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Organizing the teaching of the scientific research methods course for students at the National Academy of Education Management, Vietnam, based on a competency-based approach

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***Abstract*---**This study examines the organization of teaching the Scientific Research Methods course for students at the National Academy of Education Management Vietnam based on a competency-based approach. A mixed methods research design was employed, combining quantitative data from a survey of 160 undergraduate and postgraduate students with qualitative data from semi-structured interviews with 10 lecturers and 15 students. Quantitative data were analyzed using descriptive statistics, while qualitative data were coded and thematically analyzed to complement and explain the survey findings. The results indicate that the overall organization of the course is perceived as moderately effective, with relatively clear alignment between learning outcomes and course content. However, teaching methods and assessment practices have not fully supported the development of research competencies, particularly in the areas of research design and data analysis. Academic writing skills were rated higher than analytical skills, reflecting an imbalance in competency development. The findings also show that lecturers' pedagogical competence and research experience play a central role in organizing teaching, while limitations in curriculum workload, learning resources, and institutional support constrain the effective implementation of competency-based teaching. Based on these findings, the study proposes solutions focusing on refining competency-based learning outcomes, strengthening practice-oriented teaching methods, aligning assessment with competency development, enhancing lecturer professional development, and improving institutional support. The study contributes practical implications for improving the teaching of research methods in education management

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programs and provides a reference for applying competency-based approaches in higher education.

***Keywords*---**Competency-based approach, scientific research methods, higher education, research competency development, teaching organization.

1. Introduction

In higher education, the course on scientific research methods plays a fundamental role in equipping students with essential competencies for academic inquiry, critical thinking, and evidence-based decision-making. Research competence is not only a prerequisite for completing academic assignments and graduation theses but also a core component of professional capacity in education management and related fields. However, many studies indicate that students often experience difficulties in understanding research processes, applying research methods, and developing confidence in conducting independent research, especially when teaching is still dominated by content transmission and theoretical instruction rather than skill development and practice-oriented learning (Clark et al., 2021; Kucukaydin & Gokalp, 2021).

In recent years, the competency-based approach has been widely promoted as an effective orientation for curriculum design and teaching organization in higher education. This approach emphasizes clearly defined learning outcomes, integration of knowledge, skills, and attitudes, and alignment between teaching activities and assessment based on demonstrated competencies. Research has shown that competency-based education contributes to improving learners' self-efficacy, autonomy, and ability to apply knowledge in real contexts, particularly in professional and applied disciplines (Açikgöz & Babadogan, 2021; Holubnycha et al., 2022). In the context of research methods education, competency-based teaching has been found to enhance students' research skills and reduce research-related anxiety by engaging learners in authentic tasks such as problem identification, data collection, analysis, and reporting (Grande et al., 2021; Kucukaydin & Gokalp, 2021).

At the National Academy of Education Management Vietnam, the Scientific Research Methods course is a compulsory component in training undergraduate and postgraduate students in education management and related programs. The Academy's training mission requires graduates not only to understand theoretical foundations of educational research but also to be capable of conducting applied research to support policy making, institutional development, and educational innovation. Nevertheless, practical observations suggest that the organization of teaching this course still faces challenges related to curriculum structure, teaching methods, assessment practices, and students' active engagement in research activities. These challenges reflect a broader need to shift from traditional lecture-based instruction toward a competency-based model that better responds to learners' needs and contemporary requirements of higher education reform in Vietnam (Tinh et al., 2021; Syarnubi et al., 2023).

Against this background, this study aims to examine the organization of teaching the Scientific Research Methods course at the National Academy of Education Management Vietnam based on a competency-based approach. By analyzing current teaching practices and identifying key factors influencing competency development, the study seeks to propose practical solutions to improve course design, teaching methods, and assessment in alignment with competency-based education principles. The findings are expected to contribute both to the theoretical discussion on competency-based teaching in higher education and to the practical improvement of research methods instruction in education management programs (Mojab et al., 2011).

