MINISTRY OF EDUCATION AND TRAINING
HA NOI NATIONAL UNIVERSITY OF EDUCATION

DO NGOC THANH

ORGANIZING THE TEACHING MILITARY TOPOGRAPHY AT MILITARY UNIVERSITIES IN VIETNAM IN ORIENTATION OF COMPETENCY DEVELOPMENT

Major: Arguments and methods of teaching Geography
Code: 9140111

SUMMARY OF DOCTORAL THESIS

HA NOI - 2019

THE THESIS IS COMPLETED AT:

HA NOI NATIONAL UNIVERSITY OF EDUCATION

Supervisor: **Assoc. Prof. Dang Van Duc**

Reviewer 1: **Assoc. Prof. Nguyen Phuong Lien**

Thai Nguyen University of Education

Reviewer 2: **Pro. Dr. Nguyen Viet Thinh**

Ha Noi National University of Education

Reviewer 3: **Assoc. Prof. Ngo Quang Son**

Vietnam Academy fot Ethnic Minorities

The thesis will be defended at the University's Thesis Commission Meeting at: Ha Noi National University of Education

At: ..... date …… month ...landscape, year 2019

You can find more information about the thesis at:

- National Library, Ha Noi,
- Library of Ha Noi National University of Education.

LIST OF SCIENTIFIC STUDIES OF AUTHOR RELATED TO THE THESIS

1. Do Ngoc Thanh (2008), topic *"Some solutions to improve the quality of Military topography training,"* 1st Army Officer School
2. Do Ngoc Thanh (Editor) (2009), *Military topography textbook, volume 1*, 1st Army Officer School
3. Do Ngoc Thanh (2010), *Improving the quality of study on Military Topography*, Journal of Army Military Science, (quarter 2/2010) pp. 105-107.
4. Do Ngoc Thanh (2014), *Applying replication and creativity to teaching Military topography*, Journal of Army Military Science, (quarter 2/2014) pp. 42-44.
5. Do Ngoc Thanh (2015), *Applying active teaching methods to teaching Military topography*, Journal of Army Military Science, (quarter 2/2015) pp. 117-119.
6. Do Ngoc Thanh (2016), *Solutions to improve the effectiveness of teaching-learning the Military topography at Tran Quoc Tuan Military University in the orientation of students' competency development*, Summary Record of National Geography Science Conference IX, Quy Nhon University, December 2016, pp. 989-996.
7. Do Ngoc Thanh (2017), *Reforming the teaching methods of Military topography at the Military University in the orientation of competency development*, Journal of Educational Equipment, 159 (2/20/2017) p. 45 -47.
8. Do Ngoc Thanh (2018), *Solutions to promote positive awareness in teaching military topography at Military Universities in the orientation of competency development*, Journal of Educational Equipment, No. 160 period 1 (01/2018) pp. 29-31.
9. Do Ngoc Thanh (2018), *The process of teaching military topography at Tran Quoc Tuan Military University in the orientation of competency development*, Summary Record of National Geography Science Conference, Da Nang University, April 2015, pp. 1537-1545.

INTRODUCTION

1. Rationale of this research

Military topography is the subject of studying and applying topography to military activities in order to improve the effectiveness of the use of forces, weapons and means of combat. Topography is an important factor that all soldiers must grasp and consider carefully when preparing and practicing combat. Knowledge of military topography is the basis for specialized military studies to assess and apply to the specific conditions of each tactical form in combat training.

In recent years, military schools have attached considerable importance to equipping students with the basic knowledge of military topography, creating a basis for their application in training and combat. However, in practice, it can be seen that the quality of teaching military topography still has limitations, the application of knowledge of students in the process studying at the school in the military activities is short of flexibility , has not met the high requirements of the task of training, ready to fight and fight to defend country in the new situation, the method of teaching is still the main method of presentation, which is not used modern teaching methods to promote self-reliance, self-reliance and creativity of learners, the attachment of teaching content with practical situations has not been paid much attention, teaching through practical activities are rarely conducted, the competency to apply interdisciplinary knowledge to tackle complex problems associated with practice has not been appropriately addressed.

Based on the aforementioned reasons, with the responsibility of a lecturer, I would like to make a small contribution to the success of the innovative process of teaching methods, so I chose the topic **"Organizing the teaching of military topography in Vietnam's Military Universities in the orientation of competency development"**. The thesis contributes to renovate teaching methods, improve the quality of teaching and learning military topography at the Military Universities in Vietnam.

2. Research purposes and tasks

2.1. Research purposes

Proposing the process and solutions to organize the teaching of military topography at Vietnam's Military Universities in the orientation of competency development in order to raise students' activeness, initiative, creativity and competency development in their study, contributing to improve the quality of teaching the military topography subject at the Military Universities in Vietnam.

2.2. Research tasks:

To achieve the aforementioned targets, the topic should address the following tasks:

- Studing the theoretical and practical basis of teaching military topography

subject at Vietnam’s Military Universities in the orientation of competency development.

- Identifying the competency students need to gain after studying Military Topography at Military Universities in Vietnam

- Proposing the process of teaching of military topography subject at the Military Universities in Vietnam

- Identifying measures to organize the teaching of military topography at Vietnam's Military Universities to develop the students’ competency.

- Designing and organizing some lessons in military topography at Vietnam’s Military Universities in the orientation of competency development.

- Conducting experiments to verify the feasibility and effectiveness of research topics

- Conducting conclusions and recommendations of organizing the teaching of military topography at Vietnam’s Military Universities in the orientation of competency development.

3. Subjects and scope of research

3.1. Research subjects

Studying the process and methods of organizing the teaching of military topography at Vietnam's Military Universities in the orientation of competency development.

3.2. Research scope

- The research focuses on the development of the process and methodology of teaching Military Topography at Military Universities in Vietnam in the orientation of competency development.

- Investigating and surveying the teaching of military topography in the direction of competency development at four officer schools (1st Army Officer School, Political Officers, Task Force Officers, Artillery Officers), Three academies (Border Patrol Academy, Logistics Academy, Air Force Aerospace Academy) having military topography subject.

- Experimental pedagogics at 1st Army Officer School, Political Officers and Logistics Academy.

4. Scientific hypothesis

If proposing process and measures to organize the teaching of military topography at Vietnam’s Military Universities is suitable, responding the requirements and principles of pedagogy, the positivities, activeness, creativity will be promoted, this lead to the formation and development of the competency of students to improve the quality of teaching military topography in military universities in Vietnam.

