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Monika Żak-Skalimowska
University of Białystok
ORCID – 0000-0002-0235-7826

KNOWLEDGE ABOUT THE CREATIVITY OF PEDAGOGY STUDENTS STARTING THEIR STUDIES AT HIGHER EDUCATION INSTITUTIONS*

Introduction: Demonstrating scientific knowledge of creativity by students of pedagogy is essential for their conscious planning and designing of an educational environment that supports the development of children's creative attitudes. Knowledge is the basis for the development of human competences, therefore, in order to reliably and reflectively organize the didactic and educational process, including the process of developing the creativity of future pupils, it is important for students to use a resource of professional knowledge about creativity in a broad sense, and not only common, intuitive knowledge. Determining the level of knowledge about creativity of students of pedagogy starting their studies at a higher education institution is an important stage in planning the didactic process, because it can be an opportunity to introduce changes in the educational process.
Research Aim: The main purpose of the research presented in this article was to check the level of knowledge about creativity of students starting pedagogical studies.
Research Method: The research adopted a quantitative research strategy using the diagnostic survey method. 648 people took part in the study.
Results: The research results indicate that students of pedagogy preparing to work as teachers are characterized by a lower level of general knowledge about creativity than students of other specialties, these results are statistically significant. However, students – high school graduates – have a higher level of theoretical knowledge about creativity than people who graduated from technical secondary schools. At the same time, technical school graduates demonstrate a higher level of knowledge resulting from their life experiences and intuition compared to high school graduates, and these results are also statistically significant.
Conclusion: The conducted research indicates a great need to engage students in practical and theoretical activities, because, as the research results indicate, the general level of knowledge about the creativity of high school graduates is very low.

Keywords: knowledge about creativity, creativity, development of pedagogy students

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INTRODUCTION

Knowledge in its broadest sense (common, intuitive, acquired through various life experiences, as well as scientific knowledge) is the basis for the development of any human competence. Reflective analysis of acquired scientific information, the ability to assign meanings to learned content and, above all, the ability to assess one's own level of knowledge in a given area, is the basis for conscious learning and, therefore, the acquisition of a variety of skills, including the ability to think and act creatively. In a document prepared by the Council of the European Union (Dziennik Urzędowy Unii Europejskiej, 2018), presenting the list of key competences for lifelong learning, *the personal, social and learning to learn as well as entrepreneurial competences* are singled out among the eight categories of competences expected of the 21st-century employee. The first group of competences relates to the broadly understood ability of self-reflection in organising one's own learning process. Entrepreneurial competence, on the other hand, is primarily concerned with the conscious development of one's own creativity, as this is the basis for strategic, innovative and critical thinking.

Knowing how to develop one's own creativity is currently a fundamental and desirable value in the staff development process of various institutions. In fact, it is quite common for applicants for senior management positions to be asked questions about their ability to think and act outside the box as early as during recruitment meetings in order to test their level of non-standard problem-solving skills. As Nęcka (2012) emphasises, human creativity today can be understood, among other things, as the ability to produce new (atypical, non-standard) and original ideas for solving problems that at the same time have value (scientific, aesthetic, pragmatic or ethical), or as a set of personality traits enabling the development of creative potential (Popek, 2001; Nęcka, 2012). With reference to this definition, it seems indisputable that creativity is not only necessary, but essential in many areas of human activity. Employees in various workplaces are expected to possess creative skills, which are usually based on their possessing a common knowledge of creativity. The situation is different for those in the teaching profession. When organising their work, educators, whose aim is to prepare children, and young people to function creatively in a dynamically changing world, should demonstrate scientific (professional) knowledge about creativity in a broad sense. The use of scientific knowledge about creativity can also foster educators' conscious and diverse planning of their own professional path.

Students entering higher education have different experiences of developing their own creative attitudes, which they had acquired at earlier stages of their education. Depending on the curriculum content provided and, above all, the approach of form tutors and teachers, students have the opportunity to acquire knowledge about creativity to a greater or lesser extent as well as to develop their creative skills (Ferenz, 2015; Gajda, 2010; Gralewski, 2016; Karwowski, 2007, 2009;

