Curriculum Development Competency of Pedagogical Students: An Exploratory Study from Vietnam

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Abstract. The curriculum development capacity of pedagogical students as pre-service teachers at universities of education plays a decisive role in the process of achieving the educational goals of a nation. In Vietnam, ethnic minority students have more drawbacks than their peers, so the issues of enhancing curriculum development capacity for ethnic minority students in pedagogical universities in Vietnam need to be paid more attention. In this study, the researchers used a quantitative research method to assess the curriculum development competency of students in general and ethnic minority students, in particular, at several pedagogical universities in Vietnam. The study was carried out online through Google Forms. After data collection, the study obtained 1 246 responses from 1 510 students of nine pedagogical universities. Research findings show that (1) there are three groups of competencies with 15 components of curriculum development competency, including comprehension (knowledge) of curriculum development (A1); practical skills (skills) of curriculum development (A2) and emotional competency (attitudes) about curriculum development (A3); (2) The curriculum development competency of ethnic minority students in pedagogical universities is quite good, in which the component competencies range from 3.7 and 3.9 in average point for each of the above groups of competencies (on a 5-point Likert Scale). Research findings suggest contributing to providing scientific bases and useful suggestions for developing sustainable education in different regions of Vietnam.

Keywords: curriculum development; capacity; ethnic minority students

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1. Introduction

In every nation, education plays a crucial role in boosting people's intellectual, physical and moral development, life skills, and training quality human resources, thus keeping abreast of economic, scientific and technological developments while contributing to the development of society and the country. In Vietnam, on December 26, 2018, the general education program and the official curriculum at all levels were issued by the Vietnam Ministry of Education and Training (MoET). The goal of the program is to form and develop five main qualities and ten core competencies for learners (MoET, 2018a). The changing roles and duties of teachers led to changes in the training objectives of pedagogical schools (Serdenciuc, 2013). The teacher training institutions should pay attention to their capacity development, especially the curriculum development competency (Stewart, Khan & Hedberg, 2013). Experiences of Finland, Korea, Germany, USA, Japan, Australia, New Zealand and Canada showed that teachers' mastery of curriculum development plays a decisive role in achieving educational goals. In pedagogical universities (also known as teacher training universities) in Vietnam, ethnic minority students are still disadvantaged compared to majority students in many aspects, including limited curriculum development competency. Therefore, competency building for curriculum development for ethnic minority students should be considered.

Curriculum development is an issue of interest to many researchers. Previous studies show that the development of educational programs is an important factor in the process of planning and organizing effective educational activities, helping the educational program to become more effective in meeting the requirements of socio-economic, scientific and technological development (Becuwe et al., 2016; Westbroek et al., 2019). Models of curriculum development include Taba's instructional strategies model, Weinstein and Fantini's humanistic model, Eisner's systemic-aesthetic model (Cuong, 2011); model of German teachers in vocational education and the model of competencies in OECD (Ananiadou & Claro, 2009). Several studies have emphasized the importance of teachers' involvement in curriculum development (Ma, 2011; Jenkins, 2009; Kelly et al., 2019). Criteria for assessing the teacher's competency to develop the curriculum have been proposed (Loewenberg & Forzani, 2009; Yogev & Michaeli, 2011). Manifestations of curriculum implementation competency such as effective classroom smanagement skills and designing effective classroom case study is also of interest (Stronge et al., 2011).

The mastery of teachers in curriculum development is crucial in achieving educational goals. In Vietnam's pedagogical universities, ethnic minority students are still limited compared to their peers. As noted, understanding the role of education in preparing citizens for the future is essential. Teachers who are well-versed in curriculum development can equip learners with the competencies they need to shape their own lives and contribute to the lives of others. It is emphasized that planning professional education at universities should be instructive. The research also shows that diversity in institutions of higher education is important for improving the economic and social well-being of society. Therefore, it is essential to invest in the professional development of teachers to ensure that they

have the necessary skills to develop curricula that meet the needs of all students, including ethnic minorities. "*What challenges do pedagogical universities in Vietnam face in enhancing their students' capacity to develop curricula?*" is regarded a vital issue that pedagogical universities in Vietnam need to pay attention to.

The goal of general education is the basis for development and improvement of teacher training programs in pedagogical universities (Serdenciuc, 2013). The beneficiaries of the training programs are pedagogical students of all ethnicities although the focus in the current study is on ethnic minorities Therefore, in order to support the development of appropriate teacher training programs for pedagogical students from ethnic minorities (Da, 2018), the authors set out to explore factors that could influence the motivation of ethnic minority students (Isik et al., 2018); to determine whether dropout rates could be impacted by the curriculum design of the teacher training programs (Shrivastava et al., 2018); to investigate the adaptability to learning methods of ethnic minority students at Thai Nguyen University of Education - Thai Nguyen University - Vietnam (Cuong, 2017); to evaluate the difficulties of teachers and students from ethnic minorities and to determine how to develop curricula to achieve educational inclusion (Hallinger et al., 2021).

Research on the curriculum development capacity of ethnic minority students in Vietnam is crucial and significant. This study aims to answer the following research questions: *(1) What are the competencies in curriculum development required by pedagogical students in Vietnam? (2) What level of curriculum development competency do ethnic minority pedagogical students achieve in Vietnam?*

2. Literature Review
2.1 The important role of curriculum development in research in educational science
Curriculum development is a key component of an effective educational experience (Bich, 2016). Curriculum development is a core issue in the feasibility and growth of any discipline (Westbroek et al., 2019) and has been researched for several decades (Vesel, 2011; Norman, 1950; Steenholdt, 1989). More recently, studies on curriculum development have been conducted on learners' needs and requirements of the modern educational system with a focus on specific educational contexts, (Boudreaux & Elby, 2020; Taufik & Firdaus, 2021), thereby proposing solutions to overcome difficulties in education in specific localities (Richey & Klein, 2020). Studies refer to curriculum development theory such as concepts, processes, roles, and approaches (Boudreaux & Elby, 2020). Competency-based curriculum development has been highlighted (Levine & Patrick, 2019). Furthermore, modern education affirms the important role of teachers in curriculum development and implementation (Perry & Boylan, 2018).