5. Overview of research issue:

5.1. In the world

5.1.1. The studies on the teaching of military topography in the world

Several researches on military topography in the world have been conducted, mainly concentrated in books written in Russian including Adrian Crem, Andrey Polosopoulos, Ilia Buno, Levantit Sundesop, ViacheQuantityav Rödölöp, V. Sokolov, Vladimir Ulianski, Psarep AA, Kovalenkô AH, Kuprin AM, Pirnak BI. These authors provide quite comprehensive topographic studies such as: Overview of military topography; opinions about military topography; application of underground topopraphy to military operation; constructing tactical topography; military topography, military topography analysis. In-depth studies on teaching organization, teaching methods have a handbook called Military topography belonged to many authors such as A.M. Gôborôkhin, A.M. Kuprin, M.B. Gamezo. This is a handbook about military topography that briefly introduces methods using topographic maps, the order of steps using maps in the field, patterns of topographic maps, scripts, symbols and how to read the map.

The book was written in English by Edwin Alvin Root, Montague. William Edward Richards, Douglas R. Caldwell, Judy Ehlen and Russell S. Harmon. The authors have provided quite comprehensive information on topographic studies such as: military topography; views about military topography; application of underground terrain in military operation; constructing tactical topography; topographic reconnaissance; military campaigns in tropical weather; Hudson plateau's military topography; military topography analysis ...

The studies of the authors all over the world has affirmed the importance of military topography subjects, deep knowledge of military terrain, very few authors mention the method of teaching military geography.

5.1.2. Studies on the direction of competency development

Typically, there are several considerable examples of these authors: I.Ia.Lecne, MIMacmutov, MNXcatkin, V.Okons, Xavier Roegiers, Vikotoxki, XIKixegof, Abdullina, Gonobolin,…that have become strong theoretical and empirical system in forming learners with the essential vocational skills through teaching at school.

Through researches, educators have a very basic and comprehensive view of the training process at schools, all of which insist on the development of essential capacities for learners in the organization of teaching process. On the basis of operational psychology, psychologists and educators have shown how to organize the most popular activities to form capacities for learners not only in vocational training and university education but also in education in the military.

In fact, up to now, there have not been any researches on the issue of organizing teaching in the direction of developing competency in military topography subject. This is a issue that needs to be developed in the university education.

5.2. In Vietnam

5.2.1. Studies on Teaching Military topography in Vietnam

In current time, the study of military topography mainly focuses on the Department of Map - General Department of Defense. The group of academies, schools compile curricula, teaching materials suitable for each school. The book, edited by the Department of Map – General advisory Staff department, has military topography based on the Soviet Red Army's military topography through a Chinese tranQuantityation. This is the first military terrain document published by the People's Army in Vietnam. In 2009 the Department of Map – General advisory Staff Department was reprinted for the third time to respond to the development of military science, military arts and science and technology. This is the material for teaching, training subjects. Military topography in military academies, units in the army, so the knowledge for multi objects is organized widely and is not able to respond to the learners at the army schools.

Materials and textbooks Military topography at the schools, academies compiled in detail with 1st Army Officer School, volume 1 Military topography by Do Ngoc Thanh (editor), volume 2 by Vo Cong Tam (editor), the author presents in detail the essential general knowledge to equip the advisory officer.

2nd Army Officer School, Artillery officers, Special Forces officers, Political officers, Air Defense Academy, Logistics Academy, Military Academy, Military Medical Academy, Military Academy also compile book about the military topography to serve the school's majors.

The researches of the schools have the topic of improving the quality of teaching the subject of military topography by Vo Cong Tam, head of the Ministry of Defense. Basic research topics at 1st Army Officer school, Artillery Officer, Border Guard Academy basically study on improving the quality of teaching military and military topography and applying informative technology to teaching.

5.2.2. Studies on the direction of competency development

In teaching organization, vocational training, professional development for learners have several careful researches in the orientation of competency development such as. Dang Van Duc and Nguyen Thu Hang; Nguyen Huu Chi; Bui Van Quan ... In the army, Le Minh Vu, Mai Van Hoa, Bui Hong Thai and Le Hong Thai have mentioned basic solutions to self-study methods for learners training in the military schools, the construction and use of teaching situations in

the social sciences and humanities at military universities, the direction of applying the teaching methodology to promote the positive awareness of students of military academies.Therefore, some definitions, viewpoints on practical competency as well as practical training have been clarified. These studies, however, focus solely on the vocational curriculum but have not been extended to the higher education sector, especially the specific university training environment as in the military. In conclusion, this research aims to clarify the theoretical issues and propose the direction of teaching organization towards the development of competency of learners as well as trainees to become officers, contributing to the improvement the quality of training in the army.

6. Research viewpoints and methodologies

6.1. Viewpoints

Topics have viewpoints such as system - structure perspective, practical perspective, teaching perspective, competency development, teaching technology perspective.

6.2. Research Methods

Topics use a variety of methods such as: Methods of analysis of materials, methods of observation, methods of survey investigation, expert methods, mathematical statistical methods, experimental methods of pedagogy.

7. New contributions of the thesis

7.1. Theory side:

- Contributing to clarify the theoretical basis of teaching the subject of military topography at the Military Universities in Vietnam in the orientation of competency development.

- Introducing the principles and requirements for the organization of teaching military topography at the Military Universities in Vietnam in the orientation of competency of development.

- Identifying the specific capabilities of the subject of military topography should be formed, developed for students.

- Proposing the process of teaching military topography at the Military Universities in Vietnam in the orientation of competency development.

- Proposing solutions to organize the teaching of military topography at Vietnam’s Military Universities in the orientation of competency development.

7.2. Practical sides:

- Surveyed and investigated the actuality of teaching military topography at some military universities in Vietnam.

- Formed and required a number of lessons in military space geared towards the development of student competency.

- Verified the effectiveness and feasibility of organizing the teaching of military topography at Vietnam's Military Universities in the orientation of competency development.

- Conducted conclusions and recommendations of organizing the teaching of military topography at the Military Universities in Vietnam in the orientation of competency development.

8. Structure of the thesis

Apart from the introduction, conclusion, references, tables. The main contents of the thesis are presented in three chapters:

Chapter 1: Theoretical and practical basis of the teaching of military topography at military academies in Vietnam in the orientation of competency development.

