VIETNAM'S MINISTRY OF EDUCATION AND TRAINING
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DEVELOPING TEACHING SKILLS OF MATHS FOR UNIVERSITY STUDENTS OF PRIMARY EDUCATION BY THE COMPETENCE APPROACH

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SUMMARY OF DOTORAL THESIS

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INTRODUCTION

1. Rationale

Developing teaching skills and its other related issues in specific subjects always attract great concern, especially in turning-point periods, when there is a transition between educational perspectives or the emergence of a new educational model: Competency-based education.

That reforms in education in general and in general education in particular can be implemented thoroughly and effectively depends on the school's teaching staff. This also means that: the training of teachers in pedagogical schools, especially universities of education, will greatly contribute to the renovation of general education in the current period.

Developing teaching skills for university students of primary education to meet the requirements of a new high school education program with many differences is considered one of the important solutions, contributing to general renovation in teacher training of pedagogical schools in order to adapt to the educational changes. This is also considered the key stage for the current renewal of general education in Vietnam.

With the above-mentioned reasons, we choose our research topic as: "***Developing skills of teaching Maths according to the competency-based approach for university students of Primary Education***".

2. Aims of the study

The study is aimed to propose possible measures to develop Skills of teaching Maths according to competency-based approach for university students of primary education as a part of building up professional capacity for students and improving the quality of future primary school teachers.

3. Object, subject and scope of the study

3.1. Object of the study

The object of the study is training activities of pedagogical skills (Math teaching methods in primary schools) for university students of primary education.

3.2. Subject of the study

The subject of the study is the relationship between activities and the process to develop skills of teaching Maths according to the competency-based approach for university students of primary education.

3.3. Scope of the study

- A survey is conducted on lecturers and students at 07 universities for primary education: Hanoi Pedagogical University 2, Hanoi National University of Education, Thai Nguyen University, Hai Phong University, Tay Bac University, Hung Vuong University, and Vinh University.

- Pedagogical experiments are conducted at the Faculty of Primary Education, Hanoi Pedagogical University

4. Scientific hypothesis

Proposing and applying pedagogical measures to develop skills of teaching Maths for university students of primary education based on the evaluation criteria of Skills of teaching Maths with different levels is hoped to contribute to improving the training quality of primary education.

5. Research tasks

5.1. Provide the theoretical background of teaching skills for university students of primary education according to the competency-based approach.

5.2. Develop skills of teaching Maths according to the competency-based approach for university students of primary education. and find out their indicators of math teaching competency

5.3. Propose some evaluation criteria of skills of teaching Maths for university students of primary education according to the competency-based approach

5.4. Study the current situation of evaluating skills of teaching Maths for university students of primary education according to the competency-based approach.

5.5. Propose some measures to develop skills of teaching Maths according to the competency-based approach for university students of primary education..

5.6. Conduct teaching experiments in order to examine the feasibility and efficiency of the suggested solutions and scientific hypothesis.

6. Research methods

6.1. Theoretical research

6.2. Surveys

6.3. Teaching experiments

7. Main arguments

7.1. Competency-based approach is applied to the teaching of Maths at primary school level, which lays the emphasis on the development of mathematic competency for primary school students

7.2. Competency-based teaching is a teaching strategy that can help develop skills of teaching Maths for university students of primary education. This teaching approach has a focus on practical activities and a mix of theory and practice so that it can best provide students with important teaching skills.

7.3. Developing skills of teaching Maths according to the competency-based approach for university students of primary education is feasible and effective.

8. Significance of the study

The study is hoped to:

8.1. Present a theoretical background for developing skills of teaching Maths for university students of primary education according to the competency-based approach

8.2. Develop a set of skills of teaching Maths for university students of primary education according to the competency-based approach.

8.3. Build up a set of criteria for evaluating skills of teaching Maths of university students of primary education according to the competency-based approach

8.4. Propose some measures for developing skills of teaching Maths according to the competency-based approach for university students of primary education.

