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Creativity as an educational aim in a postmodern school: Analysis of research results

Creativity is widely regarded as the main competence of the 21st century which determines the effective and responsible activity of individuals. All teachers should make an effort to develop this competence in their teaching/learning process. This article presents the results of research aimed at the diagnosis and description of ways to develop creativity among students at the secondary school level. The study sample included 337 teachers from Małopolska. The results of the research helped to determine what didactic methods and modern teaching resources teachers use to develop the creativity of teenaged students.

Keywords: pedagogy, creativity, didactic methods, modern resources, modern didactics process, teacher

Kreatywność jako cel kształcenia w postmodernistycznej szkole: analiza wyników badań

Kreatywność jest powszechnie uważana za kompetencję XXI wieku, warunkującą skuteczną i odpowiedzialność aktywność jednostek. Jest niezwykle ważne, aby nauczyciele w procesie kształcenia rozwijali tę kompetencję wśród swoich uczniów. W artykule zaprezentowano wyniki badań, których celem była diagnoza i opis sposobów rozwijania kreatywności wśród uczniów na III i IV etapie edukacyjnym. W badaniu udział wzięło 337 małopolskich nauczycieli. Wyniki badań pozwoliły określić, jakie metody i nowoczesne środki dydaktyczne stosują nauczyciele, by rozwijać kreatywność nastoletnich uczniów.

Słowa kluczowe: pedagogika, kreatywność, metody dydaktyczne, środki dydaktyczne, współczesny proces dydaktyczny, nauczyciel

References

Abrahams J., Brooks R. (2019). Higher education students as political actors: evidence from England and Ireland. *Journal of Youth Studies*, 22(1).

Babbie E. (2013). *Podstawy badań społecznych*. Warszawa: Wydawnictwo Naukowe PWN.

Bauman Z. (2006). *Płynna nowoczesność*. Przeł. T. Kunz. Kraków: Wydawnictwo Literackie.

Beck U. (2002). *Społeczeństwo ryzyka. W drodze do innej nowoczesności*. Przeł. S. Cieśla. Warszawa: Wydawnictwo Naukowe Scholar.

Bell D. (1975). *Nadejście społeczeństwa postindustrialnego. Próba prognozowania społecznego*. Przeł. M. Tanalska. Warszawa: Instytut Badania Współczesnego Problemów Kapitalizmu.

Boghici C. (2011). Creativity – Boosting Interactive Methods and Techniques – Key Elements in the Didactics Strategies. *Journal of Science and Arts Supplement*, 4(17).

Christensen B., Johnson L. (2011). *Educational Research: Quantitative, Qualitative, and Mixed Approaches*, 4th ed. Thousand Oaks: SAGE Publications.

Ferrari A., Cachia R., Punie Y. (2009). Innovation and Creativity in Education and Training in the EU Member States: Fostering Creative Learning and Supporting Innovative Teaching Literature review on Innovation and Creativity in E&T in the EU Member States. Luksemburg: (ICEAC).

Florida R. (2012). *The rise of the creative class – revisited: Revised and expanded*. New York: Basic Books.

Glavenau V.P. (2018). Educating which creativity?. *Thinking Skills and Creativity*, 27.

Jia X., Hua W., Caia F. (2017). The influence of teaching methods on creative problemfinding. *Thinking Skills and Creativity*, 24.

Jónsdóttir S.R. (2017). Narratives of creativity: How eight teachers on four school levels integrate creativity into teaching and learning, *Thinking Skills and Creativity*, 24.

Mastalski J. (2007). *Samotność globalnego nastolatka*. Kraków: WAM.

Morbitzer J. (2012). O istocie medialności młodego pokolenia. *Neodidagmata* 33/34.

Mróz A. (2018). *Nauczyciel wobec koncepcji zrównoważonego rozwoju w edukacji*. Kraków: Impuls.

Feiertag J., Berge Z. (2008). Training Generation N: how educators should approach the Net Generation. *Education + Training*, 50(6), 457-464.

Łukasik J.M. (2017). Trudności w pracy nauczycieli w fazie zawodowego osadzenia. Wskazania do edukacji nauczycieli. In: J. Madalińska-Michalak (red.), *Edukacja nauczycieli – z myślą o przyszłości*. Warszawa: Wydawnictwa Uniwersytetu Warszawskiego.