Chapter 2: Processes and Measures to Organize the Teaching of military topography at military universities in Vietnam in the orientation of competency development

Chapter 3: Experimental Pedagogy

Chapter 1
THEORERICAL AND PRACTICAL BASIS OF THE TEACHING OF MILITARY TOPOGRAPHY AT MILITARY ACADEMIES IN VIETNAM IN THE ORIENTATION OF COMPETENCY DEVELOPMENT

1.1. Issues of higher education

1.1.1. Orientation for higher education reform in Vietnam

1.1.2. Renewal of higher education at military universities in the orientation of competency development

1.2. Competency and education in the orientation of competency development

1.2.1. Competency

1.2.1.1. Definition

Competency is a term used both in science and in everyday language. Competency originated in Latin "Competentia", meaning "awareness" or "responsibility". Today, the definition of competency is understood in several different ways.

According to the Vietnamese dictionary: "Competency: One is the competency, subjective or natural condition available to perform an activity. Second is the psychological and physiological qualities that give people the competency to complete a certain activity with high quality. According to the Education Dictionary: "Competency is the ability formed and developed, enabling people to achieve success in a physical, mental or occupational activity."

1.2.1.2. Model structure of competency

1.2.1.3. Some features of competency

1.2.1.4. Classification of competency

- General Competency Group
- Specific Competency Group (Specific Competency)

1.2.2. Education in the orientation of competency development

1.2.2.1. Competency Development

1.2.2.2. Advantages of education the orientation of competency development

- Regarding learners as center.
- Objectives to meet the requirements of occupational activities.
- Real life direction, occupational activities.
- Flexibility and dynamic.
- Competency is formed in the learners clearly.

1.2.2.3. Some issues to be aware of when teaching in the orientation of competency development

1.3. Objectives and contents of the course curriculum, features and importance of the military terrain subjects at the military universities.

1.3.1. The role of the military topography at military universities

Military geography is a military science course that studies the use of topography in military activities to improve the effectiveness of the use of forces and weapons of war.

1.3.2. Objectives of the military topography curriculum

1.4.2.1. General objective

After finishing the course, students have the competency to: Read, understand the military map; use command means, determine the coordinates, target indications, use maps on the field, to manipulate azimuth, to draw topographic maps, to cover the map and to understand digital maps; to be used as a combat plan, to conduct combat missions; assess and study topography for training, combat.

1.4.2.2. Specific objectives

- Collecting pieces of topographic map, reading, understanding map sign, land sign, etc., for the purpose of advisory.
- Using the coordinates, cell 4, cell 9, precise coordinates up to meters, coordinates.
- Using geographic areas, binoculars, command gauge, GPS satellite positioning and mapping.
- Using maps in the field, moving azimuth, drawing topography, embankments.
- Using flexibly of knowledge in the field of advising, planning combat.
- Assessing of topography studies through maps and field exercises for combat training.

1.3.3. Course curriculum contents

Military topography course of Tran Quoc Tuan University

Total periods of 100% including: Theoretical 21.6%; practical day: 68.8%; practical night: 6.6%. Examination, test: 08 periods (writing test: 02 periods, practical exam: 06 periods)

1.3.4. Features of military topography

- Subject knowledge of military topography is highly integrated
- Use of modern topographic facilities in teaching process
- The subject knowledge is closely related to each other and is related to a number of other subjects, especially the academic subject
- Flexible and creative teaching organization and methods
- Subject knowledge Military terrain is only provided at the school level division

1.4. Features of psychological and cognitive level of learners

1.4.1. Psycho-physical features

Students who have already graduated from high school and passed the entrance examination under the university regulations. From age 18 to 23 with

personality shaping, students have a great change in psychology, physiology. They are able of quick perception, understanding, sociability, having political qualities, ethics, lifestyles, good cognitive competency, personality is the development period to become military officers.

1.4.2. The level of awareness of the students

Learners have the right sense and attitude about learning tasks, so their learning needs increase. Students are interested in the subject because the subject is related to the career of the students in the future. Learners need to be aware of the objective world, the need to communicate very well with friends, develop the ability to assessment and self-assessment.

1.5. Actuality of teaching military topography at military universities

1.5.1. Teacher Staff teaching military topography

1.5.1.1. Teaching staff

1.5.1.2. Methods of teachers

Through modern means, lectures and photos designed, imitated according to the intention, the content have highly artistic presentation, help the lecturer more visual presentation. 100% of applied lecturers have applied ICT to their teaching.

1.5.2. Research methodology of students

Basic learners have the appropriate learning methods for new positive teaching methods. Many students have the ability to think well, to apply their knowledge to the subject in not only military space but also other subjects in particular.

1.5.3. Method of examination, test and assessment of learners' learning results

The school has taken steps to study, renovate the method of examination and final examination subjects for students, organize examinations, seriouQuantityy examine, assess the results of the students objectively and honestly. After completing the course, organizing the test and assessing the learners' results by using question and answer method, combined with practical examination in the field. The assessment of students' basic learning results has been objective, accurate and honest.

1.5.4. Materials, textbooks, facilities, teaching and learning equipment for the subject

1.5.4.1. Materials, textbooks

1.5.4.2. Facilities

1.5.4.3. Specialized classroom, gymnasium, training ground

Summary of Chapter 1

1. Currently, the innovation of university teaching in general and in military academies in particular in the orientation of competency development is an important task in order to meet the basic reform requirements of comprehensive education education in our country.

2. In all over the world and in Vietnam, there have been many researches on innovating teaching methods in the orientation of competency development, but the renovation of teaching the subject of military topography at military universities in Vietnam in the orientation of competency development is a new issue.

3. The theoretical studies in the orientation of higher education reform, in the orientation of the renovation of military universities as well as the research on competency and education in the orientation of competency development have created the basis for author to have a theoretical basis to solve the problem of the thesis.

4. Regarding the practicality of teaching the subject of military topography at military universities in the orientation of developing these competency, the physiological and cognitive characteristics of military cadres. Basic issues of military geography such as topography, characteristics, significance of the subject in the training of commanding officers at the division level, objectives and content of the subject.

5. The results of the survey study on the actuality of teaching the military topography at military universities in the orientation of competency development show that the content and training programs are relatively well suited. At the same time as the training program, schools have regularly updated new developments in the mapping industry for teaching, meeting the requirements of training and fighting in the war for protection country.