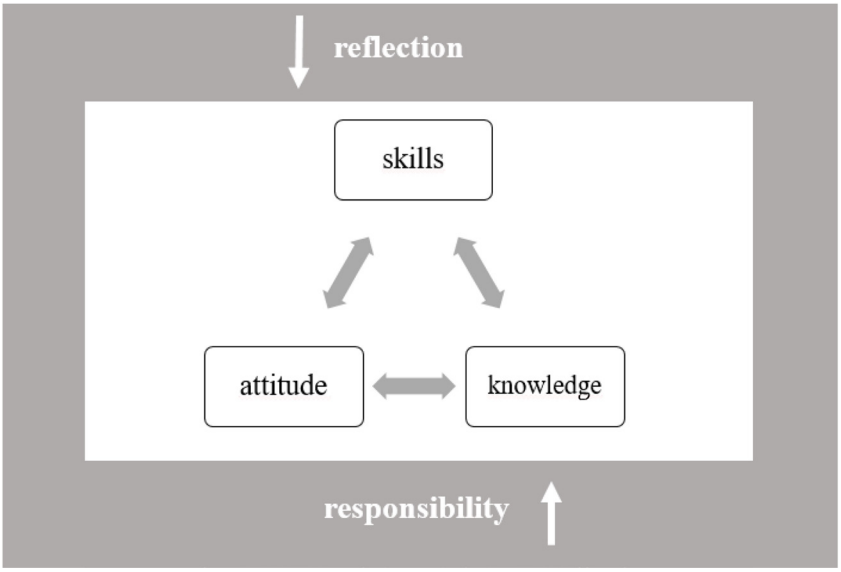
Uszyńska-Jarmoc et al., 2014, 2015). Unfortunately, creativity in schools is very often treated in an "occasional" and superficial way (Uszyńska-Jarmoc, 2011). The occasional opportunities in schools for students to develop their creative potential reinforce misconceptions about creation as a process aimed at gaining high grades or teacher approval. Whereas the prospect of developing a creative attitude as a result of the broader process of self-creation is underestimated (Csikszentmihalyi, 1996; Deci & Ryan, 2000; Kozielecki, 1996; Maslow, 1986; Obuchowski, 1985; Pietrasiński, 1990;). Thus, by beginning their tertiary education, pedagogy students have the opportunity to acquire scientific knowledge about creativity in its broadest sense, as well as to develop their skills of creative thinking and acting during didactic classes in which the content of, among other things, the pedagogy of creativity is implemented (Magda-Adamowicz, 2015).

The term "creativity" has been broadly defined in the literature. Typically, researchers analyse human creativity from attributive, process-oriented, environmental and trait perspectives (Nęcka, 2012). The trait approach uses the concept of creativity interchangeably with the term "creative attitude" (Szmidt, 2013). Popek (1988) writes that a creative attitude is "a cognitive and characterological property, showing a tendency, attitude or readiness to transform the world of things, phenomena, as well as one's own personality" (p. 27). A person's creative attitude is influenced by both intellectual traits (e.g. divergent thinking, independent observation skills, reflexivity, and logical memory) and personality traits (e.g. courage, openness, expressiveness, independence, adaptive flexibility, and perseverance). These traits interact in various configurations and to different degrees (Popek, 2010). The development of a person's creative abilities requires nurturing various personality traits, both cognitive and emotional-motivational. Additionally, the environment – whether home, kindergarten, or school – plays a crucial role in this process, exerting either a positive or negative influence (Uszyńska-Jarmoc, 2007). Having the knowledge of inhibitors and stimulators of creativity, an understanding of the creative process, as well as ways of diagnosing creativity, is essential for both students and teachers in supporting students in their creative development.

The analysis of the Czerepaniak-Walczak's (1994) definition of the concept of "competence" allows us to assume that knowledge is one of the basic components of any human competence (Figure 1). Knowledge is defined in methodology as a configuration of "views and assertions about specific phenomena, events or processes. It is most often the result of scientific research, but also the result of observation and human acquired experience" (Maszke & Kocór, 2010, pp. 375–378). Following the constructivist perspective on the learning process of pedagogy students adopted in this article, knowledge is constructed in an individual way on the basis of the experience gained, the reflections made, as well as the life experiences of each person. Therefore, it has a personal character and, unlike information

(which is transmitted by someone), it is created in an individual way in the mind of each person, which means it is personal (Meger, 2012; Wojtczuk-Turek, 2010).

Figure 1.
Structure of the competence category



Source: Author's own study based on Czerepaniak-Walczak's (1994, 1995) analysis of the concept of "competence".

In view of the above assumptions, acquiring knowledge in terms of developing one's own competences is understood not only as acquiring information in a specific scientific discipline, but also as making an ongoing reflection on everyday life events that shape specific human competences. Thus, the importance of developing individual competences involves knowing the scientific (theoretical) topics in a given field, as well as recognising the value of common knowledge gained through everyday experiences. Based on the analysis of the above literature, it can be concluded that the process of knowledge acquisition is:

- theoretical, understood as the discovery of scientific information in a given scientific field;
- practical, as it refers to a reflective analysis of the experiences gained, through which common (intuitive) knowledge is formed;
- invariably personal, as the construction of new knowledge involves referring to knowledge already held;
- reflective in terms of awareness of knowledge or the lack of it; it is the "I know that I know" and "I know that I don't know" type of knowledge.

