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THE FREQUENCY WITH WHICH CREATIVITY DEVELOPMENT STRATEGIES ARE USED IN VARIOUS FIELDS: RESEARCH ON ATTITUDES AMONG PRESCHOOL TEACHERS

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Abstract/Povzetek The aim of the paper was to examine the attitudes of preschool teachers towards strategies for creative thinking. We also examined how often these strategies were used in everyday work with children. Specific aims were to gain insight into the differences between preschool teachers, depending on the age groups of the children with whom they work, and depending on the length of their work experience. Another aim was to examine whether these strategies were directed towards the development of creative behavior in various educational fields. The results of this research can be expected to contribute to the creation of better conditions for more frequent application of creativity development strategies in a variety of domains and an increase in the sensitivity of preschool teachers for the understanding and promotion of a holistic approach to creativity at an early age.

Keywords:
creativity development strategies;
early development;
holistic approach

Pogostost uporabe strategij razvoja ustvarjalnosti na različnih področjih – raziskava o stališčih vzgojiteljic in vzgojiteljev v vrtcih V prispevku prikazujemo stališča vzgojiteljev in vzgojiteljic ter predšolskih otrok do strategij za ustvarjalno mišljenje. Proučili smo, kako pogosto se te strategije uporabljajo v vsakdanjem delu z otroki. Specifična cilja sta bila pridobiti vpogled v razlike med vzgojitelji in vzgojiteljicami glede na starostno skupino otrok, v kateri delajo, in tudi glede na njihovo delovno dobo ter proučiti, ali so te strategije usmerjene proti razvijanju ustvarjalnega vedenja na različnih področjih vzgoje. Pričakovati je, da bodo rezultati te raziskave prispevali k ustvarjanju boljših pogojev za pogostejšo uporabo strategij razvoja ustvarjalnosti na vrsti področij in k povečanju občutljivosti vzgojiteljic za razumevanje in promocijo celovite narave ustvarjalnosti v zgodnjem obdobju.

Ključne besede:
strategije razvoja ustvarjalnosti;
zgodnji razvoj;
celovit pristop

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Introduction

Creativity is considered a phenomenon that enables individuals to convert their high potential into reality. It is believed that creativity plays a key role in society and that it serves us all (McLean, 2005). In the instances when an individual discovers or produces new creative forms or products (that are accepted by others), these become a part of tradition and are passed on to new generations. This task of passing tradition, knowledge and creative ideas to new generations is delegated to preschool teachers. Considering that preschool teachers can significantly influence children's lives, it is very important to train them to recognize, support and develop children's creative behaviour (Rajovic et al., 2017, Sturza Milic, 2018). That is why all those concerned with the construct of creativity (including preschool teachers) share an important social responsibility, one that includes deep understanding and description of creativity in all its multiple aspects, but also education of youth in a way that encourages creative thinking (Hennessey & Watson, 2015).

However, it is not that easy to understand what creativity is. Creativity is still somewhat elusive, unsatisfactorily defined, susceptible to stereotypes and confusingly measured (Runco & Jaeger, 2012, McKerracher, 2016). However, we know that creativity is a higher-level mental process (Beghetto & Kaufman, 2014), and that creative products require extraordinary abilities, interests and learning styles. Creativity also refers to specific skills of combining ideas in a unique way or finding ambiguous associations between different ideas in various domains (Amabile & Pratt, 2016; Bilton, 2010). Creativity is positively related to critical thinking. Creativity is mostly described as a creative talent, creative production, creative activities and a creative contribution. Most knowledge or experience in the frame of creative learning is organized so as to enable individuals to combine ideas. Most concepts of creativity are based on Guilford's theory and the factor of divergent production (Zachopoulouet al., 2009). Sub-factors of divergent production (fluency, originality, flexibility and elaboration) constitute the main components of creativity. Fluency is correlated with originality. Research shows that creative thinking means dynamic interaction of large brain systems, and the most important conclusion is that executive control networks, which can show antagonistic relations, have a tendency to cooperate during creative processes in different domains (Beaty et al., 2016, 2017).