Chapter 2

PROCESSES AND MEASURES TO ORGANIZE TO TEACHING OF MILITARY TOPOGRAPHY AT MILITARY UNIVERSITY AT VIETNAM IN THE ORIENTATION OF COMPETENCY DEVELOPMENT

2.1. Principles and requirements for teaching the subject of military geography in the orientation of competency development

2.1.1. Principles of teaching the subject of military topography

2.1.1.1. Ensuring science

2.1.1.2. Ensuring the objectives of the course

2.1.1.3. Ensuring the positive effect of the students

2.1.1.4. Ensuring practicality

2.1.1.5. Ensuring the effectiveness and feasibility of measures

2.1.2. Requirements for organizing the teaching of military topography

2.1.2.1. The content of the program is suitable with the target subjects, training requirements

2.1.2.2. Closely aligned with other subjects

2.1.2.3. Combination between theory and practice, between tradition and

modern

2.1.2.4. Putting practical knowledge into practical activities of the unit

2.2. Identifying of the specific competencies of the subject of military geography should be formed, developed for students

2.2.1. Competency of reading maps

Map reading competency is the competency to understand map content through symbol systems and mapping methods, and to understand and analyze the relationships of symbol systems on the map with real geography. The ability to read the map in the understanding of the language of the map is not just the name of the symbol, but also the relationship between the space and the time of the system of symbols indicated on the map. The basis for learning the next lessons is the ability to read and analyze maps, regarded as a key, essential skill that needs to be developed right from the subject of military geography.

2.2.2. Competency to measure, determine the coordinates of the target

Making measures based on the map showing distance, area, find altitude, elevation, gradience. The map is based on a mathematical basis, so it is based on it to determine the coordinates of the target on the map as well as in the field.

2.2.3. Competency to use maps in the field

The competency to use maps in the field is one of the most significant contents in the subject of military topography. The objective of the course is to determine that the trainees must use the maps in the field to inform the staff of the study on the topography, determine their competency to observe. Based on that, it is determined that the battle plan is correct, simulately combile the combat documents help the battle leader to win.

2.2.3.1. Skills to determine direction

2.2.3.2. Skills to determine standing points in the field on the map

2.2.3.3. Skills to identify topography, area on the map and in the field

2.2.3.4. Skills to add topographic factors in the field to the map

2.2.4. Mobility in the field

Mobility in the field is that learners follow the map to reach the target or gathering location required by combat missions. At higher levels of mobility, no maps are required but are prepared in advance on the angles and directions to reach the target or gathering location required by combat missions.

2.2.4.1. Skills to mobility according to map

2.2.4.1. Azimuthal movement skills

2.2.5. Fitting model competency:

Fitting model is based on a map or diagram to show the shape of a land, topography or area of a certain area, in a certain proportion, often larger than the map, diagram. It is a model of the shape of the land, topography in a certain area.

2.3. The process of teaching the subject of military topography in the orientation of competency development

To organize the teaching of military topography at military universities in the orientation of competency development, the following process should be organized:

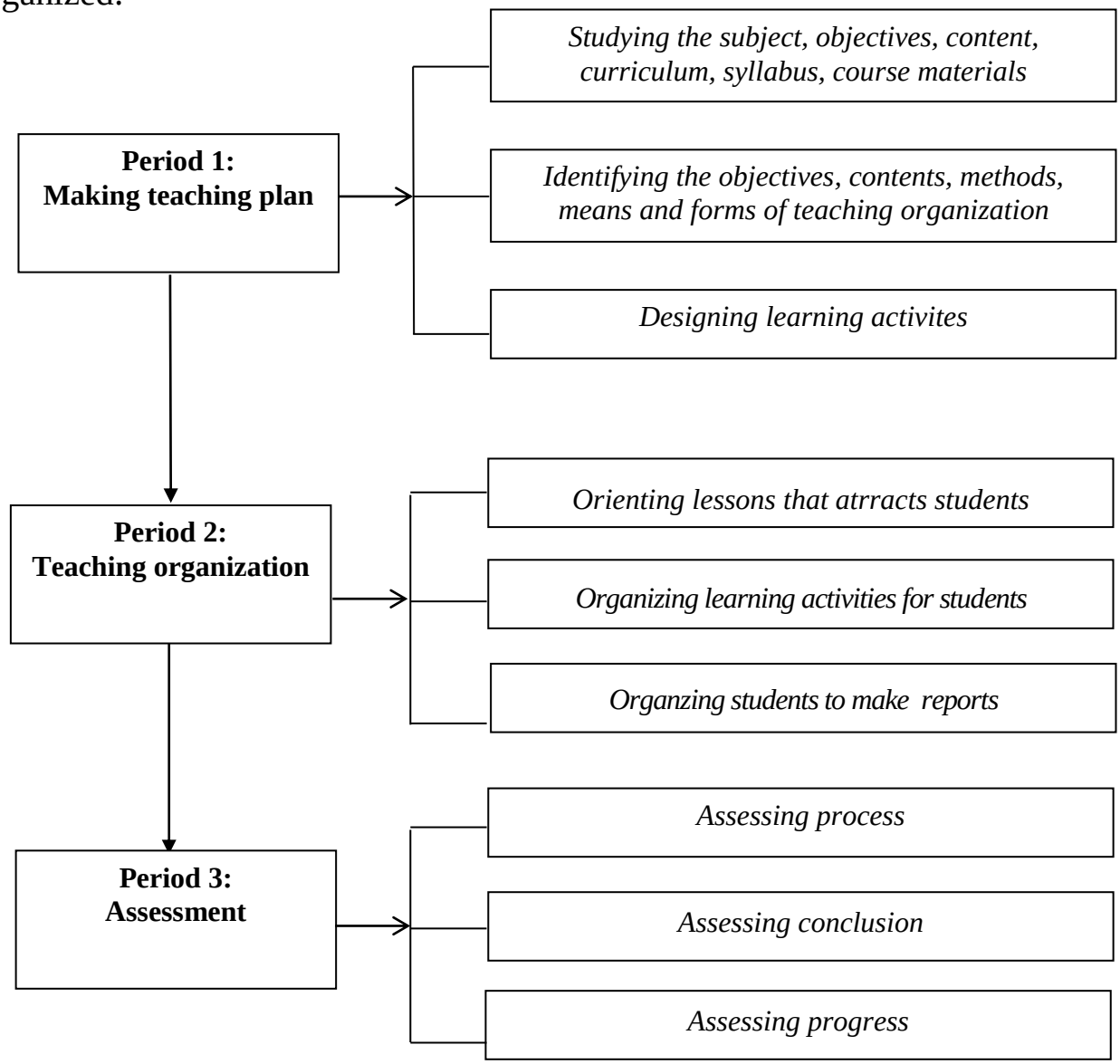


Diagram 2.1: The process of teaching organization the subject of military topography in the orientation of competency development

2.4. Solutions to teaching organization the subject of military topography in the orientation of competency development

2.4.1. Increase the use of active teaching methods

2.4.1.1. Map method

a) Meaning

b) Impacts

c) Applying mapping method to develop skills and capabilities

- Read the map
- Define directions on the map
- Determine the coordinates

- Measure the area according to the map
- Measure the altitude on the map

2.4.1.2. Problem-solving teaching

2.4.1.3. Situation-based teaching

2.4.1.4. Teaching project

a) Definition

b) Features of teaching the project

c) Manipulation in teaching military topography

Example: Embankment can be taught by the project, the product is a platform for combat. The lesson is built in 5 steps

2.4.2. Increasing the application of information and communication technology to teaching

2.4.3. Increasing field practice

Improving the practical ability should first focus on the training stages, the basic operations, on the basis of which gradually increase the ability to manipulate, apply to the specific conditions of the terrain, weather, do The learner is proficient in the use of maps, topographic maps and topography studies through maps, step by step acquiring knowledge, transforming the knowledge of the learners into learners' knowledge, then flexible application to real combat training.