Prensky M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, 9(5).

Puccio G.J., Mance M., Murdock M.C. (2011). *Creative leadership: Skills that drive change* (2nd ed.). Thousand Oaks: SAGE.

Smith A.N. (2018). Pursuing "Generation Snowflake": Mr. Robot and the USA Network's Mission for Millennials. *Television & New Media*, 9 (1).

Solecki R. (2017). *Aktywność młodzieży w cyberprzestrzeni*. Warszawa: Von Velke.

Szempruch J. (2012). *Nauczyciel w warunkach zmiany społecznej i edukacyjnej*. Kraków: Impuls.

Szymański M.J. (2008). *Funkcje edukacji szkolnej w zmieniającym się społeczeństwie*. In: B. Muchacka, M.J. Szymański (red.), *Szkoła w świecie współczesnym*. Kraków: Impuls.

Tran T.B.L., Ho T., Mackenzie S.V., Le L.K. (2017). Developing assessment criteria of a lesson for creativity to promote teaching for creativity. *Thinking Skills and Creativity*, 25.

Wagner T. (2008). *The global achievement gap: Why even our best schools don't teach the new survival skills our children need—and what we can do about it*. New York: Basic Books.

Vygotsky S.L. (2004). Imagination and creativity in childhood. Journal of Russian and East European Psychology.

Introduction

In today's school, functioning in the postmodern (Bell, 1975) risk society (Beck, 2002), where the only certain thing is ongoing changes (Bauman, 2006), the functions and roles of teachers as well as the didactic goals they and their students should meet have been evolving (Szempruch, 2012). Mirosław J. Szymański (2008, pp. 16–17) notices that education today should provide an attractive, modern, and challenging proposition for young people which must take into consideration the rapidly changing reality and the effects of globalisation, European integration, and accelerating scientific and technological progress. In these conditions, the model of school needs to change too. According to Jolanta Szempruch, learning objectives — which are usually based on the most important factors of social and professional human activity and the established position of schools in the educational system — evolve under the influence of civilisational and socio-cultural transformations, national development strategies, and the expectations of all, who are the subjects of educational policy. The role of modern teachers is to generate universal ideas and values, perform experiments, provide advice, and initiate creative activities. They are required to identify the directions of changes occurring in the world and to explain the phenomena taking place; thus, they are expected to act as the translators and interpreters of reality (Szempruch, 2012, p. 176). One of the key roles of teachers should be to prepare young people to live in the world of the future.

Teachers face an extremely difficult challenge in preparing their students — described as millennials (Smith Nichols, 2015), digital natives, the snowflake generation (Smith, 2018; Abrahams Brooks, 2019), or global teenagers (Mastalski, 2007) — for the uncertain, unforeseen future. This group is not easy to work with: the students who function in *two realities* (the real one and the virtual one; see Morbitzer, 2012) expect instant gratification (Solecki, 2017) from the educational system and engaging methods and forms of work from their teachers (Mróz, 2018). Postmodern education has become the alternative to the traditional model, based on learning as a process of accumulating knowledge, skills, and habits (Boghici, 2011). Constantina Boghici (2011, p. 18) says that a theory has emerged, according to which the evaluation of learning must be a directed, designed activity requiring cognitive and emotional engagement and orchestrated in a friendly and effective manner. In this situation, the transmission model of education is irrelevant. Transferring knowledge which expires faster than ever before is insufficient. During the teaching/learning process, students must acquire competencies which will help them actively and intentionally shape their own future and the future of the world. According to many authors, one of these competencies is creativity.

Anusca Ferrari, Romina Cachia, and Yves Punie (2009, p. 6) say that creativity has become more and more important for the development of the postmodern society of the 21st century: it stimulates economic and social development and individual well-being, and it is an important contributor to a more competitive and dynamic Europe. Education is seen as the key element supporting creative abilities.

Today, creativity is viewed in the categories of success; some authors claim it is a synonym to success (see Glăveanu, 2018). In the postmodern society, the development of creativity has become an important educational objective (Tran et al. 2017, pp. 10–11). The acquisition of knowledge is not the only goal of learning, and the ability to apply knowledge and create new knowledge requires creativity. Today, it is one of the key skills schools should develop in their students (Jónsdóttir , 2017, pp. 127–128).