Curriculum development plays a crucial role in education. It involves changes in what is taught, to whom, and how. The responsibility of curriculum development has been under debate, with some viewing it as the responsibility of researchers, theorists or administrators. However, the curriculum is one of the core features of an educational system and plays an important role in students' learning outcomes. A research-grounded basis for improving instruction and learning can be achieved through developing a conceptual framework for new education

standards. Therefore, researching the development of teaching programs for students in pedagogical universities is necessary in order to assess students' program development capabilities and make proposals to enhance the quality of teacher education to meet societal needs.

2.2. Orientation of curriculum development in Vietnam and related studies

Responding to the trend of internationalization, Vietnamese education has experienced sweeping changes (Mai, 2020). The Government of Vietnam has reoriented the education sector, moving from a content-oriented to competency-oriented curriculum (Central Steering Committee, 2013). The content-based approach to teaching is an approach in education that emphasizes the transmission of specific knowledge, information and content of each subject. This approach ensures that students master and understand the content of the educational program. In contrast, the competency-based approach emphasizes the development of students' competencies, skills and attitudes in the learning process. In this approach, students are given more opportunities to apply knowledge in practice, be creative and solve problems. The general school curriculum 2018 is designed to develop the five core qualities for students including patriotism, compassion, diligence, honesty and responsibility and ten key competencies, including *general competencies* in terms of self-management and self-study, communication and collaboration, problem-solving and creativity and *specific competencies* pertinent to language ability, computing ability, scientific capacity, technological capacity, informatics ability, aesthetic ability, physical ability (MoET, 2018b). However, research shows that many teachers in high schools are still not fully aware of competency-oriented teaching, and are not autonomous in content selection, curriculum development and effective instruction activities designed (Vinh & Nam, 2019). This has led to research on curriculum and curriculum development mainly focusing on issues such as (a) the career-oriented training program development to meet the requirements of the labor market (Quang & Yen, 2018; Vinh & Nam, 2019); (b) competency-based teacher training program development (Thanh et al., 2018; Vinh & Nam, 2019); (c) the development of higher education training programs managed in Vietnam in the context of the Fourth Industrial Revolution as a model (Trung, 2019) (d) training program development in pedagogical schools in an integrated orientation for training the teaching staff to meet the transformation requirements of general education (Hoan & Hung, 2021); (e) the development process of open curriculum and subjects proposed (Hao et al., 2019); and (f) teacher training program development to ensure the quality of education (Da, 2018).

The orientation of curriculum development in Vietnam and studies is a topic of interest in various academic articles. Some studies focused on the challenges and roles of local academics in implementing and mediating the curriculum (Ngoc, 2020; Thanh et al., 2018; Trang, 2012; Vinh & Nam, 2019), while others explored the concept of curriculum and curriculum development in teacher education (Quang & Yen, 2019; Khoa et al., 2017; Nam, 2021). There is also a growing demand for high-quality cognitive, behavioral, and technical skills in Vietnam's labor market, which has led to calls for a streamlined curriculum for the twenty-first century. In these studies, the researchers confirmed that curriculum development is a necessary and ongoing strategy to meet the rapidly changing

educational requirements in Vietnam.

2.3. Competency and teachers' curriculum development competency
Many studies on the current situation of pedagogical competency and professional development solutions for teachers have been carried out (Giáo, 2019; Perry & Boylan, 2018). Standards of professional competency of a good teacher are set, including teaching capability, effective classroom management and evaluation (Kulshrestha & Pandey, 2013). The analysis of teachers' profiles and the competencies shows a need for the development of a competency model that includes positive and negative indicators of teaching performance (Blašková et al., 2014). The general framework regarding teacher competencies has nine dimensions: field competencies, research competencies, curriculum competencies, lifelong learning competencies, social-cultural competencies, emotional competencies, communication competencies, information and communication technologies competencies (ICT) and environmental competencies (Selvi, 2010). However, there have not been many studies on teachers' curriculum competencies. Some authors have proposed criteria to evaluate teachers' curriculum competencies. They argue that these findings have important implications for theoretical models of the use of instructional materials and improving the teachers' curriculum competencies (Bertschy et al., 2013; Young et al., 2017).

The most crucial competency for pre-service teachers in curriculum development is the ability to design and organize lesson plans effectively. To do this, pre-service teachers need to reach the following aims. The first aim is to master professional knowledge, understand concepts, principles, and teaching methods in the subjects they are teaching, and know how to apply appropriate teaching principles and pedagogy to create a positive learning environment and promote the all-round development of students. The second aim lies in the fact that they need to have the ability to observe and assess students' abilities, interests, needs and expectations, in order to design an appropriate curriculum for each learner. Finally, yet importantly, they need to know how to make detailed teaching plans, allocate time and resources appropriately and ensure the achievement of the set teaching goals. Thus, research is needed on the competency and curriculum development competencies required by teachers in high schools.

2.4. Competency and curriculum development competencies of pedagogical students
Competency means the proven ability to effectively and responsibly perform actions, solve tasks and problems in the professional, social or personal fields in different situations on the basis of knowledge, skills, techniques and experience as well as willingness to act (Meier & Van, 2009). Competency is an individual attribute that is formed and developed thanks to the inherent qualities and the process of learning and training, allowing people to synthesize knowledge, skills and other personal attributes such as inspiration, beliefs and will to successfully perform a series of activities and to achieve the desired results under specific conditions (MoET, 2018b).

