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PHAM QUANG DUNG

**MANAGEMENT OF UNDERGRADUATE EDUCATION
IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT
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AT UNIVERSITIES IN VIETNAM**

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***Science instructors:* Assoc.Prof.Dr. Tran Thi Tuyet Oanh
Dr. Trinh Van Cuong**

Review 1: Assoc.Prof.Dr.Nguyen Thi Tinh

Review 2: Assoc.Prof.Dr. Pham Van Thuan

Review 3: Assoc.Prof.Dr. Nguyen Van Tuan

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PREFACE

1. Reasons for choosing the topic

Training based on Competency-Based Approach (CBA) is a global trend in education and training, particularly in Vietnam. This approach focuses on developing practical and deep professional skills for students, helping them quickly and effectively adapt to the real work environment, meeting the labor market needs in the context of industrialization and modernization. This method also accelerates Vietnam's international integration process through the adoption of global educational standards, promoting cooperation, and access to new technologies. Managing university education in Logistics and SCM based on CBA will produce high-quality human resources for this sector.

In the process of comprehensive economic integration, the Logistics and Supply Chain Management (SCM) sectors are increasingly dominant, playing a key role in promoting the economic growth of each country. The Logistics and SCM fields are becoming increasingly important, creating a seamless operational system for the global market.

University-level education in Logistics and SCM plays a crucial role in developing a specialized workforce, aiming to meet the growing demand in this sector. Universities act as centers producing high-quality labor through the provision of specialized theoretical knowledge and technical skills. This foundation equips students with a deep understanding and application of principles, theories, and models in practice. Moreover, the development of professional skills such as management and problem-solving is an essential part of the training process. Through lectures, exercises, and practical projects, students not only grasp theory but also develop practical skills, enabling them to quickly and effectively adapt to the real work environment after graduation. This also means students will be capable of flexibly and creatively handling real-world challenges. Furthermore, universities must continuously update and adjust their curricula to align with labor market trends and demands, including focusing on the application of information technology, big data analysis, and systems thinking in SCM, thereby continuously advancing the field to meet the needs of modern society.

The Logistics and SCM sector in Vietnam, although a new field, is developing rapidly with support from government policies and strategic geographic advantages. To further promote the development of this sector, investing in high-quality human resource training is a top priority, aiming to create a deeply specialized workforce capable of meeting the increasingly high demands of the market. In this process, universities and professional training organizations play a vital role in developing human resources to match current market trends and needs. Decision No. 1841/QĐ-BGTVT, signed on June 26, 2017, by the Minister of Transport, announcing the implementation plan for Decision No. 200/QĐ-TTg dated February 14, 2017, by the Prime Minister, prioritizes strengthening Logistics training at university, vocational, and other training levels. This

goal aims to improve awareness and quality of human resources to meet societal needs in the context of international economic integration. Additionally, it sets out 06 objectives and 60 detailed tasks along with a range of comprehensive solutions, aiming to overcome challenges and achieve advanced levels regionally and globally, fulfilling the country's economic development needs. However, current training management in Logistics and SCM still faces limitations, including an overemphasis on quantity, leading to inadequately knowledgeable and skilled graduates to effectively operate in the Logistics and SCM sectors. This has resulted in an increasing divergence between supply and demand for Logistics and SCM human resources in the market, especially in high-quality workforce training at universities.

Therefore, the author has chosen the topic "*Management of undergraduate education in Logistics and Supply Chain Management with a Competency-based approach*" for research to contribute to improving the quality of university-level education in Logistics and SCM while meeting the CBA human resource needs for the labor market in the current socio-economic development context.

2. Research Objectives

Based on theoretical and practical research in the field of managing undergraduate education in Logistics and SCM using a CBA, this dissertation proposes necessary and feasible management solutions that are suitable for the educational sector. These solutions aim to enhance the quality of undergraduate education in Logistics and SCM at Vietnamese universities today.

3. Research Participants and Subjects

3.1. Research Participants

The undergraduate education activities in the field of Logistics and SCM at universities.

3.2. Research Subjects

Managing undergraduate education in the field of Logistics and SCM using a CBA at Vietnamese universities.

4. Research Questions

4.1. The training and management of undergraduate education in the field of Logistics and SCM using a CBA at Vietnamese universities are based on which theoretical foundation?

4.2. Currently, what are the shortcomings in the management of undergraduate education in the Logistics and SCM field at Vietnamese universities? What are the reasons for these shortcomings in managing undergraduate education in Logistics and SCM using a CBA at Vietnamese universities?

4.3. What management solutions can address and overcome these shortcomings and limitations in order to enhance the effectiveness of managing undergraduate education in the field of Logistics and SCM using a CBA at Vietnamese universities?

5. Scientific Hypothesis

Currently, the education of university-level Logistics and SCM is being implemented by many universities with an increasingly large scale in terms of the number of students. However, there are some limitations in the training of Logistics and SCM, affecting the quality of the trained workforce. One of the fundamental reasons is the lack of focus in training management on developing students' capabilities.

Finding solutions for managing university-level training in Logistics and SCM with a CBA is crucial. This includes identifying the competency framework needed for students, developing curricula based on the CBA, instructing teaching according to the CBA, establishing a coordination mechanism between universities and Logistics enterprises, and building a post-graduation information system. Simultaneously, implementing these solutions scientifically and coherently will enhance the quality and effectiveness of university-level training in Logistics and SCM at Vietnamese universities today.

6. Research Objectives

6.1. Develop a theoretical basis for managing university-level training in Logistics and SCM with a CBA.

6.2. Analyze and evaluate the current state of managing university-level training in Logistics and SCM with a CBA at Vietnamese universities.

6.3. Propose solutions for managing university-level training in Logistics and SCM with a CBA at Vietnamese universities.

6.4. Conduct experiments to assess the necessity and feasibility of the proposed solutions and test the solutions.

7. Research Limitations and Scope

- The dissertation focuses on researching the management of university-level training in Logistics and SCM based on a process-oriented management approach and proposes solutions for universities in managing university-level training in Logistics and SCM with a CBA at Vietnamese universities.

