

# **Musically Creative Pupils (Aged 6–11): Perspectives of Elementary Education Students**

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*POVZETEK* – Na podlagi razumevanja področne splošnosti in specifičnosti glasbene ustvarjalnosti ter kompleksnosti njene opredelitve sta bila cilja naše raziskave preučiti izražanje oblikovanega nabora značilnosti glasbeno ustvarjalnih učencev v osnovni šoli (starih od 6 do 11 let) z vidika študentov razrednega pouka in preučiti faktorsko strukturo značilnosti glasbeno ustvarjalnih učencev. V raziskavi so sodelovali študenti razrednega pouka ( $n = 193$ ) na Pedagoški fakulteti Univerze v Mariboru. Uporabljen je bil kvantitativni raziskovalni pristop z neeksperimentalno raziskovalno metodo. Faktorska analiza je podala pet komponent, ki predstavljajo strukturo značilnosti glasbeno ustvarjalnih učencev: ustvarjalnost, motivacija, glasbene sposobnosti in izvajalske spretnosti, zagon in avtonomnost. Implikacije raziskave kažejo na uporabnost v izobraževalnih okoljih za prepoznavanje glasbeno ustvarjalnih učencev in razvijanje njihovega potenciala. Nadaljnje raziskave se lahko nanašajo na medfakultetne in mednarodne študije zaznavanja glasbeno ustvarjalnih učencev iz podobnih izobraževalnih in kulturnih okolij.

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*KEYWORDS:* music education, musical creativity, elementary education, elementary education students, factor analysis

*ABSTRACT* – Based on the understanding of the domain generality and the specificity of musical creativity and its complex definition, the aim of our study was to examine the expression of a constructed set of characteristics of musically creative pupils at elementary school (aged 6–11 years) from the perspective of elementary education students, as well as to examine the factor structure of the characteristics of musically creative pupils. Elementary education students ( $n = 193$ ) from the Faculty of Education, University of Maribor, participated in the research. A quantitative research approach with a non-experimental research method was followed. The exploratory factor analysis yielded five components that represent the structure of musically creative pupils' characteristics: creativity, motivation, musical ability and performance skills, impetus, and agency. The implications of the research suggest usability in educational settings for identifying musically creative pupils and developing their potential. Further research may concern inter-faculty and international studies of perception of musically creative pupils from similar educational and cultural backgrounds.

## **1 Introduction**

Creativity, often diffuse and multifaceted in its conceptual meaning, is gaining in importance with each passing decade. As one of the essential skills of the 21<sup>st</sup> century (Yoo & Kang, 2021), it plays an important role in a complex world and remains one of the few means to face fully the uncertainty of the future (Pecheanu & Tudorie, 2014). Its contradictory nature is reflected in many definitions and conceptualisations, and is in some ways characterised by pluralism (Kozbelt et al., 2010; Williamon et al., 2006). The diversity of theoretical frameworks and discourses does not offer a single definition of creativity – yet, based on the psychology field, they are linked by two elements: originality and utility (Mumford, 2003; Runco & Jaeger, 2012; Sternberg & Lubart, 1999).

Originality refers to novelty and uniqueness, while utility can also be equated with the appropriateness and coherence of the creative product (Hernández-Torrano & Ibrayeva, 2020; Hickey & Lipscomb, 2006), one of the four Ps of creativity as first named by Rhodes (1961) – product, process, person, and press (environment). Walia (2019) provides a summarised definition of creativity whereby creation is tangible, observable, original, and change-oriented, and should be considered as creative by society.

### *Domain generality and domain specificity of creativity*

Answering the question of whether creativity is domain-general or domain-specific is complex – some research has suggested that certain general characteristics are necessary for the development of specific talents in creative functioning (Feist, 2004; Lubart & Guignard, 2004), which Chen et al. (2020) supported with a synthesis of the results of neuroimaging studies indicating that there is a central, domain-general system for artistic creativity with a certain number of domain-specific neural pathways in the brain. Qian et al. (2019) found that creativity is more domain-general than domain-specific; in other words, people can be creative in multiple domains and not necessarily in a single domain. However, creativity can become more domain-specific as people gain professional expertise in their field. In educational settings, we talk about “everyday creativity” – little c-creativity (Kaufman & Beghetto, 2009), which, according to Qian et al. (2019), needs to be developed in multiple fields with the idea of increasing overall creativity.

In music, the conceptualisation of creativity is vague in terms of domain generality or specificity (Chen et al., 2020; Lothwesen, 2018). The field of music, after all, contains a variety of activities that require different skills (Lothwesen, 2018). Thus, when we talk about the characteristics of musically creative individuals, we are describing in some respects the general characteristics of creative people but, at the same time, some specific skills and abilities that more often occur only in the domain of musical creativity.

### *Creative process*

In general, people would answer the question “What is creativity?” with a creative product in mind, but this ignores an important aspect of creativity – the process, which mostly refers to problem solving and creative thinking (Gruszka & Tang, 2017). Alongside Wallas’s (1926) four-stage cognitive model of the creativity process – preparation, incubation, illumination, and verification – creativity is associated with the problem-solving ability that accompanies the generation of many new ideas (Guilford, 1956; Selby et al., 2005; Sternberg & Lubart, 1999; Torrance, 1981). This is associated with divergent thinking, a crucial creative skill (Feldhusen, 1994), for which Guilford (1956) distinguished four parameters: fluency (the production of many ideas), originality (the production of new, unexpected ideas), flexibility (the production of a variety of ideas), and elaboration (the ability to systematise and organise ideas and to carry them out). It should be stressed here that divergent thinking and creative thinking cannot be equated. Divergent thinking can lead to originality, which is a key element of creativity, but this is not always the case (Runco & Acar, 2012).

### *Characteristics of creative individuals*

Some authors have agreed that there are contradictions in the characteristics of creative individuals. McMullen (1976) listed several characteristic polarities: ease and attentiveness, self-confidence and modesty, disinterest and selfishness, withdrawal and concentration, and constructiveness and distraction; Guilford (1959) and McMullen (1976) highlighted convergence and divergence; and Csikszentmihalyi (1996) referred to playfulness and willingness to work, introversion and extraversion, and rebelliousness and following instructions. The literature also offers a wide range of other personality traits and cognitive abilities of creative individuals: independence, adaptability, a good memory, a broad knowledge background, emotional maturity (Clark, 1979), openness to new ideas, enthusiasm (interest in the field) (Clark, 1979; Hoseinfar et al., 2011), self-discipline (Clark, 1979; Hoseinfar et al., 2011; Reid et al., 1959), perseverance (Kladder & Lee, 2019; Reid et al., 1959), sociability (Hoseinfar et al., 2011; Reid et al., 1959), flexibility, curiosity, efficiency, duty performance, melancholy (Hoseinfar et al., 2011), an exploratory spirit, impulsivity (Guilford, 1959), and risk taking (Kladder & Lee, 2019). Abra (1997) argued that motivation is crucial in all areas of creativity and manifests as a need or impetus for expression. Hargreaves and Lamont (2017) stated that personality characteristics (independence, non-conformity, and self-confidence) and cognitive style (convergent and divergent thinking) influence the level of musical creativity, while Treffinger et al. (2002) argued that, in addition, past experiences build a creative individual. Torrance (1962) distinguished between desirable (altruism, high energy levels, persistence, and assertiveness) and non-conformist (resistance to conventionality, eccentricity, stubbornness, and unpredictability) characteristics. Selby et al. (2005) pointed out that, in the multitude of characteristics of the creative personality, many overlap or even contradict each other. They further argued that no one possesses all the characteristics that appear in the literature, and, at the same time, a person does not necessarily possess certain characteristics throughout their whole life.