This paper assumes that a fundamental attribute in the conscious and purposeful formation of pedagogy students' own creative skills is knowledge (scientific and common) about human creativity in its broadest sense. In the case of pedagogy students, would-be teachers, it seems clear that their knowledge of creativity is a very important issue in the process of developing children's creativity. It is the educators who influence the process of shaping or hindering the development of children's creative attitudes. Unfortunately, there are times when they unconsciously (through their attitude, the way they react to events, or the way they speak) pass on the wrong knowledge of creative activity to their pupils. As the research results (Gajda, 2009) indicate, teachers often treat creativity in a narrow way, reducing the concept to children's intellectual achievements. Whereas motivational and personality aspects are forgotten or ignored. This is why it is necessary to understand the nature of creativity, because this not only enables one to skillfully use this information in a professional environment, but, above all, it becomes an opportunity to shape one's own creative attitude and gives one the opportunity to become aware of how one can create oneself and the environment in which one lives.

RESEARCH AIM AND QUESTION

The main aim of the study was to determine the level of knowledge about creativity of first-year pedagogy students. The specific objectives of the study included identifying possible types of knowledge about creativity on the basis of the conducted factor analysis and finding out whether there are statistically significant differences in the level of knowledge about creativity caused by variables such as the type of secondary school finished and the major of study – teaching or non-teaching. In the study, the following main research problem was formulated: What is the level of pedagogy students' knowledge about creativity at the beginning of their studies? These specific problems were formulated:

What types of knowledge about creativity can be identified from the carried out factor analysis?

What are the differences in the level of knowledge about creativity among students of pedagogy that can be attributed to the following variables: type of secondary school finished, and major of study: teaching or non-teaching?

RESEARCH METHOD AND SAMPLE CHARACTERISTICS

This article presents excerpts from an unpublished doctoral dissertation entitled *Creative Competence vs Metalearning Competence of Pedagogy Students* prepared by the author of this article. The research was conducted in 2016. The research adopt-

ed a quantitative research strategy using a diagnostic survey method. The *My Knowledge of Creativity* test was used to check the level of students' knowledge of creativity (Żak-Skalimowska, 2022). Initially, the test had 72 questions, but the final number of questions was 24 as a result of the factor analysis applied. The value of the correlation coefficient was 0.023, while the K-M-O measure of sampling adequacy reached a value of 0.760, thus, confirming the validity of performing a factor analysis. Through the use of exploratory factor analysis and scree plot analysis, three components were identified – three variables that characterise a specific type of creative knowledge. The first variable determining the level of knowledge about creativity and human creativity is *scientific knowledge about creativity*, the second variable is knowledge about the *creative process and its determinants*, and the third variable is *knowledge about the nature and characteristics of creativity*. It was possible to score 0, 1 or 2 points for individual answers. A total of 0 to 48 points could be achieved. The individual items included in the questionnaire were created on the basis of an analysis of the literature on the psychology and pedagogy of creativity (Nęcka, 1995, 2005, 2012; Popek, 2010; Stasiakiewicz, 1999; Szmidt, 2007, 2017). The tool used in the research included assertions from both scientific (theoretical) and common knowledge about human creativity, the creative process and its determinants, psychological and pedagogical concepts of creativity, and personal beliefs about what creativity is and how it can be developed in oneself.

Table 1 shows the three groups of statements that constitute the identified factors. In interpreting the individual factors, it was found that the first one determines the level of scientific knowledge about creativity as it includes questions related to theoretical issues in the psychology of creativity. The second factor includes knowledge of the creative process and its determinants – stimulators and inhibitors. The third factor, on the other hand, concerns knowledge of the nature and characteristics of creativity with the questions that refer to creativity in trait and attributive aspects.

Table 1.
The rotated component matrix for the three factors determining the type of knowledge about creativity.

Statement content	Component number		
	1	2	3
1. The prominent educator, Edward Nęcka, who created the theory of creative adolescence, was only given recognition in the 19th century	0.719		
2. Creativity can be analysed from four perspectives: the attributive; the trait; process-oriented and ecological aspects	0.625		
3. Graham Wallas' incubation theory assumes that a creative idea first emerges without conscious awareness	0.563		
4. Investment theory of creativity was developed by Ellis P. Torrance in the mid-20th century	0.557		