So far, our experience in attempting to understand various phenomena (e.g. giftedness, creativity and intelligence) have shown that an isolated view of only one

developmental segment (e.g. cognitive/conative/motor, etc.) is not sufficient. Research shows that the creative output of children is very much expressed in various domains (Domínguez & Pino Díaz-Pereira, 2015, Djordjevic, 2005, Renzulli, 2017). This is true because it has been demonstrated that a whole spectrum of components influence the creative expression of children (Sturza Milic, 2014). During childhood, the developmental processes are mutually correlated. That is why creativity should be analyzed in a holistic way, including various developmental segments (Baer, 2015, Bandura, 1999).

However, the results of many studies show that it is difficult to transfer knowledge or learning from one area to another in work with children and young people (Beghetto & Kaufman, 2014, Ourda et al., 2017). Therefore, it would be desirable for educators to be trained in building links between distinct areas of knowledge (Prtljaga & Veselinov, 2017). Burke (2007) points out that creativity makes it possible to make connections in different areas of knowledge. Also, building a "creative bridge" between different domains leads to a holistic approach to knowledge (Baer, 2015). When selecting content to encourage creative learning, it is necessary to include representative ideas and concepts from different disciplines and content that has maximum transfer potential, while the complexity of the materials should be expanded hierarchically and cyclically (Renzulli, 2017). It is therefore important that encouraging creativity at an early age with a range of strategies and techniques should not be primarily directed to a single segment of children's development and expression.This points to the need for the pedagogical action of educators to focus more seriously on fostering creative manifestations by children in all educational areas, structuring and applying appropriate didactic-methodical strategies, in order to form creative learning styles as a basis for further development of creative potential and overall development of children's personality.

Contemporary observation of creativity is socially oriented, cumulative and collaborative. Creativity is also observed and appreciated in relation to activities that are not widely understood as worthy of creativity itself. However, in educational work with children, there are developmental areas in which it is not common to apply strategies and techniques for the development of creativity, so in everyday practice these often fail (Sturza Milic, 2018). Many studies suggest that academic, "intellectual" areas in the development of giftedness and creativity are more appreciated and encouraged in everyday work in relation to "skill" in sports, the arts (in particular, visual arts), games, etc., while creative achievement is most often

studied in the academic and professional spheres (Chirico et al., 2018, Gojkov, 2018, Harrington & Chin-Newman, 2017, Kasirer & Mashal, 2018, Renzulli, 2017, Winner, 2000).

Previous research has suggested that the creative abilities of children are better developed under conditions in which the abilities of teachers are correctly deployed and in which the creative context of learning is present (Kettler et al. 2018, Maksimovic et al., 2018, Sturza Milic & Nedimovic, 2016). Individuals who work with children should be guided towards developing their ability to recognize creativity in children, master knowledge about creative processes and create situations in the educational process where everyone could have an opportunity for creative thinking. Accordingly, developing the competences of preschool teachers should be aimed at encouraging creativity in various domains (Sturza Milic et al., 2014). New literature suggests that in these situations "experience creativity" is developed (Jeffrey & Craft, 2010, Selkrig & Keamy, 2017). The ability to carefully observe creativity in action seems to encourage creativity (Sturza Milic, 2014). Preschool teachers fit within this experience creativity framework in multiple ways (Kettler et al. 2018): on the one hand, by encouraging the creative abilities of children in varied domains (Baer, 2015), and on the other hand, as good creative models from which children could learn (Gojkov et al., 2002, Pisot, 2012, Rajovic et al., 2017).

In order to help create situations in the educational process where everyone can have the opportunity for creative thinking, various strategies have been developed. The main difference between these strategies is whether they are individual or group-based. Indeed, (preschool) teachers are encouraged to use these strategies in their everyday work with children in order to foster their creative thinking. However, not many studies explore the attitudes of (preschool) teachers towards these strategies. In order to shed light on this topic, we focused on two strategies: *control list* and *brainstorming*. The *control list* strategy is an individual strategy for developing various elements of creative thinking (such as flexibility, fluency, originality and imagination). This strategy is based on the following instructions: explore and try out different applications of ideas; adapt (what else is similar to this); modify (exchange the meaning); enlarge (take into consideration what else could be added); reduce (take into consideration what could be removed); exchange (what can be exchanged); edit; combine. On the other hand, the *brainstorming* strategy is a group strategy for creative problem solving. The goal is to bring up as many ideas as possible, all of which are initially accepted without detailed evaluation. Children

are encouraged to bring up a range of ideas, and to follow up on previously stated ideas. The results of this strategy are usually novel and unusual (some will say creative) ideas.