For pedagogical students, instructional competency ranks as the most important. This competency includes five components including professional competency,

pedagogical skills; application of teaching methods; curriculum development competency; application of information technology and the use of technological equipment; and the ability to implement methods of testing and assessing learning outcomes for students' progress (Le et al., 2021). Instructional competency of high school teachers is the basis for building the output standards of pedagogical schools, as a criterion for developing and evaluating instructional competencies in pedagogical training and retraining. Instructional competency is reflected in the successful performance of an instructional task or the effective resolution of practical teaching problems, by using rational, flexible, and creative application of knowledge, professional skills and professional attitudes (Anh & Huong, 2019). Standards of professional development of teachers are evaluated through five criteria: (1) Personal professional development; (2) Curriculum development based on students' quality and competency; (3) Application of instructional and educational methods based on developing students' qualities and competencies; (4) Examination and evaluation based on developing students' qualities and competencies; (5) Application of counseling and supporting students (MoET, 2018a). Thus, curriculum development competency is one of the criteria for evaluating teachers' professionalism. Curriculum development competency of pedagogical students includes components such as: (1) competency for context analysis, assessment of educational needs; (2) competency for defined curriculum objectives; (3) competency for selection and arrangement of curriculum content; (4) competency for determining methods and forms of instructional organization and (5) competency for development of test and evaluation plans (Bich, 2016).

Vietnam covers an area of 331,344 km² and has a population of 98,506,193 people, including 54 ethnic groups. The Kinh ethnic group accounts for the majority with the rate of 85.3% (84,386,937 people); the rest are 53 ethnic minorities (14.3%; 14,119,256 people) (National Statistics Office, 2020). The National Assembly and the Government of Vietnam have adopted several policies to improve the quality of education for ethnic minorities such as a scholarship policy; tuition fee exemptions or reduction; social allowances; study support; priority enrollment in universities and colleges; and educational development policy for ethnic minorities. (The Prime Minister, 2006). Ethnic minority students still have many limitations in thinking, perception, communication skills, ability to use Vietnamese, real-life experience, knowledge capital, economic conditions, and ability to adapt to new learning methods (Cherng & Halpin, 2016; Cuong, 2011; Isik et al., 2018; Liu, 2021). Therefore, the responsibility of pedagogical universities in improving the ethnic minority students' capacity, including the curriculum development competency, is a matter of concern (Flateland et al., 2019). There is no doubt that it is the human resource that successfully implements and determines the goals of the general education program in ethnic minority areas (Nam, 2021; Da, 2018).

The current educational situation in Vietnam shows continuous progress and efforts to improve the quality of education. However, there are still some limitations, such as the uneven teaching quality across regions, the priority use of traditional teaching methods in the actual class, the biased content, and especially the preference for using student summative assessment methods, which

emphasise getting high scores and passing the examination. In such cases, teachers still face difficulties in innovating teaching methods, meeting actual needs, and comprehensively developing students' abilities. In that context, the development of curriculum development capacity for pedagogical students in Vietnam plays a vital role in training high-quality human resources in line with the requirements of the times. To do this, pedagogical students need to develop three main groups of competencies, namely the capacity to understand curriculum development, the ability to practice curriculum development, and the emotional competence to boost curriculum development. Fostering curriculum development capacity for pedagogical students will enable them to innovate teaching methods, design educational programs in accordance with actual needs, meet the requirements of the times, and develop students' general abilities. This also contributes to improving the quality of education, creating a solid foundation for the country's sustainable development.

In the teaching profession, teachers' most critical teaching competence is the ability to convey knowledge effectively. To acquire this skill, pedagogical students must be trained and develop many different skills while studying modules at university. Through studying at university, pedagogical students gradually understand the subject they are teaching, including knowledge, teaching methods, and how to introduce, present, and explain concepts, such as rules, things, and phenomena, in a clear, understandable way in order to get students' attention. Also, students must build good relationships with other students, know how to listen, understand and support other students in the learning process, and learn how to effectively use teaching aids (such as boards, projectors and supporting software) to convey knowledge vividly and attractively through traineeship or practicum in high schools.

In this study, the researchers designed a framework of the curriculum development competency for students at pedagogical universities in Vietnam, which consists of three groups of competencies including *A1 - Comprehension (knowledge)*, *A2 - Practical skills (skills)*, *A3 - Emotional competency (attitudes/aptitude)*. Vietnam is a multi-ethnic country; thus, the education authorities need to pay attention to competency development in order to create educational integration among the regions, including the curriculum development competency for ethnic minority pedagogical students.

3. Research Method
In this study, the researchers used the quantitative research method, commonly used in research in general and is regarded as the dominant method in research in the field of educational science. The questionnaire content was developed based on published studies on the curriculum development capacity of students at a pedagogical university and the teaching and research experience of the research team in Vietnam. The questionnaire was built based on the hypothesis of three groups of curriculum development competence for pedagogical students in terms of comprehension and knowledge competence (competencies to understand the teaching curriculum); practical skills competence (competencies to conduct curriculum development); and emotional or aptitude competence (competencies

to express attitudes, awareness, readiness, motivation, on curriculum development) (*See Table 1 below*).

After developing the questionnaire, the research team contacted the collaborators from the pedagogical universities in three regions of Vietnam (Northern region, Central region and Southern region of Vietnam) to distribute this questionnaire to the students. The collaborators are lecturers in colleges who are also knowledgeable about the science of education and our research methods. This helps the information about the interview content provided to students is complete and accurate. Students participating in the interview were selected by the multi-stage stratified sampling method. The chosen research sample included students from all three regions of the North, Central, and South; students in the natural sciences, social sciences, and other majors. The study's sample was representative of the population of students covered in the survey. The questionnaire (including 22 questions with options and instructions on how to answer so that the students could give specific and detailed opinions on the study) was designed and surveyed in an online form, using Google Forms. Data was collected over a period of two months (from October 2022 to November 2022). During this time, the collaborators often encouraged respondents, through emails and messages (Facebook, Zalo), to answer the questions objectively and reach a desired number of answers.