5.	Outstanding creativity does not develop until at least 10 years of work in a given field has passed	0.528	
6.	Joy P. Guilford attributes the origins of human creativity to the so-called convergent thinking, which refers to the generation of many and varied ideas for solving a problem of an open-ended nature	0.512	
7.	A leading representative of Polish creative psychology is Krzysztof J. Szmidt	0.497	
8.	Pancreativism is the view that creativity is primarily what comes out of the hands of artists or patrons of the arts	0.494	
9.	The egalitarian view assumes that creativity occurs in all people, but to varying degrees	0.313	
10.	The introduction of inviolable rules at school, learning in a spirit of conformity, focusing on transmitting as much knowledge as possible at school, and encyclopaedism foster the children's creativity		0.597
11.	The respect shown by adults towards the unusual questions posed by children fosters the development of their creativity		0.573
12.	The working environment, the discussion-orientation, the support from colleagues, and the challenges that do not make people feel anxious and under pressure are conducive to creativity		0.526
13.	The fact that a person is good at something (e.g. draws correctly according to a pattern, faithfully reproduces a choreography in a dance) is not the same as being creative		0.521
14.	Colouring pictures following instructions in early childhood develops a child's creativity		0.489 -0.303
15.	The creative process is based, among other things, on the unconventional use of previously acquired knowledge and the creation of a new representation of it in the mind		0.451 0.344
16.	Parental overprotectiveness and limiting a child's freedom may hinder their creativity		0.407
17.	Creating new knowledge about oneself and using it to change oneself can be a creative process		0.394 0.385
18.	Creative works are only the so-called works of art		0.352
19.	Making a perfect copy of the *Mona Lisa* painting is a creative work		0.341
20.	The Objective creativity, which is socially recognised, is any independent human activity leading to the creation of something new, original, useful, valuable		0.585
21.	In psychological terms, creative works, are characterised by the novelty, relevance and uniqueness of the subject solution		0.575
22.	The creative imagination characterises outstandingly creative people, capable of inventing new and original works of high social stature		0.534

23. Creativity, when viewed from the perspective of a set of human character traits, is defined as creative ability		0.429
24. Baking cookies for the first time using your own recipe, making a different soup than before, creating your own dessert may all be called creative works	0.333	0.342
Method – Principal Component Analysis (PCA) Varimax rotation method with Kaiser Normalisation		

Source: Author's own study.

The reliability analysis of the test was performed using Cronbach's alpha. The alpha statistic was counted separately for the three scales extracted in the factor analysis. The statistic values were 0.689 for the first factor, 0.665 for the second factor and 0.575 for the third factor, respectively. Although these values did not reach the expected threshold of 0.7, which signifies scale reliability, they are close to this level. However, as pointed out by Bedyńska and Cypryańska (2007) as well as Heo et al. (2015), the results of alpha statistic are also related to the number of items in each subscale. In the tool used, the number of items in the third scale was not extensive and this may have led to lower reliability results. However, these values were considered satisfactory to conduct the analysis of the research. As Bedyńska and Cypryańska (2007, p. 156) point out, in a situation where the number of items is low, an Alpha value of 0.5 may be considered sufficient in some cases – this was the case in the conducted research. The tool used was not standardised.

The empirical-quantitative indicators were the number of points obtained in the students' responses to the questionnaire (Table 2). It was assumed that the level of students' creative knowledge was very low if respondents scored below 50% of the possible points and low when they received between 51 and 60% of the points. The respondents display an average level of knowledge if their score was between 61 and 70%. A high level of knowledge of creativity means that those tested scored between 71 and 80% of the possible points, while a very high level applied to students with a score between 81 and 100% of the possible points on the test.

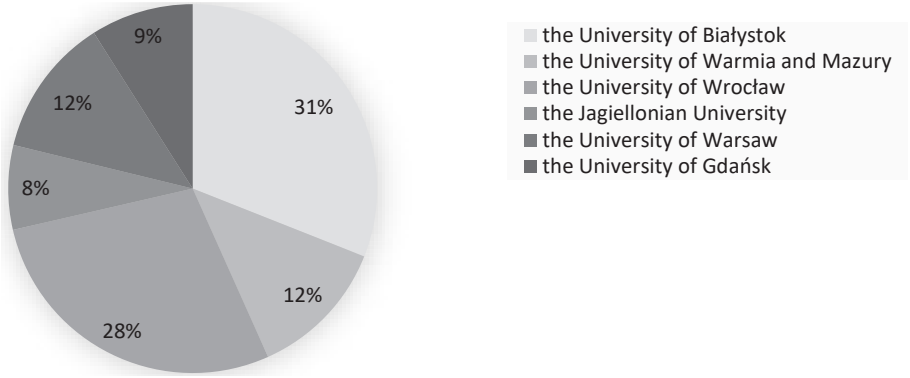
Table 2.
Empirical indicators defined after conducting factor analysis

1. Scientific knowledge of creativity (knowledge of theoretical assumptions in the psychology and pedagogy of creativity)	0–18 pts.
2. Knowledge of the creative process and its determinants (common knowledge of the factors that facilitate and inhibit human creativity)	0–20 pts.
3. Knowledge of the nature and characteristics of creativity (knowledge of the nature of the creative process – scientific and common knowledge)	0–10 pts.

Source: Author's own study.

The respondents of the survey (N = 648) were the first year students of pedagogy of the following majors: Pre-school and Early-School pedagogy, Resocialisation, Socio-cultural animation, Andragogy, Special pedagogy, Education and rehabilitation of People with intellectual disabilities, Childcare and School Counselling, Adult education and social marketing, Counselling and Psychopedagogical support, Multicultural pedagogy with social intervention, Education and care of a young child, Therapy and development support, Art education. The selection of the study sample was purposive and random. Out of all state universities in Poland, six were selected from each part of Poland – from the north, south, east, west and centre of the country. The research was conducted at the University of Białystok, the University of Warmia and Mazury, the University of Warsaw, the University of Gdańsk, the Jagiellonian University and the University of Wrocław. Figure 2 shows the structure of the survey sample given as a percentage, defined by place of study. Participation in the survey was voluntary and the research was anonymous.

