

Organization of Student-Oriented Pedagogical Studies: Analysis of Students Learning Experiences

Renata Kondratavičienė

Vilniaus kolegija / Higher Education
Institution

Vytautas Magnus University
Vilnius, Lithuania

r.kondrataviciene@pdf.viko.lt

Inga Bertašienė

Vilniaus kolegija / Higher Education
Institution

Mykolas Romeris University
Vilnius, Lithuania

i.bertasiene@pdf.viko.lt

Abstract. *With the development of technology, the organization of pedagogical studies is increasingly taking place in a mixed way, when studies in a real classroom are combined with learning in a virtual learning environment. However, regardless of the tools or resources used in the virtual learning environment, for the organisation of student-centred studies the pedagogical aspect remains essential. This need is highlighted in the Lithuanian and European Union documents. The research aim is to analyse the learning experience of pedagogical students. Methods of research: analysis of scientific literature, survey, descriptive statistics, and inference statistics. The article reveals Primary Pedagogy and Early Childhood Pedagogy students' learning experiences in the following aspects: relevance of learning, reflective thinking, interpretation the study process, interacting with the tutor and with peers. The results of a quantitative study (survey) showed that the relevance of learning, reflection and interpretation of the study process depends on the study methods used, the support provided by the tutors and peers.*

Keywords: *interactivity, methods of study, reflective thinking, students of pedagogical studies.*

INTRODUCTION

Examining both the world [1], [2] and National Education Regulations documents [3], [4] noted that more and more talk is being made about the need to enable learners to feel the relevance of learning, to reflect and interpret the learning process, to interact with the tutor and other learners in solving real-life problems.

For students to understand the relevance of learning, theoretical studies must be applied in practical activities [5]. Solving real-life, relevant, and understandable problems encourages students to interact with the tutor and peer by exploring, raising hypotheses, and developing new

products [6], solving and interpreting real-life problems [7]. The involvement of students in the learning process and its reflection makes it possible to develop a sense of responsibility and understand the meaning of self-development, which is a clear prerequisite for improving lifelong learning abilities [8]-[9].

The organization of studies is increasingly taking place in a mixed way, combining studies in real-life classrooms and learning in a virtual learning environment [10]. However, regardless of the virtual learning environment tools or resources used, the pedagogical dimension always remains essential. In this context, the problem question of the research is formulated – how the student-centred pedagogical study process should be organised enabling the learner to understand the relevance of learning, reflect and interpret the study process, and interact with tutor and peer in solving real life problems. Research subject is the learning experience of pedagogical students. The research aim is to analyse the learning experience of pedagogical students. Methods of research: analysis of scientific literature, survey, descriptive statistics, and inference statistics.

LITERATURE REVIEW

In order to successfully solve problems and evaluate ongoing phenomena, it is important for the learner to understand the relevance of learning [11], to be able to reflect on the learning experience [12], to interpret, analyse and evaluate information, to draw conclusions [13], to initiate multilateral interaction among learners, to feel the support provided by the tutor and other learners [14]. It is important to discuss the following components of the

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learning process: relevance, reflective thinking, interpretation, interactivity, tutor support and peer support [15]. These components of the learning process will be briefly discussed below.

Relevance. Often, learning success is judged by the number of correct answers that learners can simply remember [16]. However, learning involves not only remembering of facts and concepts, but also combining them in such a way that the new concepts of the subject are related to those previously learned [17]. The learner must understand the applicability of theoretical knowledge in practice [5].

Reflective thinking. The main pedagogical goal is to engage students in collaborative learning and reflection on the learning process [18]. Reflective thinking focused on the essence of thinking, what to believe or what to do [8]. Reflection on the teaching and learning process is the basis of metacognitive teaching, therefore, when assessing student learning achievements, it is important that each stage of learning process is reflected [12].

Interpretation. Students' thinking is developed by introducing them to the hierarchical structure of knowledge characteristic of the learning subject, paying attention to the clarifying meaning of the subject in practical activities [19]. Therefore, it is recommended to encourage students to explain the concepts of learning subject, understand their meaning from the context, and interpret the obtained results in a real-life context [7].