2.4.4. Fostering self-study method for learners

2.4.5. Innovative assessment assessments in officer training for competency development

2.4.5.1. The purpose of the evaluation test

2.4.5.2. Examining the results of study in the orientation of competency development

2.4.5.3. Methods of assessing the results of study on military topography in the orientation of competency development

a) Examining self-study writing

b) Objective multiple choice testing

c) Answering questions

2.4.5.4. Innovate the assessment of results of study on military topography in the orientation of competency development

a) Renovation of exam questions according to competency assessment

b / Renewing the practical examinations

c / Renewing the evaluation of learners' resuts

2.5. Design and organization of a number of lessons in military topography in the orientation of competency development

2.5.1. Design Perpendicular Coordinates lessons

2.5.2. Design practical lesson on the map

2.5.3. Design embankment lesson

Summary of Chapter 2

1. It is essential to have a rational, strict and effective teaching process to improve the quality of teaching military topography at Vietnam's military academies in the orientation of competency development, Through this process, the quality of teaching subjects will be improved, contributing to the improvement of the training quality of the school.

2. When organizing the teaching of military topography at Vietnam's military academies in the orientation of competency development, the requirements and principles must be guaranteed.

3 The thesis has identified the specific competencies of the subject to be formed and developed for the students, which is also the basis for the lecturer when compiling lectures to determine the purpose of the lesson.

4. The thesis has studied the renovation of teaching methods in the orientation of learner-centered teaching; applying teaching methods flexibly, combining harmony between modern and traditional methods, promoting modern means effectively. In addition to the basic practices, instructors need to guide, guidance the method of map research, topography, step by step improve the ability to apply to the actual training conditions .

5. The thesis also mentions the method of study for learners. It should promote learner self-motivation and self-efficacy, renew teaching method in terms of the development of self-efficacy, actively research and give exchange, discuss, practice . Refresh the method of examination, examination and evaluation of learning results of learners.

6. The thesis has selected the design of 3 lectures demonstrating the features of the subject in the orientation of competency development. The square of the coordinates shows the problem-solving and problem-solving method, the use of maps in the field, the problematic problem solving method, the embankment is applied to teaching method.

Chapter 3
EXPERIMENTAL PEDAGOGY

3.1. Purposes and experimental tasks

3.1.1. Purposes

- Experimental pedagogy to assess the feasibility of teaching the subject of military space at military university in the orientation of competency development.

- From the results of practical teaching, it will prove the practical, objective and scientific value of teaching the subject of military space at the military university in the orientation of competency development.

3.1.2. Experimental tasks

- *Developing an experimental plan:*
- *Experimental organization:*
- *Assessment of experimental results:*

3.2. Experimental principles

- The experimental contents must ensure with the regulations of the Ministry of Education and Training.
- Experimental lectures must ensure the correct contents of the program.
- The process of experimentation and processing of experimental results must be objective, truthful and experimental results shall be analyzed according to the mathematical statistical method.

3.3. Experimental method

3.3.1. Selecting the experimental method

- Conducting experiments in 2 classes (platelets), which are taught traditionally for the control group and teaching organization in the orientation of developing the competency for the experimental group.
- After each experimental lesson, the quality of learning of learners in both classes of experimental and control will be examined objectively. The test content consists of checking the knowledge, skills, attitudes and competencies of the students after each lesson.

3.3.2. Method for assessing experimental results

3.3.2.1. Measure and data collection

- Developing tools to measure empirical results.

Each article builds five criteria for assessing competencies by increasing levels. Scoring the weight criteria from 1 to 5. Each criteria is at 4 good, moderate, average and weak, weighted points according to table 3.1.

Table 3.1. Graded according to points and graded rating criteria

Level	**Criteria 1**	**Criteria 2**	**Criteria 3**	**Criteria 4**	**Criteria 5**	**Ranking**
Good	4	8	12	16	20	46-60
Moderate	3	6	9	12	15	31-45
Average	2	4	6	8	10	16-30
Weak	1	2	3	4	5	15

- Conducting measure and collecting experimental results:
- Conducting and analyzing experimental results: Using the independent T-test to compare the average of values of the two groups of experimental and control and the degree of impact. In the T-test, we normally calculate P, where P is the probability of occurring randomly, usually the P-factor is P <= 0.05. (P is explained as follows. P <0.05 was not significant).

3.3.2.2. Reviewing and assessing the experimental results, drawing conclusions about the feasibility and effectiveness of research topics.

- Quantitative assessment: Using mathematical statistics and software Excel, SPSS 20 to process data after experiment.

- Qualitative assessment: Through time, exchange with experimentalsubjects and through student work. Comment on the mentality, attitudes and sense of learning of the trainees through the results of processing questionnaires for the trainees and the opinions of the trainers.

3.4. Experimental process

3.4.1. Experimental preparation

3.4.1.1. Selecting experimental content

Choose 3 experimental assignment including both theory and practice: Quadrangular coordinates, Practical use of maps in the field, embankment

3.4.1.2. Selecting the experimental object

Trainees of 3 schools, Logistics Academy, Tran Quoc Tuan University, Nguyen Hue University. Each two-layer classroom experimented with a control class, subjects of Army, Politics, and Logistics majors.

3.4.1.3. Select the experimental site

1. Tran Quoc Tuan University, Co Dong , Son Tay, Hanoi
2. Nguyen Hue University, Bac Ninh City, Bac Ninh Province
3. Logistics Academy, Ngoc Thuy, Gia Lam, Hanoi

3.4.1.4 Experimental time:

The experiment will be conducted in 2017-2018 in three schools, Logistics Academy, Military Academy,1st Army Officers School.

3.4.2. Experimental organization

Lesson 1: Perpendicular coordinate lectures taught in 3 schools.

Lesson 2 and Lesson 3: Lecturer at Tran Quoc Tuan University.

