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Creative Competence of Young People in the Perspective of Sustainable Development

Kompetencja kreatywna młodzieży w perspektywie zrównoważonego rozwoju

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ABSTRACT

This article deals with creative competence as an integral component of competences for sustainable development. Previous research in this area became the subject of interest of Polish researchers who carried out a research project in southern Poland. The aim of the research was to explore and describe the level of creative competence among Polish adolescents. The survey method was used to achieve the assumed goals and answer the emerging research questions. The tool was a questionnaire developed for the purposes of the survey with 60 sentences determining the level of six key competences for sustainable development, including creative competence. The study involved 877 grade 7 and 8 primary school pupils and grade 1 to 4 secondary school pupils, i.e. those meeting the criterion of adolescence, in accordance with the adopted convenient selection of the research sample. The lowest creativity rates were achieved by females studying in schools in small towns, while the highest by males studying in schools in small towns. Pupils from rural areas showed a higher level of creativity than those from urban areas, just as males scored higher than females. It was recognised that the teaching process should abandon gender-based perception of pupils in traditional socio-cultural roles. In addition, the use of teaching strategies conducive to the development of creativity in pupils should be reinforced. For this purpose, the teacher training system should be modified so that it includes the development of creative potential.

Keywords: creative competence; sustainable development; pupil; teacher

THEORETICAL ASSUMPTIONS

Out of concern for the future shape of the world, a global concept of sustainable development was born, disseminated and supported by education for sustainable development, also labelled as education for the future. The effect of a well-designed education process in accordance with the paradigm of sustainable development is to shape key competences among pupils, thus enabling them to harmoniously develop, to actively function in the present, and to make responsible decisions and to support sustainable development of societies in the future. The authors of the concept of education for sustainable development recognise the need to design and implement such education that makes it possible to live with dignity in adult life and that helps to build a better world. In this concept, education is seen as a way to understand the world by knowing oneself. Competences of critical thinking, creativity, cooperation, ability to name emotions, awareness of own views, potential and limitations are of help here. These soft skills, which are not featured in exam sheets, prepare for life in a world of permanent change, in which a common goal of all people should be to strive for sustainable development in social, economic and environmental areas (Frisk, Larson, 2011; Nasibulina, 2015; Wiek, Withycombe, Redman, 2016; Annan-Diab, Molinari, 2017; Leicht, Byun, 2018; Sinakou, Boeve-de Pauw, Goossens, Van Petegem, 2018; Tilbury, Stevenson, Fien, Schreuder, 2018).

The concept of key competences for sustainable development includes a set of competences, the possession of which enables active, balanced activity in personal and professional life, as well as acting for the benefit of the community on a local and global scale (De Haan, 2010; Rieckmann, 2011; Wiek et al., 2018). In the document "Transforming our world: The 2030 Agenda for Sustainable Development", the vision of the world of the future was described as follows:

> We envisage a world free of poverty, hunger, disease and want, where all life can thrive. We envisage a world free of fear and violence. A world with universal literacy (…) with equitable and universal access to quality education at all levels, to health care and social protection, where physical, mental and social well-being are assured. A world where we reaffirm our commitments regarding the human right to safe drinking water and sanitation and where there is improved hygiene; and where food is sufficient, safe, affordable and nutritious. A world where human habitats are safe, resilient and sustainable and where there is universal access to affordable, reliable and sustainable energy. (UN General Assembly, 2015)

Acquisition and maturation of key competences for sustainable development, especially among young people, future decision-makers and leaders in social life, economy or politics, is to contribute to building a better future for present and future generations.

Key competences are these that are absolutely necessary to implement social goals defined in normative action plans (e.g. achieving sustainable development)

and which are important for each individual. Possessing key competences is to ensure a satisfying, good life and a well-functioning community. Key competences condition meeting the challenges of the global society, effective self-fulfilment and effective functioning on the labour market (Deakin, 2008; Sleurs, 2008; Barth, 2009; Gedvilienė, Bortkevičienė, 2013). Experts recognise creativity as one of key competences for sustainable development. Today, creativity and innovation are extremely important competences that condition effective activity in both personal and professional dimensions. It is widely believed that creativity and innovation will help solve complex problems in the future, which we now know nothing or very little about. They are key competences for sustainable development, because thanks to their unconventional approach, they make it possible to come up with non-standard solutions and overcome difficulties that seem to be insoluble (Mróz, 2019). Creative people are sensitive to the world; their thinking is fluid and independent. In addition, they possess the ability to think creatively, to transform, analyse and synthetise ideas. They are characterised by independent thinking, the perception of ambiguity, flexibility, optimism and self-confidence. Creative people are not afraid of risk, they are open to new experiences, and also show a high level of discipline and perseverance. It is emphasised that nowadays creativity is a determinant in successful acquisition of goals in the external world, which is, in turn, conducive to self-improvement and improvements in one's own identity.