- The research area for surveying the current state is conducted at 05 Vietnamese universities that offer university-level training in Logistics and SCM.

- Survey subjects: management staff, faculty, students, graduates from the surveyed universities, and employers.

- Experiment: conducted at 01 university, establishing a coordination mechanism between the university and Logistics enterprises in internship activities and final internships to develop STUDENTS' competencies.

8. Thesis Defense Argument

8.1. Training based on the CBA is a global educational trend and is also a requirement for education and training in Vietnam. The development of theories on managing university-level training in Logistics and SCM should be based on the theory of CBA training, taking into account the characteristics of university-level training in Logistics

and SCM to ensure that the trained workforce meets the requirements of the Logistics and SCM sector.

8.2. Applying the elements of the process-oriented management model to the management of university-level training in Logistics and SCM is appropriate to enhance the quality and effectiveness of university-level training in Logistics and SCM at Vietnamese universities.

8.3. Solutions for managing training in Logistics and SCM with a CBA should focus on identifying the competency framework that needs to be developed for students during the training process and management measures impacting the elements considered as shortcomings in each stage of the training process, to ensure that the training output has sufficient competencies to meet the workforce requirements of the Logistics and SCM sector.

9. Approaches and Research Methods

The dissertation uses the following approaches and research methods to conduct the study:

9.1. Research Approaches

9.1.1. Systems Approach

9.1.2. Competency Approach

9.1.3. Process Approach

9.1.4. Management Function Approach

9.1.5. Outcome Standards Approach

9.2. Research Methods

The dissertation will primarily use the following research methods to address the set research tasks:

9.2.1 Theoretical Research Methods

9.2.2. Practical Research Methods

9.2.3. Statistical Methods

10. New Contributions of the Dissertation

10.1. Theoretical Contributions

The dissertation systematizes the theoretical foundation of training and managing university-level education in Logistics and SCM. It contributes to clarifying and supplementing theoretical issues related to competency-based training and managing university-level education in Logistics and SCM, based on various stages of the training process.

10.2. Practical Contributions

The dissertation has analyzed and evaluated the current state of managing university-level education in Logistics and SCM. It identifies the strengths, limitations, and causes of these limitations in the current training state of university-level education in Logistics and SCM with a CBA at Vietnamese universities. Based on this, it proposes solutions to overcome these limitations in managing university-level training in

Logistics and SCM with a CBA, serving as a reference for universities that offer training in Logistics and SCM.

11. Thesis Structure

In addition to the Introduction, Conclusion, Recommendations, References, and Appendices, the dissertation is presented in 03 Chapters:

Chapter 1. Theoretical Basis of Managing University-Level Training in Logistics and SCM with a CBA.

Chapter 2. Practical Basis of Managing University-Level Training in Logistics and SCM with a CBA at Vietnamese Universities.

Chapter 3. Solutions for Managing University-Level Training in Logistics and SCM with a CBA at Vietnamese Universities.

Chapter 1

THEORETICAL BASIS OF MANAGING UNIVERSITY-LEVEL TRAINING IN LOGISTICS AND SCM WITH A CBA

1.1. Overview of Research

1.1.1. Research works on competency-based training at universities

1.1.2. Studies on competency-based training management at universities

1.1.3. General observations on research directions related to the dissertation and the issues the dissertation will address

1.1.3.1. Issues related to the dissertation topic that have been addressed

Based on an overview of relevant domestic and international research, the author identifies some fundamental issues: Firstly, the study of CBA in university education has garnered global attention, especially at the end of the 20th century, when education faced opportunities and challenges from globalization. Secondly, in Vietnam, studies have developed concepts of competency-based training at universities, as well as identifying challenges, opportunities, and requirements for higher education improvement. Thirdly, although competency-based training is not new globally and has been effectively applied, in Vietnam, research on it is still limited and not systematic. Fourthly, in recent years, studies on competency-based training management at universities have been highly regarded. These studies have established specific criteria, standards, and indicators, assessed the current situation of competency-based training management, and proposed new approaches. The research works have focused on several fields: education, information security, various engineering technologies, industrial electricity, etc.

1.1.3.2. Issues the dissertation will address

The author recognizes that training and managing training in Logistics and SCM with a CBA is a necessary and important requirement to enhance the quality of training in Logistics and SCM at Vietnamese universities today.

1.2. Basic Concepts

1.2.1. CBA

The CBA involves applying a training method that uses competencies as the foundation to develop professional skills, enabling individuals to perform tasks demanded by the labor market.

1.2.2. Competency-Based Training

Competency-based training allows for the personalization of learning based on a competency model. Learners supplement and perfect their individual competencies to meet the job requirements of the labor market.

1.2.3. Competency-Based Training Management

Competency-based training management is the process of conducting management activities in training to develop competencies in learners, enabling them to accomplish tasks and work to the set standards under certain conditions.

1.2.4. Logistics and SCM

Logistics and SCM is a field that studies, develops, and manages transportation services in the production and business process. This includes planning, implementing, and controlling the flow of goods, as well as managing raw materials and final products from the point of origin to the point of consumption.

Here's the English translation of your text:

1.3. The training of undergraduate education in the field of Logistics and SCM

1.3.1. Characteristics of training in Logistics and SCM

Training in Logistics and SCM at universities focuses on equipping students with the necessary knowledge and skills to perform tasks in the field. Based on circular 17/2021/TT-BGDĐT dated June 22, 2021, by the Ministry of Education and Training, which regulates standards for educational programs; the development, assessment, and issuance of training programs at the undergraduate education; the Logistics and SCM curriculum also includes objectives, volume of knowledge, structure, content, methods, and forms of evaluation for subjects, and outcome standards consistent with the Vietnamese National qualifications framework.