3.4.3. Experimental results

3.4.3.1. Quantitative assessment results

a) Synthesis of knowledge test results after 3 tests and tests in 3 schools

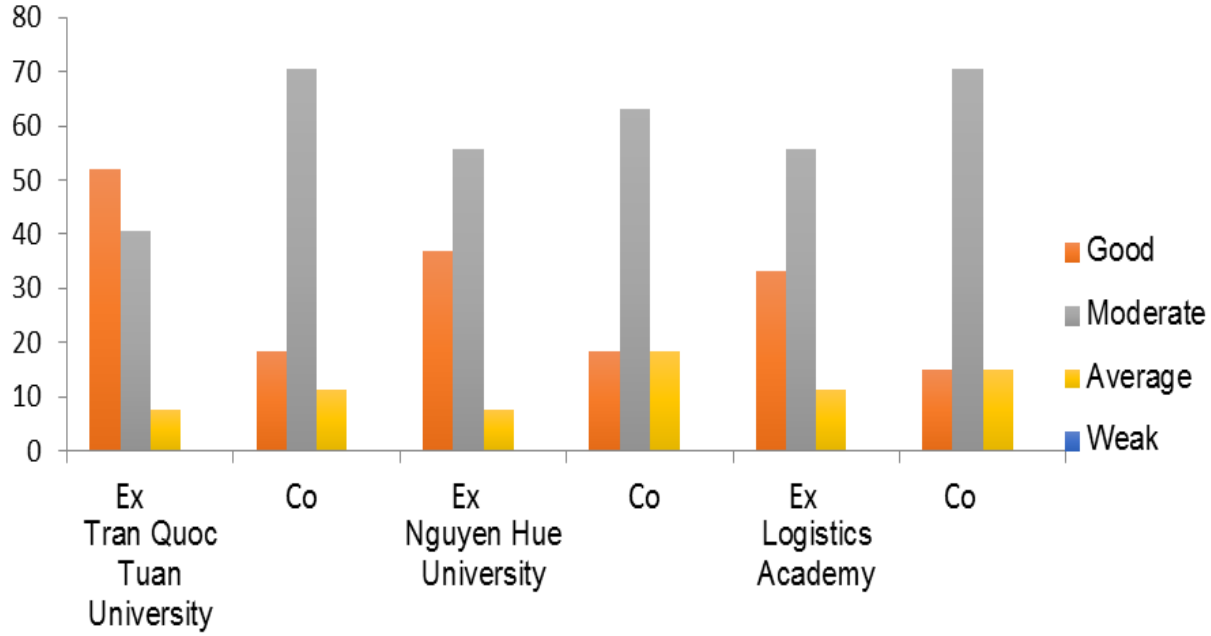
Table 3.2. Summarizing the test results of the experimental classes and the control classes of the three schools

Experimental school	**Class**	**Number of students**	**Score**							$\overline{X}$
			4	**5**	**6**	**7**	**8**	**9**	**10**	
Tran Quoc Tuan University	Ex	27	0	0	2	5	6	9	5	8.4
	Co	27	0	0	3	11	8	4	1	7.6
Nguyen Hue university	Ex	27	0	0	2	6	9	7	3	8.1
	Co	27	0	1	4	11	6	4	1	7.4
Logistics Academy	Ex	27	0	0	2	7	8	7	3	8.1
	Co	27	0	1	3	12	7	3	1	7.4
Total	**Ex**	**81**	**0**	**0**	**7**	**18**	**23**	**22**	**11**	**8.1**
	Co	**81**	**0**	**2**	**10**	**34**	**21**	**11**	**3**	**7.5**

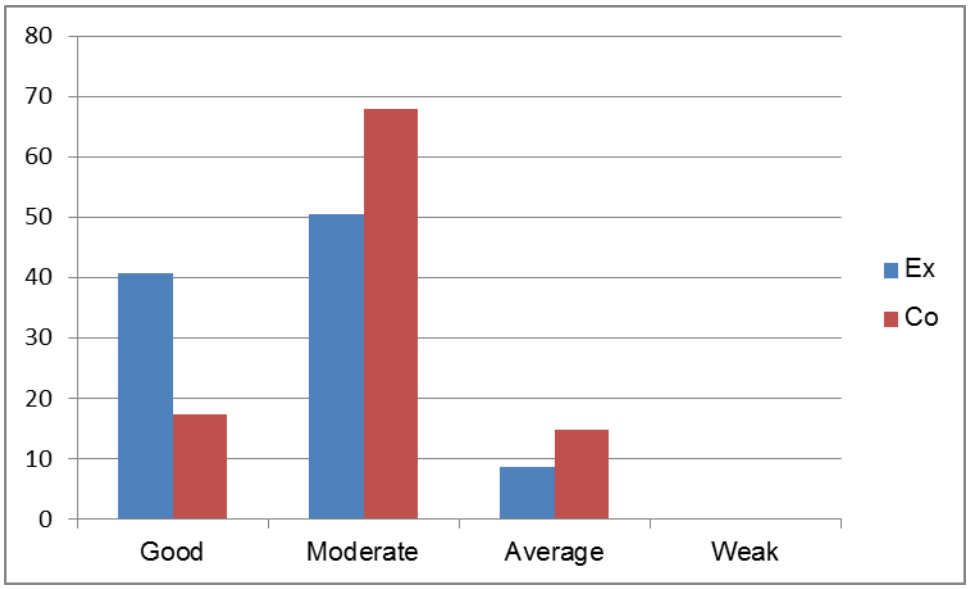
Table 3.3. Synthesis table according to % of test results of the experimental classes and the control classes

Experimental school	Class	Number of students	Result %			
			Good	Moderate	Average	Weak
Tran Quoc Tuan University	Ex	27	51.9	40.7	7.4	0
	Co	27	18.5	70.4	11.1	0
Nguyen Hue University	Ex	27	37.0	55.6	7.40	0
	Co	27	18.5	63.0	18.5	0
Logistics Academy	Ex	27	33.3	55.6	11.1	0
	Co	27	14.8	70.4	14.8	0
Total	Ex	81	40.8	50.6	8.6	0
	Co	81	17.3	67.9	14.8	0

The results of the pendicular coordinate test of the three schools show the differences between the control and experimentalclasses. The average of the three schools is 8.1 and the grade of the control class is 7.5 (Table 3.2). Analysis of the results of each school according to the statistics in Table 3.3 shows that the good grades of experimentalclasses are higher than that of the control group and the average experimentalclass is lower than that of the control class.