Interactivity. It was established that students' achievements depend not only on educational context, pedagogical interaction, but also on the teacher's innovation and creativity to manage the educational process professionally [20]. Solving real-life problems helps to initiate multilateral tutor and peer interaction, an ability to ask or understand questions [9]. It is proposed to organise the educational process in such a way that students acquire knowledge and abilities through practice and interacting with tutors and peer [21].

Tutor and peer support. It is noted that more and more attention is paid to solving problems while working in a team, when students discover scientific truths themselves with the help of a teacher and peer [22]. Thinking through communication and collaboration involves supporting students' ideas, forming a common understanding and goals of the group [23]. Such experiences are beneficial because students can learn from other learners.

Teaching and learning using computer technologies provides an opportunity to connect to remote data sources and allow communication and collaboration with remote students or a teacher [9], transfer traditional learning methodologies to a virtual learning environment, develop new learning methodologies [24]. In virtual learning environments, teachers become facilitators for students [25], engaging students in virtual collaboration and participation in discussions [26].

RESEARCH METHODOLOGY

To determine the learning experience of pedagogical students, a group of subjects was formed using availability sampling, where the general sample units are included in the sample that are most accessible to the researcher. The sample size ($n = 231$) was determined using the Paniotto single-level randomisation formula. Participants of the research ($n = 231$) are students of primary education pedagogy (PPE) ($n = 103$) and students of early childhood education (ECE) ($n = 103$).

Pedagogical studies are organised in a mixed way. Contact work takes place both in an auditory and virtual learning environment Moodle. A survey based on the Constructivist On-Line Learning Environment Survey (COLLES) was adapted for the study. Considering the specifics of pedagogical studies, the survey was supplemented with two questions about motivation to study pedagogy and study methods. The research was conducted in November 2022 using the virtual survey tool <https://apklausa.lt>.

The research data were analysed according to four categories: 1) study program (PPE and ECE); 2) nature of funding (state-funded and students who pay for studies); 3) form of study (full-time, full-time session and part-time); 4) study course (the first, second, third and fourth).

The research data were also analysed according to the following parameters: motives for studying pedagogy, study methods, study relevance, reflective thinking, interactivity, teacher support, peer support.

The normality of the variable distribution was tested using the Shapiro-Wilk test. Zero hypothesis (H_0): the distribution of variable data is consistent with normal distribution. Alternative hypothesis (H_1): the distribution of the variable does not correspond to the normal distribution. The Mann Whitney and Kruskal-Wallis criteria were used for data that were not distributed according to the normal distribution. Throughout the research, decisions are taken at a value $\alpha = 0.05$.

To establish the correlation between study methods and study relevance, reflective thinking, interactivity, tutor support and peer support, the Spearman's Rank correlation coefficient was used. To answer the question of whether these values are linearly dependent, the hypothesis about the equality of Spearman correlation coefficient to zero has been verified: $H_0: \rho = 0$; $H_a: \rho \neq 0$. The survey data was processed using version 27 of the IBM SPSS Statistical Package for Social Sciences.

Research ethics. Research adhered to the fundamental principles of the European Code of Conduct for Research Ethics [27]: reliability, integrity, respect for colleagues, responsibility for research. The author of the study undertook to publish only the aggregated data of the study.

The internal consistency of all the questions in the survey was verified by calculating the Cronbach alpha coefficient.

RESEARCH RESULTS

Motives for studying pedagogy. The following motivations for studying pedagogy of PPE and ECE students were analysed: good feedback of graduated students, willingness to work with children, guaranteed work, financial support, presentation of the pedagogical study programme during career days, media, formation of practical skills during studies, relevant specialisations, low entrance competitive score for university.