2. Literature Review

2.1. Competency-Based Approach in Higher Education

The competency-based approach in higher education has been increasingly adopted as a response to the demand for graduates who are able to apply knowledge effectively in professional and real-world contexts. This approach is generally understood as an educational orientation that focuses on clearly defined learning outcomes expressed in terms of competencies, integrating knowledge, skills, and attitudes, and emphasizing learners' ability to demonstrate what they can do rather than what they know theoretically. Competency-based education places the learner at the center of the teaching and learning process and requires alignment among learning outcomes, curriculum content, teaching strategies, and assessment practices (Açikgöz & Babadogan, 2021; Holubnycha et al., 2022).

Core characteristics of the competency-based approach include outcome orientation, transparency of learning goals learner learner-centered instruction, and performance-based assessment. Learning outcomes are explicitly described as competencies that can be observed and assessed through concrete tasks or products. Teaching activities are designed to support learners in progressively developing these competencies through active learning, experiential tasks, and reflective practice. Assessment in competency-based education focuses on evidence of performance and mastery rather than time spent in class or reproduction of theoretical knowledge (Holubnycha et al., 2022). These characteristics contribute to enhancing students' autonomy, learning motivation, and self-efficacy, which are considered critical factors for success in higher education.

In order to operationalize the competency-based approach, universities often rely on competency frameworks for students. Such frameworks typically specify a set of core competencies, including critical thinking, problem solving, research skills, communication, teamwork, and self-regulated learning. In professional and applied fields, these frameworks also incorporate discipline-specific competencies that reflect occupational standards and societal needs. Research suggests that well-defined competency frameworks provide a foundation for curriculum design, teaching organization, and assessment coherence while supporting students' holistic development and lifelong learning capacity (Açikgöz & Babadogan, 2021; Grande et al., 2021).

2.2. Teaching Scientific Research Methods in Universities

Teaching scientific research methods is a fundamental component of university education as it equips students with essential competencies for academic inquiry, evidence-based practice, and professional development. The primary objectives of research methods courses include helping students understand the logic and process of scientific research, developing skills in problem identification, research design, data collection, and analysis, and cultivating critical thinking and academic writing abilities. Expected learning outcomes often emphasize not only cognitive understanding of research concepts but also practical competencies such as conducting small-scale studies, interpreting findings, and communicating research results effectively (Clark et al., 2021; Tinh et al., 2021).

Despite its importance, research methods education faces persistent challenges in university contexts. Many studies report that students perceive research methodology as abstract, difficult, and anxiety inducing particularly when instruction is heavily theoretical and lacks opportunities for practice and application. Traditional teaching models based on lectures and textbook-oriented instruction often fail to engage students actively or support the development of practical research competencies. As a result, students may struggle to transfer methodological knowledge into actual research activities such as thesis writing or applied research projects (Kucukaydin & Gokalp, 2021; Grande et al., 2021).

In response to these challenges, various teaching models have been proposed, including project-based learning, problem-based learning, blended learning, and competency-based teaching models. These approaches emphasize active student participation, authentic research tasks, collaborative learning, and formative feedback. Empirical evidence indicates that when research methods courses are organized around competency development, students demonstrate higher levels of research self-efficacy, reduced research anxiety, and improved ability to apply research skills in real academic and professional contexts (Kucukaydin & Gokalp, 2021; Turan et al., 2022). However, successful implementation requires careful curriculum design, lecturer capacity, and institutional support, which remain significant challenges in many higher education institutions.

3. Theoretical Framework

3.1. Competency Framework Applied to the Scientific Research Methods Course

The theoretical framework of this study is grounded in the competency-based approach in higher education and focuses on defining a clear set of research competencies for students enrolled in the Scientific Research Methods course at the National Academy of Education Management, Vietnam. The competency framework specifies the expected outcomes of learning in terms of students' ability to apply knowledge, skills, and attitudes in conducting scientific research. Core research competencies include identifying and formulating research problems, designing appropriate research methodologies, selecting and applying data collection techniques, analyzing and interpreting data, and presenting research findings in accordance with academic standards. Alongside these technical competencies, the framework also emphasizes transversal competencies such as critical thinking, academic integrity, communication, collaboration, and

self-regulated learning, which are essential for sustainable professional development in education management (Açikgöz & Babadogan, 2021; Grande et al., 2021).