Biasutti (2017) and Csikszentmihalyi (2014) associated flow with creativity, which is characterised as an intense, entranced state of awareness and absorption in a process. According to Schutte and Malouff (2020), flow enables optimal task performance and can be treated as a link between curiosity and creativity. Higher levels of curiosity are associated with higher levels of flow, which in turn produce higher levels of creativity and, according to MacDonald et al. (2006), higher-quality compositions. Furthermore, semantic and episodic memory are of considerable importance in creative cognition (Fink et al., 2015; Madore et al., 2015); this is also true for creative activities in music (de Dreu et al., 2012; Oikkonen et al., 2016).

### *Creative environment*

Selby et al. (2005) stated that creativity is the result of the interaction between cognition, personality, and the environment (press), which provides factors to nurture or inhibit creativity (Rhodes, 1961). Although the act of creativity, at least in terms of the emergence of an idea, is purely individualistic (Glăveanu, 2013), it is supported by the social environment and everyday interactions in a social context (Glăveanu, 2013; Hen-

nessey & Amabile, 2010; Nakamura & Csikszentmihalyi, 2001; Schiavio & Benedek, 2020). In an educational context, the classroom plays an important role in the creative process by providing a collaborative space that fosters creative thinking (Kladder & Lee, 2019). Creative expression manifests itself in a psychologically safe and free environment that allows individuals to be fully absorbed in the creative process (Rogers, 1954), and promotes experimentation, playfulness, and exploration (Selby et al., 2005). Research conducted on a sample of preschool children has shown that there is an interaction between children's exploratory drive, their sensorimotor abilities, and the constraints of their environment (the educator and objects in the classroom) (Peñalba et al., 2021). The implementation of collaborative or cooperative practice facilitates the development of creativity (Baloche, 1994; Burnard, 2013; Gruenhagen, 2017; Johnson & LaGasse, 2021; Wiggins & Espeland, 2012). Along these lines, Young (2003) considered that the social interactive processes of creativity are one of the generative sources of children's musical ideas and further explained that children's creative play on an instrument has a communicative connotation.

### *Creativity and music ability*

According to Gordon (1989), musical ability is an important factor in determining the extent of an individual's musical creativity, given an early musical environment of appropriate quality and breadth. Campbell (1990) suggested that the cognitive nature of spontaneous musical expressiveness is closely related to the possession of aural and dexterity skills. Burnard and Boyack (2013) argued that teachers can build children's natural inclinations towards musical creativity through varied repertoire, experimentation with voice and instruments, and active listening to music. Runco (2005) pointed out that the definition of a creative individual requires distance from the product as otherwise children who show musical creative talent but need a little more encouragement may be neglected. Oikkonen et al. (2016) and Zhou (2018) stated that we are all born with the potential of inherited musical creativity to some degree. Its realisation and development depend on many factors (Sternberg, 2000; Tafuri, 2006; Treffinger et al., 2002). It can be stimulated by the training of an implicit (e.g. arts education) or explicit nature (e.g. exercises for better attention and working memory) (Zhou, 2018). Sovansky et al. (2016) showed that a higher level of musical creativity is associated with music education and musical participation. Pupils produce more creative and original music when they feel confident about their own musical abilities (Coulson & Burke, 2013; Mawang et al., 2019), and this can be facilitated by freedom in music, which also minimises pupils' dysfunctional beliefs about their own abilities (Nazario, 2021).

### *Characteristics of musically creative pupils*

Musical creativity in the school environment is a well-known area of research but with a focus on the assessment of creative products. Alongside tests to identify musical creative potential (Webster, 1994), more intuitive assessment tools have been developed that use the assessor's own judgement to move beyond objective criteria of the creative product (Amabile, 1983; Brinkman, 1999). In addition, little research has been

carried out from the perspective of student teachers in identifying the characteristics of musically creative pupils. Kokotsaki and Newton (2015) pointed out that identification is difficult with a lack of expertise and knowledge of pupils' abilities, so university professors need to offer students a reasonable amount of experience while allowing them to reflect and give them opportunities to recognise musical creativity in practice. The perspective of future elementary education teachers is important for further development of comprehensive assessment tools for recognizing musically creative pupils in the classroom, and for reflecting teaching strategies in higher education settings. Nevertheless, teachers have an important role in recognizing and fostering creativity of children (Kaučič & Kozmus, 2022; Štemberger & Cencič, 2016).

In this paper, we focus on elementary education students who are preparing to enter daily teaching practice as part of their practical training at the university. Through a literature review, we have identified a wide range of characteristics of musically creative pupils while aiming to discover the structure set of musically creative pupils from the perspective of elementary education students, as certain characteristics may be expressed in different ways. In addition, the construction of criteria and one's own definitions of the characteristics of musically creative individuals are crucial along with the degree of students' experience of working with musically creative pupils and their identification.

## 2 Methodology and methods

### *Aims of the research*

Considering the findings of the domain generality and specificity of musical creativity and its multiplicity, the focus of our research was on formulating the structure of the characteristics of musically creative pupils at Slovenian elementary schools from the perspective of elementary education students. The aim of our study was to examine the expression of a constructed set of characteristics of musically creative pupils at elementary school (aged 6–11 years) from the perspective of elementary education students and to examine the factor structure of the characteristics of musically creative pupils.

Based on the research objectives, we formulated the following research questions:

- *Research Question 1:* Are the characteristics of musically creative pupils (aged 6–11) observed by elementary education students during their practical training at elementary schools above averagely expressed compared with those of their peers?
- *Research Question 2:* What is the factor structure of the expressed characteristics of musically creative pupils (aged 6–11)?

Connected to the research questions, we formulated two hypotheses (H1 and H2):

- *H1:* The characteristics of musically creative pupils (aged 6–11) observed by elementary education students during their practical training at elementary schools are above averagely expressed compared with those of their peers.
- *H2:* The factor structure of the expressed characteristics of musically creative pupils (aged 6–11) is easily interpretable with comprehensive representation.

### *Sample*

The non-randomised convenience sample consisted of 193 elementary education students at the Faculty of Education, University of Maribor (Slovenia), from the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> years of Bachelor studies and the 1<sup>st</sup> year of Master's studies. Students have different amounts of experience in music teaching, having been involved in different forms of practical pedagogical training during their studies, including observational, integrated, guided, and condensed practice (Rus, 2016). Second-year undergraduate students ( $n = 39$ ;  $f\% = 20.2\%$ ) have integrated practice on pre-arranged days every other week (7 days in total), third-year undergraduate students ( $n = 49$ ;  $f\% = 25.4\%$ ) have guided practice under the supervision of a music didactic at the faculty, during which they perform one lesson of music, fourth-year undergraduate students ( $n = 45$ ;  $f\% = 23.3\%$ ) have, in addition to the guided practice, condensed three-week practice in which they observe the work of a mentor teacher for at least three lessons and independently execute two lessons of music, and first-year graduate students ( $n = 60$ ;  $f\% = 31.1\%$ ) have condensed two-week practice in which they observe the work of a mentor teacher for one or two lessons and independently execute one or two lessons of music. In total, 95.3% ( $n = 184$ ) of women and 4.7% ( $n = 9$ ) of men participated in the study. As this is a predominantly female study programme, this gender ratio is to be expected. Due to the low number of male students, gender comparisons are not possible. It should also be borne in mind that the elementary education students were assessing the characteristics of musically creative pupils in comparison with their peers based on their memory of past experiences, as all the students had already completed their practical training in the current semester by the time of the data collection.