9. Organization of the study

Apart from the Introduction, Conclusion, References and Appendices, the study consists of four main chapters as follows:

Chapter 1: Theoretical background for developing skills of teaching Maths according to the competency-based approach for university students of primary education

Chapter 2: Current situation of developing skills of teaching Maths according to the competency-based approach for university students of primary education

Chapter 3: Some recommendations on developing skills of teaching Maths according to the competency-based approach for university students of primary education

Chapter 4: Teaching experiments

Chapter 1
THEORETICAL BACKGROUND FOR DEVELOPING SKILLS OF TEACHING MATHS ACCORDING TO THE COMPETENCY-BASED APPROACH FOR UNIVERSITY STUDENTS OF PRIMARY EDUCATION

1.1. Literature review

1.1.1. Previous studies on skills of teaching Maths

Previous studies on skills of teaching Maths have had such achievements as follows:

First, most previous studies have showed an agreement in the definition of teaching skills.

Second, there have been different views on how to classify and synthesize teaching skills, based on teaching tasks, teaching process or learner's characteristics.

Third, previous studies have presented a full overview of the identification and evaluation of teaching skills.

1.1.2. Previous studies on developing skills of teaching Maths according to the competency-based approach for university students of primary education

Some studies on Skills of teaching Maths according to competencyy-based approach have had a focus on identifying components of teaching competency, proposing measures to develop teaching methods and innovating teaching methods with higher efficiency. They also showed that fostering professional capacity for pedagogical students can be done through regular practice of pedagogical skills.

1.2. Teaching Maths at primary school level according to the competency-based approach

1.2.1. Key concepts

1.2.1.1. Skill

Skill is a kind of action that is performed voluntarily based on a person's knowledge, mobility and other biological - psychological characteristics such as needs, emotions and ambitions to achieve expected results, or success according to a standard or set of rules.

1.2.1.2. Teaching skill

Teaching skill is a type of vocational skills specific to the teaching job, or the effective implementation of the teacher's manipulations in their teaching activities through selecting and applying professional knowledge, teaching methods, teaching techniques, and pedagogical experience to achieve determined teaching objectives.

1.2.1.3. Skill of teaching Maths

Skills of teaching Maths are teaching skills applied in teaching Maths through selecting and applying mathematical knowledge, teaching techniques, and pedagogical experience so that the teacher can successfully complete the task of teaching Mathematics.

1.2.1.4. Skill of teaching Maths at primary school level

Skill of teaching Maths at primary school level is a type of skill that helps teachers to successfully and effectively implement teaching activities when teaching Maths in primary schools through selecting and applying basic mathematical knowledge and theories of Math teaching methodology, teaching techniques, pedagogical experience and other psychological factors.

1.2.1.5. Skill of teaching Maths at primary school level according to competency-based approach

Skill of teaching Maths at primary school level according to the competency-based approach is the skill performed by teachers in teaching Maths for school students, which help them to organize learning activities for students to use their existing knowledge and experience to build new mathematical knowledge. At the same time, it is

for students to develop their mathematical competencies under the teacher's guidance and encouragement.

1.2.2. Nature of skills of teaching Maths at primary school level according to the competency-based approach

Skill of teaching Maths at primary school level according to the competency-based approach is mainly used to develop mathematic competencies for primary school students. This type of teaching skill has some features as follows: 1/ Having all typical characteristics of a teaching skill, 2/ Satisfying special requirements of teaching Maths at primary school level, 3/ Mainly focusing on developing students' learning.

1.2.3. Characteristics of skills of teaching Maths at primary school level according to the competency-based approach

We would like to present some characteristics of Math teacher skill in teaching Maths at primary school level according to the competency-based approach as: 1/ Teaching skill is a kind of professional skill and acts as a part of developing teacher's professional competencies. 2/ Teaching skills need to match with teaching approaches, 3/ Teaching skills fully reflect the teaching nature, 4/ Teaching skills are developed through different skills (e.g. leadership, management, organization, communication, research and planning skills).