The Mann-Whitney test showed a statistically significant difference in two cases: good feedback of graduated students ($U = 5622.5$, $Z = 3.092$, $p = 0.002$, $r = -0.203$) and formation of practical skills during studies ($U = 4818.5$, $Z = -4.577$, $p = 0.00$, $r = -0.301$). The motive "Formation of practical skills during studies" for state-funded students ($U = 1402.50$, $Z = -2.774$, $p = 0.006$, $r = -0.183$) is stronger than students who pay for studies ($U = 1019.50$, $Z = -3.703$, $p = 0.00$, $r = -0.244$). The motive "Good feedback of graduate students" for full-time session state-funded students ($U = 113.00$, $Z = -2.688$, $p = 0.007$, $r = -0.177$) is stronger than students who pay for studies ($U = 21.50$, $Z = 2.347$, $p = 0.007$, $r = 0.154$). For PPE students both motives are stronger than for ECE students.

Study methods. The following study methods were analysed: analysis of literature, analysis of situations, case study, creative tasks, debates, demonstration, document analysis, educational games, educational trips, essay preparation, folder method, interactive lecture, mind (concept) map, overview of information sources, project activities in groups, reflection of experience, watching and discussing the film, work in groups, work with visual industries, working with the dictionary.

The Friedman test showed a statistically significant difference ($\chi^2 = 861,392$; $df = 19$; $p = 0.000$) between the study methods used. A comparison of Mean Rank shows that the following study methods are most used in the study process (Table 1).

TABLE 1 STUDY METHODS. FRIEDMAN TEST

Study methods	Mean Rank
Work in groups	15,76
Project activities in groups	13,25
Creative tasks	12,90
Reflection of experience	12,17
Analysis of literature	11,48
Essay preparation	11,13
Work with visual industries	10,83
Document analysis	10,74
Folder method	10,52
Analysis of situations	10,39
Overview of information sources	10,35
Demonstration	10,26
Case study	10,00
Educational games	9,87
Mind (concept) map	8,92
Working with the dictionary	8,66
Watching and discussing the film	8,62
Interactive lecture	8,49
Educational trips	7,93
Debates	7,71

The following study methods are more often used when working with EPP students than with ECE students: work with visual industries, document analysis, folder method, demonstration, educational games, mind map, work with vocabulary, interactive lecture, study trips, debate. However, experience reflection, case analysis and project groups methods are more often used when working with ECE students than with EPP students. The demonstration study method is more often used when working with part-time PPE students ($Mdn = 62.36$, $n = 11$) than with ECE students ($Mdn = 47.29$, $n = 86$).

The following study methods are more often used when working with full-time EPP students than with ECE students: folder method, document analysis, interactive lecture, mind map and educational games. However, case analysis and study trips are more often used when working with ECE students than with PPE students.

Relevance. Four relevance statements were examined: my learning focuses on issues that interest me; what I learn is important for my professional practice; I learn how to improve my professional practice; what I learn connects well with my professional practice [15].

The Spearman test was used determined that the studies for PPE students are relevant when learning is focuses on students' interest and what they learn are connects with their professional practice. It depends on the following methods of study: creative tasks ($r = 0.337$), demonstration ($r = 0.291$), educational games ($r = 0.262$), mind maps ($r = 0.236$), project activities in groups ($r = 0.215$), work with visual industries ($r = 0.212$). For ECE students what they learn is important for their professional practice and they learn how to improve professional practice. It depends on the following methods of study: watching and discussing the film ($r = 0.219$), creative tasks ($r = 0.224$), project activities in groups ($r = 0.265$) and debates ($r = 0.204$), reflection of experience ($r = 0.207$).

The Mann-Whitney test was used to determine the attitude to study relevance state-funded students' and students who pay for studies. There was a statistically significant difference in two cases: what I learn is important for my professional practice ($U = 5583.000$, $Z = -2.466$, $p = 0.014$) and I learn how to improve my professional practice ($U = 5600.00$, $Z = -2.343$, $p = 0.019$). These relevance statements are more important for state-funded students than for students who pay for studies.

For part-time ECE students what they learn is more important for their professional practice than for PPE students. However, for first-year PPE students this study relevance is more important than for ECE students. It is likely that this is due to the provision of pedagogical support (EUR 299) to PPE students.

Reflective thinking. Four reflective thinking statements were examined: I think critically about how I learn; I think critically about my own ideas; think critically about other students' ideas; I think critically about ideas in the readings [15].