### *Materials*

To conduct the exploratory factor analysis, a statistical method that identifies latent constructs or factors (Yong & Pearce, 2013), we designed an anonymous questionnaire with a Likert-type rating scale that includes a wide range of characteristics ( $n = 27$ ) to provide a comprehensive representation of the characteristics of musically creative pupils (Table 1).

The specific terminology for the Slovenian domain dictates the use of certain terms in the rating scale:

- elementary musical abilities (rhythmic and melodic ear) and higher-order musical abilities (harmonic ear, analytical listening, and aesthetic performance and evaluation ability) (Sicherl Kafol, 2001) and
- singing, playing instruments, and movement-dance expression (Borota, 2013; Sicherl Kafol, 2001).

We also used a type of musical creativity in the Likert type scale – music improvisation – for which we listed rhythmic and melodic improvisation separately as the terms are often used in the literature (Chandler, 2018; Larsson & Georgii-Hemming, 2019). A 7-point Likert-type rating scale (1 – highly below average, 2 – moderately below average, 3 – slightly below average, 4 – average, 5 – slightly above average, 6 – moderately above average, and 7 – highly above average) was used to compare musically



creative pupils with their peers (Kovačič, 2016; Kovačič et al., 2015). We used a multi-level scale to allow for the sensitivity of the measurement instrument. The reliability of the measurement instrument was checked through an internal consistency analysis using Cronbach's coefficient (Cronbach, 1951), which was high ( $\alpha = 0.933$ ) and indicated good reliability of the measurement instrument. The objectivity of the measurement was ensured by the same data collection procedure and conditions for all the participants.

### *Data collection and analysis*

The data collection took place at the end of May and the beginning of June 2022 at the Faculty of Education, University of Maribor (Slovenia). For each of the characteristics of pupils whom they considered to be musically creative, students judged the extent to which it deviates from the norm.

The results were analysed using descriptive (frequencies, arithmetic mean, median, and standard deviation) and inferential statistics (exploratory factor analysis with the principal components method) with the IBM SPSS statistical software, version 27.0.

## **3 Results and discussion**

### *Expression of the characteristics of musically creative pupils (aged 6–11)*

Table 1 shows the expression of the individual characteristics of musically creative pupils perceived by elementary education students during their practical training at the Faculty of Education, University of Maribor.

For all 27 characteristics on the 7-point Likert-type rating scale, the mean value is greater than 4 ( $M > 4$ ), ranging from a low of 4.08 (v26\_need for higher incentives) to a high of 5.57 (v23\_interest in music). The results show that all the characteristics included in the scale are descriptive of musically creative pupils, with values  $M > 4$ .

The seven highest scores above the 5.00 mark are (in descending order) v23\_interest in music ( $M = 5.57$ ;  $Me = 6$ ;  $SD = 1.12$ ), v22\_motivation ( $M = 5.35$ ;  $Me = 5$ ;  $SD = 1.09$ ), v16\_curiosity ( $M = 5.26$ ;  $Me = 5$ ;  $SD = 1.15$ ), v24\_communicativeness ( $M = 5.18$ ;  $Me = 5$ ;  $SD = 1.23$ ), v21\_willingness to work ( $M = 5.08$ ;  $Me = 5$ ;  $SD = 1.13$ ), v19\_willingness to engage in collaborative learning ( $M = 5.04$ ;  $Me = 5$ ;  $SD = 1.15$ ), v17\_perseverance ( $M = 5.04$ ;  $Me = 5$ ;  $SD = 1.22$ ), and v10\_singing ( $M = 5.04$ ;  $Me = 5$ ;  $SD = 1.27$ ).

There are thirteen characteristics in the interval 4.50 to 4.99, namely (in descending order) v12\_movement–dance expression ( $M = 4.97$ ;  $Me = 5$ ;  $SD = 1.22$ ), v3\_musical memory ( $M = 4.95$ ;  $Me = 5$ ;  $SD = 1.07$ ), v20\_compliance with instructions ( $M = 4.94$ ;  $Me = 5$ ;  $SD = 1.18$ ), v18\_self-confidence ( $M = 4.92$ ;  $Me = 5$ ;  $SD = 1.28$ ), v25\_focus ( $M = 4.80$ ;  $Me = 5$ ;  $SD = 1.29$ ), v4\_adaptability/relevance of ideas ( $M = 4.76$ ;  $Me = 5$ ;  $SD = 1.05$ ), v6\_originality ( $M = 4.67$ ;  $Me = 5$ ;  $SD = 1.18$ ), v11\_playing instruments ( $M = 4.67$ ;  $Me = 5$ ;  $SD = 1.36$ ), v13\_musical achievements ( $M = 4.63$ ;  $Me = 4$ ;  $SD = 1.35$ ), v15\_progression rate ( $M = 4.60$ ;  $Me = 4$ ;  $SD = 1.11$ ), v1\_elementary musical abilities ( $M = 4.60$ ;

Me = 4; SD = 1.09), v5\_vast number of ideas/solutions (M = 4.56; Me = 4; SD = 1.21), and v7\_rhythmic improvisation ability (M = 4.54; Me = 4; SD = 1.35).

**Table 1**

*Assessments of the characteristics of musically creative pupils (aged 6–11) by elementary education students*

<i>Variable</i>	<i>M</i>	<i>Me</i>	<i>SD</i>
v1_elementary musical abilities (rhythmic and melodic ear)	4.60	4	1.09
v2_higher-order musical abilities (harmonic ear, analytical listening, aesthetic performance, and evaluation ability)	4.10	4	1.18
v3_music memory	4.95	5	1.07
v4_adaptability/relevance of ideas (flexibility)	4.76	5	1.06
v5_vast number of ideas/solutions (fluency)	4.56	4	1.21
v6_originality	4.67	5	1.18
v7_rhythmic improvisation ability	4.54	4	1.35
v8_melodic improvisation ability	4.40	4	1.27
v9_experimentation	4.42	4	1.21
v10_singing	5.04	5	1.27
v11_playing instruments	4.67	5	1.36
v12_movement–dance expression	4.97	5	1.22
v13_musical achievements	4.63	4	1.35
v14_quantity of music theoretical knowledge	4.30	4	1.31
v15_progression rate	4.60	4	1.11
v16_curiosity	5.26	5	1.15
v17_perseverance	5.04	5	1.22
v18_self-confidence	4.92	5	1.28
v19_willingness to engage in collaborative learning	5.04	5	1.15
v20_compliance with instructions	4.94	5	1.18
v21_willingness to work	5.08	5	1.13
v22_motivation	5.35	5	1.09
v23_interest in music	5.57	6	1.12
v24_communicativeness	5.18	5	1.23
v25_focus	4.80	5	1.29
v26_need for higher incentives	4.08	4	1.33
v27_flow (special state of consciousness, emergence with the musical performance)	4.48	4	1.08

*Note.* N = 193.