The aim of this research is to examine the attitudes of preschool teachers in Serbia towards these two strategies and to explore how often these are used in everyday work with children. The specific aims were to gain insight into differences among preschool teachers depending on the age group of the children they work with, and also depending on the length of their work experience. Another aim was to examine whether these strategies were directed towards the development of creative behavior in various educational fields.

Method

Participants: There were 115 female preschool teachers in the sample. They all work in kindergartens in Serbia with different age groups: 22.6% works with younger groups, 16.5% with groups of medium age, 13.9% with older groups, 14.8% with mixed age groups and 32.2% with preschool groups. The average length of work in preschool teaching was 12.29 years (Sd=8.54).

Scales: Two subscales were created in order to examine the attitudes towards the brainstorming and control list strategies. At the beginning of each set of questions, the given strategy was described. Each subscale consisted of 13 items with a 5-point Likert scale (a higher score indicates a more positive attitude). The mean score for each subscale was computed in order to determine the attitude towards each strategy.These two attitude scales have high reliability (*brainstorming* α=.962; *control list* α=.976). Another two questions were concerned with how often preschool teachers use these two strategies in their everyday work (1: I don't use it at all; 2: I use it rarely; 3: I often use it; 4: I use it every day). We also included two open questions addressing the educational area in which they most often use these strategies.

Procedure: The *brainstorming* and *control list* scales, along with demographic information questions, were distributed as an online form. Responses were collected one month after distribution.

Data processing: In order to answer our research-specific questions, we performed following analysis of the data: 1. *Descriptive statistics* – This analysis was used to obtain

mean values for preschool teachers' attitudes towards the two strategies, as well as how often they use each strategy. Coefficients of data variability were also calculated. 2. *Correlation analysis* – Pearson correlation analyisis was performed to examine the structure behind the attitudes and the frequency of use for the two strategies. We examined the pattern of connection between atittudes but also between attitudes and frequency of use. 3. *Analysis of variance* – In order to obtain insight into whether there are group differences in preschool teachers' attitudes and frequency of use of the two strategies, based on their length of previous work experience in preschool teaching and the age group of the children with whom they work, we performed Analysis of variance. 4. *Qualitative analysis* – In order to determine in which educational areas preschool teachers most often use these strategies, content analysis was performed.

Results

Descriptive statistics analysis showed that preschool teachers have very positive attitudes towards both strategies: the average score for the *brainstorming* sub-scale was M=4.29, Sd=0.751, and M=3.90, Sd=1.225 for the *control list* sub-scale. Considering these positive attitudes towards the strategies, one would expect that preschool teachers often use them in their everyday work. However, preschool teachers use these strategies very rarely (*brainstorming* M=2.25, Sd=0.953; *control list* M=2.03, Sd=0.986). This contradiction will be more fully discussed, while the results are shown in percentages in Graphs 1 and 2.

Graphs 1 and 2: How often preschool teachers use the strategies *brainstorming* and *control list* in their everyday work *(in percentages)*

Correlations: In order to better understand the relation between attitudes towards two different strategies, but also the relation between attitudes and frequency of usage of these strategies, correlational analysis was performed. The attitudes

towards *brainstorming* and *control list* strategies were positively correlated (r=.719, p<.001). This means that preschool teachers who have positive attitudes towards one strategy, have the same positive attitudes towards the other one. Preschool teachers who have positive attitudes towards the *brainstorming* strategy are also more likely to use this strategy in their everyday work, since these two variables were positively related (r=.349, p<.001). The same is true for the *control list* strategy: participants who have positive attitudes towards this strategy also use this strategy more often in their everyday work (r=.209, p=.025).