1.2.4. Set of skills of teaching Maths at primary school level according to the competency-based approach

Within the scope of the study, we focus on 3 groups of teaching skills with basic sub-skills presented as follows:

1.2.4.1. Group of teaching skills used when preparing the lesson

When it comes to teaching Maths at primary school level, this group includes such skills as using textbook, teacher's book and other teaching materials; identifying the objectives, basic knowledge and professional knowledge for a lesson; planning time for activities in a

lesson, designing questions, associating the lesson with real life situations; giving feedback and reflecting after class observations, anticipating students' difficulties and mistakes; solving Maths problems and using advanced Maths in Maths teaching at primary school level.

1.2.4.2. Group of teaching skills used when delivering the lesson

As for teaching Maths at primary school level, this group includes such skills as organizing and managing teaching activities, selecting and applying teaching methods; presenting, writing, drawing shapes and using blackboards; determing and solving students' difficulties in their learning; using teaching aids and applying computer skills.

1.2.4.3. Group of teaching skills used when evaluating students' learning

This group consists of key skills when teaching Maths at primary school level such as diagnostic assessment, formative assessment and summative assessment. This also includes skills of designing contents for evaluating students' mathematical competencies.

1.2.5. Indicators and stages for developing skills of teaching Maths according to the competency-based approach for university students of primary education

1.2.5.1. Criteria on evaluating the development of skills of teaching Maths for university students of primary education according to the competency-based approach

Based on the three groups of skills of teaching Maths above, we suggest a system of criteria and indicators for subskills, which can be used as an initial basis for evaluating the development of Skills of teaching Maths for university students of primary education according to the competency-based approach.

1.2.5.2. Identifying and evaluating skills of teaching Maths at primary school level

To evaluate the development of Skills of teaching Maths for university students of primary education according to the competency-

based approach, we determine the indicators and students' levels of competency in using these skills in teaching Maths in primary schools.

1.3. Theories on developing skills of teaching Maths according to the competency-based approach for university students of primary education

1.3.1. Nature of developing skills of teaching Maths according to the competency-based approach for university students of primary education

Developing skills of teaching Maths according to the competency-based approach for university students of primary education is essentially using the student's existing competencies as the foundation and premise for developing their teaching skills, especially skills for building up mathematical competencies for primary school students.

1.3.2. Learning characteristics in university students of primary education

The majority of university students of primary education have basic learning skills and learning experiences. However, there still exist a small number of these students do not have effective learning methods, as the result of their inadequate learning involvement and efforts or their training curricula which do not give emphasis on skill development. Some students even do not adapt to the changes in learning styles at university compared to those they used at high school.

1.3.3. Principles in developing skills of teaching Maths according to the competency-based approach for university students of primary education

- Students are informed of the development of skills of teaching Maths

- Students have regular practice of skills of teaching Maths through different learning activities

- Students are equipped with skills of teaching Maths with their best strengths and potentials.

- Students are provided with friendly and favorable learning environment.

1.3.4. Some models and methods in developing skills of teaching Maths according to the competency-based approach for university students of primary education

- Flipped learning
- Blended learning
- Self-reflection

1.3.5. Some conditions in developing skills of teaching Maths according to the competency-based approach for university students of primary education

- As for lectures: Lecturers need to have Lectures must have a deep understanding of modern teaching theory and nature of competency-based teaching approach, create a positive learning environment, design and organize learning activities.

- As for university students of primary education: Have a positive attitude towards the development of professional skills, especially teaching skills; regularly participate in professional training courses, workshops and seminars.

- As for facilities: In order for students to learn effectively using modern strategies, they need to be provided with adequate learning facilities such as libraries, textbooks, reference books and academic journals to self-study and prepare the lessons before class.

Summary for Chapter 1

1.1. There have been many studies on developing skills of teaching Maths according to the competency-based approach for university students of primary education; however, very few studies describe in detail the sub skills and the criteria and indicators in

evaluating the development of skills of teaching Maths for university students of primary education according to the competency-based approach

1.2. The nature of developing skills of teaching Maths according to the competency-based approach for university students of primary education is focusing mainly on developing teaching skills that help develop learners' mathematic competencies. The training of developing skills of teaching Maths according to the competency-based approach for university students of primary education is the process of finding ways to develop specific skills of teaching Maths effectively.