In the process of teaching/learning creativity, ICT tools are very important as they play a crucial role in the lives of students and may facilitate the development of an innovative learning environment; they may become a platform to support creative learning and innovative teaching, and today they offer numerous opportunities for constructive changes. However, access to technology is not enough — the role of teachers is crucial as they become guides to the complicated, virtual world (Ferrari, Cachia Punie, 2009).

Methodological assumptions

The study was conducted within the quantitative paradigm (a nomothetic strategy). The assumption was that creativity may be developed during school classes if teachers use proper methods (Jia et al., 2017; Boghici, 2011) and modern didactic means.

a) Object, goal and research problem

The study explored didactic methods, forms, and means used by teachers at the third (lower secondary school) and fourth (upper secondary school, both general and technical) stages of education in order to develop creativity. The goal of the study was to diagnose and describe the didactic methods, forms, and means used to develop creativity in students, as identified by the teachers.

The main research problem and specific problems were identified. The main research problem was formulated as follows: How do teachers develop creativity in students at the third and fourth stages of education?

The specific problems were formulated as follows:

- What didactic methods do teachers use to develop creativity in their students?
- What modern didactic means do teachers use to develop creativity in their students?

b) Method, technique, and tools

In order to answer these research questions, the survey method was applied (Babbie, 2013). The technique used was a questionnaire, and the research tool was an original questionnaire form designed for the purposes of the study. Dependent and independent variables were identified. The data obtained were processed using the statistical software SPSS. The relationships between the variables were determined using the Chi-squared test. Statistical significance was assumed at $p>0.05$.

c) Sampling and sample characteristics

The sample was a convenience sample (Christensen & Johnson, 2012). The questionnaire was administered in 2016 among 337 teachers of general subjects, working in public schools (lower- and upper-secondary general and technical schools) in the Małopolska region.

Table 1
Statistical and demographic characteristics of teacher–respondents

gender	female	263
	male	70
school location	countryside	128
	small town	136
	big city	73
level of education	third stage of education: lower-secondary school (*gimnazjum*)	177
	fourth stage of education: upper-secondary general and technical school (*liceum*, *technikum*)	160
years of professional experience	0–5	36
	6–10	64
	11–15	85
	16–20	102
	21 and more	50
degree of professional advancement	trainee	14
	contractual teacher	45
	appointed teacher	82
	certified teacher	196
subject/group of subjects taught	Polish	60
	humanities and social sciences (history, civil knowledge, and culture)	67
	foreign languages	74
	mathematics	36
	natural sciences and science (biology, chemistry, physics, geography, education for life in the family)	86

Source: Author's original research 337

Analysis of results

Methods used to develop creativity

The analysis of the results showed that when asked about developing creativity in their students, the respondents declared they used *methods for developing creative thinking* and *brainstorming*. The former method is used very often — by 30.3% of the respondents — and the latter by almost one-fourth (22%). The next most-often used methods were *methods of creative problem-solving* (11.6%), *drama* (10.7%), and *individual project* (10.1%). The least popular methods were *leading text* and *diagnostic methods and techniques*.