METHODOLOGICAL ASSUMPTIONS OF THE RESEARCH

Our research was carried out in a quantitative paradigm, i.e. it was a survey. Surveys can be used for exploratory, descriptive and explanatory purposes. They are most often used in research projects in which individuals are subjected to analysis. In addition, surveys are the best available method for researchers who want to collect original data in order to describe a population which is too large to be directly observed (Babbie, 2013). The special value of surveys is related to their potential of obtaining a large number of responses in a relatively short time, which – due to the anonymous nature of this method – makes it possible for respondents to provide honest and objective answers.

In our study, we tried to determine the level of 6 key competences for sustainable development determined on the basis of an analysis of the literature on the subject (De Haan, 2010; Rieckmann, 2011; Sandri, 2013; Wiek et al., 2016; Evans 2019; Cebrián, Junyent, Mulà, 2020). This article is a presentation of the results in relation to one of these competences, namely creativity.

The aim of social research is an intended effect to which researcher's activity is meant to lead. Babbie (2013) points out that social research can serve many purposes. The three most common and useful are exploration, description and explanation. The aim of our work was to explore and describe the level of creativity competence among

Polish adolescents. The subject of the research was the level of creative competence as a key competence for sustainable development among Polish adolescents. The research problem in the literature on the subject is treated as an intellectual problem requiring a solution in the form of scientific research (Frankfort-Nachmias, Nachmias, 2001; Babbie, 2013). This is only possible, if researchers are in possession of knowledge of the subject from careful analysis of the relevant literature. Considering the above premises in our research, the main research problem assumed a form of the following question: What is the level of creativity competence declared by pupils aged 13–20 as a key competence for sustainable development?

In order to obtain the most comprehensive answer to this question, we identified specific problems:

1. What is the level of creative competence declared by girls and boys?
2. What is the declared level of creative competence among pupils from schools located in rural areas, small towns, and large cities?

When designing the study, we determined dependent and independent variables. In scientific research, a variable is a trait, a property that has at least two values within the examined group. Depending on the place of variables in the analysed relationships between them, independent and dependent variables are distinguished. A dependent variable is one whose value and frequency of occurrence in different circumstances may change. An independent variable is a variable explaining differences in the values of a dependent variable.

Table 1. Independent and dependent variables

Independent variable	Dependent variable
Gender	Declared level of creativity competence as a key to sustainable development, assessed on the basis of respondents' answers to the questionnaire in the survey
Location	

Source: Authors' own elaboration.

Because the research project was of an exploratory nature, we decided not to formulate research hypotheses before embarking on the research. To implement our research project, we chose a method, designated a technique and developed an original research tool.

Our research was designed in a nomothetic paradigm, in quantitative strategy. We chose a survey method to obtain answers to research questions. The tool was a survey questionnaire developed for the purpose of the study, in which those participating in the survey were to respond to each of the 60 statements determining the level of six key competences for sustainable development. In this article, we present research results on the level of one of these competences declared by respondents, i.e. creative competence. Based on the responses, respondents' level of

creative competence was determined. The statements featured in the questionnaire are based on selected features attributed to creative people as stipulated by outstanding researchers in the field (Runco, Jaeger, 2012; Robinson, Aronica, 2016).

Table 2. A fragment of the questionnaire used in the survey, i.e. the part on creative competence

Statement	Characterises me, is suitable for me	Does not characterise me, is unsuitable for me
I often invent new solutions and implement them		
I approach new challenges with enthusiasm		
I have various interests		
I am characterised by a creative attitude		
I like working on complex problems whose solution requires creativity		
I am never bored		
In problem situations, I search for novel, original solutions		
I eagerly engage in innovative activities		
I create innovative solutions		
I know my strengths and know how to make use of them		

Pupils followed the instructions by inserting an "X" in the column indicating their declaration
Source: Authors' own elaboration.