1.3. Developing skills of teaching Maths according to the competency-based approach for university students of primary education is essentially based on their existing competencies, which is the prerequisite for selecting which method is the best to develop their skills of teaching Maths.

Chapter 2
THE CURRENT SITUATION OF DEVELOPING SKILLS OF TEACHING MATHS ACCORDING TO THE COMPETENCY-BASED APPROACH FOR UNIVERSITY STUDENTS OF PRIMARY EDUCATION

2.1. Global experience in developing skills of teaching Maths according to the competency-based approach for university students of primary education

Many programs of primary teacher training in the world pay great attention to the formation of professional competencies for each student which include the ability to explain and adjust scientific knowledge in accordance with the content, knowledge, and the current situation of the primary school level; the ability to use math solution methods suitable to the teaching contents; the ability to develop and apply a mathematical

education process; and the ability to use information technology to facilitate certain teaching activities.

2.2. Training programs of developing skills of teaching Maths for university students of primary education

Current Math training programs for university students of primary education in are still heavy on knowledge transmission, have high academic properties, do not focus on developing career skills, do not provide sufficient knowledge and do not present a suitable method to develop basic teaching skills to help learners fulfill the requirements of a future primary school teacher.

2.3. Survey on the current situation of developing skills of teaching Maths according to the competency-based approach for university students of primary education

2.3.1. Aims of the survey

We conduct surveys to find out and evaluate the current situation of developing Skills of teaching Maths for university students of primary education according to their competency-based approach to have a practical basis for proposing measures in developing skills of teaching Maths for university students of primary education.

2.3.2. Subjects of scope of the survey

- Subjects: current primary school teachers, lecturers and students of primary education in 07 universities in Vietnam.

- Time of the survey: From November, 2015 to June, 2016.

2.3.3. Content of the survey

The survey is to investigate: a/ The training programs of skills of teaching Maths; b/ Methods used in developing Skills of teaching Maths; c/ The current situation of developing skills of teaching Maths; d/ Lecturers' and students' perspectives on the groups of skills of teaching Maths according to the competency-based approach.

2.3.4. Survey methods

- Survey questionnaire
- Analysis of teaching profiles
- Expert referencing

2.3.5. Analysis of survey results

2.3.5.1. The current situation of developing skills of teaching Maths according to the competency-based approach for university students of primary education

The results of interviews show that the majority of teachers said that the training program of primary education in universities lay great emphasis on developing teaching skills for students, allocating more time for teaching practice. However, training contents for subjects of teaching methodology, including Mathematics teaching methodology, are designed according to the content-based approach, which focus on academic knowledge and knowledge transmission to mainly provide students with theories of teaching methodology, but not to pay enough attention to developing their future career skills.

2.3.5.2. The current situation of developing skills of teaching Maths for university students of primary education

According to the survey results, the method favored by most teachers in developing skills of teaching Maths is through courses of Maths teaching methodology, however their preference for this subject is quite low. This shows that the content of the subject has not been adjusted as well as the syllabi of the courses do not match with the practical teaching in primary schools,. Also, the addition of modern teaching theories to the course syllabi at universities is very limited.

2.3.5.3. The current situation of developing skills of teaching Maths according to competency-based approach for university students of primary education

The survey findings show that teachers and students, although aware of the role and importance of modern teaching strategies,

including competency-based teaching approach and active in applying these teaching strategies, but their use does not have high effectiveness because they do not fully and accurately understand the concept of competency-based teaching and its nature, especially in field of primary school teacher training.

2.3.5.4. Lecturers' and students' perspectives on the groups of skills of teaching Maths according to the competency-based approach

The role of concretizing some evaluation criteria helps teachers and students determine the development of teaching skills, find out the skills that need to be improved, and have suitable adjustment for teaching activities so that they have greater success. Moreover, the criteria also help to evaluate and classify sub-skills more easily, more accurately, and they properly reflect the achieved level of skills. They also allow students to develop the ability to think independently, self-practice and self-training. These training skills are aimed at developing fully and effectively students' professional skills.