1.3.2. Requirements for Competency-Based Training

In the context of the rapidly growing fields of Logistics and SCM, training quality human resources to meet market demands has become increasingly crucial. To achieve this, universities offering Logistics and SCM need to study the requirements of Competency-Based training. The focus should be on developing both professional skills and soft skills of students, from warehouse management, transportation, supply chain analysis, to communication skills, teamwork, and creative problem-solving. The combination of theory and enhanced practice, internships is key, requiring universities to provide practical opportunities, like internships and real-world projects, for students to apply knowledge and develop essential skills in a real-world environment.

1.3.3. Competencies of students in Logistics and SCM in Competency-Based Training

1.3.3.1. Bases for determining competencies of students in Logistics and SCM

- * First, based on views about the structure of competencies.
- * Second, based on outcome standards in training for Logistics and SCM.
- * Third, based on societal demands for human resources in Logistics and SCM.

1.3.3.2. Competencies to develop in students of Logistics and SCM

Based on the bases for determining competencies of students in Logistics and SCM, the dissertation identifies the following four basic competency groups: (1) Learning Competency; (2) Competency in Scientific Research, Entrepreneurship, Innovation; (3) Interaction Competency; (4) Personal Competency.

1.3.4. The training of undergraduate education in Logistics and SCM with a CBA Based on Training Process Theory

1.3.4.1. Theory of the Training Process

The training process encompasses all training activities over time and in specific environments (including both in-school and extracurricular activities), with a focus on Teaching-Learning activities and various internal and external relationships.

1.3.4.2. Elements of the training process in undergraduate education in Logistics and SCM with a CBA

- * Training objectives
- * Training program
- * Teaching activities of lecturers
- * Learning activities of students
- * Activities of assessing and evaluating student learning outcomes
- * Physical infrastructure and conditions supporting training
- * Activities of evaluating training process outcomes and implementing post-training activities

1.4. Management of undergraduate education in Logistics and SCM with a CBA

1.4.1. Levels of management in undergraduate education in Logistics and SCM

1.4.1.1. The principal

1.4.1.2. Training department and related functional departments

1.4.1.3. Specialized faculty

1.4.1.4. Academic departments

1.4.2. Content of management in undergraduate education in Logistics and SCM with a CBA

1.4.2.1. Management of training objectives implementation

1.4.2.2. Management of training program development

1.4.2.3. Management of teaching activities of lecturers

1.4.2.4. Management of learning activities

1.4.2.5. Management of testing and assessment of student learning outcomes

1.4.2.6. Management of physical infrastructure and conditions for training

1.4.2.7. Management of assessment of training process outcomes and implementation of post-training activities

1.5. Factors influencing the management of undergraduate education in Logistics and SCM at universities with a CBA

- Political, economic, and social context
- State policies and regulations on undergraduate education
- Advances in science and technology and international integration
- Readiness for collaboration of Logistics enterprises in educational activities of institutions
- Competencies of lecturers, students, management staff, and related departments in undergraduate education activities in Logistics and SCM
- Physical infrastructure and financial resources for training activities in Logistics and SCM with a CBA

Conclusion of Chapter 1

CHAPTER 2

PRACTICAL BASIS OF MANAGING UNDERGRADUATE EDUCATION IN LOGISTICS AND SCM WITH A CBA AT VIETNAMESE UNIVERSITIES

2.1. International Experience

2.1.1. international experience in managing undergraduate education in Logistics and SCM

2.1.1.1. United States

2.1.1.2. Germany

2.1.1.3. Netherlands

2.1.1.4. Singapore

2.1.1.5. Australia

2.1.2. Lessons learned for Vietnam

2.2. Overview of the training system for Logistics and SCM at Vietnamese universities

The year 2017 marked a turning point in undergraduate education for the field of Logistics when the Ministry of Education and Training issued Circular 24/2017/TT-BGDĐT on October 10, 2017, announcing the Education, Training Level IV at the undergraduate level. According to this, Logistics and SCM had its own unique code of 7510605, belonging to the Industrial Management group (code 75106). This circular was replaced by Circular No. 09/2022/TT-BGDĐT issued on June 6, 2022, by the Ministry of Education and Training regarding the regulation of the list of statistical training fields of higher education. This has encouraged educational institutions across the country to develop and enhance undergraduate education programs in Logistics and SCM. Logistics and SCM, as a service sector, requires a large workforce with various levels of qualifications due to the complexity and diversity of the industry's characteristics.

2.3. Introduction to the current status survey

2.3.1. Purpose of the survey

2.3.2. Survey subjects

Table 2.1. Universities conducting current status research

University	Year Established	Predecessor	Governing Body
University of Transport Technology	2011	Technical College of Civil Engineering (1945)	Ministry of Transport
University of Transport - Ho Chi Minh City	2001	Branch of Hanoi University of Transport (1991)	Ministry of Transport
Hanoi University of Industry	2005	Technical College of Industry (1999)	Ministry of Industry and Trade
Electric Power University	2006	Electric Power College (2001)	Ministry of Industry and Trade
Hanoi Metropolitan University	2014	Teacher Training 59)	The Hanoi People's Committee

2.2.3. Survey Content

2.2.4. Survey Methods, Tools

2.2.5. Processing of Survey Results

The degree of the average distance is calculated by the formula:

$$L = \frac{n-1}{n} = \frac{4-1}{4} = 0,75$$

Weighted mean score evaluation:

$$\sum_{k=1}^n a_k x_k$$

Where: x_1, x_2, \dots, x_n are n elements in the sample set; a_i is the weight of element x_i . N is the total number of elements in the sample.

2.4. The current state of Logistics and SCM education at Vietnamese universities

2.4.1. The actual implementation of Logistics and SCM training objectives

The survey results presented in Table 2.3 show that in the activity of implementing training objectives, universities offering Logistics and SCM have performed well in the process of training objective implementation. The opinions of surveyed subjects, including management staff and lecturers, are quite unanimous.