In the interval from 4.08 to 4.49, there are six characteristics, namely (in descending order) v27\_flow (M = 4.48; Me = 4; SD = 1.08), v9\_experimentation (M = 4.42;



Me = 4; SD = 1.21), v8\_melodic improvisation ability (M = 4.40; Me = 4; SD = 1.27), v14\_quantity of music theoretical knowledge (M = 4.30; Me = 4; SD = 1.31), v2\_higher-order musical abilities (M = 4.10; Me = 4; SD = 1.18), and v26\_need for higher incentives (M = 4.08; Me = 4; SD = 1.33).

The lowest dispersion of scores is observed for characteristic v4\_adaptability, relevance of ideas (SD = 1.06) and the highest for characteristic v11\_playing instruments (SD = 1.36). A median of 6, indicating moderately above-average expression, is observed for one characteristic, a median of 5, indicating slightly above-average expression, is observed for fifteen characteristics, and a median of 4, indicating moderately above-average expression, is observed for 11 characteristics. The highest expressed characteristic is v23\_interest in music, which is consistent with the finding that creative pupils are interested in their chosen field of activity (Clark, 1979; Hoseinfar et al., 2011).

The most strongly expressed characteristics of musically creative pupils have values  $M > 5.00$ . The findings of our study on the expressed characteristics of musically creative pupils have principled support in the literature concerning interest in the field (Clark, 1979; Hoseinfar et al., 2011), motivation to engage in creative activities (Abra, 1997), curiosity (Hoseinfar et al., 2011), communicativeness (Hoseinfar et al., 2011; Reid et al., 1959), willingness to work (Csikszentmihalyi, 1996), willingness to engage in collaborate learning with other pupils (Baloche, 1994; Burnard, 2013; Gruenhagen, 2017; Johnson & LaGasse, 2021; Wiggins & Espeland, 2012), perseverance (Kladder & Lee, 2019; Reid et al., 1959), and above-average singing expression, which indicates an appropriate level of developed musical abilities (Campbell, 1990; Gordon, 1989). We highlight that only one above-average characteristic comprising a value  $M > 5$  relates to the musical domain – musical skills (v10\_singing) – while the others intervene in sociality (v19\_willingness to engage in collaborative learning and v24\_communicativeness) and motivation (v22\_motivation, v16\_curiosity, v23\_interest in music, v21\_willingness to work, and v17\_perseverance). This relates to the finding of some research that creativity is to a certain extent domain-general but that a set of domain-specific characteristics is also required for successful creative functioning in a specific area (Chen et al., 2020; Lothwesen, 2018).

Since all 27 characteristics are above averagely expressed compared with those of their peers ( $M > 4.00$ ), Hypothesis 1, which states that *the characteristics of musically creative pupils (aged 6–11) observed by elementary education students during their practical training at elementary school are above averagely expressed compared with those of their peers*, is confirmed.

### *Factor structure of the characteristics of musically creative pupils*

Based on the scale results, an exploratory factor analysis was conducted to determine the structure of musically creative pupils' characteristics. Bartlett's test of sphericity was appropriate (approx. chi-square = 3198.43; df = 351;  $p = .00$ ), as was the Kaiser–Meyer–Olkin (KMO) test of sampling adequacy (Kaiser & Rice, 1974), which measures the homogeneity of the variables (KMO = 0.89). Both suggested that factor analysis was suitable.

As all the values of the communalities were above 0.5 and appropriate, factor analysis was performed on all 27 variables.

**Table 2**

*Percentage of explained variance of factors*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.53	39.01	39.01	10.53	39.01	39.01	4.44	16.43	16.43
2	3.15	11.65	50.66	3.15	11.65	50.66	4.24	15.70	32.12
3	1.53	5.66	56.32	1.53	5.66	56.32	4.16	15.49	47.54
4	1.27	4.69	61.01	1.27	4.69	61.01	2.98	11.04	58.58
5	1.07	3.97	64.98	1.07	3.97	64.98	1.73	6.40	64.98
6	.93	3.43	68.41						
7	.85	3.15	71.56						
8	.77	2.87	74.43						

*Note:* Extraction Method: Principal Component Analysis

Principal component analysis (PCA) was performed with the aim of reducing the dimensionality of the data (intercorrelated variables) while preserving as much of their overall variability as possible (Tabachnick & Fidell, 2019). The base set of variables was transformed into a new set of variables – principal components – that are independent of each other (Jolliffe, 2002). Following the Kaiser-Guttman rule, we retained five components that had an eigenvalue above 1 (Kaiser, 1991). They explain 64.98 % of the variance in total. The first factor explains 16.43 % of the variance, the second 15.70 %, the third 15.42 %, the fourth 11.04 %, and the fifth 6.40 % (Table 2).

Varimax rotation provided the best-defined factor structure. As shown in Table 3, some variables appeared in several components (cross-loadings). Thus, we assigned each variable to the component for which it has a larger value (Yong & Pearce, 2013). We cut off factor loadings below .32, as suggested by Yong and Pearce (2013).

The first component is *creativity*. It is the most highly loaded with the following variables: v5\_vast number of ideas/solutions, v6\_originality, v9\_experimentation, v8\_melodic improvisation ability, v27\_flow, v4\_adaptability, relevance of ideas, and v13\_musical achievement. The characteristics are broadly consistent with conceptualisations of creativity (Guilford, 1956, 1959; Selby et al., 2005) and a term contextually related to creativity – flow (Biasutti, 2017; Csikszentmihalyi, 2014). Variable v13\_musical achievement, which is present in this component, can be conceptualised as a creative product – part of Rhodes's (1961) definition of creativity. Surprisingly, we also encounter v8\_melodic improvisation ability in the first component, which we would expect to find in the third component (musical ability and performance skills), which also includes v7\_rhythmic improvisation ability.

**Table 3***Factor weights after varimax rotation*

Variable	Component				
	1	2	3	4	5
v5_vast number of ideas/solutions (fluency)	.75				
v6_originality	.73				
v9_experimentation	.71				
v8_melodic improvisation ability	.68		.49		
v27_flow (special state of consciousness, emergence with the musical performance)	.64		.34		
v4_adaptability, relevance of ideas (flexibility)	.55	.36			
v13_musical achievements	.51		.50	.34	
v21_willingness to work		.85			
v20_compliance with instructions		.85			
v24_communicativeness		.77			
v25_focus		.66	.36		
v22_motivation		.65		.33	
v19_willingness to engage in collaborative learning		.58		.42	
v23_interest in music		.56	.46		
v1_elementary musical skills (rhythmic and melodic ear)			.71		
v10_singing			.71	.41	
v3_music memory			.64		
v11_playing instruments	.37		.60		
v2_higher-order musical abilities (harmonic ear, analytical listening, aesthetic performance, and evaluation abilities)	.45		.59		
v7_rhythmic improvisation ability	.54		.58		
v16_curiosity				.77	
v17_perseverance		.32		.71	
v18_self-confidence				.62	
v12_movement–dance expression			.45	.50	-.35
v26_need for higher incentives					-.78
v14_quantity of music theoretical knowledge	.36				.58
v15_progression rate			.33	.39	.45

*Notes:* Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalisation; Rotation converged in six iterations

The second component is *motivation*. It includes the following variables: v21\_willingness to work, v20\_compliance with instructions, v24\_communicativeness, v25\_focus, v22\_motivation, v19\_willingness to engage in collaborative learning, and v23\_interest in music. This contextually rounded set of characteristics has support in the

literature, which has discussed willingness to work (Csikszentmihalyi, 1996), willingness to engage in collaborative learning (Baloche, 1994; Burnard, 2013; Gruenhagen, 2017; Johnson & LaGasse, 2021; Wiggins & Espeland, 2012; Young, 2003), following instructions (Csikszentmihalyi, 1996), focus (McMullen, 1976), and motivation (Abra, 1997). Communicativeness indicates a personality trait related to expressing one's needs and being outwardly oriented (Torrance, 1962), which is important in creative task performance. The same can be said for showing interest in music (Clark, 1979; Hosenfarb et al., 2011). The concepts are linked to the concept of motivation, which guides the individual in the activity performance.