Using the Spearman test, it is established that both PPE and ECE students reflect on the study process when they think critically about how they learn, about their own ideas and about ideas in the readings. It depends on the following methods of study: educational trips ($r = 0.316$), creative tasks ($r = 0.298$), demonstration ($r = 0.261$), debates ($r = 0.229$), interactive lecture ($r = 0.224$), work with visual industries ($r = 0.218$), folder method ($r = 0.211$). The methods used for literary analysis ($r = 0.265$) and essay preparation ($r = 0.231$) have influenced ECE students think critically about other learners' ideas. There was a weak correlation between student study relevance and their thinking critically about how they learn ($0.203 < r < 0.285$). It depends on the following methods of study: interactive lecture ($r = 0.221$), creative tasks ($r = 0.217$), educational trips ($r = 0.243$).

The Mann-Whitney test was used to determine the reflective thinking experience of state-funded students' and students who pay for studies. Students who pay for studies (Mdn = 125.26, $n = 121$) think more critically about how they learn than state-funded students (Mdn = 105.81, $n = 110$). This difference is statistically significant ($U = 5534.500$, $Z = -2.321$, $p = 0.000$, $r = -0.020$).

The Kruskal-Wallis test was used to examine the reflective thinking experience of students studying in the full-time, full-time session and part-time form of study. There was a statistically significant difference in three cases: I think critically about how I learn ($\chi^2 = 8.632$; $df = 2$; $p = 0.013$); I think critically about my own ideas ($\chi^2 = 11.543$; $df = 2$; $p = 0.003$); think critically about other students' ideas ($\chi^2 = 13.895$; $df = 2$; $p = 0.001$). Full-time students think more critically about how they learn (Mdn = 129.22, $n = 68$) than full-time session students (Mdn = 97.72, $n = 66$) or part-time students (Mdn = 119.17, $n = 97$). However, part-time students (Mdn = 128.97, $n = 97$) think more critically about other students' ideas than full-time students (Mdn = 129.95, $n = 68$) and full-time session students (Mdn = 93.94, $n = 66$).

Interpretation. Four interpretation statements were examined: I make good sense of other students' messages; other students make good sense of my messages; I make good sense of the tutor's messages; the tutor makes good sense of my messages [15].

Applying the Spearman test, it is established that during the studies other learners make good sense of PPE and ECE students' messages and students make good sense of the tutor's messages. It depends on the following methods of study: demonstration ($r = 0.299$), work with visual industries ($r = 0.298$), working with the dictionary ($r = 0.283$), creative tasks ($r = 0.272$), watching and discussing the film ($r = 0.265$), reflection of experience ($r = 0.264$), work in groups ($r = 0.263$), document analysis ($r = 0.252$). PPE students emphasise, that using of project activities in groups ($r = 0.317$), creative tasks ($r = 0.263$), analysis of situations ($r = 0.256$) study methods enable the tutor makes good sense of students' messages. There is determined a weak correlation between the PPE and ECE

students' studies interpretation abilities and the following components of the study process: of motive to study pedagogy due to willingness to work with children ($0.211 < r < 0.274$); of motive to study pedagogy due the formation of practical skills during studies ($0.210 < r < 0.238$); of studies relevance ($0.257 < r < 0.387$) and reflective thinking abilities ($0.257 < r < 0.387$).

Using the Mann-Whitney test, it is established ($U = 5635.500$, $Z = -2.882$, $p = 0.000$, $r = 0.037$), that the tutor more makes good sense messages of ECE students (Mdn = 123.47, $n = 128$) than of EPP students (Mdn = 106.71, $n = 103$).

The Mann-Whitney test was used to determine study interpreting abilities of state-funded students and students who pay for studies. State-funded students make more good sense of other students' messages ($U = 5363.500$, $Z = -2.773$, $p = 0.006$) and make more good sense of the tutor's messages ($U = 5667.000$, $Z = -2.067$, $p = 0.039$) than the students who pay for studies ($U = 5534.500$, $Z = -2.321$, $p = 0.000$, $r = -0.020$). This difference is statistically significant.

Interactivity. Four interactivity statements were examined: I explain my ideas to other students; I ask other students to explain their ideas; other students ask me to explain my ideas; other students respond to my ideas [15].