2.3.5.5. Teachers' and students' results by the use of the criteria for evaluating skills of teaching Maths according to competency-based approach

The survey shows that although students are equipped with theories of and have an understanding of math teaching activities, they have little practice in applying. Meanwhile, skills are only developed through an applied practice and implementation into real-life situations. Besides, there are teachers who have implemented ineffectively some teaching skills or due to their inadequate teaching capacity, which results in misconceptions about the importance or unimportance of some skills in teaching maths.

Summary for Chapter 2

2.1. Through surveying, analyzing and synthesizing the current situation of developing skills of teaching Maths according to

competency-based approach for university students of primary education, we have identified existing problems and shortcomings, which acts as an important practical basis to propose solutions to develop skills of teaching Maths according to competency-based approach for university students of primary education.

2.2. The key point is that in training programs of primary education, students have little access to modern teaching strategies, including competency-based teaching.

2.3. It is necessary to create many opportunities of practical training for students to develop their skills of teaching Maths in different ways effectively.

Chapter 3
RECOMMENDATIONS ON DEVELOPING SKILLS OF TEACHING MATHS ACCORDING TO COMPETENCY-BASED APPROACH FOR UNIVERSITY STUDENTS OF PRIMARY EDUCATION

3.1. Principles for proposing the recommendations

- Follow the training objectives of programs of primary education in universities.
- Follow the key principles of the competency-based teaching approach.
- Meet the characteristics of Mathematics at primary school level.
- Follow the current situation of developing skills of teaching Maths for students of primary education in universities.

3.2. Recommendations on developing skills of teaching Maths according to competency-based approach for university students of primary education

3.2.1. Recommendation 1: Developing a process of developing skills of teaching Maths according to competency-based approach for university students of primary education

On the basis of theoretical research on teaching characteristics according to competency-based approach, we build up a process of developing skills of teaching Maths according to competency-based approach for university students of primary education with 4 main steps:

Step 1: Providing theories of teaching methodology

In order to study effectively, teachers give guidance, organize seminars and assign students to self-study materials on teaching skills, which not only helps students understand the nature of teaching skills but also apply them in their learning and teaching. **Step 2: Organizing different activities for developing skills of teaching Maths for students**

In order to best develop teaching skills for university students, the most important factor is that students have to practice the skills on their own, even repeatedly many times, and then make additional adjustments to better improve the skills.

Step 3: Creating a favorable learning environment for students to practice theirs skills of teaching Maths

Lecturers should always create a learning environment for mutual learning and full of practice, giving students many opportunities to a access modern teaching theories, and encourage them to have a positive attitude in learning as well as in scientific research.

Step 4: Evaluating and giving feedback

Teachers have students to cross-evaluate each other's products, or self-assess the level of skills achieved, give feedback and comments so that each student can adjust their own products for the better.

3.2.2. Recommendation 2: Designing a training program for developing skills of teaching Maths according to competency-based approach for university students of primary education

Designing contents for developing skills of teaching Maths according to competency-based approach for university students of primary education

* Teaching methods in teaching Maths at primary school level

In addition to the contents that the course of Math teaching methodology at primary schools has offered, we have added the following contents:

- Understanding and applying some modern teaching strategies: Discovery teaching; Differentiation teaching; Problem-solving teaching; Competency-based teaching; Project-based teaching, ...

- Find out the skills of teaching Maths in primary schools: lesson planning, designing learning activities, and evaluating learning results.

* Regular pedagogical skills practice and teaching practicums:

- In the first year: Help students to study mental - physiological characteristics of primary school students and solve pedagogical situations.

- In the second year: Enhance students' existing teaching skills and let them practice basic learning skills such as speaking, writing skills, communication skills, and classroom management skills, ...

- In the third year: Equip students with specialized teaching skills such as: designing lessons, organizing teaching activities, evaluating learning results , ... through in-class activities or their first teaching practicum at primary schools.

- In the fourth year: Through the second teaching practicum at primary schools, let students develop comprehensively their professional skills, such as their head teacher skills, teaching skills and other professional activities in primary schools.