In our study, we decided to use convenient selection (Christensen, Johnson, 2011), which is a non-random method of sample selection, consisting in the choice participants due to their convenient availability and proximity and their consent to participate in the study. A sample obtained by this method is labelled as convenient or discretionary. The advantage of convenient selection is that it makes it possible to detect relationships between phenomena. Pupils between 12/13–18/20 years of age took part in the study, i.e. adolescents as defined by Eric Erikson. We decided that due to the numerous developmental processes characteristic of this period and the specificity of the building of social identity, recognition of this competence may be of particular importance in the activation and development of creative competence. Therefore, we invited 877 grade 7 and 8 primary school pupils and grade 1 to 4 secondary school pupils, i.e. those meeting the criterion of adolescence. Underage pupils took part in the study after obtaining the consent of their parents, as well as consent of their teachers who agreed to allocate some lesson time for the purpose of the questionnaire. The surveyed pupils attend schools in locations of all sizes. Rural learners have a slight advantage in the sample, i.e. they constitute 36%.

Pupils in small towns constitute 34%, and in large cities – 30%. The majority of respondents were women, whose share was 53%.

Table 3. Gender

Gender	N	%
Female	465	53.02%
Male	412	46.98%
Total	877	100.00%

Source: Authors' own elaboration.

Table 4. Size of location

Size of location	N	%
Village	317	36.15%
Small town	298	33.98%
Large city	262	29.87%
Total	877	100.00%

Source: Authors' own elaboration.

The research was conducted in the school year of 2018/2019 primary (grades 7 and 8) and secondary schools in Lesser Poland. In total, 52 classes from 36 schools in Lesser Poland (southern Poland) participated in the study.

The actual research was preceded by pilot studies. Pupils had received a questionnaire in which they had been asked to indicate to what extent they agreed with statements by means of a five-point Likert scale (from "I do not agree at all" to "I completely agree"). In the process of analysing the results of pilot studies, a dominant trend of extreme indications (choice on a scale of 1 or 5) became evident. In addition, they found the questionnaire difficult to complete because they responded to each of the 60 statements on a five-point scale. In view of these premises, we abandoned the five-point scale, deciding that it would be important for our diagnosis which of the statements students recognise as appropriate/suitable/characterising for them. Also, we tried to develop the tool in such a way that each competence consisted of knowledge, skills and attitudes.

RESEARCH RESULTS

Creativity is a basic competence that conditions life in the changing global world. It can be developed in the process of education that prepares pupils to live in what is unpredictable, new, changeable, as well as to live in balance with the social and natural world, as well as with their own psycho-physical well-being.

Creativity, innovation combined with reflectiveness and critical thinking are therefore indicators of sustainable functioning in the world. As a result of the research, the level of creative competence in pupils was determined (figure 1).

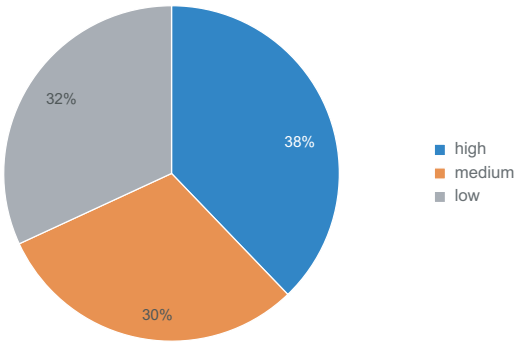

Figure 1. Creativity – level of competence
Source: Authors' own elaboration.

Pupils who took part in the study most often obtained a testimonial showing that their creativity level was high (38% of responses). A low level was achieved by slightly fewer than a third of respondents (figure 1). In addition to the level of creative competence, a value of the indicator was determined (figure 2).

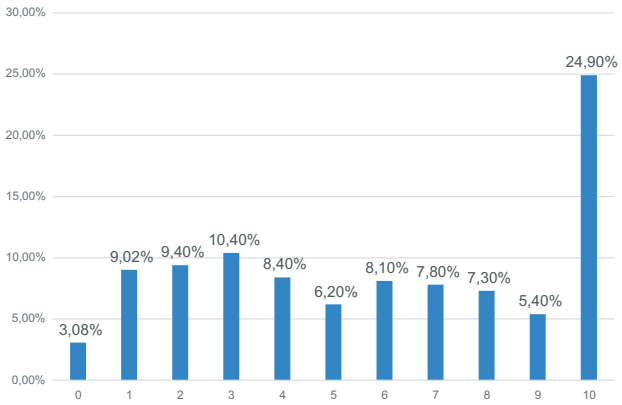

Figure 2. The value of the indicator for the competence of creativity
Source: Authors' own elaboration.