Graph 3.1. Comparison of results between the experimental classes and the control classes classes in 3 schools

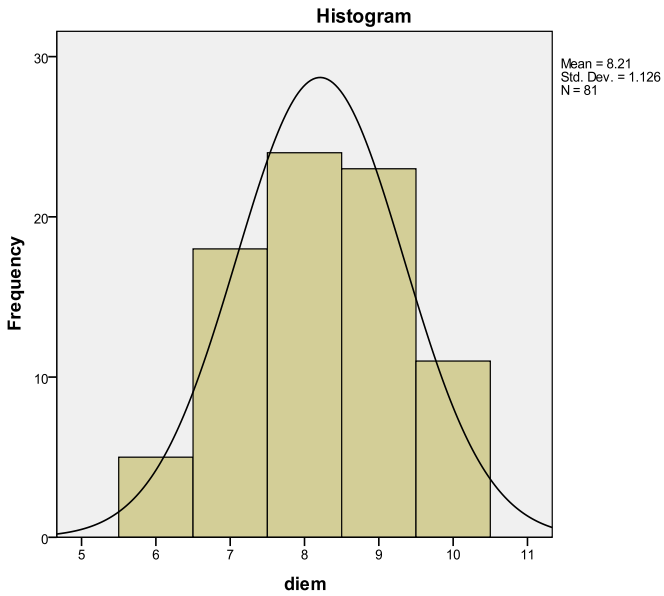


Graph 3.2 The experimental result at 3 schools

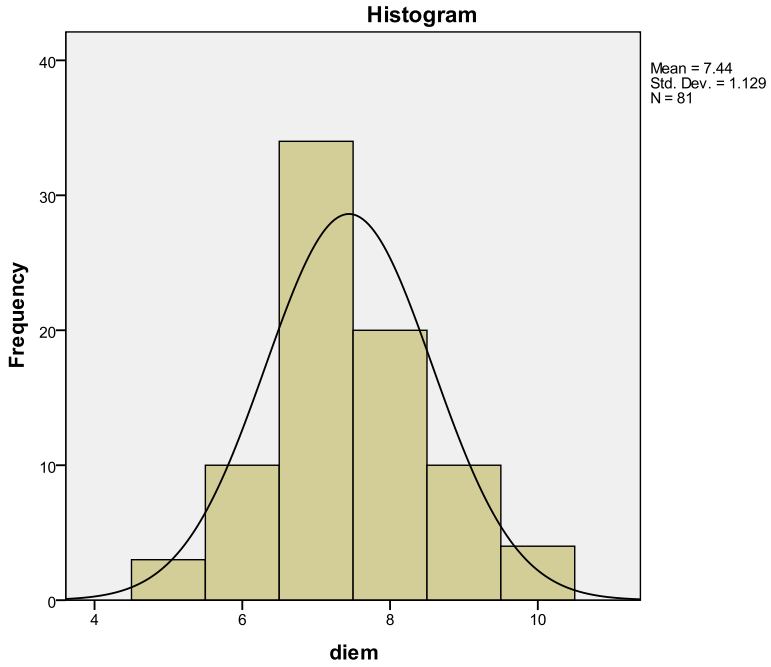
The graph shows the result between experimentaland control at 3 schools, it can be seen that Tran Quoc Tuan University has the best result, the highest "good", the lowest "average". All of three school of class experimentalof "good" increase, the average decrease more than control class. The final result of 3 schools about knowledge of using pendicular coordinate, the "good" has increased, the study quality of students has improved.

Table 3.4. Parameters to testing the results after experiment

Class	Min	Max	Moderate	Mode	Standard deviation
Experimental class	6.0	10.0	8.21	8.0	1.126
Control class	5.0	10.0	7.44	7.0	1.129



Graph 3.3. Graph of score distribution of experiment class



Graph 3.3. Graph of score distribution of control class

The statistical values of Table 3.7 show the difference of experimentalclasses and control classes, representing a minimum score of experimentalclass is 6.0, control is 5.0; average grade of experimentalclass is 8.15, control class is 7.47; concentration of the experimentalclass is 8.0, control is 7.0

b) Summary of results of competency assessment after 3 experimental exercises

- Pendicular coordinate exercise

Table 3.5. The results of the assessment of the competency of applying perpendicular coordinates on the military topography map of experimentalclasses

	Criteria										**Final result**	
	Identifying types of perpendicular coordinates		Distinguishing each perpendicular coordinates		Using perpendicular coordinates		Choosing suitable perpendicular coordinates and solve in specific situation		Applying them to combat training			
Level	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Good	79	97,5	31	38,3	25	30,9	20	24,7	9	11,1	41	50,6
Moderate	2	2,5	43	53,1	40	49,4	34	42,0	32	39,5	38	46,9
Average	0	0	7	8,6	16	19,8	27	33,3	38	46,9	2	2,5
Weak	0	0	0	0	0	0	0	0	2	2,5	0	0

Table 3.6 The results of the assessment of the competency of applying perpendicular coordinates on the military topography map of control classes

	Criteria										**The final result**	
	Identifying types of perpendicular coordinates		Identifying types of perpendicular coordinates		Identifying types of perpendicular coordinates		Identifying types of perpendicular coordinates		Applying them to combat training			
Level	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Good	79	97,5	17	21,0	9	11,1	5	6,2	0	0	21	25,9
Moderate	2	2,5	53	65,4	50	61,7	37	45,7	21	25,9	58	71,6
Average	0	0	11	13,6	22	27,2	33	40,7	53	65,4	2	2,5
Weak	0	0	0	0	0	0	6	7,4	7	8,6	0	0

Table 3.7 The results of the assessment of the competency of applying perpendicular coordinates on the military topography map of experimentalclasses

Level	**Result**			
	Experimental class		**Control class**	
	Number of students	**%**	**Number of students**	**%**
Good	41	50,6	21	25,9
Moderate	38	46,9	58	71,6
Average	2	2,5	2	2,5
Weak	0	0	0	0
Statistics				
Standard deviation	**9,267**		**6,632**	
Average score	**44,52**		**39,53**	
Level of meaning observation from 2 sides (Sig.2-taiied)	**0,001**			

- Embankment exercise:

Table 3.13. Result of assessment of embankment competency in experimentalclass

	Tiêu chí										**The final result**	
	Identifying documents, materials related to embankment		Analysing the shape of land, topography on embankment		Using ruler to fit land		Proficient skills to assure the accuracy of the land and topography in the field		Applying creatively practical experiemt in the process of embankment.			
Level	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Good	24	75,0	25	78,1	25	78,1	22	68,8	20	62,5	25	78,1
Moderate	6	18,7	5	15,6	7	21,9	6	18,8	8	25,0	7	21,9
Average	2	6,3	2	6,3			4	12,4	4	12,5		
Weak												