Figure 2.
Structure of the study sample defined by place of study



Source: Author's own study.

STATISTICAL DATA ANALYSIS PROCEDURE

To analyse the extracted variables and their measurements, different methods of data analysis were applied using statistical packages: Microsoft Excel and IBM SPSS Statistics 25. The data analysis procedure was carried out in the following order:

1. An exploratory factor analysis using the principal component method with Varimax rotation was conducted to determine the internal structure of the *My Knowledge of Creativity* tool (own work). The aim of this statistical analysis was to identify factors that might characterise specific types of creative knowledge.

2. A reliability analysis (Cronbach's alpha method) was performed for the individual factors (variables) identified through the use of the research tool.

3. By conducting an exploratory factor analysis using the principal component method, a final version of the *My Knowledge of Creativity* questionnaire was created in order to test students' level of knowledge about creativity. The content forming the three factors, each representing a different type of knowledge about creativity, was selected for analysis.

4. The distribution of the results for the individual variables was checked to ensure that they followed a normal distribution across all groups of subjects.

5. The Mann–Whitney *U*-test was used to test the statistical significance of differences in individual variables between students – secondary school or technical school graduates, students majoring in teaching or non-teaching.

RESULTS

Table 3 shows the results of the statistical analysis regarding the pedagogy students' knowledge of creativity. The total possible score on the *My Knowledge of Creativity* test was 48 points. The maximum number of points the first factor – *scientific knowledge of creativity* – 18 points, for the second factor – *knowledge of the creative process and its determinants* – 20 points, and for the third factor – *knowledge of the nature and characteristics of creativity* – 10 points.

Table 3.
Statistical characteristics of the results showing the level of each type of knowledge about creativity demonstrated by pedagogy students

Variables	*M*	*SD*	*Sk*	*K*	*Max.*	*Min.*	*D*
Scientific knowledge of creativity	0.98	1.69	2.10	4.95	10.00	0.00	10.00
Knowledge of the creative process and its determinants	9.73	3.87	-0.36	-0.66	16.00	0.00	16.00
Knowledge of the nature and characteristics of creativity	2.95	2.33	0.31	-0.83	8.00	0.00	8.00
Knowledge of creativity – general summary	13.66	5.04	-0.25	-0.34	26.00	0.00	26.00

N = 648, *M* – mean, *SD* – standard deviation, *Sk* – skewness, *K* – kurtosis, *Min.* – minimum, *Max.* – maximum , *D* – range. These symbols will be used in the subsequent tables containing descriptive statistics.

Source: Author's own study.

The results in Table 3 indicate that the pedagogy students participating in the study have a very low level of scientific knowledge of theoretical topics relating to

human creativity and of knowledge about the course of the creative process and its determinants, which is related to person's personal knowledge (their common knowledge), constructed on the basis of their life experiences. Students of pedagogy also have a very low level of knowledge about the nature of creativity and its characteristics. The overall level of knowledge about creativity of those surveyed is very low (respondents scored on average 13.66 points out of a possible 48, which is 28.45%).

In the study, it was assumed that the level of the analysed variables, namely *scientific knowledge of creativity*, *knowledge of the creative process and its determinants*, as well as *knowledge of the nature and characteristics of creativity* may be different in groups of students with a different type of secondary school finished and major studied. The analysis of the results using the Kolmogorov–Smirnov test showed that the distribution of the results in the sample did not follow a normal distribution ($p < 0.05$) for the variables, so the Mann–Whitney *U*-test was used to test the statistical significance of the differences between the different groups of subjects.

Table 4.
Statistical characteristics of the pedagogy students' test results on the scientific knowledge of creativity

Variables		*M*	*SD*	*Sk*	*K*	*Max.*	*Min.*	*D*
Type of secondary school finished	Secondary School	5.04	2.06	0.37	-0.02	12.00	0.00	12.00
	Technical School	1.48	1.98	1.22	-1.24	8.00	0.00	8.00
Major	Teaching	1.04	1.70	1.97	4.35	10.00	0.00	10.00
	Non-teaching	0.92	1.67	2.26	5.73	10.00	0.00	10.00

Source: Author's own study.

The data in Table 4 shows that the calculated kurtosis value for most of the groups in question is positive, indicating the presence of a leptokurtic distribution. The value of this statistic is positive and above zero, so the results are mainly concentrated around the mean, while extreme values are missing. The skewness value calculated separately for each study group is in many cases higher than zero, meaning that there are too many low values and no high values. The analysis of the results in Table 4 revealed that students who finished secondary school have a higher level of scientific (theoretical) knowledge about creativity than those who finished technical school. The analysis with the Mann–Whitney *U*-test showed that the differences in the level of scientific knowledge about creativity between secondary school and technical school graduates are statistically significant ($U = 15008.00$; $p < 0.05$). In contrast, the difference in the level of this type of knowledge between those studying teaching and non-teaching majors is small ($U = 49967.00$; $p > 0.05$, ni.) and not statistically significant.