Nearly a quarter (24.9%) of the respondents marked that all 10 statements describing creativity were characteristic of them, described them and that they fully identified with them (figure 2). In turn, fewer than 5% of the respondents did not mark any statements in this area as appropriate. Approximately one-tenth of

the respondents marked one, two or three statements as corresponding, therefore, below is presented the frequency of indications for individual statements (figure 3).

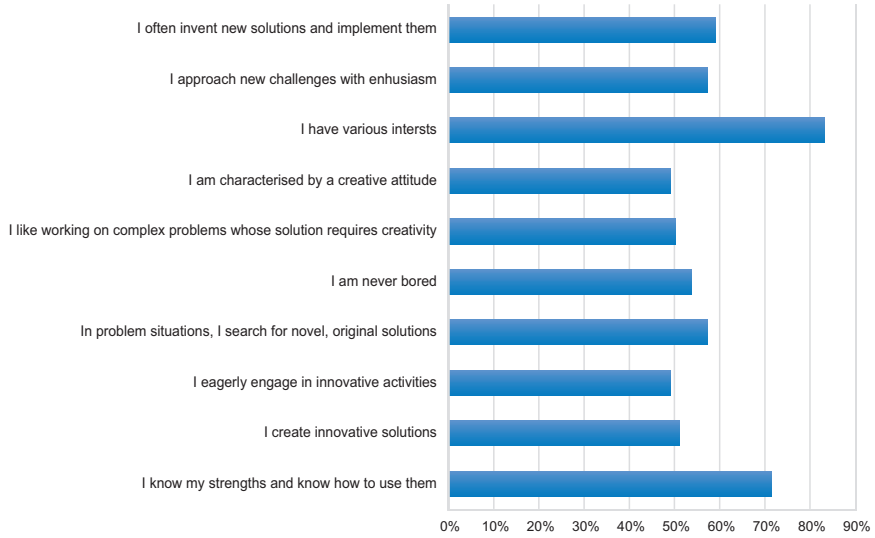

Figure 3. Frequency of individual statements for creativity
Source: Authors' own elaboration.

In the area of competences related to creativity and innovation, pupils participating in the study most often chose the indicator of having different interests (figure 3). A total of 83.1% of respondents marked it as appropriate for them. Second came the statement "I know my strengths and know how to use them". This means that pupils are confident and have high self-esteem, they also declare great self-awareness and knowledge on how to use their talents.

Pupils consider themselves innovative, as over half of the respondents indicated that they use new solutions that they create on a daily basis. Also, slightly more than half declare that they never get bored. In addition, nearly 60% indicated being enthusiastic about new tasks. This is a very optimistic result, taking into account the fact that the present and future will require employees, activists, people performing various social roles, continuous learning, improving their competences, searching for new solutions and solving new tasks.

The fewest indications were given to the statements: "I am willing to engage in innovative activities" and "I am characterised by creative attitude". Pupils consider themselves to be innovators, but very few of them engage in creative activities inspired by someone else. It is surprising that the respondents do not see connection between innovative activities, searching for original solutions and creative attitudes. Only approximately 49% of respondents believe that creative attitude is characteristic of them.

Below, we present the results of the research, taking into account individual variables which are gender and the type of location (this place often coincides with pupils' places of residence). It is interesting and disturbing that females participating in the study much less frequently than males indicated particular statements as appropriate for them (table 5 and table 7). The relationship of the variable "gender" for each of the statements is statistically significant (table 6).

Table 5. Number of indications within the area of creative competence by gender

Number of indications	Female	Male	Total
0	5.16%	0.73%	3.08%
1	12.47%	5.10%	9.01%
2	12.69%	5.83%	9.46%
3	12.47%	8.25%	10.49%
4	10.97%	5.58%	8.44%
5	6.45%	5.83%	6.16%
6	9.03%	7.04%	8.10%
7	6.88%	8.74%	7.75%
8	6.88%	7.77%	7.30%
9	5.16%	5.58%	5.36%
10	11.83%	39.56%	24.86%

Source: Authors' own elaboration.