2.4.2. The current state of developing undergraduate education programs in Logistics and SCM

According to the survey results in Table 2.4: Although when developing education programs in Logistics and SCM, all universities base them on capabilities, conditions, and development orientations of Logistics and SCM at their institutions, they all survey the actual manpower needs for undergraduate education in Logistics and SCM.

The survey results show that the content of the courses in the education programs meets the requirements of Logistics enterprises with an average score $\overline{X}_i = 2,65$. The courses in the programs meet the requirements of competency-based training (with $\overline{X}_i = 2,32$).

2.4.3. The current state of teaching activities of lecturers in Logistics and SCM

The survey results shown in Table 2.5 once again indicate that the team of lecturers involved in teaching Logistics and SCM still have significant shortcomings in teaching methods and organization related to the application of the CBA.

2.3.4. The Current State of Learning Activities of Students in Logistics and SCM

The current state of learning activities of students in Logistics and SCM is presented in Table 2.6. Accordingly, no content was rated well by the surveyed subjects.

2.4.5. The current state of assessing the learning outcomes of students in Logistics and SCM

Data from the actual survey in Table 2.7 shows that of the four content areas of student learning outcome assessment surveyed, the content areas rated as relatively good are: Evaluation of the graduation thesis combined with testing the practical knowledge of students; Assessment of student learning outcomes based on qualities and capabilities

to perform; The other two content areas are rated as average: Awareness of management staff and lecturers about the assessment of student learning outcomes with the CBA; exams and tests designed based on problem-solving. This survey result reflects that the awareness of management staff and lecturers regarding competency-based assessment and evaluation is not yet profound, so exams and tests designed based on problem-solving are not widely used. This is a limitation that universities offering undergraduate education in Logistics and SCM need to address immediately to bring the assessment of student learning outcomes in line with the trend of competency-based evaluation.

2.4.6. The current state of physical infrastructure and conditions supporting training in Logistics and SCM

The survey results in Table 2.8 show that of the four content areas surveyed, three content areas performed relatively well: Online training portal with an average $\bar{X} = 2,89$, Training management software system with an average score $\bar{X} = 2,76$, and Data center, practice lab system, infrastructure connection with an average score $\bar{X} = 2,54$.

For training activities at universities, educational materials serving training are considered indispensable means for students to use for self-study and to absorb specialized knowledge. The degree to which educational materials serve undergraduate education in Logistics and SCM at universities is shown in Table 2.9. Through data collected from the actual survey at universities offering undergraduate education in Logistics and SCM, it can be seen that the system of educational materials serving competency-based undergraduate education in Logistics and SCM has been a focus of construction by the universities.

2.4.7. The Current State Of Assessing Necessary Competencies For Students in Logistics and SCM training

The actual survey results presented in Table 2.10 show that students in Logistics and SCM are rated by the surveyed subjects as performing well in learning competencies with an average score $\bar{X} = 3,36$.

The group of individual competencies is rated by the surveyed subjects as having the lowest level of implementation with an average score $\bar{X} = 2,35$.

2.5. The current state of managing undergraduate education in Logistics and SCM with a CBA at Vietnamese universities

2.5.1. The current state of managing training objective determination activities in Logistics and SCM with a CBA at Vietnamese universities

This survey result indicates that although there is an awareness of the policy to innovate, shifting from knowledge transmission to competency-based training, universities are still confused in directing and organizing the implementation of the CBA into activities for determining training objectives.

2.5.2. The current state of managing the development of undergraduate education programs in Logistics and SCM

Based on the data obtained from the survey in Table 2.11, it can be observed that the management activities for the development of undergraduate education programs in Logistics and SCM with a CBA at universities fundamentally meet the requirements.

2.5.3. The current state of managing teaching activities of lecturers in Logistics and SCM

Based on the data gathered from the survey in Table 2.12, it is apparent that the activities of managing the development of competency-based undergraduate programs in Logistics and SCM at universities are rated as fairly good, with an average score \bar{X} ranging from 2.38 to 3.17.

2.5.4. The current state of managing student learning activities in Logistics and SCM

The survey results in Table 2.13 indicate that the management of student learning activities with a CBA is rated as fairly good, with an average score \bar{X} ranging from 2.56 to 3.14.

2.5.5. The current state of managing the evaluation of student learning outcomes in Logistics and SCM

At the surveyed universities, the management of the activities of testing and evaluating student learning outcomes with a CBA is fundamentally not yet well implemented, as shown in Table 2.14. It can be seen that all four content areas of managing the evaluation of student learning outcomes in Logistics and SCM according to a CBA at Vietnamese universities are performed at a fairly good level.

2.5.6. The current state of managing facilities and conditions for undergraduate education in Logistics and SCM

The survey results in Table 2.15 show that the management of facilities and resources serving the teaching process in undergraduate programs in Logistics and SCM are rated by survey subjects as average and fairly good.

The survey results in Tables 2.16 and 2.17 present a rather concerning picture regarding the management of technology infrastructure and educational resources for undergraduate education in Logistics and SCM at universities.

2.5.7. The current state of managing the evaluation of training outcomes and implementation of post-training activities

2.5.7.1. The current state of managing the evaluation of training outcomes

Actual research at universities offering undergraduate education in Logistics and SCM shows that the management of evaluating student graduation and outcome results is performed relatively well, with an average score \bar{X} ranging from 2.80 to 2.97, as shown in Table 2.19. Generally, this activity is rated as fairly good with an average score $\bar{X} = 2.87$.

2.5.7.2. The current state of managing information on employment status of graduates in Logistics and SCM with a CBA at Vietnamese universities

The survey results in Table 2.20 prove that the leaders of universities offering undergraduate education in Logistics and SCM have paid attention to the activity of collecting information on the employment status of graduates.

2.5.7.3. Management of information on the satisfaction of employers with Logistics and SCM graduates according to a CBA at Vietnamese universities

Survey data presented in Table 2.21 indicates that the management of information on employer satisfaction with human resources in Logistics and SCM is generally performed better than managing information on the employment status of graduates, with an average score \bar{X} ranging from 2.79 to 3.08.