The integration of both discipline-specific and transversal competencies reflects the holistic nature of competency-based education. It ensures that students are not only able to complete research tasks mechanically but also capable of reflecting on research quality, ethical considerations, and the practical implications of research outcomes. This framework serves as a reference for curriculum design and provides a basis for evaluating the extent to which the course supports comprehensive research competency development (Van Dinther et al., 2011).

3.2. Alignment among Learning Outcomes Content, Teaching Methods, and Assessment

A key component of the theoretical framework is the principle of alignment among learning outcomes, course content, teaching methods, and assessment. Learning outcomes are formulated as observable and measurable research competencies that guide the selection and structuring of course content. Content is organized around the stages of the research process, ensuring logical progression from problem identification to reporting and dissemination of results. Teaching methods are chosen to facilitate active learning and competency development through activities such as project-based tasks, group discussions, case analysis, and guided practice in research design and data analysis (Clark et al., 2021; Holubnycha et al., 2022).

Assessment practices are designed to align closely with learning outcomes by focusing on performance-based evidence of competency attainment. Instead of relying solely on traditional written examinations, the assessment includes research proposals, reports, presentations, and reflective journals, which allow students to demonstrate their ability to apply research methods in authentic contexts. This alignment enhances the coherence of the teaching and learning process and supports fair and meaningful evaluation of students' research competencies (Peck et al., 2009).

3.3. Conceptual Research Model

Based on the competency framework and the alignment principle, a conceptual research model is developed to guide the analysis in this study. The model conceptualizes the organization of teaching the Scientific Research Methods course as a system in which competency-oriented curriculum design, teaching methods, and assessment practices interact to influence students' development of research competencies. These core components are further shaped by contextual factors such as lecturers' pedagogical capacity, availability of learning resources, and institutional support mechanisms.

The model assumes that effective alignment and integration of these elements lead to improved student engagement, higher research self-efficacy, and stronger research competency outcomes. By applying this conceptual model, the study examines current teaching practices, identifies gaps in competency-based implementation, and proposes solutions to enhance the organization of the

Scientific Research Methods course at the National Academy of Education Management Vietnam.

4. Research Methodology

4.1. Research Design

This study adopted a mixed-methods research design to provide a comprehensive examination of the organization of teaching the Scientific Research Methods course based on a competency-based approach. The integration of quantitative and qualitative methods enabled the study to capture both general patterns and in-depth perspectives regarding teaching practices and research competency development. Quantitative data were used to describe the overall situation, while qualitative data supported the interpretation and explanation of the findings.

4.2. Research Context and Participants

The research was conducted at the National Academy of Education Management Vietnam during the academic year 2024–2025. Participants included students who had completed the Scientific Research Methods course and lecturers involved in teaching the course. The quantitative survey involved 160 students, including 105 undergraduate students and 55 postgraduate students from education management-related programs. In addition, 14 lecturers participated in the study, comprising both full-time and visiting lecturers with teaching experience ranging from 6 to more than 15 years.

4.3. Data Collection Instruments and Procedures

Quantitative data were collected using a structured questionnaire designed to assess students' perceptions of the organization of teaching and learning activities, assessment practices, and self-reported research competency development. The questionnaire consisted of 28 items grouped into four dimensions, including alignment of learning outcomes and content teaching methods, assessment practices, and research competency development. Responses were measured using a five-level Likert scale ranging from very low to very high. The survey was administered at the end of the course, and all valid responses were included in the analysis.

Qualitative data were collected through semi-structured interviews with lecturers and a group of students. A total of 10 lecturers and 15 students were interviewed. Interview questions focused on experiences in implementing competency-oriented teaching, perceived challenges, and suggestions for improving the organization of the course. Each interview lasted approximately 30 to 40 minutes and was conducted either face-to-face or online.

4.4. Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequencies, percentages, mean values, and standard deviations, to identify general trends in teaching organization and competency development. Qualitative data were analyzed through thematic analysis, with interview transcripts coded and grouped into themes related to teaching practices, competency development, and contextual factors. The integration of quantitative and qualitative results

provided a coherent basis for evaluating the effectiveness of the competency-based approach in organizing the Scientific Research Methods course.