Table 5.
Statistical characteristics of test results on knowledge of the creative process and its determinants (common knowledge)

Variables		*M*	*SD*	*Sk*	*K*	*Max.*	*Min.*	*D*
Type of secondary school finished	Secondary School	4.76	2.55	0.54	0.24	14.00	0.00	14.00
	Technical School	7.95	4.10	0.03	-1.24	15.00	0.00	15.00
Major	Teaching	9.42	3.75	-0.27	-0.80	16.00	0.00	16.00
	Non-teaching	10.04	3.97	-0.46	-0.50	16.00	0.00	16.00

Source: Author's own study.

As the data in Table 5 shows, those who finished technical school demonstrated a significantly higher level of knowledge about the creative process and its determinants than secondary school graduates. The value of the standard deviation in each group is high and indicates the presence of extreme values. The analysis of the results with the Mann–Whitney *U*-test showed that the differences in the level of knowledge of the creative process and its determinants between secondary and technical school graduates are statistically significant ($U = 12839.50.00$; $p < 0.05$). Those preparing for the teaching profession have a lower level of knowledge about the determinants of the creative process than students of other pedagogical majors. The difference in this type of knowledge between students studying teaching and non-teaching majors is statistically significant ($U = 47214.50$; $p < 0.05$).

Table 6.
Statistical characteristics of the pedagogy students' test results on the knowledge of the nature and characteristics of creativity

Variables		*M*	*SD*	*Sk*	*K*	*Max.*	*Min.*	*D*
Type of secondary school finished	Secondary School	4.62	1.60	-0.18	-0.39	8.00	0.00	8.00
	Technical School	2.80	2.47	0.34	-0.96	8.00	0.00	8.00
Major	Teaching	3.05	2.37	0.30	-0.88	8.00	0.00	8.00
	Non-teaching	2.85	2.29	0.32	-0.79	8.00	0.00	8.00

Source: Author's own study.

The results in Table 6 show that secondary school graduates have a slightly higher level of knowledge about the nature and characteristics of creativity than those graduating from a technical school. The differences in the level of this type of knowledge between secondary school graduates and technical school gradu-

ates ($U = 16862.00$; $p > 0.05$), as well as those studying teaching and non-teaching specializations ($U = 50273.00$; $p > 0.05$) are marginal and not statistically significant.

Table 7.
Statistical characteristics of the results of the study on pedagogy students' knowledge of creativity (general summary)

Variables		*M*	*SD*	*Sk*	*K*	*Max.*	*Min.*	*D*
Type of secondary school finished	Secondary School	14.43	3.97	0.12	0.38	27.00	3.00	24.00
	Technical School	12.23	6.31	0.18	-0.74	25.00	0.00	25.00
Major	Teaching	13.51	4.97	-0.22	-0.16	25.00	0.00	25.00
	Non-teaching	13.82	5.12	-0.29	-0.48	26.00	0.00	26.00

Source: Author's own study.

As the data in Table 7 shows, secondary school graduates have a higher level of general knowledge about creativity than technical school graduates. The differences in arithmetic means indicating the level of knowledge about creativity in this group are statistically significant ($U = 14646.00$; $p < 0.05$). The differences in the arithmetic means of creativity knowledge levels among students in teaching and non-teaching majors ($U = 50103.50$; $p > 0.05$, ni.) are small and not statistically significant.

RESULTS AND DISCUSSION

The analysis of the research findings indicates that first-year pedagogy students exhibit a very low overall level of broadly-understood, comprehensive knowledge about creativity. The research results described in the article, indicating students' low level of general knowledge about creativity, are not surprising. On the one hand, the survey participants are only beginning their pedagogical studies, and the test includes statements related to scientific knowledge. On the other hand, the results suggest that secondary school graduates are poorly prepared to engage consciously and creatively at the higher education level, which differs significantly from the secondary school system. Students who are just starting their studies are discovering a different way of learning than before – one which is problem-oriented and focused on finding solutions to different problems on their own. Such skills require the ability to think and act creatively and are therefore essential to the development of autonomous student learning (Uszyńska-Jarmoc, 2010).