2.6. The current state of the influence of various factors on the management of competency-based training in Logistics and SCM at Vietnamese universities

The research results indicate that subjective factors have a very significant impact on the management of competency-based undergraduate education activities in Logistics and SCM. Therefore, management at universities currently needs to pay attention to the influence of these factors to implement appropriate and more effective management measures in organizing competency-based undergraduate education in Logistics and SCM at their institutions.

2.7. general assessment of the current state of competency-based training management in Logistics and SCM at Vietnamese universities

2.7.1. Achievements

2.7.2. Limitations

2.7.3. Causes of limitations

Conclusion of Chapter 2

CHAPTER 3

SOLUTIONS FOR MANAGING UNIVERSITY-LEVEL TRAINING IN LOGISTICS AND SCM WITH A CBA AT VIETNAMESE UNIVERSITIES

3.1. Principles for proposing solutions

3.1.1. Ensuring the training objective

3.1.2. Ensuring systematic nature

3.1.3. Principle of ensuring consistency

3.1.4. Ensuring continuity and development

3.1.5. Ensuring effectiveness

3.2. Management solutions for undergraduate education in Logistics and SCM with a CBA at Vietnamese universities

3.2.1. Organizing the development of a competency framework for students in Logistics and SCM

3.2.1.1. Purpose of the solution

The development of a competency framework for students in Logistics and SCM will help universities have a legally binding document to base the selection of training content, determine methods, organize training, and assess the learning outcomes according to the CBA.

3.2.1.2. Content of the Solution

The solution "Organizing the development of a competency framework for students in Logistics and SCM with a CBA at universities" aims to outline the initial steps for the competency framework of students in Logistics and SCM. Research on Logistics and SCM education programs at Vietnamese universities shows that many universities offer Logistics training but have not really focused on developing a competency framework for students in Logistics and SCM. The absence of a well-developed competency framework makes it difficult to organize specialized training in Logistics and SCM. Therefore, the main content of this solution is for universities offering Logistics and SCM to systematically develop a competency framework for students in Logistics and SCM, based on scientific foundations and tied to practical applications.

3.2.1.3. Organizing the Implementation of the Solution

Step 1: Planning the compilation

Step 2: Directing the analysis of roles, tasks, and determining the quality and competency requirements for graduates

Step 3: Defining the competency framework for students in Logistics and SCM.

Step 4: Based on the draft competency framework presented above, the drafting team organizes to collect feedback from experts and Logistics enterprise units on the draft competency framework through surveys.

Step 5: After collecting survey responses, the drafting team processes the survey results and synthesizes feedback from experts and Logistics enterprises. Based on these synthesized feedback results, the drafting team adjusts, finalizes, and submits the

competency framework for students in Logistics and SCM with a CBA to the principal for publication.

3.2.1.4. Conditions for Implementing the Solution

- Unified leadership within the university: Unity among the university's Party Committee, University Council, and Directors ensures that all decisions reflect the strategic objectives of the school and also facilitates the mobilization of resources, from financial to human, to implement plans effectively.

3.2.2. Guidance, review, and adjustment of undergraduate programs in Logistics and SCM with a focus on developing student competencies

3.2.2.1. Purpose of the Solution

This solution aims to bridge the gap between theory and practice, meeting the need to enhance the competencies of human resources in the field of Logistics.

3.2.2.2. Content of the Solution

Conduct in-depth surveys and data analysis: Firstly, through surveys and data collection, it is necessary to understand the practical needs of businesses regarding the competencies of human resources in the field of Logistics and SCM, not only at the level of specialized knowledge but also in terms of personal qualities and soft skills. This requires categorizing the requirements, especially core skills and knowledge, based on importance and urgency to identify the parts of the curriculum that need to be prioritized for updates or adjustments.

3.2.2.3. Implementation of the solution

Establishing objectives and knowledge and skills blocks: During the development and implementation of the curriculum, the University will focus on actively involving businesses in defining training objectives and developing program content. The goal is to ensure that the curriculum accurately reflects the necessary skills and knowledge that the labor market is seeking, while providing students with opportunities for internships, practical projects, and guest lectures from experienced professionals in the industry.

3.2.2.4. Conditions for implementing the solution

The University's board of directors, especially the Deputy rector responsible for education, the training department head, and the Head of the department, must have a proper understanding of the necessity and importance of curriculum innovation and adjustment for undergraduate programs in Logistics and SCM. This is to better meet the requirements of enhancing student competencies.

3.2.3. Training for the teaching staff in competency-based education

3.2.3.1. Purpose of the solution

The purpose of the solution to organize training for the teaching staff in competency-based education is to standardize the participation of teaching staff in teaching specialized subjects in Logistics and SCM. It helps them develop the ability to teach according to the CBA, integrate theory and practice according to the learning outcomes, meet the requirements of developing the Logistics and SCM field, and

thereby contribute to improving the quality and effectiveness of the University's education.

3.2.3.2. Content of the Solution

- Enhancing the political ideology and awareness of the teaching staff
- Enhancing competency in Logistics and SCM
- Enhancing pedagogical skills
- Enhancing competency in curriculum development and implementation
- Enhancing competency in collaboration with businesses
- Enhancing career development competency

3.2.3.3. Implementation of the Solution

Surveying and analyzing the current state of the teaching staff: The University's leadership has directed the conduct of a survey and evaluation of the current teaching staff to determine their structure, quantity, and capabilities. This helps to understand the individual training needs and creates appropriate training needs groups. At the same time, it is necessary to analyze the strengths and weaknesses of the current teaching staff, as well as to understand the resources and support capabilities of the University in organizing training. Any training activities must be practical, of high quality, effective, and not affect the teaching schedule or the University's training mission.