3.2.3. Recommendation 3: Equipping students with theories of Math teaching at primary schools according to the competency-based approach

Designing seminars on Math teaching at primary schools according to the competency-based approach for university students of primary education

Contents

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1.1. The concept of competency and teaching according to the competency-based approach

1.2. Principles of teaching Math's according to the competency-based approach

1.3. Some methods of teaching Mathematics according to the competency-based approach

2. Characteristics of teaching Mathematics in primary schools

2.1. The curriculum of Math's in primary schools

2.2. Characteristics of teaching Mathematics in primary schools

2.3. Some requirements of teaching Mathematics in primary schools according to competency-based approach

3. Skills of teaching Mathematics in primary schools according to the competency-based approach

3.1. The nature of teaching skills

3.2. Classification of teaching skills

3.3. Basic teaching skills

3.4. Criteria to identify and evaluate teaching skills

4. Developing skills of teaching Maths in primary schools according to the competency-based approach

4.1. Principles of training mathematical skills in primary schools according to competency-based approach

4.2. Process of training mathematical skills in primary schools according to competency-based approach

3.2.4. Recommendation 4: Developing skills of teaching Maths in primary schools according to the competency-based approach

Developing skills of designing question bank in teaching Mathematics in primary schools

Step 1: Learn theories about skills

* *Clearly define the purpose and requirements of developing the skill*

Lecturers emphasize the role of question bank in teaching Maths so that students can see the importance of practicing this skill.

* *Introducing of question bank sample*

E.g.: Designing a system of questions in teaching the module "Add-fractions with denominators" (Textbook - Maths Grade 4).

Propose a bank of sample questions for students to observe. **Step 2: Developing skills of teaching Maths for students by many different methods**

* *Lecturer divides the class into small groups*

Based on the actual number of students in their class, the lecturer divides them into small groups.

* *Lecturers assign tasks to each group*

The lecturer sets out tasks, each group performs a task and comes up with a product after the learning period.

* *Students complete and report their research results*

In this step, students share research results, in which they must focus on clarifying the central contents of the problem.

Step 3: Creating a favorable learning environment for students to develop their skills of teaching Maths

Students have their teaching practice after selecting and designing lessons in their study group. In each group, students has the role of both

primary school students and the class visitors. **Step 4: Giving feedback and adjusting**

Based on the criteria for assessing skills of teaching Maths and students' teaching practice, other students in the group evaluate their group members' teaching.

Chapter 4. TEACHING EXPERIMENTS

4.1. An overview of teaching experiments

4.1.1. Aims of teaching experiments

To test the validity of the scientific hypothesis; To verify the feasibility and effectiveness of the proposed measures.

4.1.2. Subjects of the teaching experiments

Teaching experiments are conducted in the Faculty of Primary Education - Hanoi Pedagogical University 2; Experimental subjects: students of courses K39 and K40; Experimental teaching module: Methods of Teaching Maths in Primary Schools; and Regular Practice of Pedagogical Skills

4.1.3. Contents of the teaching experiments

Instructing students to learn theories of teaching Maths according to competency-based approach and have practice

4.1.4. Implementation of teaching experiments

Time duration:

+ As for K40 students of Primary Education: From August, 2016 to October 2016.

+ As for students of Primary Education: From August, 2016 to November 2016.

4.1.5. Evaluation of skills of teaching Maths through teaching experiments

Skills of teaching Maths can be determined as follows:

+ From 0 - 4.9 points: Not Competent

+ From 5.0 - 7.9 points: Competent

+ From 8.0 - 10 points: Very Competent

4.2. Results of teaching experiments

4.2.1. Results of students' skills of teaching Maths

The obtained results show that through the teaching experiments, K40 and K39 students of primary education significantly improved their teaching skills, the number of students advancing to higher level of teaching skills in Experimental Class is much greater than the Controlled Class.