The third component is called *musical ability and performance skills*. It contains the following variables: v1\_elementary musical abilities, v10\_singing, v3\_musical memory, v11\_playing instruments, v2\_higher-order musical abilities, and v7\_rhythmic improvisation ability. The content of the component covers the broader area of musical ability and is in line with the literature in that musical ability is a predictor or basis for building musical creativity (Campbell, 1990; Gordon, 1989). The literature has also stated that a good musical memory is a common point of musically creative individuals (de Dreu et al., 2012; Oikkonen et al., 2016). Musical ability is enacted through singing and playing instruments. Variable v7\_rhythmic improvisation ability can also be traced in the component, which is strikingly distinct from the presence of the variable v8\_melodic improvisation ability in the first component (creativity).

The fourth component is called *impetus*. It is most strongly loaded with the following variables: v16\_curiosity, v17\_perseverance, v18\_self-confidence, and v12\_movement–dance expression. The concepts can be characterised as personality traits that show an inner drive for creative action – this is manifested in the individual's curiosity, perseverance, and self-confidence. Unlike motivation, which is defined as willingness to act, impetus is a stimulating factor, something that sets things in motion. Surprisingly, the v12\_movement–dance expression characteristic is also present in the component, but, in its hidden essence as a strong action expression, it can be linked to other characteristics within the component.

The fifth component is called *agency*. It includes the following variables: v26\_the need for higher incentives, v14\_quantity of music theoretical knowledge, and v15\_progression rate. The component is saturated with the fewest variables, but we see them as a means of self-management of individual performance. The fact that v26\_the need for higher incentives is marked with a negative prefix (Table 3) means that it is negatively correlated with the domain – genuinely it is a need for lower incentives with linkage to the individual's autonomy in activity performance, which is also manifested in the form of a sufficient amount of music theoretical knowledge and rapid progress.

Of the five components generated in our study, three are related to the findings of Amabile (1983), who listed a triad of creative performance components:

- domain-relevant skills, referring to domain-specific knowledge and skills (in our study: music ability and performance skills),
- creativity-relevant skills, referring to the appropriate cognitive style and way of working (in our study: creativity), and
- task motivation, which refers to intrinsic motivation and attitude towards the domain (in our study: motivation).

The remaining two components (impetus and agency) additionally and meaningfully build the characteristics structure of creative pupils as they move beyond creative characteristics and characteristics related to motivation. Musically creative pupils, while possessing an appropriate level of musical ability and performance skills, creative characteristics, and motivation, express an impulsive drive for creative action, which is to some extent autonomous.

The factor structure, which consists of five components (creativity, motivation, musical ability and performance skills, impetus, and agency), is substantively meaningful, and we can therefore confirm Hypothesis 2, which states that *the factor structure of the expressed characteristics of musically creative pupils (aged 6–11) is easily interpretable with comprehensive representation*.

## 4 Conclusions

The research shows that some *personality characteristics* (curiosity, perseverance, self-confidence, willingness to engage in collaborative learning, compliance with instructions, willingness to work, motivation, interest in music, communicativeness, and need for lower incentives), *creative cognitive characteristics* (vast number of ideas/solutions, originality, adaptability/relevance of ideas, focus, quantity of music theoretical knowledge, and progression rate), characteristics related to *musical ability and performance skills* (rhythmic improvisation ability, melodic improvisation ability, singing, playing instruments, and movement–dance expression), and characteristics related to *the creative process or product* (experimentation, musical achievements, and flow) were expressed above averagely in musically creative pupils compared with their peers. This contributes to the argument about the relevance of the set of characteristics studied to provide a comprehensible and multifaceted structure of musically creative pupils. A broad set of characteristics allows the teacher to follow the pupils more sensitively and accurately through the educational process and to find the pupils' strengths. We can highlight the areas of characteristics that are most strongly expressed – slightly to moderately above average ( $M > 5$ ) in relation to the mean value: musical skills (singing), sociality (willingness to engage in cooperative learning and communicativeness), and motivation (motivation, curiosity, interest in music, willingness to work, and perseverance). Our results support the research findings on domain generality or specificity as the characteristics cut across both the musical domain and the domain of the general characteristics of creative individuals (Chen et al., 2020; Lothwesen, 2018).

The exploratory factor analysis highlighted five components of musically creative pupils' characteristics, namely *creativity, motivation, musical ability and performance skills, impetus, and agency*. The structure represents the characteristics of musically creative pupils, which, in addition to the domains of general creativity and musical ability and performance skills, are manifested in the domains of individuals' motivation, impetus, and autonomy. Through focused work, teachers can encourage the development of the weak areas of (musically creative) pupils and contribute to the fulfilment of their potential.

The research provided insights into the characteristics of musically creative pupils at the elementary level of Slovenian elementary schools through the eyes of elementary education students. This could enable teachers as well as student teachers to identify musically creative pupils accurately and comprehensively, and to support their strong sides and develop their weak sides. Further research may also concern the assessment of the characteristics of musically creative pupils from the perspective of elementary education students from other Slovenian universities with the possibility of undertaking international comparisons of musically creative pupils from similar educational and cultural backgrounds.

Extending our views a little further, the results of our research underline the complexity of musically creative pupils, which encompasses various areas such as creativity, motivation, musical ability and willingness to perform, as well as inner drive and autonomy. This complements the study by Drovenik Adamec and Kovačič (2022), which emphasises the interconnectedness of these characteristics in relation to musical creativity. Furthermore, understanding musical talent requires a delicate balance between natural predispositions and environmental support, reflecting the findings of Drovenik Adamec et al. (2020) on the combination of innate abilities reinforced by practise and a supportive environment. An important finding is the need to recognise and nurture the talents and creativity of musically gifted pupils. This is in line with the observations of Jukić and Škojo (2019), who point to the challenges facing future educators, particularly in terms of identifying and nurturing musically talented pupils. Matrić and Duh (2019) also emphasised the stereotypes associated with these pupils, pointing out that a broader perspective is needed to fully understand the diverse expressions of musical creativity. The Montessori approach to music education mentioned by Mavrič (2019) represents a way of viewing music as a language of expression. This view reinforces the idea that music is an innate experience and confirms the characteristics we have found in musically creative pupils, such as musical development based on sensory experiences. Attitudes towards gifted pupils and their education were also highlighted by Loboda et al. (2020). Their findings mirror our findings and highlight the overarching support for special programmes, albeit with criticism of the processes of identification and training. Furthermore, Zadnik's (2021) research illustrated the motivational power of the arts, emphasising the importance of intertwining motivation – a key characteristic of musically creative pupils – with the educational process. In addition, the studies by Javornik Krečič and Ivanuš Grmek (2021) and Mithans et al. (2022) emphasise the role of educators and their willingness to recognise and nurture talent in the classroom. Furthermore, the intertwining of music and arts education, especially in today's digital age, as Kopačin and Birsá (2022) emphasise, suggests that the use of technology offers opportunities that have yet to be fully explored in education. To summarise, the central theme that permeates all these research findings is the crucial role of educators in recognising, supporting and nurturing musically gifted and talented pupils and their creativity. There is an urgent need for improved training programmes for educators to better meet the specific needs of these pupils. In addition, the essential role of family, motivation and the wider arts environment in the educational journey emphasises the multifaceted nature of musical creativity.