Using the Spearman test, it is established that both PPE and ECE students explain their ideas to other learners during work in groups ($r = 0.263$) and debates ($r = 0.257$). PPE students explain their ideas to each other performing creative tasks ($r = 0.295$), during educational trips ($r = 0.294$) and during work in groups ($r = 0.268$). There is a weak correlation between the PPE and ECE students' interactivity during studies and choose to study pedagogy due to willingness to work with children ($0.207 < r < 0.271$), relevance of study ($0.207 < r < 0.382$), reflective thinking ($0.217 < r < 0.318$) and abilities of interpretation ($0.225 < r < 0.458$).

The Mann-Whitney test found ($U = 5635.500$, $Z = -2.882$, $p = 0.000$, $r = 0.037$), that students respond to the ideas of other students. This ability for ECE students (Mdn = 124.60, $n = 128$) is stronger than for PPE students (Mdn = 105.32, $n = 103$).

The Kruskal-Wallis test was used to examine the interactivity experience of students studying in the full-time, full-time session and part-time form of study. There was a statistically significant difference in only one case „I explain my ideas to other students' ($\chi^2 = 20.611$; $df = 2$; $p = 0.000$). Full-time students, when they work in groups, more explain their ideas to other students (Mdn = 138.30, $n = 68$) than full-time session students (Mdn = 88.59, $n = 66$) or part-time students (Mdn = 119.02, $n = 97$).

Tutor support. Four tutor support statements were examined: the tutor stimulates my thinking; the tutor encourages me to participate; the tutor models' good discourse; the tutor models critical self-reflection [15].

Using the Spearman test, it is established that both PPE and ECE students argue that the tutor stimulates their thinking, encourages them to participate in the study process, models good discourse and critical self-reflection using these study methods: creative tasks ($r = 0.452$), debates ($r = 0.400$), interactive lecture ($r = 0.382$), case study ($r = 0.366$), educational games ($r = 0.335$), watching and discussing the film ($r = 0.330$).

There is determined a weak correlation between tutor support and the following components of the study process: of students' motive to study pedagogy due the formation of practical skills during studies ($0.281 < r < 0.331$); of studies relevance ($0.237 < r < 0.442$), of students' ability think critically about how they learn ($0.297 < r < 0.377$), of students' abilities of study interpretation ($0.272 < r < 0.562$), of interactivity during studies ($0.229 < r < 0.316$).

Using the Mann-Whitney test, it is established ($U = 5334.000$, $Z = -2.649$, $p = 0.008$, $r = -0.174$), that the tutor encourages students to actively participate in the study process. This ability for PPE students ($Mdn = 128.21$, $n = 103$) is stronger than for ECE students ($Mdn = 106.17$, $n = 128$).

The Mann-Whitney test was used to determine the tutor support for state-funded students and students who pay for studies. There was a statistically significant difference between 2 statements: the tutor encourages me to participate ($U = 5216.000$, $Z = -3.015$, $p = 0.003$) and the tutor models critical self-reflection ($U = 5338.00$, $Z = -2.753$, $p = 0.006$). In both cases, for state-funded students the mentioned tutor help is more important than for students who pay for studies.

The Kruskal-Wallis test was used to identify tutor support for first, second, third-and fourth-year students. There was a statistically significant difference between 2 statements: the tutor stimulates my thinking ($\chi^2 = 8.854$; $df = 3$; $p = 0.031$) in the tutor models' good discourse ($\chi^2 = 10.293$; $df = 3$; $p = 0.016$). In both cases, first-year students more than other course students feel that the tutor stimulates their thinking and models' good discourse.

Peer support. Four tutor support statements were examined: other students encourage my participation; other students praise my contribution; other students value my contribution; other students empathise with my struggle to learn [15].