Research indicates that the level of knowledge about creativity among teachers and pedagogy students varies (Bałachowicz, 2013, 2014; Ekiert-Oldroyd cited in Kamińska, 2021; Gałuszka & Ochman, 2017). The findings discussed in this ar-

ticle contrast with those of Gałuszka and Ochman (2017), who reported that their surveyed students demonstrated a high overall level of knowledge about creativity. However, the surveyed students in Gałuszka and Ochman's (2017) study were in their second year of graduate studies. It seems that the field of study or year of study may be related to the results obtained. In this study, the participants are at the beginning of their academic journey, as they are first-year master's students. Both studies also used different assessment tools and scales. Meanwhile, Kłosińska and Marek (2017) emphasise in their study that students' level of knowledge about creativity, as well as their perspective on it, vary depending on the field of study, university profile and the environment in which an individual lives. As the authors point out, "what emerges from the research is the need to expand the knowledge of future teachers about creativity and its domains" (Kłosińska & Marek, 2017, p. 98). The analysis of students' views on creativity indicates that they have an average level of knowledge. Kłosińska and Marek (2017) write, "knowledge is, therefore, not complete and it significantly and obviously differentiates views on creativity" (p. 85).

The results presented in this article correspond with research (Gajda, 2009; Gralewski, 2016; Gralewski & Karwowski, 2018; Karwowski, 2007; Westby & Dawson, 1995) indicating that teachers, despite recognising the need to develop children's creativity, are unable to recognise the characteristics indicative of their students' creative attitudes. In teachers' view, a creative person is often characterised through qualities indicative of intellect and high personal culture, conducive to achieving high grades at school. Whereas the personality traits that determine the fulfilment of a person's creative potential are overlooked and underestimated. Therefore, the personal beliefs of future teachers regarding creativity ("common knowledge" on the subject) are insufficient in the process of developing students' creativity. The "ideal" student in the opinion of teachers is primarily a responsible, dutiful, hard-working person (Wiechnik, 2001). As Tokarz (2005) states, "the qualities preferred by teachers pertain exclusively to intellectual attributes: the ideal student is open to novelty, hard-working, and thinks independently, while also possessing, though less highly valued, the ability to take on challenging tasks and a sense of humor" (pp. 224–225). Similarly, the analysis of the results of Gajda's (2009) study also suggests that a student who achieves high academic achievement is more likely to be perceived as creative by teachers. The failure to recognise creative traits in low-achieving students, while incorrectly identifying high-achieving but non-creative students as creative, is concerning. As Gajda (2009) points out, "for a teacher, a creative third-grader is an intelligent, confident, imaginative, persistent, active, diligent, open-minded, independent student" (p. 267). These findings correspond with research conducted by Pufal-Struzik (2006), who asked pedagogy students to select 10 adjectives that most accurately describe the profile of a creative learner. It turns out that future educators characterise a creative person through qualities pertaining to intellectual attributes (Pufal-Struzik, 2006, p. 26). Similar findings have

been presented by Westby and Dawson (1995) or Aljughaiman and Mowrer-Reynolds (2005). Their research indicates that while teachers value creativity, they often equate it with good and compliant student behaviour or fail to define it altogether. This perception may lead teachers to design activities primarily aimed at developing cognitive abilities, while neglecting the broader process of nurturing children's creative personalities (Popek, 2001). Research by Tokarz and Słabosz (2001) indicates a significant disparity in knowledge about creativity between primary school teachers and postgraduate students majoring in creativity. Postgraduate students are better able to characterise the creative learner and more frequently reference the characterological aspects of a creative attitude – particularly traits associated with nonconformity – compared to primary school teachers. The analysis of the cited research findings suggests that teachers lack scientific knowledge on recognising and diagnosing children's creative expressions.

Based on the analysis of the survey results, it was also found that secondary school graduates show a higher level of knowledge of the theoretical basis for explaining the phenomenon of creativity, while those who graduated from a technical school show a higher level of knowledge of the social determinants of creativity. The results also indicate a higher level of knowledge about creativity among graduates of secondary schools compared to technical schools, with these differences being statistically significant. This suggests that the emphasis on creativity varies depending on the type of secondary school attended and its curriculum. Creativity appears to be addressed more frequently in general secondary schools than in technical schools. However, pedagogy students who graduated from technical secondary schools demonstrate a higher level of intuitive knowledge regarding environmental factors influencing human creativity. The analysis of this research confirms the widely accepted curricular assumptions of secondary and technical schools – technical schools focus on developing practical skills, whereas secondary schools primarily emphasise theoretical knowledge.

The findings indicate that students planning to work in the teaching profession are characterised by a slightly lower level of knowledge about the creative process and its determinants than those studying other pedagogical majors. It is possible that those who are preparing for the teaching profession associate their own school experiences with the vision of the educator's work as a person who implements the curriculum in a formulaic way, focused on so-called "lecture-style teaching", which is "methodologically correct", but not always effective. In addition, students studying the teaching majors may have less experience of the various opportunities to develop the creative potential of children and young people, compared to those studying majors such as Socio-cultural animation, Andragogy, Art education, Therapy and development support, Counselling and Psychopedagogical support, Special pedagogy, Childcare and School Counselling, Multicultural pedagogy with social intervention, Adult education and social marketing.