The quantitative questionnaire was designed in two parts. Part 1 consisted of seven questions related to students' background such as their universities, majors, duration at pedagogical universities, ethnic group, gender, academic results. Part 2 included 15 questions related to three groups of students' curriculum development competency. Each item was rated on a 5-point Likert Scale, ranging from 1 "strongly disagree" to 5 "strongly agree" (Table 1).

Collected data were processed using the SPSS software version 22.0. After data collection and processing, it is interested in statistics on quantity, gender, ethnic composition of students participating in the survey, mean, median, standard deviation under the different object-oriented analysis directions.

4. Findings and Discussion
After conducting a survey through Google Forms with 1 510 students, the study has obtained a total of 1 246 responses from the students at pedagogical schools (accounting 82.8%). Through statistics, we conducted data, removed blank responses and incorrectly entered answers not included in the survey, and obtained 1 246 eligible responses for result analysis.

The results in Figures 1 and 2 showed that the number of pedagogical students at the seven surveyed universities was uneven in terms of gender (for example, female students account for 81.4%) and ethnic composition (ethnic minority students made up the majority of students) 73.6% - this is consistent to the researchers' expectations).

Regarding gender, out of a total of 1 246 survey forms, only 18.1% were answered by male students, as one of the basic characteristics of a pedagogical career in Vietnam, is that women make up the majority in pedagogical universities, and account for an average of 86.1% od the students (National Statistics Office, 2020).

In term of ethnic composition, Kinh people accounted for a small percentage of the total survey forms, 26.4%, while ethnic minorities accounted for 73.6% (Figure 2). More specifically, Figure 3 indicated that 33 ethnic minorities were surveyed, in which Tay and Thai students accounted for a large number of responses (214 and 251); however, there were some ethnic groups that only received 1 or 2 responses (such as Chu Ru, Co, Giay, Hore, Khang, Lo Lo, and Si La). In Vietnam, ethnic minorities belong to a small group of people who do not yet have the resources for their children to study at higher education (Bac et al., 2019). The percentage of ethnic minority students in pedagogical universities was similar to the one of ethnic minority students studying the other majors. Then the number of ethnic minority students in some ethnic groups who answered survey questionnaire was completely normal (Cuong, 2017; Tran et al., 2020).
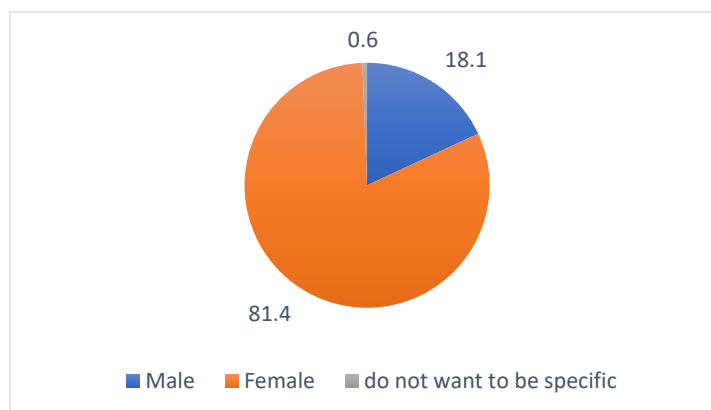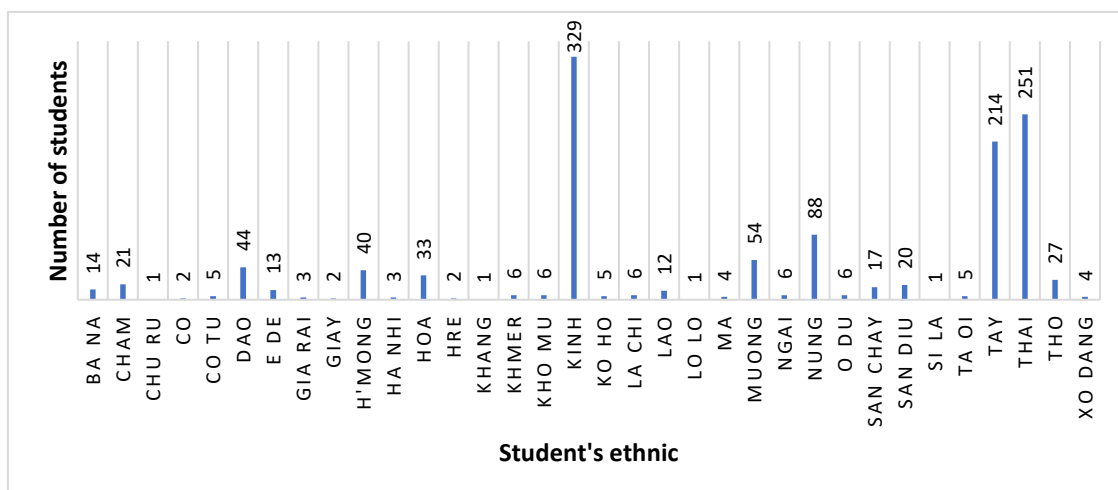