Table 3.14 The result of assessment embankment competency in control class

	Criteria										**The final result**	
	Identifying documents, materials related to embankment		Analysing the shape of land, topography on embankment		Using ruler to fit land		Proficient skills to assure the accuracy of the land and topography in the field.		Applying creatively practical experiemt in the process of embankment.			
Level	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Good	23	71,9	22	68,8	21	65,6	12	37,4	10	31,3	22	68,8
Moderate	7	21,8	7	21,8	10	31,3	10	31,3	11	34,3	7	21,9
Average	2	6,3	3	9,4	1	3,1	8	25,0	8	25,0	3	9,3
Weak							2	6,3	3	9,4		

Table 3.15. The summarized results of assessment of embankment in control and experimentalclasses

Level	**Result**			
	experimentalclass		**control class**	
	Number of students	**%**	**Number of students**	**%**
Good	25	78,1	22	68,8
Moderate	7	21,9	7	21,9
Average			3	9,3
Weak				
Statistics				
Reliability Cronbach's Alpha	0,838		0,842	
Standard Deviation	8,59		11,49	
Average score	54,21		48,09	
Level of meaning observation from 2 sides (Sig.2-taiied)	0,019			

3.4.3.2. Qualitative comments

Awareness, attitude of the students during the experimental teaching period (assessment of the activities of the trainees) through the results of observing and analyzing the results of the survey of trainees. All learners are enthusiastic and active to take part in learning with the orientation of competency development.

Experimental process shows that students are very excited, confident and

active to take part in teaching activities. After experiment, participants make up of 13%, sometimes 87%, very interested 25.9%, interested 69.2%.

The interaction between teachers and students during school hours becomes popular, this show experimentalthey are very interested 27.1% after interest, 71.7% of students feel interested, only 1.2% is normal. In that pre-school results, it is very often exchanged making up 9.9%, regular accounting for 19.1% sometimes 71%.

In the assessment activity, the students was excited about the method of self-assessment. Participating in self-assessment and evaluation from the never-rated 95.4% to 100% are excited and excited to participate in self-assessment.

To organize teaching in the orientation of developing the competency of students, the teacher must have high level of professional knowledge, ability to organize teaching, spend more time on preparing work, selecting content, the appropriate form and organizing of the examination and assessment.

Conclusion of chapter 3

1. Experimental pedagogy has confirmed that the teaching of military topography at military universities in Vietnam in the orientation of competency development is feasible and applicable in actuality.

2. Conducting experimental 3 lessons, which are representative of the subject both theoretical and practical, and also satisfy a wide range of teaching methods. problem solving, group teaching, project learning, and a variety of methods.

3. Organizing and evaluating the experimental results in a scientific, objective, honest and suitable manner with the course program and the experimental results according to the mathematical statistical method.

4. Assessment of experimental results both quality and quantity including checking the knowledge, skills, attitudes and competency of each trainees. .

5. Experimental process shows that students are very excited, confident and actively participate in teaching activities. In order to develop the competency of the trainees, the instructors must have a high level of professional knowledge, have the competency to organize teaching, spend more time preparing, selecting content. , methodology, form of organization, and conformity assessment.

6. The experimental results have evaluated the feasibility and effectiveness of organizing the teaching of military topography at Vietnam’s military universities in the orientation of competency development.

CONCLUSION AND RECOMMENDATIONS

1. Conclusion

1. Theoretical and practical study of the teaching of military topography at Vietnam's military academies in the orientation of competency development is an urgent requirement, contributing to the renovation of teaching methods. To study and improve the quality of teaching the military topography at the military universities in our country.

2. Theoretical and practical research has clarified that the organization of teaching in the orientation of developing students' competency is to bring into creativity and activeness for learners, , practice thinking skills and action skills. Through the course, students have formed the general competency and professional competency to meet the job after graduation.

3. The thesis also mentions the state of teaching military topography in military universities to see the strengths and limitations in the process of teaching the subjects, thus providing the basis for the regulation. Programs and measures to improve the quality of teaching and learning.

4. The dissertation has clearly defined the requirements and principles and introduced the process of organizing the teaching of military topography in Vietnam military academies in the orientation of competency development. The author of the thesis has also introduced measures to organize the teaching of subject development orientation competency. In particular, the thesis has identified the specific capabilities of the subject as the basis for the teaching of competency-driven instruction.

5. 3 lectures are designed in the right direction to develop the competency of students. Through various lectures on methodology, the activeness of the trainees has been developed. From that, professional competency has been formed to meet the requirements of the task of defending the nation in the new era.

6. The feasibility of the project is confirmed through experimental organization. Experimental results were assessed in quality and quantity, indicating that the quality of teaching hours in the experimental class was higher than that of the control class. Students in experimentalclass promote their positive self-awareness, creativity, and promote their professional competency to in their future career.

2. Recommendations

2.1. Ministry of Defence

Continuing to comprehensively grasp and detail the Party's viewpoints and State policies on education and training to raise the competency of the contingent of officers in the new situation. Setting the output standard for an officer trained staff who is capable of using military maps in military activities.

The Department of Education - Ministry of advisory updates frequently,

trains the trainers to agree on the content of teaching methods in the orientation of competency development, writing the lecture in the direction of knowledge standards, attitudes and skills. professional competency. Creating conditions for funding for the schools builds specialized lecture halls for the study of military topography and produces materials for study.

For the Department of Map - Ministry of Joint General Department to organize training, updating new knowledge about maps anually, especially applying IT to use maps.

2.2. Military academies

Schools need to focus on renovating and improving the quality of teaching military geography in the orientation of competency development, build the contingent of military-style lecturers in the direction of standardization of professional competency in order to meet the requirements of education and training in the new situation. At the same time, expanding relationships and cooperation with outside universities to exchange can help trainers learn and share experiences in teaching. Building a positive and healthy pedagogical culture is a solution to actively promote the role of each lecturer in self-study, to actively promote the relationship and communication between teachers and learners. .

2.3. The staff of military universities

Each lecturer raised the responsibility, activeness and creativity in learning, training to improve professional level, professional skills, especially innovation teaching method oriented competency development. Regularly cultivating, practicing qualities, being military teachers, training spirit of responsibility, pedagogical style, passion for love, suitable attitudes towards the students. Teachers should always build the motives and goals of active military pedagogical work properly. Participating effectively in specialized training and fostering activities of higher levels, schools and faculties in order to raise their qualifications in all aspects, this makes considerable contribution to to raising their professional conpetency.