The analysis of the research results also reveals statistically significant differences in the level of common, personal knowledge about creativity – specifically, knowledge of its determinants, including stimulators and inhibitors – between students pursuing teaching and non-teaching majors. Students preparing for the teaching profession exhibit lower levels of this type of knowledge. These findings highlight the need to emphasize creativity-focused subjects in teacher education programs. Future teachers, as those responsible for identifying and fostering their students' creative abilities, have a particular obligation to acquire professional knowledge in this area. Gajda (2009) rightly observes that "it is difficult to expect teachers to design opportunities for children's creative development when each relies on their own subjective theories of creativity" (p. 255). A teacher who uses only common knowledge about creativity in their work may unconsciously limit the development of the creative potential of their students. As Szmidt (2017) asserts, "knowledge of this phenomenon and its aspects – the creative process, the creator's personality, the determinants of creation, and the product – grounded in the sciences of creativity, should be fundamental intellectual equipment for anyone who seeks to support others in creating and study the outcomes of their work" (p. 155).

CONCLUSION

The presented research results suggest several conclusions. Firstly, students' lack of professional knowledge about creativity may limit the conscious development of their own creative attitude. Secondly, students' misdefinition of creativity, which is based only on common knowledge, may result in their inability to plan and create educational projects in their professional work. Thirdly, the lack of knowledge of the possibilities to develop creative thinking may prevent the reflective creation (and discovery) of one's own way of learning, and thus hinder the creation of a concept of personal development. This also has implications for future students. Students who misunderstand the concept of creativity and creativeness will not be able to develop the creative attitude of their future students. At the same time, it should be emphasised that the people surveyed were just beginning their university education. The study period is the time to acquire "professional" knowledge about creativity in the broadest sense. The presented results of the study are not surprising, since the students were in their first year of study, but, at the same time, they prove the need for theoretical analyses in the field of pedagogy and psychology of creativity during teaching classes at university. The analysis of the research highlights the critical need for students to acquire both theoretical and practical knowledge about creativity from the very first year of their studies. Therefore, teacher education in this field should adopt a two-pronged approach, incorporating both "education about creativity" and "education through creativi-

ty" (Uszyńska-Jarmoc, 2011). Creating didactic situations that foster a variety of creative experiences in higher education can be an opportunity to deliberately and consciously develop one's own creative competence.

STUDY LIMITATIONS

While analysing the research on differences in knowledge about creativity between secondary school and technical school graduates, no characterisation of the curricula in force at the time was conducted. An analysis of these curricula would have allowed for more precise conclusions to be drawn.

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WIEDZA O TWÓRCZOŚCI STUDENTÓW PEDAGOGIKI ROZPOCZYNAJĄCYCH EDUKACJĘ W SZKOLE WYŻSZEJ

Wprowadzenie: Wykazywanie się posiadaniem naukowej wiedzy o twórczości przez studentów pedagogiki jest niezbędne do świadomego planowania i projektowania przez nich środowiska edukacyjnego, które sprzyja rozwojowi postaw twórczych dzieci. Wiedza jest podstawą rozwoju kompetencji człowieka, dlatego aby w sposób rzetelny i refleksyjny organizować proces dydak-

tyczno-wychowawczy, w tym również proces rozwijania kreatywności przyszłych wychowanków, istotne jest posługiwanie się przez studentów zasobem wiedzy profesjonalnej o szeroko rozumianej twórczości, a nie jedynie wiedzy potocznej, intuicyjnej. Określenie poziomu wiedzy o twórczości studentów pedagogiki rozpoczynających naukę w szkole wyższej jest ważnym etapem podczas planowania procesu dydaktycznego, ponieważ może być okazją do wprowadzenia zmian w procesie kształcenia.
Cel badań: Głównym celem badań przedstawionych w niniejszym artykule było sprawdzenie, jaki jest poziom wiedzy o twórczości studentów rozpoczynających studia pedagogiczne.
Metoda badań: W badaniach przyjęto ilościową strategię badań, stosując metodę sondażu diagnostycznego. W badaniu wzięło udział 648 osób.
Wyniki: Wyniki badań wskazują, że studenci pedagogiki przygotowujący się do wykonywania zawodu nauczyciela, charakteryzują się niższym poziomem ogólnej wiedzy o twórczości niż studenci pozostałych specjalności, wyniki te są istotne statystycznie. Natomiast studenci – absolwenci liceum – posiadają wyższy poziom wiedzy teoretycznej o twórczości niż osoby, które ukończyły technikum. Jednocześnie absolwenci technikum wykazują się wyższym poziomem wiedzy wynikającej z ich doświadczeń życiowych oraz intuicji w porównaniu z absolwentami liceum, wyniki te również są istotne statystycznie.
Wnioski: Przeprowadzone badania wskazują na dużą potrzebę angażowania studentów w twórcze działania o charakterze praktycznym i teoretycznym, ponieważ ogólny poziom wiedzy o twórczości absolwentów szkół średnich jest bardzo niski.

Słowa kluczowe: wiedza o twórczości, kreatywność, rozwój studentów pedagogiki