Table 2
Methods used to develop creativity

Methods for developing creativity	very often	some-times	occasion-ally	never
	%	%	%	%
Drama	10.68%	9.20%	4.45%	75.67%
Methods for developing creative thinking	30.27%	8.31%	2.08%	59.35%
Brainstorming	21.96%	5.64%	2.37%	70.03%
Individual project	10.09%	9.50%	4.45%	75.96%
Creative problem-solving	11.57%	5.93%	3.86%	78.64%
Storytelling	0.89%	0.00%	1.78%	97.33%
Discussion	1.19%	1.48%	1.19%	96.14%
Informative lecture	0.89%	0.00%	1.48%	97.63%
Problem-based lecture	2.08%	2.08%	2.08%	93.77%
Explaining	1.19%	0.30%	0.59%	97.92%
Working with text	3.86%	1.78%	.89%	93.47%
Classic problem-solving method	7.72%	1.48%	1.78%	89.02%
Case study	4.75%	5.34%	0.89%	89.02%
Simulation	4.45%	4.15%	1.48%	89.91%
Staging	7.72%	6.82%	1.78%	83.68%
Didactic discussion	7.12%	4.15%	2.08%	86.65%
Research	4.75%	2.37%	1.78%	91.10%
Description	1.19%	0.59%	0.59%	97.63%
Theatre play	2.97%	2.08%	5.64%	89.32%
Exhibition/display	2.37%	2.67%	3.56%	91.39%
Show/film	3.26%	4.45%	1.19%	91.10%
Subject-related exercises	7.42%	3.26%	1.48%	87.83%
Laboratory	4.45%	1.48%	2.37%	91.69%
Measurement	0.89%	0.89%	0.30%	97.92%
Leading text	0.00%	0.30%	0.59%	99.11%
Group project	8.61%	10.39%	5.34%	75.67%
Integration methods	0.89%	1.78%	0.89%	96.44%
Planning methods and techniques	0.89%	2.37%	0.59%	96.14%
Prioritisation methods	1.48%	1.78%	0.59%	96.14%

Evaluation methods	0.30%	2.08%	1.48%	96.14%
Collaboration methods	1.19%	2.97%	1.48%	94.36%
Joint decision-making	2.67%	4.15%	1.48%	91.69%
Developing and defining ideas	5.34%	5.93%	1.19%	87.54%
Diagnostic methods and techniques	0.00%	1.48%	1.19%	97.33%
Webquest	1.78%	2.67%	3.56%	91.99%
Portfolio/e-portfolio	2.37%	2.37%	7.12%	88.13%
SWOT analysis	2.08%	4.45%	1.48%	91.99%
Mental map	5.04%	2.97%	4.15%	87.83%
Educational project	7.12%	6.53%	8.31%	78.04%

Source: Author's original research

The data analysis presented in the table indicate that teachers do not use or very rarely use many of the activating methods to develop students' creativity. These methods are considered the most appropriate for and attractive to young people who are the representatives of the Z generation (see Feiertag & Berge, 2008).

The results indicate that the variable which most determines the methods used by teachers is the subject they teach.

Table 3
Subject taught and methods used to develop creativity in students

Subject taught	**Most often-used methods**
Polish	– Brainstorming (31.67%) – Methods for developing creative thinking (31.67%) – Drama (20.00%) – Creative problem-solving (18.33%) – Classic problem-solving method (15.72%)
Humanities and social sciences	– Methods for developing creative thinking (28.36%) – Brainstorming (21%) – Creative problem-solving (13.43%) – Individual project (12%) – Staging (12%)

Foreign languages	– Methods for developing creative thinking (39.19%) – Brainstorming (20.27%) – Drama (16.22%) – Group project (13.51%) – Individual project (12.16%)
Mathematics	– Brainstorming (25%) – Creative problem-solving (16.67%) – Subject-related exercises (11.63%) – Educational project (13.89%)
Natural sciences and science	Methods for developing creative thinking (25.58%) – Brainstorming (18.60%) – Individual project (11.63%) – Group project (12.79%) – Subject-related exercises (11.63%)

Source: Author's original research

Teachers of Polish mainly use problem-solving and activating methods to develop students' creativity. Slightly more than 30% of the teachers declare they very often use *brainstorming* and *methods for developing creative thinking*. One-fifth of the respondents often use *drama*, which is one of the expository methods. Less than one-fifth of the Polish language teachers (15%) very often use the *classic problem-solving method*. Almost 12% use *didactic games*: *simulation* and *staging* very often during Polish lessons. *Staging* is used sometimes by about 20% of the respondents as a method of stimulating creativity. About 10% of the respondents very often resort to *didactic discussion*. According to the analysis, 5% of the Polish teachers do not develop this competence among their students.

As with the teachers of Polish, teachers of other subjects from the humanities and social sciences most often use *methods for developing creative thinking* (28.36% of respondents). Slightly more than one-fifth (21%) use *brainstorming* very often as a method supporting the creativity of students at the third and fourth stages of education.

The methods used very frequently by the foreign language teachers are *methods for developing creative thinking* — almost 40% of the teachers in this group declared they used it very often. More often than others, the foreign language teachers declared they used *group projects* to develop creativity in their students. Other popular methods in this group of respondents were *individual project* — 12.16% declared they used it very often; *drama* — 16.22%; and *brainstorming* — 20.27% declared very frequent use.