5. Findings

5.1. Current Status of Teaching the Course

The quantitative findings show that the organization of the Scientific Research Methods course at the National Academy of Education Management Vietnam is perceived by students as moderately effective. Three core aspects were examined, including content organization, teaching methods, and assessment practices.

Table 1. Students' Evaluation of Course Organization (n = 160)

No.	Item	Mean	SD
1	Alignment between learning outcomes and course content	3.62	0.71
2	Logical sequencing of content following research stages	3.58	0.74
3	Use of interactive and student-centered teaching methods	3.45	0.78
4	Opportunities for practical research activities	3.39	0.81
5	Alignment between assessment and learning outcomes	3.51	0.76
6	Use of performance-based assessment tasks	3.33	0.83
Overall mean		**3.48**	**0.77**

The overall mean score of 3.48 indicates that students generally rated the organization of the course above average. Content-related aspects received higher evaluations than teaching methods and assessment practices, suggesting that the curriculum structure is relatively clear while instructional implementation remains limited in supporting competency development.

Qualitative interview data provide deeper insight into these results. Several lecturers acknowledged that although the syllabus is structured according to research stages, classroom implementation still prioritizes explanation over practice. One lecturer noted:

"The content is well structured, but due to time constraints, we often have to explain concepts quickly instead of guiding students through real research tasks" (L3).

Students expressed similar views. A postgraduate student commented:

"We understand the steps of research, but we do not have enough chances to actually do them in class" (S7).

These exchanges highlight a gap between curriculum design and classroom practice, indicating that the organization of teaching has not fully translated competency-based intentions into learning activities and assessment.

5.2. Competency Development of Students

Students' self-reported competency development was examined across three key domains: research skills, academic writing, and data analysis.

Table 2. Students' Self-Reported Research Competency Development (n = 160)

No.	Competency	Mean	SD
1	Identifying and formulating research problems	3.57	0.73
2	Designing research methodology	3.42	0.79
3	Data collection skills	3.46	0.76
4	Academic writing skills	3.61	0.70
5	Quantitative data analysis skills	3.28	0.84
6	Qualitative data analysis skills	3.35	0.81
Overall mean		**3.45**	**0.77**

The results indicate a moderate level of perceived competency development, with academic writing receiving the highest mean score and quantitative data analysis the lowest. This suggests that students feel more confident in writing-related tasks than in analytical processes. Qualitative findings clarify this pattern. Many students reported that writing skills were supported through templates and lecturer feedback, while data analysis remained challenging. One undergraduate student stated:

"When writing proposals, we follow the structure provided, so it is manageable. But analyzing data, especially statistics, is still confusing" (S4).

Lecturers shared similar observations. According to one lecturer:

"Students can write quite well, but when it comes to choosing analysis techniques and interpreting results, they struggle significantly" (L6).

These comments indicate that competency development across domains is uneven, with insufficient instructional emphasis and practice time devoted to data analysis skills.

5.3. Factors Affecting Teaching Organization

To identify factors influencing the organization of teaching, students evaluated lecturer-related factors, curriculum, and learning resources, and institutional support.

Table 3. Factors Affecting the Organization of Teaching (n = 160)

No.	Factor	Mean	SD
1	Lecturers' pedagogical competence	3.76	0.68
2	Lecturers' experience in research supervision	3.81	0.65
3	Curriculum structure and workload	3.44	0.75
4	Availability of learning materials and references	3.38	0.80
5	Institutional support for teaching innovation	3.29	0.82
Overall mean		**3.54**	**0.74**

Lecturer-related factors received the highest ratings, indicating that teaching quality largely depends on individual lecturers' experience and competence.

Institutional support and learning resources were rated lower, suggesting structural constraints.
Qualitative data strongly reinforce these findings. Lecturers emphasized their personal responsibility in adapting teaching methods. One lecturer explained:
"Whether the class is engaging or not depends mostly on the lecturer. Institutional guidelines are still quite general" (L2).
Students also pointed out limitations in institutional conditions. A postgraduate student remarked:
"If we had better access to software and more guided workshops, we could practice research skills more effectively" (S12).
These qualitative exchanges illustrate that while lecturers play a critical role in organizing teaching, sustainable improvement requires stronger curriculum support, learning resources, and institutional investment.