**Figure 1: Number of students surveyed by gender (in %)**
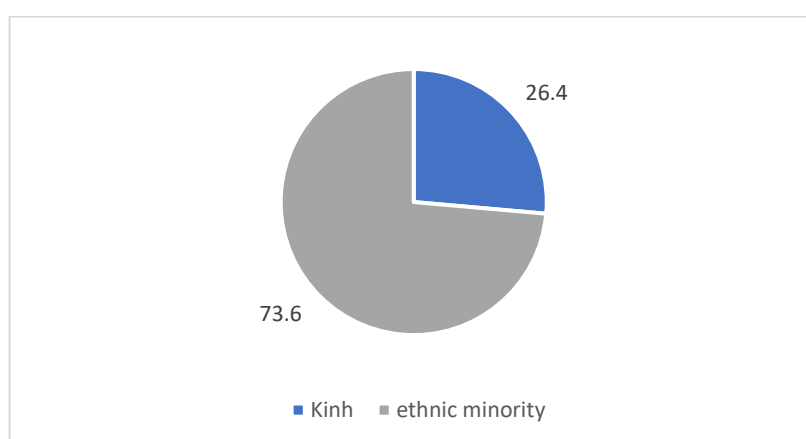
Figure 2: Number of students surveyed by ethnic group (in %)

In addition, Figure 4 shows that the largest number of ethnic minority students surveyed at Thai Nguyen University of Education and Vinh University (42.3% and 32.5% respectively) is seen;

Figure 3: Information on the number of students surveyed by ethnic group

Regarding student information surveyed by majors at seven universities, Figure 4 shows that the majors other than the natural sciences and the social sciences accounted for the largest percentage of 60% with 747 responses, while the natural sciences accounted for 16% (200 responses) and the human and social sciences accounted for 24% (299 responses). The group of students majoring in natural sciences in Vietnam is decreasing due to the change of curriculum. According to the 2018 general education program, the Physics, Chemistry, and Biology subjects at the secondary school level are integrated into one subject, which are natural sciences; at the high school level, they are converted into optional subjects (MoET, 2018a). Other majors are educational psychology, physical education and sports. These are also the majors with a number of students accounting for a high percentage (MoET, 2021).
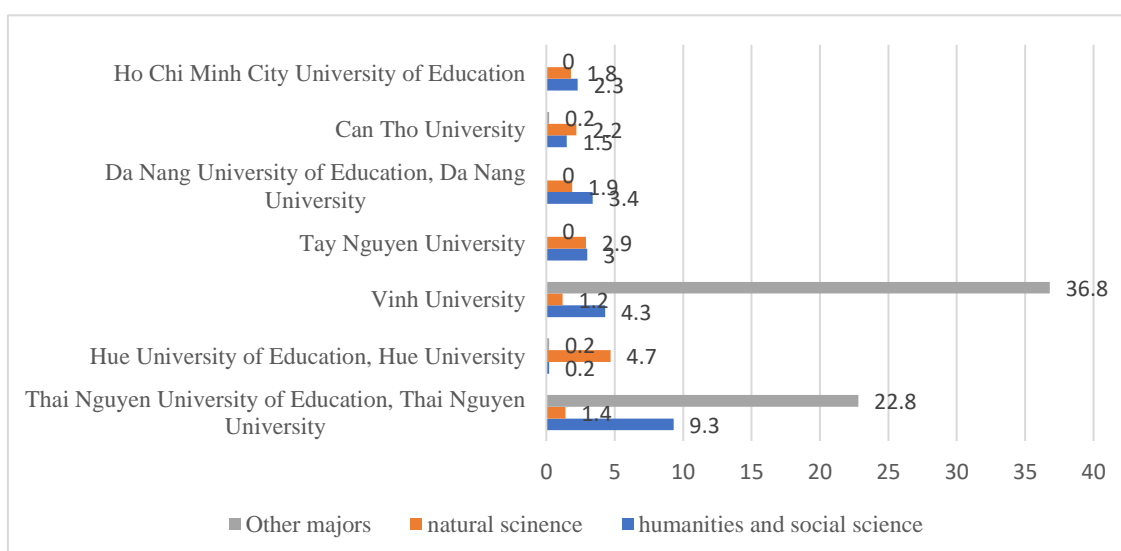
Figure 4: Information on students surveyed by school and majors (%)
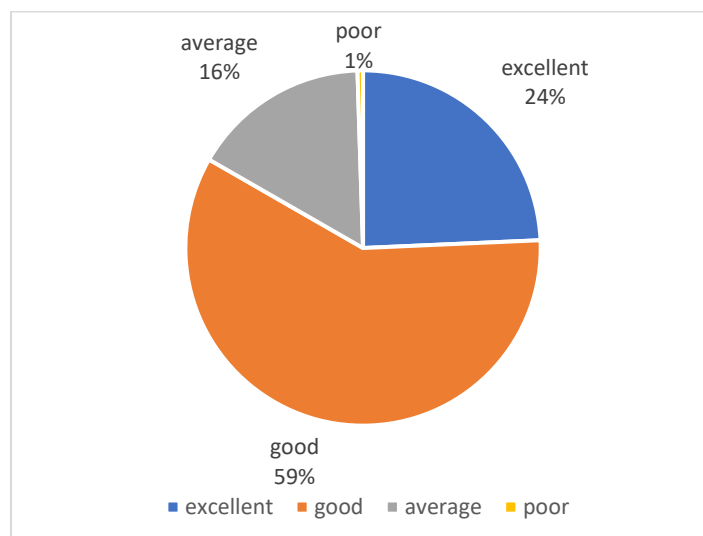
Figure 5: Students' current academic results

We used one question about the current academic results of students at pedagogical universities to collect information about the current learning ability of the surveyed respondents. The results in Figure 5 showed that the number of students with excellent academic results accounted for 24%; good academic results accounted for 59%; average results were reported by 16% and poor results had the lowest percentage, with only 1% of the total number of responses. That means the percentage of students with very-good and good academic results accounted for a high percentage (83%).