Table 6. Chi-squared tests

	Value	Df	Asymptomatic significance (mutual)
Pearson's Chi-squared	119.318[a]	10	0,000
Likelihood ratio	125.102	10	0,000
Linear relationship test	105.547	1	0,000
N of valid observations	877.000	–	–

[a] 0.0% of cells (0) has expected numbers below 5. Minimal expected numbers are equal 12.68
Source: Authors' own elaboration.

Table 7. Level of creative competence in relation to gender

Level of creative competence	Female	Male	Total
Low	42.80%	19.9%	32.04%
Average	33.33%	27.18%	32.04%
High	23.87%	52.91%	37.51%

Source: Authors' own elaboration.

Among female pupils, the most frequent result was low level of competence in the studied area, as indicated by 42.8% of females. The percentage of male pupils with this result is also relatively high, but significantly lower than for female pupils, i.e. 19.9%. Still, over half of males can boast of a high level of competence here. Among females, this result was achieved by only nearly 24% of respondents. The average value of the indicator for females is only 4.74. For males, it reached 7.04. The differences between the results are statistically significant.

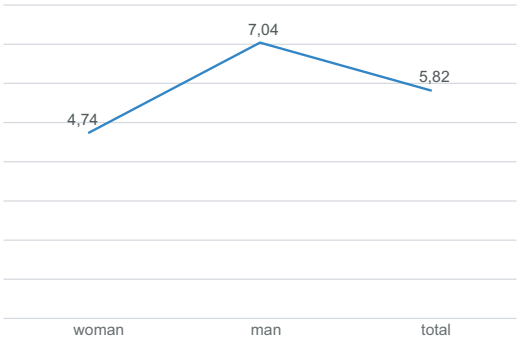

Figure 4. Average values of the creativity index by gender
Source: Authors' own elaboration.

Only slightly more than a third of respondents are convinced that they possess a creative attitude (table 8).

Table 8. Detailed statements on creativity by gender

Statement	Female	Male	Total
	%	%	%
I often invent new solutions and implement them	47.74	72.57	59.41
I approach new challenges with enthusiasm	45.16	71.12	57.35
I have various interests	76.13	91.02	83.12
I am characterised by a creative attitude	38.06	61.65	49.14
I like working on complex problems whose solution requires creativity	37.20	65.05	50.29
I am never bored	43.23	65.53	53.71
In problem situations, I search for novel, original solutions	46.02	69.90	57.24
I eagerly engage in innovative activities	38.06	61.65	49.14
I create innovative solutions	38.06	57.80	51.08
I approach new challenges with enthusiasm	63.87	80.10	71.49
Total	100.00	100.00	100.00

Source: Authors' own elaboration.

On the other hand, over 60% of boys who took part in the study noticed and declared their creative attitude. Almost all male pupils declared having different interests, while this statement was indicated by three-quarters of girls. Female pupils also much less frequently than male pupils chose the statements: "I am willing to engage in innovative activities" and "I create original solutions". This means that their self-esteem in terms of creativity and innovation is definitely lower than the self-esteem of their male schoolmates.

We also found the type/size of the location where the school is situated as important from the perspective of the research. The conducted research shows that the type of location, similarly to gender, significantly differentiates the results of the level of creative competence as a key component of sustainable development (table 9).

Table 9. The level of creative competence and school location

Level of creative competence	Village	Small town	Large city	Total
Low	25.87%	36.24%	34.73%	32.04%
Average	25.55%	36.58%	29.39%	30.44%
High	48.58%	27.18%	35.88%	37.51%

Source: Authors' own elaboration.

The highest level was obtained by pupils attending village schools. More often than others they marked individual creativity indicators as appropriate and characterising them. Only in the case of the statement "I have different interests" their result is similar to pupils attending schools in big cities. This trend is also observed when analysing the level of other key competences for sustainable development among Polish pupils. The relationship between the size of location and most statements is statistically significant. The test is not relevant only in relation to the last statement: "I know my strengths and know how to use them".

Figure 5. Average values for creativity index by locality
Source: Authors' own elaboration.

The average values of the indicator in rural and urban schools are 6.55 for village schools, 5.19 for small towns and 5.66 for large cities (figure 5). The differences between the average for villages, for small towns and big cities are statistically significant. The difference between urban averages is not significant.