Since the attitudes of individuals (pedagogical ethos) strongly influence their pedagogical action (Beghetto & Kaufman, 2014, Maksimovic et al., 2018, Robson & Rowe, 2012), it is expected that the two preceding items will be mutually conditioned, that is, that educators with a more positive attitude to the *brainstorming* strategy than the *control list* strategy would use the former more in everyday work.

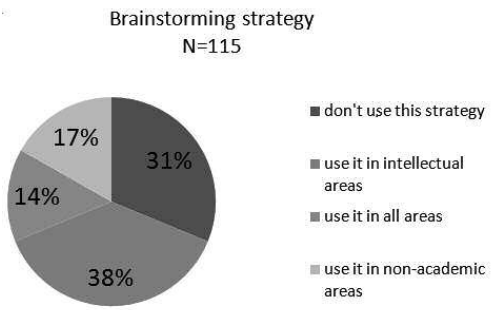
Group differences:

Given that we had preschool teachers working with five different age groups, we tested whether there were significant differences in attitudes towards these strategies and towards the frequency of their usage. Analysis of variance showed that attitudes towards the efficiency of the *brainstorming* strategy (F(4,110)=2.254, p=.068) and *control list* strategy (F(4,110)=0.796, p=.530) did not differ based on the age group with which participants worked. Participants working in different age groups did not differ in the frequency of usage of these strategies in their everyday work (*brainstorming* (F(4,110)=0.441, p=.779); *control list* (F(4,110)=1.359, p=.253). On the basis of relevant research, we had expected that participants working with older age groups would have more positive attitudes and that these strategies would be used much more often (Rajovic et al., 2017, Feberzer, 2002, Sellars, 2012, Sturza Milic, 2009, Sturza Milic et al., 2014). However, this was not the case.

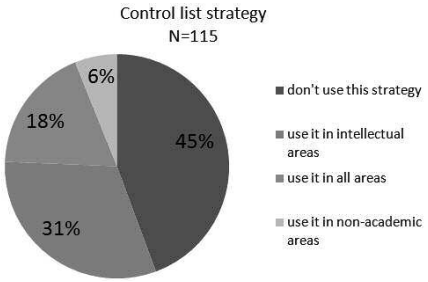
Preschool teachers were separated into three groups based on the length of their previous work experience in preschool teaching. Those working less than five years were the first group; those working between five and nine years were the second, and finally, those working more than nine years formed the third group. There were no significant differences between these groups in attitudes towards the *brainstorming* strategy (F(2,112)=.030, p=.970). However, there were differences when it came to using this strategy (F(2,112)=5.224, p=.003): preschool teachers who had been working more than nine years used the *brainstorming* strategy significantly more often

than their colleagues with less work experience. In the case of the *control list* strategy, our results show that there was a significant difference in the attitudes of the groups ($F(2,112)=4.557$, $p=.013$): participants working between five and nine years had more negative attitudes towards the efficacy of this strategy than their colleagues did. Despite these differences in attitudes, there were no differences in the frequency of usage of the *control list* strategy among preschool teachers working with different age groups.

Qualitative analysis: We were interested to establish in which educational areas our participants most often used these strategies. Since these were open questions, qualitative analysis was deployed. We made three categories, depending on the educational areas in which these strategies occurred: academic (e.g. speech development, mathematics)/non-academic (e.g. arts, sports, games)/all educational areas. In the case of the *brainstorming* strategy, 18 (14%) preschool teachers use this in all educational areas; 46 (38%) of them use it in academic ("intellectual") areas, while only 21 (17%) of them use it in non-academic areas; 39 (31%) preschool teachers do not use this strategy at all (Graph 3). The results are similar for the *control list* strategy: 21 (18%) preschool teachers use this strategy in all educational areas; 36 (31%) of them use it in academic ("intellectual") areas, while 7 (6%) preschool teachers use this strategy in non-academic educational areas; 51 (45%) preschool teachers do not use this strategy at all (Graph 4).