Evaluation of curriculum development competency of pedagogical students was analyzed in terms of the following groups of component competencies: A1 - Comprehension (knowledge) on curriculum development, A2 - Practical skills (skills) on curriculum development, A3 - Emotional competency (attitudes) on curriculum development. Statistical information describes the mean, median, mode, and standard deviations (SD). The SD in Table 1 shows that the majority of respondents agreed with the statements, especially A3 competencies which had the largest mean value of 3.9. This is the emotional competency (attitude, consciousness, readiness, motivation, etc.) about curriculum development. Curriculum development competency of ethnic minority students in pedagogical schools in Vietnam is quite good with the average value ranging between 3.72 and 3.9 on a 5-point Likert Scale. This is consistent with the professional standards of teachers that pedagogical universities are aiming for (Nam, 2021) and consistent with the output standards announced by the schools when self-evaluating according to the TEIDI implemented in 2021 (Nam, 2021).

Table 1. Component competencies of curriculum development competency and survey findings

Code	Component competency	Mean	SD
A1	*With comprehension (knowledge) of curriculum development, whether you agree that:*	*3.72*	*1.044*
A1.1	Curriculum development is the process of planning, implementing and evaluating the curriculum with the aim of improving the quality of educational activities	3.7	1.114
A1.2	A curriculum is a planned educational experience	3.73	1.149
A1.3	The curriculum includes all the experiences a student has in a training institution	3.67	1.162
A1.4	Curriculum development needs to be placed in the educational ecosystem (educational context, facilities, teachers, students, local cultural and economic characteristics, etc.).	3.75	1.16
A1.5	Curriculum development is a multi-step process including context analysis, evaluation of educational needs; goals determined; designed instructional plans; appraisal; development and implementation; result evaluation	3.76	1.145
A2	*With practical skills (skills) in curriculum development, whether you find yourself able to:*	*3.85*	*0.967*
A2.1	Provide context analysis, evaluation of educational needs	3.78	1.067
A2.2	Define curriculum goals	3.9	1.054
A2.3	Review curricula, textbooks and select and arrange instructional content	3.82	1.078
A2.4	Select instructional forms, methods and techniques suitable to the curriculum content	3.87	1.053
A2.5	Develop test plan, evaluate curriculum implementation results	3.87	1.078
A3	*With emotional competency (attitude, awareness, readiness, motivation, etc.) on curriculum development, whether you agree:*	*3.9*	*1.009*
A3.1	A curriculum is built in quality toward the development of learners	3.91	1.113
A3.2	A regularly developed curriculum will help teachers effectively organize educational activities	3.9	1.089
A3.3	Teachers have responsibilities and an important role in the curriculum development and implementation	3.91	1.093
A3.4	Curriculum design contributes to the effective and sustainable implementation of innovations in education	3.9	1.08
A3.5	The process of design, innovation and curriculum development all aim at the important goal of improving education	3.88	1.082

Considering the curriculum development competency of pedagogical students by majors through the One-Way ANOVA test, the results earned such as the component competencies A1, A2, A3 all give the sig. value of 0.000 < 0.05 (Table 2), indicating that there is a difference between students of majors when evaluating curriculum development competency. More specifically, in Table 2 considering the mean value of majors, students in the natural sciences had the highest level of agreement, and students in other majors had the lowest. Students majoring in the natural sciences usually have better competency in data analysis and theoremization, while students in the remaining majors often have better competency in sociology subjects and relevant fields. In addition, the students in

the natural sciences are generally better at problem-solving and reasoning, while students in other majors often have better skills in analyzing relationships and understanding social models and aspects (Giao, 2019). The students in the natural sciences place more emphasis on systematization, while the students in the other majors often have better competency in relational analysis and understanding of patterns and social aspects (Anh & Huong, 2019). Therefore, it is reasonable that the students in the natural sciences have a (slightly) higher level of curriculum development competency than those in the other majors.

Table 2. Information on testing the average value of 03 types of component development competencies by major

| Majors	Mean			Sig.
	A1	A2	A3	
Natural sciences	4.11	4.15	4.12	0.000
Humanities and social sciences	3.89	4.01	4.01	0.000
Other majors	3.55	3.7	3.8	0.000

According to Figure 6, the students in the natural sciences had the highest level of agreement with the A2 competency component, the lowest being the A1 competency component; the students in the humanities and social sciences had the highest level of agreement with the A2 and A3 competency components, and the lowest with A1; while the students from the other majors had the highest level of agreement with the A3 competency component and the lowest level of agreement with the A1 competency component.

Among the three component competencies of curriculum development competency, comprehension (knowledge) about curriculum development (A1), from any point of view, is still a concern for ethnic minority students in pedagogical schools in Vietnam that consider themselves weak. These are general theoretical knowledge about curriculum development such as concepts, characteristics, requirements, steps to build and develop curriculum, etc. This reflects that theoretical problems of curriculum development are quite complicated and abstract, require a lot of memorization, and require students to have perseverance and persistence. Thus, it is more difficult for students to develop the A1 competency (Cuong, 2017). This is also a competency component that has been recommended to focus on fostering for students (Perry & Boylan, 2018). The practical skills (skills) of curriculum development (A2) and the emotional competency (attitudes) about curriculum development (A3) were highly self-rated by students. Competency A2 is more about practice, learning through activities and experiences and forming skills. Competency A3 relates to consciousness, readiness, attitude, and learning motivation; thus, students often rate themselves highly on these aspects.
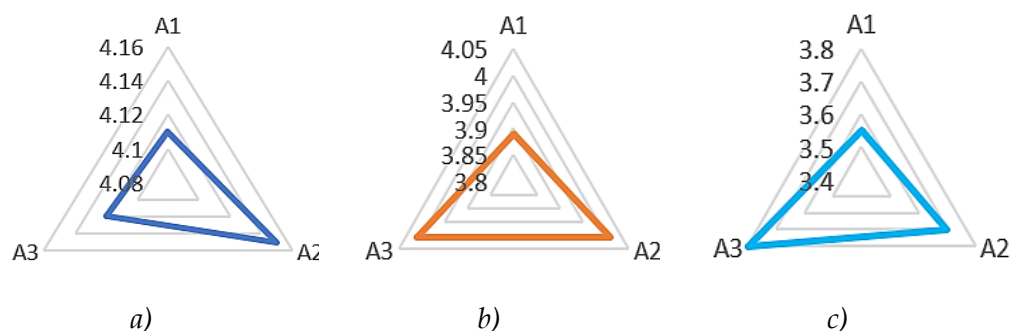
Figure 6: Chart of component competencies A1, A2, A3 of students a) students in the natural sciences b) Students in the humanities and social sciences and c) other majors