Table 10. Creativity and innovation – indicator value by city

Level of creative competence	Village	Small town	Large city	Total
	%	%	%	%
0	2.21	3.36	3.82	3.08
1	6.94	11.41	8.78	9.01
2	8.52	10.74	9.16	9.46
3	8.20	10.74	12.98	10.49
4	4.73	11.41	9.54	8.44
5	5.99	6.71	5.73	6.16
6	8.20	8.05	8.02	8.10
7	6.62	10.40	6.11	7.75
8	8.83	7.38	5.34	7.30
9	6.62	3.69	5.73	5.36
10	33.12	16.11	24.81	24.86
Total	100.00	100.00	100.00	100.00

Source: Authors' own elaboration.

The value of the indicator of individual statements (table 10) determining the level of creative competences for pupils from schools located in small towns and big cities confirms that the overall image of themselves as creative people, i.e. creative in all assessed aspects of creativity, is higher for pupils attending rural schools, and partial, somewhat dispersed among urban pupils.

DISCUSSION & CONCLUSION

The analysis of the data shows that the group which achieved the lowest indicators of creative competence are girls from small-town schools. In turn, the group whose answers indicate the highest level of creativity are boys from small-town schools. To explain the emerging trends, one should refer to the variables: gender and school location. The analyses presented in the previous section show that over 60% of boys define themselves as creative. They have diverse and numerous interests. Unfortunately, these terms are negligible in girls in the context of perceiving themselves as creative. This is surprising, all the more so because especially during adolescence creativity is strongly marked personality potential in most people,

which constitutes a basis for significant achievements. The potential for creativity also co-exists with personality traits, such as sensitivity to problems, motivation to act, hence it is justified to link creativity with both creative attitudes and creative abilities. The low self-esteem of girls in this area is, therefore, of concern. Most likely, the reason why girls perceive themselves is many years of traditionally implemented education. Teachers more often expect girls to have a traditional, cultural, proper functioning as women, which is manifested in the performance of specific activities according to specific patterns and rules, without the possibility of their modification (a change would be inconsistent with the traditional expectation of the role of women). Therefore, schoolgirls are expected to display correct behaviour, actions, carry out instructions, answer according to patterns, as well as to be rather passive. Such behaviour is rewarded with good marks and praise. Teachers have completely different expectations from boys, who, due to their traditional perception as unpredictable, rebellious, do not give in to rules, norms, patterns, breaking them and testing them. Therefore, any action, even non-standard activity for boys, is rewarded (because they cannot do nothing, can they?). Such circumstance is conducive to the development of different, non-schematic thinking in boys, such that overcomes difficulties associated with imposed patterns, and thus promotes creative thinking and reaction (Karkowska, 2005; Chomczyńska-Rubacha, Rubacha, 2007). Teachers' attitudes, different to girls and different to boys, result from their traditional socialisation within social roles (Łukasik, 2009) and traditional teacher-training, in which techniques of creative development, reflectiveness and development of innovative activities are still marginalised (Łukasik, 2006, 2012, 2017; Łukasik et al., 2018; Mróz 2018; Łukasik et al., 2019). Perhaps, feminisation of the teaching profession is also of consequence, i.e. teachers, themselves socialised to perform traditional social roles, unconsciously or consciously provide pupils with patterns of correct, orderly, "not going beyond the pattern" behaviour. A very low percentage of men in the teaching profession, especially at lower levels of education, where the teacher is an important role model for children (Koperna, 2019a, 2019b), may be conducive to schoolgirls not knowing the wealth of innovative solutions, not witnessing active search for solutions to problems performed by adults, which could encourage them to do likewise. Perhaps, if pupils had a chance to observe male behavioural patterns, who, in turn, were socialised to perform roles traditionally associated with activity, independence (Koperna, 2019a, 2019b) and if they were additionally awarded by them for such activities, the results would be different.