3.2.3.4. Conditions for implementing the solution

- 1) *The University's leadership's concern*
- 2) *The sense of responsibility and the learning attitude of the teaching staff*
- 3) *Physical facilities, equipment, and financial resources.*

3.2.4. Organizing the development of learning materials and applying information technology suitable for undergraduate programs in Logistics And SCM

3.2.4.1. Purpose of the solution

The purpose of this solution is to improve the quality and effectiveness of the education process, provide the best conditions for students to access learning content and the learning environment, and ensure the enhancement of professional competencies. Universities aim to contribute to providing high-quality human resources for the Logistics industry and meeting the requirements of businesses in this field.

3.2.4.2. Content of the solution

- Enhancing the quality of learning materials
- Strengthening IT infrastructure
- Developing diverse learning materials integrated with practical applications
- Promoting student participation in learning material compilation

3.2.4.3. Implementation Approach

Directing the planning and evaluation of learning materials and IT Infrastructure: The Rector directs relevant departments to review and evaluate learning materials and IT infrastructure. The goal is not only to ensure modernization and updates but also to create an environment for students to develop deep competencies. Students in the field of Logistics and SCM need to study in a dynamic environment with access to advanced

technologies and rich learning materials. Strong investments in infrastructure and learning materials can promote creativity and critical thinking, helping students develop the necessary skills for their future careers.

3.2.4.4. Conditions for implementing the solution

Adjustment and renewal of curriculum development: The adjustment and renewal of curriculum development have been carried out to meet the practical needs of society, industry, and, most importantly, to optimize the learning and personal development potential of students. Curriculum development is regularly updated, focusing not only on providing knowledge but also on developing skills, critical thinking, and adaptability. This helps students not only equip themselves with theory but also apply it flexibly in practice, especially in the field of Logistics and SCM, which requires constant innovation and quick adaptability.

3.2.5. Establishing a coordination mechanism between universities and Logistics companies in the internship and graduation internship programs for students

3.2.5.1. Purpose of the Solution

The purpose of this solution is to formalize the responsibility and active participation of Logistics companies in internship and graduation internship programs for students in the field of Logistics and SCM. This responsibility needs to be formalized through an agreement that clearly defines the coordination mechanism between the university and Logistics companies, including the responsibilities and rights of each party as well as the conditions for cooperation in internship and graduation internship activities.

3.2.5.2. Content of the Solution

- Implementing coordination contracts
- Standardizing the internship process
- Determining costs and supervision responsibilities
- Clarifying roles and responsibilities
- Enhancing assessment and feedback
- Promoting student initiative and creativity

3.2.5.3. Implementation Approach

- Planning coordination between the university and Logistics companies for student internship and graduation internship programs: In this process, the Head of the Department is responsible for drafting the plan and sending it to Logistics companies for feedback. The plan, once completed, will be jointly signed and implemented by both parties.

- Checking, evaluating, and supervising the implemented plan: The university will monitor and evaluate the results of student internships to ensure they meet the requirements and achieve the desired outcomes. The assessment will focus on key issues such as student attendance, internship programs, the responsibilities of mentors, the internship environment, and the progress of student internships.

3.2.5.4. Conditions for implementing the solution

- The awareness of the university leadership and Logistics companies about the importance of establishing a coordination mechanism and planning for cooperation between the university and Logistics companies in guiding student internships and graduation internships.

- The university must allocate funding for student practical training and internships.

3.2.6. Development of a post-graduation feedback information system for students in Logistics and SCM

3.2.6.1. Purpose of the solution

The purpose of this solution is to establish a comprehensive and reliable database regarding the employment status of graduates and the satisfaction of businesses with the quality of university graduates in Logistics and SCM. This will assist universities in supplementing and adjusting their curriculum and in building a network of potential partners and clients for the institution.

3.2.6.2. Contents of the Solution

- Increase awareness and attention from the University leadership
- Gather multi-dimensional and transparent information
- Analyze and strategically use the information
- Strengthen ties with businesses in data collection

3.2.6.3. Implementation Methods of the Solution

- Strengthen and enhance the training management information system by establishing a robust training management information center under the University board.

- Allocate resources to ensure effective organization and provide modern equipment for the educational information management system.

- Improve the technical infrastructure for the post-graduation student information system, focusing on data processing, publication, and dissemination. Simultaneously, enhance training and upgrade the skills of staff responsible for information collection and processing.

3.2.6.4. Conditions for implementing the solution

- Consistent and regular attention and guidance from the university leadership to various units within the institution regarding the collection and analysis of post-graduation employment situations of graduates.

- Cooperation from graduates in providing employment information and their evaluations of the university's curriculum.

- Long-term, detailed planning by the university leadership for the development of the post-graduation information system.

- Adequate allocation of infrastructure and financial resources to carry out activities related to the collection and analysis of post-graduation information.