Graph 3: Educational areas in which preschool teachers use the *brainstorming* strategy



Graph 4: Educational areas in which preschool teachers use the *control list* strategy

Discussion

The main aim of this research was to explore attitudes towards and usage of two distinct strategies for fostering children's creative thinking. We created two sub-scales for examining attitudes towards the *brainstorming* and *control list* strategies. These two scales showed high reliability, suggesting that they can be used in future research concerned with attitudes towards these two strategies. Our results showed that preschool teachers have positive attitudes towards both strategies. Moreover, attitudes towards these two strategies are strongly positively related. This result should not surprise anyone. These strategies are well known, and their effectiveness has often been reported. Also, preschool teachers were introduced to these strategies during their education. The theory of planned behavior, as well as recent research (Beghetto & Kaufman, 2014, Lazarevic, 2005, Maksic, 2018, Maksimovic et al., 2018, Robson & Rowe, 2012, Sturza Milic, 2009, 2016), suggests that positive attitudes should translate into behavior. Based on this, one would expect that, if preschool teachers had positive attitudes towards these strategies, they would use them often in their everyday work. However, this was not the case. Preschool teachers use these strategies very rarely. Based on this study, we could not conclude why this should be the case, and it remains an interesting question that warrants individual study.

Our results also showed that there were no group differences in attitudes towards and usage of these strategies based on the age group of children with which preschool teachers work. This is another interesting finding, considering that one would at least have expected these strategies to be used more often with older age groups. We expected this because it is more appropriate to use these strategies with older children, considering that they are at a higher level of cognitive functioning

and more likely to produce creative ideas when compared to younger children. We also demonstrated that length of work experience with preschool children plays an important role when it comes to attitudes towards and usage of these strategies. The most notable results were that the most experienced preschool teachers use the *brainstorming* strategy significantly more often than their less-experienced colleagues do. Since we know that experience in a certain domain is positively related to expertise, we can conclude that experienced preschool teachers use this strategy more often because it has proven to be effective during their career. Similar findings can be found in the research by Nedimovic & Prtljaga (2018) and Sturza Milic et al. (2018).

The specific goal of our work was to determine whether these particular teachers used the "brainstorming" and "control list" strategies to develop creativity in different areas of children's development, i.e., whether in their everyday work there was a sufficiently holistic (integrative) approach to the development of children's creativity. Precise qualitative analysis revealed that only a small number of educators use the *brainstorming* strategy (N=18) and the *control list* (N=21) in all educational areas, while a larger number of educators use the above strategies mainly in those areas of development that are more focused on the "intellectual" development of children (*brainstorming* N=46; *control list* N=36). There have been other studies reporting that the academic, "intellectual" areas of the development of giftedness and creativity are more appreciated and encouraged in educational work, compared to "skills" in sports, arts (in particular, visual arts), games, etc., and that creative achievement is most often studied in the academic and professional spheres (Gojkov, 2018, Renzulli, 2017, Sturza Milic, 2014, Winner, 1996). It can be seen that the participating educators used the *brainstorming* and *control list* strategies more often in the field of speech development (Serbian as a mother tongue and a foreign language – English), learning about the world, basic mathematical concepts, but much less often in the field of artistic and music education, while in the field of motor development, unfortunately, these strategies are not applied at all. Since motor development and aesthetic development are inseparable parts of the overall development of children and their creative expression, especially as manifested at an early age (Gallahue, 2010, Kire, 2000, Sturza Milic, 2018), we can conclude that these strategies are not being sufficiently employed to encourage the overall development and creativity of children. This means that, in the everyday work of the participating educators, there is an insufficiency in the use of holistic (integrative) approaches to the development of creativity. In the context of the results thus obtained, preschool teachers should be encouraged to make more use

of these strategies in non-academic areas. Using these strategies in these areas could also support children's creative expression.

Conclusion

Accepting the modern view of a child as an active and creative individual that constructs its knowledge and understanding of the world around them must be appreciated in the process of creating conditions for the fostering and manifestation of creativity in different domains. Considerable emphasis should be placed on creating an atmosphere in which children feel secure in expressing their ideas and opinions. Even at an early age, all children need planned and guided support in order for them to reach their creative potential. This implies that the pedagogical action of preschool teachers should be directed towards fostering children's creative expression in all educational areas. The most suitable way to do this is by using structured and adequate didactic-methodological strategies. The results of this study have answered some of our initial questions about the attitudes of preschool teachers towards these strategies, and about the pattern of their usage. However, new questions that warrant their own investigation have also been raised.

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