According to the chart in Figure 7, the group of male students had a higher level of agreement than the group of female students in all component competencies. In addition, from Figure 7, it can be seen that the component competency A2 for male students showed the highest level of agreement, A1 was the lowest among 3 component competencies; and the component competency A3 for female students showed the highest level of agreement, A1 is the lowest of the 3 component competencies. The research findings also show that more attention should be paid to female students in the process of instruction and fostering curriculum development competency for ethnic minority students in pedagogical universities in Vietnam. Ethnic minority female students in pedagogical universities in Vietnam account for a high percentage, although their instructional competency in general, including the curriculum development competency, is not as good as that of male students (Giáo, 2019). These findings include cultural factors and gender specificity, especially in the natural sciences (Shawer, 2017).
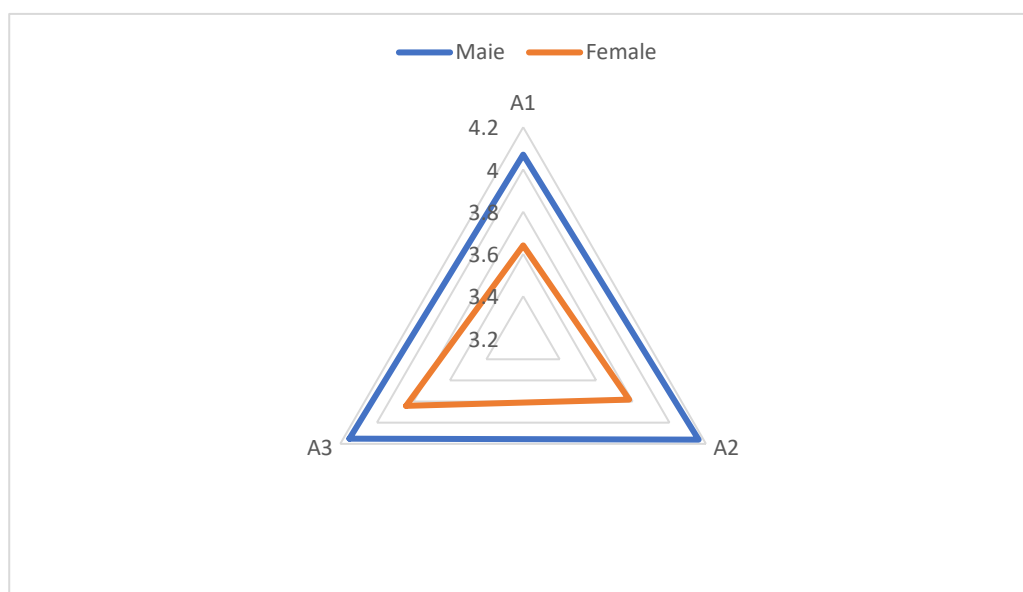
Figure 7: Chart of component competencies of male and female students

Table 3 presnts the findings on the component competencies of curriculum development of pedagogical students according to the respondents' self-

evaluation of their learning ability. The results at the good, different, average, and poor levels were obtained from the final score of the program analysis course or the equivalent course (if that faculty/school did not have a program analysis course) that the student students studied at the pedagogical universities.

Table 3: Information on testing the average value of 3 component competencies according to the level of students

Competency	Student's self-evaluation	Quantity	Mean	Std. Deviation	sig
A1	Excellent	303	3.89	0.974	0.016
	Good	735	3.67	1.074	
	Average	202	3.68	1.017	
	Poor	6	3.43	0.924	
	Total	1246	3.72	1.044	
A2	Excellent	303	4.01	0.903	0.007
	Good	735	3.81	1	
	Average	202	3.77	0.913	
	Poor	6	3.43	0.933	
	Total	1246	3.85	0.967	
A3	Excellent	303	4.03	0.923	0.065
	Good	735	3.87	1.051	
	Average	202	3.85	0.965	
	Poor	6	3.47	1.025	
	Total	1246	3.9	1.009	

+ Component competency A3 for the sig value = 0.065> 0.05, shows that there is no difference in the evaluation of four groups of students with excellent, good, average, and poor academic results. That is, emotional competency (attitude, readiness, consciousness, motivation, etc.) of students at different levels is the same.

+ Component competencies of A1, A2 for the sig value = 0.016 and 0.007 are all less than 0.05, showing that the evaluation of four groups of students with excellent, good, average, and poor academic results in A1, A2 is different. Thus, comprehension (knowledge) about curriculum development and practical skills (skills) about curriculum development are different for the groups of students with different educational qualifications.