3.3. The relationship between the solutions and urgency, feasibility of the solutions

3.3.1. The Relationship Between the Solutions

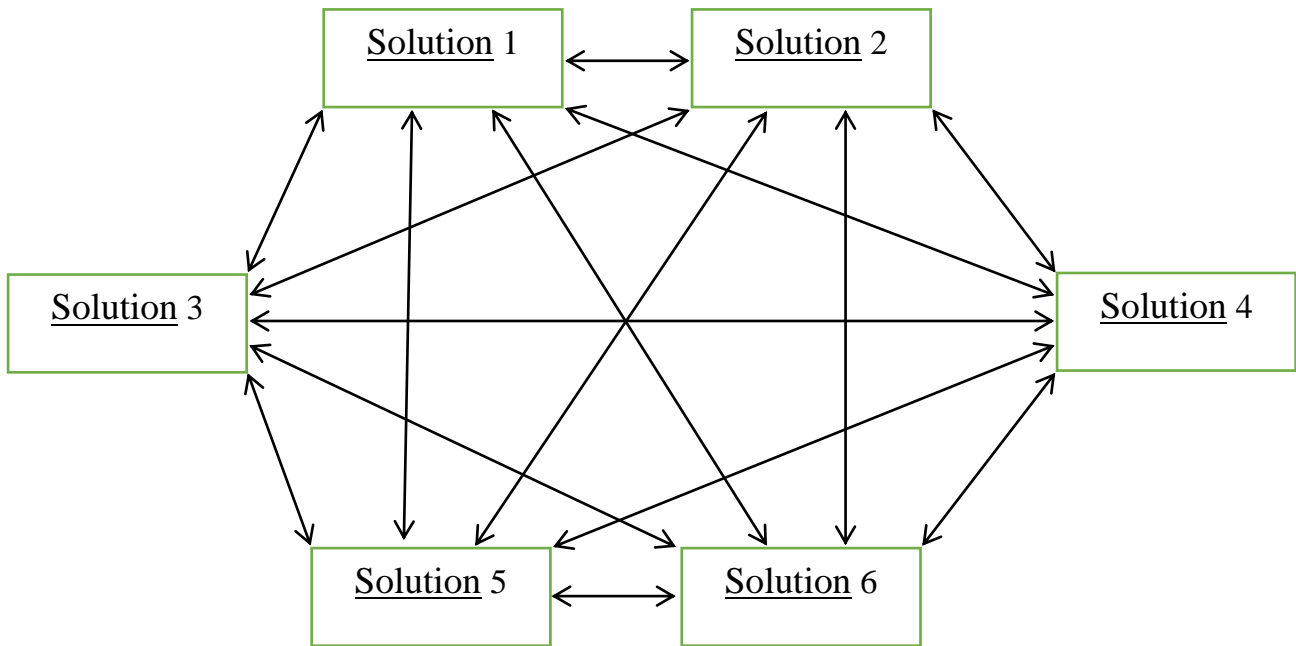


Figure 3.1. Diagram of the relationship between solutions for managing university-level education in Logistics and SCM using a CBA at Vietnamese universities.

3.3.2. Evaluation of the urgency and feasibility of the solutions

- *The necessity level of the proposed solutions:*

Based on the survey from Management and Lecturers of universities with training programs in Logistics and SCM, all 6 proposed solutions in the thesis are considered necessary.

- *The feasibility of the proposed solutions:*

The survey results from the Management and Lecturers confirm the feasibility of the 6 proposed solutions in the thesis as presented in Table 3.4.

3.4. Solution testing

3.4.1. Overview of Testing

Based on theoretical research, analysis of the current situation, and proposal of management solutions for university-level education in Logistics and SCM using a CBA at Vietnamese universities, the author has evaluated the urgency and feasibility of the solutions and has validated the correctness of the scientific hypothesis of the topic. To determine effectiveness, the author conducted an experiment with one solution: Establishing a coordination mechanism between universities and Logistics businesses in internship activities and graduation practice for students.

3.4.2. Evaluation of Test Results

Table 3.5. Table comparing the average scores of the experimental group and the control group in Phase 1 before the internship.

Group	Number	Grades			Conduct Training
		A	B, B+	C, C+	
Experimental	3	1	1	1	3/3 Good Conduct
Control	3		2	1	3/3 Good Conduct

Table 3.6. Table comparing the average scores of the experimental group and the control group in Phase 2 before the internship.

Group	Number	Grades			Conduct Training
		A	B, B+	C, C+	
Experimental	3		2	1	3/3 Good Conduct
Control	3	1	1	1	3/3 Good Conduct

• *The experiment results:*

+ Internship Phase 1: In the experimental group, 03 students participated, with 02 students achieving an A grade and 01 student achieving a B grade across both courses. Meanwhile, the control group of 03 students had lower results.

Table 3.8. Table comparing the average course scores of the experimental group and control group in Phase 1 after the experiment.

Group	Average Grade for Professional Internship Course			Average Grade for Graduation Internship Course		
	A	B, B+	C, C+	A	B, B+	C, C+
Experimental	2	1		1	1	1
Control	2	1		1	2	

+ Internship Phase 2: In the experimental group, 03 students participated, with 02 students achieving an A grade and 01 student achieving a B grade across both courses. Meanwhile, the control group of 03 students had lower results.

Table 3.8. Table comparing the average course scores of the experimental group and control group in Phase 1 after the experiment.

Group	Average Grade for Professional Internship Course			Average Grade for Graduation Internship Course		
	A	B, B+	C, C+	A	B, B+	C, C+
Experimental	1	2		1	2	
Control		2	1	1	1	1

Thus, it can be seen that with positive impacts on the training process, the training results of the experimental group are much more effective than those of the control group.

- Regarding the results of competence assessment

The results obtained from the evaluation of business experts who directly supervised students during their internships regarding the professional competences of 6 students from each group who have completed 02 internship phases are reflected in Table 3.10.

From the data in Table 3.10, it can be seen that after the internship at various enterprises, the professional competencies of the students essentially meet the requirements, although among the 12 students (over 2 phases) evaluated, there are still some specialized skills that only partially meet expectations. Specifically, these include: Applying foreign language skills to understand the main ideas of a report or speech; Using necessary skills to solve complex problems; Applying in-depth knowledge of Logistics and SCM; and Working with a planned and scientific approach.

- On the effectiveness of the coordination mechanism

Based on the constructed survey forms, the author of the thesis distributed them to 30 Management, Lecturers, and business experts directly involved in supervising the students' internships, with the results gathered in Table 3.11.

The survey data indicates that although the management of the coordination mechanism is not yet perfect, the conditions for the internships and the results of the students' internships are very good. This suggests that if a clear and effective coordination mechanism is established between universities offering Logistics and SCM degree programs and Logistics enterprises in guiding students' internships, it would have a significant impact on enhancing the professional competencies of students.

