitators may be further researched as this may be the solution to students understanding of medication and pharmacology. This recommendation has become necessary as it was evident that, the teaching of pharmacology in general has not been satisfactory from the students' perspective, so that the findings of the current study could be well appreciated and valued.

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