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### **Glasbeno ustvarjalni učenci (6–11 let): vidik študentov razrednega pouka**

*Ustvarjalnost kot ena izmed ključnih veščin 21. stoletja (Yoo in Kang, 2021) nosi pomembno vlogo v kompleksnem svetu in ostaja eno izmed redkih sredstev za polno soočenje z negotovostjo prihodnosti (Pecheanu in Tudorie, 2014). Različni teoretični okvirji in diskurzi ne ponujajo enotne definicije ustvarjalnosti, vendar jih na podlagi psihologije povezujeta dva elementa: izvirnost in uporabnost (Mumford, 2003; Runco in Jaeger, 2012; Sternberg in Lubart, 1999). Pri tem je kompleksno vprašanje, ki se postavlja, ali je ustvarjalnost področno splošna ali področno specifična. Nekatere raziskave nakazujejo, da so za razvoj specifičnih talentov v ustvarjalnem delovanju potrebne nekatere splošne značilnosti posameznikov (Feist, 2004; Lubart in Guignard, 2004). To pomeni, da so ustvarjalni posamezniki lahko ustvarjalni na raznovrstnih področjih in ne nujno na enem samem. Vendar pa ustvarjalnost lahko postane področno specifična, ko posamezniki pridobijo ekspertizo na svojem področju (Qian idr., 2019). Glasbeno področje vključuje različne aktivnosti, ki zahtevajo različne veščine (Lothwesen, 2018).*

*Ko govorimo o značilnostih glasbeno ustvarjalnih posameznikov, tako v nekaterih vidikih opisujemo splošne značilnosti ustvarjalnih ljudi, hkrati pa naletimo na nekatere specifične veščine, spretnosti in sposobnosti, ki se pogosteje pojavljajo le na glasbenem področju. Nekateri avtorji se strinjajo, da se v značilnostih ustvarjalnih posameznikov skrivajo nasprotja (Csikszentmihalyi, 1996; McMullen, 1976; Selby idr., 2005). Ustvarjalni posamezniki so tako lahko sproščeni in pozorni, samozavestni in skromni ter zamaknjeni in sposobni visoke koncentracije (McMullen, 1976). Ob tem je potrebno poudariti, da ni osebe, ki bi posedovala vse značilnosti, ki jih lahko zasledimo v literaturi, hkrati pa ni nujno, da oseba poseduje določene značilnosti ves čas svojega ustvarjalnega delovanja (Selby idr., 2005). Kot pomembne značilnosti ustvarjalnih posameznikov se izpostavljajo tudi motivacija (Abra, 1997), kognitivni stil (Hargreaves in Lamont, 2017), zanos (Biasutti, 2017; Csikszentmihalyi, 2014) in dober semantični in epizodični spomin (Fink idr., 2015; Madore idr., 2015).*

*Čeprav je dejanje ustvarjalnosti vsaj z vidika pojavitve ideje povsem individualistično (Glăveanu, 2013), ga zaokrožujejo socialno okolje in vsakdanje interakcije v socialnem kontekstu (Glăveanu, 2013; Hennessey in Amabile, 2010; Nakamura in Csikszentmihalyi, 2001; Schiavio in Benedek, 2020). Ustvarjalni izraz se manifestira v psihološko varnem in svobodnem okolju, ki posamezniku omogoči popolno absorpcijo v ustvarjalni proces (Rogers, 1954). V tem pogledu imata učilnica (Kladder in Lee, 2019) in vzgojitelj/učitelj (Peñalba idr., 2021) pomembno vlogo pri spodbujanju ustvarjalnega procesa. Raziskave prav tako kažejo, da sodelovalno naravnane glasbene dejavnosti spodbujajo razvoj ustvarjalnosti (Baloche, 1994; Burnard, 2013; Gruenhagen, 2017; Johnson in LaGasse, 2021; Wiggins in Espeland, 2012).*

*Glasbene sposobnosti so po mnenju Gordona (1989) pomemben faktor pri določanju obsega posameznikove glasbene ustvarjalnosti, ki vključuje ustrezno kakovostno in obširno zgodnje glasbeno okolje. Oikkonen idr. (2016) in Zhou (2018) izpostavljajo, da se vsi rodimo s potencialom glasbene ustvarjalnosti, v določeni meri tudi podedovane, njegova*



realizacija in razvoj pa sta odvisna od mnogih dejavnikov (Sternberg, 2000; Tafuri, 2006; Treffinger idr., 2002). Spodbuja ga lahko trening implicitne narave (npr. ustvarjalno izražanje preko likovne umetnosti) ali eksplicitne narave (npr. vaje za izboljšanje pozornosti in delovnega spomina) (Zhou, 2018). Nekateri avtorji poudarjajo, da učenci producirajo ustvarjalnejšo in izvirnejšo glasbo, ko se počutijo, da so samozavestni glede lastnih glasbenih sposobnosti (Coulson in Burke, 2013; Mawang idr., 2019).

Glasbena ustvarjalnost v šolskem okolju je dobro poznano področje raziskovanja, vendar s poudarkom na ocenjevanju ustvarjenih izdelkov (Webster, 1994). Poleg tega je bilo opravljenih le malo raziskav z vidika bodočih učiteljev pri prepoznavanju značilnosti glasbeno ustvarjalnih učencev. Kokotsaki in Newton (2015) sta poudarila, da je tovrstna identifikacija lahko težavna ob pomanjkanju strokovnega znanja in poznavanja zmožnosti učencev, zato morajo univerzitetni profesorji študentom ponuditi primerno količino izkušenj, hkrati pa jim omogočiti refleksijo in jim dati priložnosti za prepoznavanje glasbene ustvarjalnosti v praksi.

Ob pregledu literature smo ugotovili, da obstaja malo raziskav, ki bi zajemale perspektivo študentov oz. bodočih učiteljev pri prepoznavanju značilnosti glasbeno ustvarjalnih učencev v razredu. Njihov vidik je pomemben, saj nam daje uvid v njihovo dožemanje ustvarjalnosti in ustvarjalnega posameznika ter nudi priložnosti za refleksijo pedagoške prakse na univerzah.

Na podlagi razumevanja področne splošnosti in specifičnosti glasbene ustvarjalnosti ter raznovrstnih značilnosti glasbeno ustvarjalnih posameznikov je bil cilj naše študije:

- proučiti izraženost oblikovanega nabora značilnosti glasbeno ustvarjalnih učencev pri pouku glasbene umetnosti na razredni stopnji osnovne šole (starih 6–11 let) z vidika študentov razrednega pouka in
- proučiti faktorsko strukturo značilnosti glasbeno ustvarjalnih učencev.