Using the Spearman test, it is established that both PPE and ECE students indicate that other learners encourage their participation in the study process and praise their contribution during interactive lecture ($r = 0.316$), project activities in groups ($r = 0.314$), educational games ($r = 0.291$), in case study ($r = 0.25$) and working with visual industries ($r = 0.233$). PPE students feel other learners value their contribution doing creative tasks ($r = 0.260$) and project activities in groups ($r = 0.285$). Students of ECE arguments, that other learners empathise with their struggle to learn when they work with visual industries ($r = 0.245$),

watch, and discuss the film ($r = 0.276$), reflect an experience ($r = 0.231$).

Using the Spearman test, it is established a weak correlation between the peer support and PPE and ECE students choose to study pedagogy due to formation of practical skills during studies ($0.257 < r < 0.289$), study relevance ($0.229 < r < 0.450$), of critical thinking about how students learn ($0.298 < r < 0.378$), of critical thinking about students ideas in the readings ($0.20 < r < 0.245$), of interpretation of study ($0.258 < r < 0.432$), interactivity during studies ($0.263 < r < 0.527$) and tutor's support ($0.354 < r < 0.509$).

The Mann-Whitney test was used to determine the experience of Peer support of state-funded students and students who pay for studies. State-funded students ($Mdn = 124.24$, $n = 121$) more feels other students encourage their participation in the study process than students who pay for studies ($Mdn = 106.94$, $n = 110$). This difference is statistically significant ($U = 5534.500$, $Z = -2.321$, $p = 0.000$, $r = -0.020$).

CONCLUSIONS

Motives for studying pedagogy. The analysis of quantitative research data revealed that good feedback of graduated students and formation of practical skills during studies were the main reasons for choosing to study pedagogy. For PPE students both motives were stronger than for ECE students.

Methods of study. The following study methods are most used in the study process: project activities in groups, experience reflection, work with visual industries, document analysis, folder method, demonstration, case analysis, educational games, mind map, work with vocabulary, interactive lecture, study trips, debate.

Relevance of study. For students' studies are relevant when their learning focuses on issues that interest, what they learn is important for their professional practice, when they learn how to improve their professional practice and what they learn connects well with their professional practice. It depends on the following methods of study: creative tasks, demonstration, project activities in groups, educational games, mind maps, watching and discussing the film, work with visual industries, reflection of experience, debates.

Reflective thinking. Both PPE and ECE students reflect on the study process when they think critically about how they learn during educational trips, interactive lecture, debates, work with visual industries, doing creative tasks, demonstrating completed tasks. Students who pay for studies think stronger critically about how they learn than state-funded students. Full-time students think more critically about how they learn than full-time session students or part-time students. However, part-time students think more critically about other students' ideas than full-time students or full-time session students.

Interpretation. Both PPE and ECE students make good sense of the tutor's messages when working in groups, with the dictionary, visual industries, doing creative tasks, watching, and discussing the film, demonstrating completed tasks, reflection of experience or analysing documents. The tutor more makes good sense messages of ECE students than EPP students. State-funded students make more good sense of other students' messages and the tutor's messages than students who pay for studies.

Interactivity. Both PPE and ECE students when they work in groups explain their ideas to other learners during work in groups and debates. PPE students explaining their ideas to each other doing creative tasks, on educational trips and work in groups. ECE students more respond to other students' ideas than PPE students. Full-time students more explain their ideas to other students than full-time session students or part-time students.

Tutor support. Both PPE and ECE students argues that the tutor stimulates their thinking, encourages them to participate in the study process, models' good discourse and critical self-reflection using these study methods: creative tasks, debates, interactive lecture, case study, educational games, watching and discussing the film. The tutor encourages PPE students to participate in studies process and models' critical self-reflection more often than for ECE students. In both cases, for state-funded students the mentioned tutor help is more important than for students who pay for studies. First-year students more than other course students feel that the tutor stimulates their thinking and the tutor models' good discourse.

Peer support. Both PPE and ECE students indicate that other learners encourage their participation in the study process and praise their contribution during interactive lecture, project activities in groups, educational games, in case study and working with visual industries. PPE students feel other learners value their contribution doing creative tasks and project activities in groups. ECE students' arguments, that other learners empathise with their struggle to learn when they work with visual industries, watch, and discuss the film, reflect an experience. State-funded students more feels other students encourage their participation in the study process than students who pay for studies.

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