Interesting differences are apparent between pupils attending rural and urban schools (Mróz, 2018; Jagielska, 2020). Surprisingly, a higher level of creative competence is declared by rural learners. It would seem that the location of the school in a large city is conducive to confrontation with new situations and possibilities, which generate the need to create new ideas and show enthusiasm in solving problems. Meanwhile, pupils from rural schools declared a higher level than pupils

from urban schools. Most likely, this results from the specificity of small towns and various restrictions present in contemporary Polish conditions (Mróz, 2018). Namely, the deficiencies in cultural institutions and centres which would be conducive to the development of interests, spark a necessity to develop creative and innovative attitudes. The need to meet even educational requirements in the absence of technological or institutional facilities generates a necessity to use skills such as creative problem solving or independent creation of original solutions. Operating in larger cities, where access to technology (e.g. the Internet, which may be limited in the countryside) or various institutions is more common and thanks to which it is easier to obtain ready-made solutions, may cause less motivation to create original, own solutions. Some limitations related to the location of the school may also be indirectly linked to the indicator referring to the diversity of interests, which was less marked by rural pupils compared to urban pupils. Perhaps pupils from rural schools declare a smaller number of interests due to deficiencies associated with the possibilities of their development in the countryside. It is not easy to develop your interests or passions, for example, playing an instrument, when it is difficult to find someone who will help in the face of lack of appropriate institutions, such as community centres (Szymański, 2010; Smolińska-Theiss, 2014; Jagielska, 2020).

In connection with the above, it can be seen that there are many challenges ahead of the Polish education system and cultural/educational infrastructure. First of all, we should:

- change the way pupils are taught, reject the dominant view of gender through traditional socio-cultural roles, and strengthen the use of teaching strategies conducive to the development of creativity in pupils;
- modify the teacher-training system, i.e. strengthen the knowledge in the field of psychology (including the psychology of creativity) and get acquainted with the latest research that breaks gender-based cultural patterns and marks paths of gender-free creative development;
- develop teachers' creative potential, shape independent attitudes, thinking and actions, rather than duplicate patterns, all through teacher training;
- ensure the development of cultural places and centres for the development of culture in small towns and villages or to restore the Polish traditions of community clubs in villages acting as centres of local community culture.

LIMITATION OF THE METHOD AND FURTHER RESEARCH

Our research was of diagnostic and descriptive character, so it was used for preliminary recognition of the issue of creative competences as one of six designated by us as keys to sustainable development. Subsequent research should focus on the extent to which teachers develop creativity in pupils (in pupils' opinion). It is also worth deepening our research, for example, exploring how much creativity is

considered by pupils as a competence needed in education and on the labour market or to what extent acquiring creative competences is a value for pupils themselves. Pupils' and teachers' understanding of creativity as a competence that supports the pursuit of sustainable development would also constitute an interesting research area. As issues related to creativity are an extremely interesting research area, their further exploration and explanation may lead to subsequent research performed by the team.

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ABSTRAKT

Niniejszy artykuł dotyczy kompetencji kreatywnej jako integralnego komponentu kompetencji dla zrównoważonego rozwoju. Dotychczasowe badania w tym zakresie stały się przedmiotem zainteresowań polskich badaczy, którzy zrealizowali projekt badawczy w Polsce południowej. Celem badań była eksploracja i opis poziomu kompetencji kreatywności wśród polskiej młodzieży w okresie dorastania. Aby osiągnąć założone cele i odpowiedzieć na wyłaniające się z nich pytania badawcze, zastosowano metodę sondażu realizowaną w technice ankiety. Narzędziem był opracowany na potrzeby badania kwestionariusz ankiety z 60 zdaniami określającymi poziom sześciu kompetencji kluczowych dla zrównoważonego rozwoju, w tym kompetencji kreatywności. W badaniu wzięło udział 877 uczniów klas VII i VIII szkoły podstawowej oraz klas I–IV szkół średnich, spełniających kryterium wieku adolescencji zgodnie z dogodnym doborem próby badawczej. Najniższe wskaźniki kreatywności osiągnęły dziewczyny uczące się w szkołach w małych miastach, a najwyższe – chłopacy uczący się w szkołach w małych miastach. Uczniowie ze wsi wykazali wyższy poziom kreatywności niż uczniowie z miasta, wyższy poziom osiągnęli chłopacy niż dziewczyny. Uznano, że w procesie nauczania należy odejść od płciowego postrzegania uczniów w tradycyjnych rolach uwarunkowanych społeczno-kulturowo. Ponadto należy wzmocnić stosowanie strategii nauczania sprzyjających rozwojowi twórczości i kreatywności uczniów. W tym celu należy zmodyfikować system kształcenia nauczycieli (w tym zadbać o rozwój ich twórczego potencjału).

Słowa kluczowe: kompetencja kreatywności; zrównoważony rozwój; uczeń; nauczyciel