One-quarter of the maths teachers develop creativity among their students by using *brainstorming* very often. Almost 17% declared they very often used *creative problem-solving methods*. Little more than 10% of the maths teachers stated they supported the development of creativity using *subject-related exercises* very often.

Among the natural sciences and science teachers, more than a quarter declared they very often use *methods for developing creative thinking*. In this group, 14% use these methods often and about 30% do so occasionally. Almost 19% of the respondents often use brainstorming to stimulate students' creativity. *Projects*, both *individual* and *group*, are very popular methods among this group of teachers. *Subject-related exercises* are used very often by about 12% of the teachers of the natural sciences and science.

Didactic means chosen by teachers to develop creativity

The respondents were asked to identify which modern teaching measures they use to facilitate the development of creativity among their students.

According to their answers, the most popular tools are computers with Internet access and multimedia presentations. They are used very often by 48.1% and 47.8% of the respondents, respectively. Another popular didactic means is video. Almost 30% of the teachers use video material very often, whereas 50.7% do so sometimes. A relatively large proportion of the teachers use magazines and mobile applications; these means are employed by 70% of the respondents in total, though they are only used sometimes (magazines) or occasionally (smartphones).

The analysis of the data leads to the formulation of the thesis that, in order to develop students' creativity, teachers are definitely more willing to use technologies which have been popular for several years (presentations, videos, and computers with Internet access) and they use them much more often than the newest technologies. Students, however, may get bored with these tools and the market offers new digital solutions and new media which students work with daily, outside of school. The teachers hardly ever use games. The study also revealed that they are reluctant to use smartphones and mobile applications; however, they use them more frequently than tablets or e-textbooks. The occasional use or total lack of smartphones may be explained by the fact that not all teachers know how to use these tools effectively. Teachers may also be afraid of competition among the students if some have better, more advanced devices.

The study also showed that only a small percentage of the teachers use social network services to stimulate creativity among their students. Educators should know the *virtual environment* in which their students spend time and show them how to use its resources to maximise personal development, including creativity. Social media portals are a tool which enables users to share different content, create images, hold group discussions, and exchange ideas and products; if properly used, services like Facebook or Instagram may facilitate the development of students' creativity.

The analysis of the results shows some statistically significant correlations between using certain media and the variables identified in the study. Using video as a teaching tool to develop creativity depends on the subject taught and the degree of professional advancement. Maths teachers resort to films least of all the groups, whereas teachers of the humanities and social sciences use video the most frequently. Also, natural sciences and science teachers employ video material quite willingly. This correlation may be explained by the nature of the subjects taught.

As for the degree of professional advancement, contractual teachers use videos most often during their classes (more than 40% – very often; more than 20% – often). Also, the least experienced respondents with the lowest degree of professional advancement (trainees) gladly use films to support the development of the competencies which are crucial for sustainable development.

The analysis of the data shows that the most junior teachers are the ones who most often use smartphones and mobile applications during their lessons. The length of professional service also determines the frequency of using computers/laptops with Internet access to develop students' creativity: the teachers who have worked the longest use this medium least often.

Summary

Given the pace of changes and the amount of different challenges faced by individuals, the role of creativity has never been greater than it is today (Puccio, Mance & Murdock, 2011). Creative thinking is more and more valued by employers, partly because innovations which ensure a competitive advantage require creativity and partly because the state of the economy depends more and more on people who are creative (Florida, 2012; IBM, 2010).

Joanna M. Łukasik (2017) notes that teachers determine the quality of school and are crucial contributors to students' development. The more students develop themselves and the more self-aware and aware of how school can meet their professional and existential needs they are, the more successful actions they take. Thus, it is up to teachers to determine the extent to which modern education will be the answer to the challenges of the times. The analysis of the results reveals that the teachers who took part in the survey are insufficiently prepared to support and facilitate the development of creativity in their students. The respondents are reluctant to make use of the highly-valued activating and expository methods. Not many of them use educational projects which stimulate their students' creativity. Likewise, the teachers do not know how to use the latest ICT tools to develop creativity. This means they should receive further professional development and training in this area.