Conclusion of Chapter 3

CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

In the context of global economic integration, Logistics and SCM have become key fields driving the development of Vietnam's economy. However, the growth of this sector is currently facing challenges related to the shortage of quantity and skills in its workforce. Additionally, supply chains are becoming increasingly complex with constant changes, requiring Logistics personnel to have new skills that meet these demands. Overcoming these challenges, particularly in Logistics and SCM university-level education, has become more crucial than ever. The research has shown that, globally and in Vietnam, there have been studies on university-level education management in Logistics and SCM using a CBA. However, the management of university-level education in this field at Vietnamese universities has not been thoroughly studied. Through this research, the author has drawn the following conclusions:

Based on an overview of research related to the topic, the thesis has presented the main results achieved by previous studies, while also highlighting issues that have not been clarified or mentioned, which require further research. The thesis has established a theoretical framework, clarifying the theory on education and management of university-level education in Logistics and SCM using CBA at Vietnamese universities. The thesis applied a management model according to processes and combined with management functions to study the management of university-level education in Logistics and SCM using CBA.

The research on the current state of education and management of education in Logistics and SCM shows that the quality of training activities at universities in this field is only moderately good, with limitations in infrastructure, learning materials, and teaching resources. Important factors have not been well implemented, and universities have not truly shifted towards competency-based learning. The main reason is that educational management at these institutions has not kept up with innovative educational methods, and the conditions ensuring training quality are not uniform and lack significant attention, especially for a field like Logistics and SCM that requires constant change.

To address these limitations, the thesis proposes 6 solutions, including: Developing a competency framework for students in Logistics and SCM; Directing the review and adjustment of university-level curricula in Logistics and SCM towards developing student competencies; Organizing training for faculty on competency-based teaching; Developing learning materials and applying IT that suits university-level education in Logistics and SCM; Establishing a coordination mechanism between universities and Logistics businesses for professional internships and graduation practice of students; Building a post-graduation feedback information system for students in Logistics and SCM. The author tested one solution at the University of Transport Technology, and the results showed that the proposed solution is highly urgent and feasible. With the results

achieved, these are solutions that can be chosen for practical application in the management of university-level education in Logistics and SCM using CBA at Vietnamese universities, contributing to the improvement of human resource training quality for the Logistics sector.

2. Recommendations

2.1. Recommendations for the ministry of education and training

High-quality human resources are the foundation for the development of Vietnam's Logistics sector in the current period of integration. To develop human resources for our Logistics sector to help overcome current difficulties, strengthen the sector, and contribute to the development of Vietnam's economy, affirming Vietnam's position in the region and the world, the following issues should be deployed:

Firstly, the Ministry of Education and Training needs to provide clearer guidance for universities on autonomy and full responsibility in developing, evaluating curricula, admission plans, and methods of university-level education in Logistics and SCM, based on the regulations of the Higher Education Law, but ensuring flexibility to facilitate universities in training according to CBA.

Secondly, the Ministry of Education and Training should direct universities offering university-level education in Logistics and SCM to coordinate and organize seminars on curricula with the aim of standardizing the framework program and the basic textbooks used in university-level education in Logistics and SCM, avoiding the situation where universities autonomously develop curricula and implement training based on their available capabilities.

Thirdly, the Ministry of Education and Training should organize and guide the development of an open-source system for learning materials serving university majors, including the field of Logistics and SCM, to ensure standards of professional knowledge and technique. Additionally, building a national data warehouse will help provide a source of lectures and e-learning materials that meet national standards, thereby utilizing resources from universities to contribute to the common resource pool of the country. This will contribute to the goal of developing human resources in the field of Logistics and SCM.

2.2. Recommendations for universities offering university-level education in Logistics and SCM.

Firstly, the university rector needs to issue regulations for organizing university-level education in general, including university-level education in Logistics and SCM according to the CBA (CBA). These regulations should be legally binding within the scope of the university and require compliance from all units and individuals. They must include requirements, content, rules, and implementation roadmaps, as well as associated reward and penalty mechanisms.

Secondly, strengthen linkages and comprehensive cooperation, exchange information with universities that offer university-level education in Logistics and SCM

to unify curricula, share experiences in training organization, and gradually improve the quality of their own training.

Thirdly, expand coordination with Logistics enterprises, particularly in terms of CBA training, organize practical exercises and internships for students in Logistics and SCM. This cooperative activity must be concretized with contracts and plans that have legal effect to ensure effective and efficient implementation.

Fourthly, regularly organize conferences and specialized seminars on management innovation and the use of human resources after university-level education in Logistics and SCM. This will provide useful information from experts and employers about the Logistics and SCM workforce, serving as a basis for adjusting the university's curriculum to align with the actual conditions of Logistics enterprises.

Fifthly, universities need to have a specific plan for investing in technological infrastructure to serve university-level education in Logistics and SCM, equipping modern teaching and learning facilities to ensure effective implementation of competency-based university-level education in Logistics and SCM within the institution.

Sixthly, there should be policies for selecting and training a team of teachers who will teach at the university level in Logistics and SCM, aimed at enhancing their professional and pedagogical skills so that they can fulfill their training duties. In particular, there must be policies to motivate teachers who participate in university-level teaching in Logistics and SCM according to CBA, through a mechanism of public, fair, and democratic rewards and penalties.

Seventhly, based on the policy direction of the university president, departments, faculties, and divisions need to be proactive and change from their work consciousness to their approach, specifically: from carrying out competency-based training objectives, identifying the key skills and knowledge that students need to develop, designing flexible learning programs to reflect objectives, combining theory with practice, and creating opportunities for students to engage in practical activities such as internships and projects, to changing assessment forms according to CBA.

Eighthly, university lecturers teaching Logistics and SCM need to be aware of educational innovations, societal needs in competency-based training to continuously improve their qualifications, professional capabilities, thereby enhancing the quality of expertise in teaching activities, curriculum development, scientific research, and ensuring that training activities meet the set goals.

Ninthly, Logistics and SCM students in universities must be aware of their role to then study, cultivate, and train well in order to fully take on the positions and roles identified in the field of Logistics. Logistics and SCM students themselves need to realize that they are not only the subjects of training but also the main agents of training, and thus should be proactive in their learning.

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