Uporabili smo kvantitativni raziskovalni pristop z neeksperimentalno metodo raziskovanja, pri čemer je bila uporabljena 7-stopenjska ocenjevalna lestvica Likertovega tipa. Vprašalnik vključuje širok nabor značilnosti ( $n = 27$ ) in z njim lahko celostno predstavimo značilnosti glasbeno ustvarjalnih učencev. Študenti so pri vsaki izmed značilnosti presodili, v kolikšni meri odstopa pri učencih, za katere menijo, da so glasbeno ustvarjalni. Cronbachov koeficient  $\alpha$  znaša 0,933 in kaže na dobro zanesljivost merjenja. Objektivnost merjenja smo zagotovili z enakim postopkom in pogoji anketiranja za vse udeležence. V anketiranju je sodelovalo 193 študentov razrednega pouka Pedagoške fakultete Univerze v Mariboru z različnim obsegom izkušenj poučevanja predmeta glasbene umetnosti glede na letnik študija. Študenti so bili tekom študija vključeni v različne oblike praktičnega pedagoškega usposabljanja, ki vključuje opazovanje pouka glasbene umetnosti v obliki hospitacij in samostojno izvedbo učnih ur. Zbiranje podatkov je potekalo konec maja in v začetku junija 2022 na Pedagoški fakulteti Univerze v Mariboru. Rezultati so bili analizirani z deskriptivno in inferenčno statistiko (eksploratorna faktorska analiza z metodo glavnih komponent).

Rezultati so pokazali, da vse variable ( $n = 27$ ) zaradi nadpovprečne izraženosti ( $M > 4.00$ ) ustrezno opisujejo glasbeno ustvarjalne učence. Značilnosti, ki so najbolj nadpovprečno izražene ( $M > 5.00$ ), v največji meri označujejo glasbeno ustvarjalne učence in se nanašajo na glasbeno izvajalsko področje, socialne značilnosti, motivacijske osebnostne značilnosti in delovne veščine. Le ena nadpovprečna značilnost z vrednostjo  $M > 5$

se nanaša na glasbeno področje, medtem ko druge posegajo na socialno področje in področje motivacije. Rezultati so skladni z izsledki nekaterih raziskav, da je ustvarjalnost v določeni meri področno splošna, vendar je za uspešno ustvarjalno delovanje potreben tudi nabor področno specifičnih značilnosti (Chen idr., 2020; Lothwesen, 2018).

Na podlagi rezultatov ocenjevalne lestvice, ki so jo izpolnili študenti, je bila izvedena eksploratorna faktorska analiza, s katero smo želeli ugotoviti strukturo značilnosti glasbeno ustvarjalnih učencev. Eksploratorna faktorska analiza z metodo glavnih komponent in varimax rotacijo je ponudila pet komponent, ki izražajo strukturo značilnosti glasbeno ustvarjalnih učencev: ustvarjalnost, motivacija, glasbene sposobnosti in izvajalske veščine, zagon in avtonomnost.

Prva komponenta je ustvarjalnost. Značilnosti so v veliki meri skladne s konceptualizacijo ustvarjalnosti (Guilford, 1956, 1959; Selby idr., 2005) in izrazom, ki je kontekstualno povezan z ustvarjalnostjo, tj. zanosom (Biasutti, 2017; Csikszentmihalyi, 2014). Druga komponenta je motivacija. Ta kontekstualno zaokrožen nabor značilnosti ima podporo v literaturi, ki obravnava pripravljenost za delo (Csikszentmihalyi, 1996), pripravljenost za sodelovanje pri učenju (Baloche, 1994; Burnard, 2013; Gruenhagen, 2017; Johnson in LaGasse, 2021; Wiggins in Espeland, 2012; Young, 2003), sledenje navodilom (Csikszentmihalyi, 1996), osredotočenost (McMullen, 1976) in motivacijo (Abra, 1997). Tretjo komponento smo poimenovali glasbene sposobnosti in izvajalske veščine. Vsebinska komponente zajema širše področje glasbenih sposobnosti in je v skladu z literaturo, saj je glasbena sposobnost lahko napovednik ali podlaga za razvoj glasbene ustvarjalnosti (Campbell, 1990; Gordon, 1989). Četrta komponenta se imenuje zagon. Te koncepte lahko opišemo kot osebnostne lastnosti, ki kažejo notranji zagon za ustvarjalno delovanje – ta se kaže v posameznikovi radovednosti, vztrajnosti in samozavesti. Peta komponenta je avtonomnost. Komponenta je nasičena z najmanjšim številom spremenljivk, vendar jih vidimo kot sredstvo za samoupravljanje posameznikove uspešnosti. Komponente ustrezno in celostno predstavljajo strukturo značilnosti glasbeno ustvarjalnih učencev. Izmed petih komponent se tri povezujejo z ugotovitvami Amabile (1983), ki našteva trojstvo komponent ustvarjalne izvedbe, nanašajoč se na področno specifično znanje in veščine, ustvarjalne veščine in motivacijo ter odnos do področja. Preostali dve komponenti smiselno izgrajujeta značilnosti ustvarjalnega učenca, ki izraža tudi impulzivni zagon za ustvarjalno delovanje, ki je v določeni meri avtonomno. Glasbeno ustvarjalni učenci, ki imajo ustrezno raven glasbenih sposobnosti in spretnosti, ustvarjalnih značilnosti in motivacije, torej izražajo impulzivno željo po avtonomnem ustvarjalnem delovanju. Z usmerjenim delom lahko učitelj spodbuja razvoj šibkih področij glasbeno ustvarjalnih učencev in prispeva k holistični izpolnitvi njihovega potenciala.

Implikacije raziskave kažejo možnosti uporabe pri prepoznavanju glasbeno ustvarjalnih učencev in spodbujanju njihovega potenciala v izobraževalnem okolju. Nadaljnje raziskave lahko zadevajo natančnejšo izgradnjo ocenjevalnega pripomočka za prepoznavanje in spremljanje glasbeno ustvarjalnih učencev, hkrati pa so možne tudi medfakultetne in mednarodne primerjave glasbeno ustvarjalnih učencev podobnih izobraževalnih in kulturnih okolij.