In addition, the description in Figure 8 shows that students of four qualification groups all have a level of agreement (the mean values are approximately 4), that is, the component competencies that represent the curriculum competency of students all are quite effective. The difference between the four groups of students is also evident when the group of excellent students achieves the best performance in all competencies, especially in Competency A3. The difference in the level of evaluation of component competencies is most evident in the group of good students, while the group of poor students has almost the same evaluation of all three component competencies of curriculum development competency. In addition, the study also shows that the A3 competency (attitudes) of ethnic minority students in pedagogical schools in Vietnam in terms of curriculum development does not depend on academic results. This also coincides with

research findings on students' consciousness, attitude, readiness and learning outcomes in scientific research (Trang, 2012), in terms of plagiarism (Khoa et al., 2017) and in their ability to communicate in English (Thanh et al., 2020). The study also showed that the ratings for the group of ethnic minority students in pedagogical schools in Vietnam with good learning results on comprehension A1 (knowledge), and practical skills A2 (skills) on curriculum development are also higher than the group of students with average and poor academic results. This is reasonable because these groups of competencies are closely related to the ability to learn and comprehend. The students' comprehension and practical skills are evaluated through pedagogical training modules related to the subjects such as Literature (Ngoc, 2020), Physics (Song, 2017), practical activities (Vuong et al., 2020) or subjects that favor theory and abstract thinking (Hoa & Hoa, 2017).
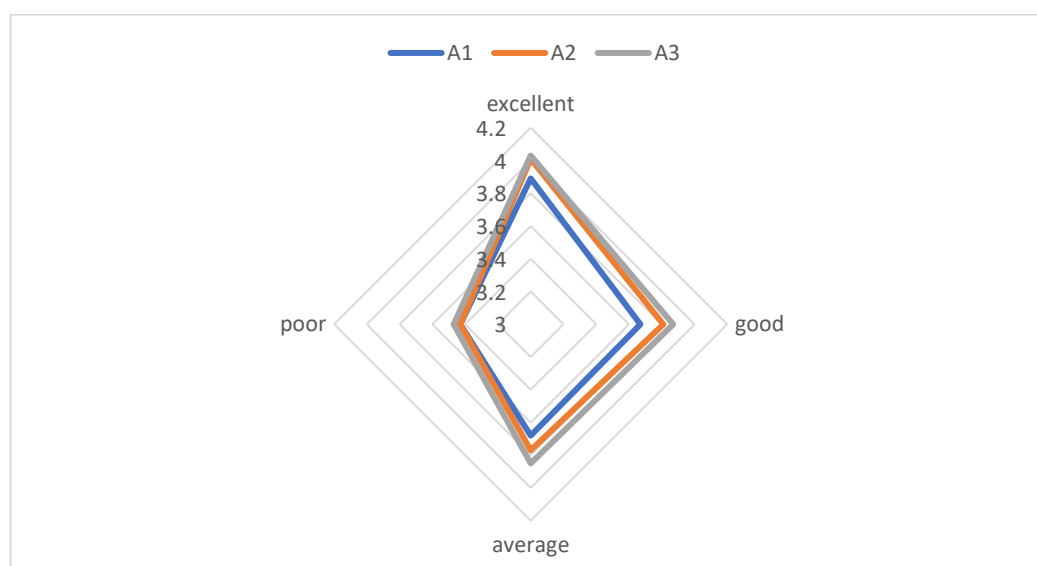
Figure 8: The component competency in the curriculum development competency of 04 groups of students

5. Conclusions

The research findings showed that the general requirements for curriculum development competency of pedagogical students in Vietnam include three groups of competencies with 15 component competencies of curriculum development competency, including comprehension (knowledge) of curriculum development (A1); practical skills (skills) of curriculum development (A2) and emotional competency (attitudes) about curriculum development (A3). The division of students' curriculum development capacity into the three groups of competencies makes it easier for lecturers and managers to assess students' curriculum development capacity, allowing them to make reasonable adjustments in training and retraining programs in order to help students to use the necessary competencies when teaching in high schools.

Curriculum development competency of ethnic minority students at pedagogical universities in Vietnam is quite good, in which the component competencies range from a 3.72 and 3.9 average for the three groups of competencies (on a 5-point Likert Scale). This requires students to continuously monitor, research and update their knowledge in the field of education; to learn deeply about

educational theories, to apply them to teaching practice; to increase practice, experience and skills training through educational projects, exercises and internships; to develop a love for the profession; and to develop an awareness of the importance of curriculum development for the progress of students.

The research results contribute to providing a scientific basis and useful suggestions for curriculum development, training courses, training programs, and professional training activities in universities of pedagogy such as 1) adjusting training programs to ensure a harmonious combination of professional knowledge and capacity to develop teaching programs; 2) designing training modules to equip students with skills and knowledge about curriculum development in terms of curriculum development theory, curriculum design and implementation skills, and assessment and improvement skills; 3) organizing training programs, short courses, workshops, seminars on methods and skills to develop effective teaching programs; and 4) to help students to practice, participate in real projects, and conduct research projects related to curriculum development. In the process of carrying out these tasks, pedagogical universities need to pay special attention to ethnic minority students. This helps pedagogical universities improve the capacity of ethnic minority students, meet the requirements of reform programs and textbooks, and fulfill Vietnam's general education goals in this period.

The study has some limitations, namely: (1) The time set for the study was limited; (2) although the research team tried their best to support the students who responded to the survey to understand the implications of this data collection (through collaborators and social networking groups like Facebook and Zalo), some students still answered without thinking carefully about the questions asked; (3) the percentage of ethnic students participating in the study was not very uniform in terms of ethnic composition, regional composition and gender composition, which could have influenced the statistical results.

For further studies, the researchers could study strategies to support ethnic minority students, with a focus on understanding and evaluating the effectiveness of strategies to support them in developing their capacity for curriculum development. Other research could explore the impact of a culturally diverse educational environment on the capacity of ethnic minority students to develop curricula. Research on training methods and teaching methods suitable to the characteristics of ethnic minority students could be conducted. Those will be complementary and inherited research directions, expanding on the research findings for this study.

Conflicts of Interest: The authors declare no conflicts of interest.

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