6. Discussion

The qualitative findings highlight a clear gap between curriculum design and classroom implementation. Although the course content is logically structured according to the stages of scientific research, both lecturers and students reported that limited instructional time and traditional teaching habits restrict opportunities for hands-on practice. Interview excerpts from lecturers such as L3 and L6 indicate that teaching still prioritizes explanation of concepts rather than guided performance of research tasks. This explains why teaching methods and assessment practices received lower quantitative scores than content organization.

The findings also indicate uneven development of research competencies among students. Academic writing skills were perceived as stronger than research design and data analysis skills, especially quantitative analysis. Interview data suggest that this imbalance stems from greater instructional emphasis on writing outputs such as proposals and reports, while analytical skills receive less structured guidance and practice. Students such as S4 and S12 expressed uncertainty and lack of confidence when dealing with data analysis, reinforcing the quantitative result that this competency domain scored lowest.

Another important finding concerns the role of contextual factors. Lecturer-related factors received the highest ratings, reflecting the central role of lecturers' pedagogical competence and research experience in organizing teaching activities. However, reliance on individual lecturers also exposes limitations at the institutional level. Lower ratings for curriculum workload, learning resources, and institutional support indicate that sustainable implementation of competency-based teaching requires systemic support rather than individual effort alone. Qualitative comments from lecturers and students suggest that limited access to research software, large class sizes, and a lack of institutional incentives constrain innovation in teaching practice.

7. Proposed Solutions and Recommendations

First, learning outcomes should be refined and operationalized in the form of clearly observable research competencies. Each learning outcome should specify

expected performance levels in research problem formulation, research design, data analysis, and academic writing. These outcomes should serve as the foundation for organizing content, selecting teaching methods, and designing assessment tasks.

Second, teaching methods need to shift more strongly toward practice-oriented and student-centered approaches. Classroom activities should allocate more time to guided research tasks such as developing mini research proposals, designing instruments, analyzing sample datasets, and presenting findings. Lecturers should act as facilitators who scaffold students' performance rather than solely transmit knowledge. This approach would help bridge the gap between understanding research concepts and applying them in practice.

Third, assessment practices should be redesigned to align with competency development. Greater emphasis should be placed on performance-based assessment, such as portfolios, research projects, presentations, and reflective reports. Continuous formative assessment should be used to provide timely feedback and support students' progressive mastery of research competencies, particularly in data analysis.

Fourth, professional development for lecturers should be strengthened with a focus on competency-based teaching strategies and research supervision skills. Workshops and peer sharing activities can help lecturers exchange effective practices and develop common approaches to teaching research methods.

Finally, institutional support needs to be enhanced to create favorable conditions for competency-based teaching. This includes reviewing curriculum workload to allow sufficient practice time, improving access to learning resources and research software, and establishing incentives for teaching innovation. Stronger coordination at the institutional level would reduce dependence on individual lecturers and support sustainable improvement.

8. Conclusion

This study examined the organization of teaching the Scientific Research Methods course at the National Academy of Education Management Vietnam based on a competency-based approach. Using a mixed methods design with quantitative data from 160 students and qualitative interviews with lecturers and students, the study provided a comprehensive picture of current teaching practices, student competency development, and influencing factors.

The findings indicate that the course has a coherent content structure and benefits from lecturers' professional competence. However, teaching methods and assessment practices have not fully supported the development of research competencies, particularly in data analysis. Competency development among students remains uneven, and institutional support is not yet sufficient to sustain competency-based teaching practices.

The study contributes practical insights into how competency-based education can be applied in teaching scientific research methods in higher education. The

proposed solutions emphasize alignment of learning outcomes, teaching methods, assessment, lecturer development, and institutional conditions. Although the study is limited to a single institution, its findings provide a useful reference for similar education management programs seeking to enhance research competency development through competency-based teaching.
Future research may expand the scope to include comparative studies across institutions or examine the long-term impact of competency-based teaching on students' research performance in thesis writing and professional practice.

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