Scores of regular assessment on skills of teaching Maths for K40 students

Class	No. of lessons	Scores										
		1	2	3	4	5	6	7	8	9	10	Ave.
$E_{đv}$	67	4	7	9	10	16	14	7	0	0	0	4,45
$C_{đv}$	65	3	7	11	9	13	14	8	0	0	0	4,48
$E_{đr}$	67	0	0	0	0	9	20	18	14	6	0	6,82
$C_{đr}$	65	1	1	2	14	12	11	14	8	2	0	5,71

Scores of regular assessment on skills of teaching Maths for K39 students

Class	No. of lessons	Scores										
		1	2	3	4	5	6	7	8	9	10	Ave.
$E_{đv}$	64	0	0	15	8	12	11	13	5	0	0	5,22
$C_{đv}$	69	0	0	11	13	14	13	12	6	0	0	5,29
$E_{đr}$	64	0	0	0	0	6	10	29	9	7	3	7,16
$C_{đr}$	69	0	0	9	11	10	12	19	7	1	0	5,67

4.2.2. Results of students' self evaluation on their skills of teaching Maths

Results collected from the self-assessment among K40 and K39 students of primary education on skills of teaching Maths after their teaching experiments are very positive. The level of achievement of

each sub-skill is at a high level, and the application of measures to develop skills of teaching Maths for students of primary education has initially brought efficiency.

4.2.3. Results of evaluating skills of teaching Maths through case study

The results obtained from the analysis of 3 above specific cases show a marked improvement in students' skills of teaching Maths through teaching experiments. This also reveals that measures to develop skills of teaching Maths according to the competency-based approach used in teaching experiments prove to have a high reliability, and skills of teaching Maths by students in Experimental Class all show a relatively good effective use.

Summary for Chapter 4

4.1. The application of measures to develop skills of teaching Maths according to competency-based approach for university students of primary education has obtained positive results. Most of the students in the Experimental Class have better learning results than the Control Class, which proves that the measures taken initially have been effective.

4.2. Results of evaluatingstudents' teaching practice, based on 3 methods obtained in Experimental Class, all show a marked improvement in skills of teaching Maths at primary school level.

4.3. Developing skills of teaching Maths according to competency-based approach for university students of primary education is a very wide and complex field, including the content of the training program; the structure and characteristics of Mathematics t primary school level; and teaching approaches for Mathematics at primary school level; ... Therefore, it is necessary to continue to study the problem of skills of teaching Maths according to competency-based approach in a longer term to make adjusments in each stage of educational innovation.

CONCLUSION AND RECOMMENDATIONS

1. Conclusion

1.1. Developing skills of teaching Maths according to competency-based approach for university students of primary education should be conducted on a regular and long-term basis during their training at university.

1.2. The study clarifies the key concepts, nature and characteristics of developing skills of teaching Maths according to competency-based approach for university students of primary education, thereby figuring out the principles and methods to develop skills of teaching Maths for students.

1.3. The current situation of developing skills of teaching Maths according to competency-based approach for university students of primary education shows that the awareness of teachers and students about competency-based teaching is still limited.

1.4. The study proposes a number of measures to develop skills of teaching Maths according to competency-based approach for university students of primary education.

1.5. The results obtained from students' teaching experiments partly present the feasibility and effectiveness of the proposed measures to develop skills of teaching Maths according to competency-based approach for university students of primary education.

2. Recommendations

- Designing training programs of primary education that allow to apply many different modern teaching theories, including competency-based approach

- Using new teaching approaches in training primary school teachers. The teaching approaches need to be consistent with the current

innovations of general education and have a close connection with the teaching situation of primary schools.

- Actively developing skills of teaching Maths through subjects in the training program, Encouraging the use of modern teaching theories in developing pedagogical skills and teaching practicums in primary schools.

THESIS-RELATED PUBLICATIONS

[1]. Nguyen Van De (2015), Developing mathematics teaching skills for students of Primary Education by capacity-based approach, Journal of Science, Hanoi Pedagogical University 2.

[2]. Nguyen Van De (2017), Developing Math self-study skills for Primary Education students at Pedagogical University, Journal of Educational Equipment.

[3]. Nguyen Van De (2018), Developing mathematics teaching skills for pedagogical university students majoring in Primary Education, Journal of Education.

[4]. Nguyen Van De (2019), Some pedagogical measures to support students who have difficulties in learning Mathematics at Primary schools, Journal of Education.