## REFERENCES

1. Abra, J. (1997). The motives for creative work. Hampton Press.
2. Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology*, 45(2), 357–376. <https://doi.org/10.1037/0022-3514.45.2.357>
3. Baloché, L. (1994). Creativity and cooperation in the elementary music classroom. *Journal of Creative Behaviour*, 28(4), 255–265. <https://doi.org/10.1002/j.2162-6057.1994.tb00732.x>
4. Biasutti, M. (2017). Teaching improvisation through processes. Applications in music education and implications for general education. *Frontiers in Psychology*, 8, 911. <https://doi.org/10.3389/fpsyg.2017.00911>
5. Borota, B. (2013). Glasbene dejavnosti in vsebine. Univerzitetna založba Annales.
6. Brinkman, D. J. (1999). Problem finding, creativity style and the musical compositions of high school students. *Journal of Creative Behavior*, 33, 62–68. <https://doi.org/10.1002/j.2162-6057.1999.tb01038.x>
7. Burnard, P. (2013). Teaching music creatively. In P. Burnard & R. Murphy (Eds.), *Teaching music creatively* (pp. 1–11). Routledge. <https://doi.org/10.4324/9780203489031-9>
8. Burnard, P., & Boyack, J. (2013). Engaging interactively with children's group improvisation. In P. Burnard & R. Murphy (Eds.), *Teaching music creatively* (pp. 25–36). Routledge.
9. Campbell, P. S. (1990). Crosscultural perspectives of musical creativity. *Music Educators Journal*, 76(9), 43–46. <https://doi.org/10.2307/3401077>
10. Chandler, M. (2018). Improvisation in elementary general music: A review of the literature. *Applications of Research in Music Education*, 37(1), 42–48. <https://doi.org/10.1177/8755123318763002>
11. Chen, Q., Beaty, R. E., & Qiu, J. (2020). Mapping the artistic brain: Common and distinct neural activations associated with musical, drawing, and literary creativity. *Human Brain Mapping*, 41(12), 3403–3419. <https://doi.org/10.1002/hbm.25025>
12. Clark, B. (1979). *Growing up gifted*. Charles E. Merrill Publishing Company.
13. Coulson, A., & Burke, B. (2013). Creativity in the elementary music classroom: A study of students' perceptions. *International Journal of Music Education*, 31(4), 428–441. <https://doi.org/10.1177/0255761413495760>
14. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297–334. <https://doi.org/10.1007/BF02310555>
15. Csikszentmihalyi, M. (1996). *Creativity, flow and the psychology of discovery and invention*. Harper Collins.
16. Csikszentmihalyi, M. (2014). Toward a psychology of optimal experience. In M. Csikszentmihalyi (Ed.), *Flow and the foundations of positive psychology* (pp. 209–226). Springer. [https://doi.org/10.1007/978-94-017-9088-8\\_14](https://doi.org/10.1007/978-94-017-9088-8_14)
17. De Dreu, C., Nijstad, B., Baas, M., Wolsink, I., & Roskes, M. (2012). Working memory benefits creative insight, musical improvisation, and original ideation through maintained task-focused attention. *Personality and Social Psychology Bulletin*, 38(5), 656–669. <https://doi.org/10.1177/0146167211435795>
18. Drovenik Adamec, T., & Kovačič, B. (2022). Značilnosti izjemnega glasbenega talenta – študija primera. *Revija za elementarno izobraževanje*, 15(4), 533–553. <https://doi.org/10.18690/rei.15.4.533-553.2022>
19. Drovenik Adamec, T., Blažič, M., & Kovačič, B. (2020). Influence of factors on the development of outstanding musical talent: a case study. *Didactica Slovenica – Pedagoška obzorja*, 35(3–4), 54–70.
20. Feist, G. J. (2004). The evolved fluid specificity of human creative talent. In R. J. Sternberg, E. L. Grigorenko, & J. L. Singer (Eds.), *Creativity: From potential to realization* (pp. 57–82). American Psychological Association. <https://doi.org/10.1037/10692-005>
21. Feldhusen, J. F. (1994). Talent identification and development in education. *Gifted Education International*, 10(1), 10–16. <https://doi.org/10.1177/026142949401000103>

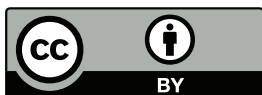
22. Fink, A., Benedek, M., Koschutnig, K., Pirker, E., Berger, E., Meister, S., Neubauer, A., Papuošek, I., & Weiss, E. (2015). Training of verbal creativity modulates brain activity in regions associated with language- and memory-related demands. *Human Brain Mapping*, 36, 4104–4115. <https://doi.org/10.1002/hbm.22901>
23. Glăveanu, V. P. (2013). Rewriting the language of creativity: The Five A's framework. *Review of General Psychology*, 17(1), 69–81. <https://doi.org/10.1037/a0029528>
24. Gordon, E. E. (1989). Audiation, music learning theory, music aptitude, and creativity. In J. W. Richmond (Ed.), *Proceedings of the Suncoast music education forum on creativity* (pp. 75–81). University of South Florida.
25. Gruenhagen, L. M. (2017). Developing musical creativity through reflective and collaborative practices. *Music Educators Journal*, 103(3), 40–45. <https://doi.org/10.1177/0027432116685158>
26. Gruszka, A., & Tang, M. (2017). The 4P's creativity model and its application in different fields. In M. Tang & C. H. Werner (Eds.), *Handbook of the management of creativity and innovation: Theory and practice* (pp. 51–71). World Scientific Press. [https://doi.org/10.1142/9789813141889\\_0003](https://doi.org/10.1142/9789813141889_0003)
27. Guilford, J. P. (1956). The structure of intellect. *Psychological Bulletin*, 53, 267–293. <https://doi.org/10.1037/h0040755>
28. Guilford, J. P. (1959). Traits of creativity. In H. H. Anderson (Ed.), *Creativity and its cultivation* (pp. 142–161). Harper & Row.
29. Hargreaves, D., & Lamont, A. (2017). Musical creativity and peer collaboration. In D. Hargreaves & A. Lamont (Eds.), *The psychology of musical development* (pp. 118–127). Cambridge University Press. <https://doi.org/10.1017/9781107281868>
30. Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology*, 61, 569–598. <https://doi.org/10.1146/annurev.psych.093008.100416>
31. Hernández-Torrano, D., & Ibrayeva, L. (2020). Creativity and education: A bibliometric mapping of the research literature (1975–2019). *Thinking Skills and Creativity*, 35, 100625. <https://doi.org/10.1016/j.tsc.2019.100625>
32. Hickey, M. M., & Lipscomb, S. D. (2006). How different is good? How good is different? The assessment of children's creative musical thinking. In I. Deliège & G. A. Wiggins (Eds.), *Musical creativity: Multidisciplinary research in theory and practice* (pp. 97–110). Psychology Press. <https://doi.org/10.4324/9780203088111>
33. Hoseinfar, J., Siedkalan, M. M., Zirak, S. R., Nowrozi, M., Shaker, A., Meamar, E., & Ghaderi, E. (2011). An investigation of the relation between creativity and five factors of personality in students. *Procedia – Social and Behavioral Sciences*, 30, 2037–2041. <https://doi.org/10.1016/j.sbspro.2011.10.394>
34. Javornik Krečič, M., & Ivanuš Grmek, M. (2021). Pojmovanje učenja pri študentih – bodočih pedagoških delavcih v treh državah. *Didactica Slovenica – Pedagoška obzorja*, 36(2), 109–127.
35. Johnson, E., & LaGasse, A. B. (2021). Musical creativity in autism: Exploring growth through collaborative peer interaction. *International Journal of Disability, Development and Education*, 69(1), 139–153. <https://doi.org/10.1080/1034912X.2021.1940883>
36. Jolliffe, I. (2002). *Principal component analysis*. Springer-Verlag.
37. Jukić, R., & Škojo, T. (2019). Ocena pripravljenosti študentov na izzive učiteljskega poklica. *Didactica Slovenica – Pedagoška obzorja*, 34(1), 86–102.
38. Kaiser, H. F. (1991). Coefficient alpha for a principal component and the Kaiser–Guttman rule. *Psychological Reports*, 68, 855–858. <https://doi.org/10.2466/PRO.68.3.855-858>
39. Kaiser, H. F., & Rice, J. (1974). Little jiffy, mark IV. *Educational and Psychological Measurement*, 34(1), 111–117. <https://doi.org/10.1177/001316447403400115>
40. Kaučič, S. in Kozmus, A. (2022). Kaj spoduja ali zavira ustvarjalnost slovenskih osnovnošolskih učiteljev? *Didactica Slovenica – Pedagoška obzorja*, 37(2), 98–111.
41. Kaufman, J. C., & Beghetto, R. A. (2009). Beyond big and little: The four c model of creativity. *Review of General Psychology*, 13(1), 1–12. <https://doi.org/10.1037/a0013688>
42. Kladder, J., & Lee, W. (2019). Music teachers perceptions of creativity: A preliminary investigation. *Creativity Research Journal*, 31, 395–407. <https://doi.org/10.1080/10400419.2019.1651189>

43. Kokotsaki, D., & Newton, D. (2015). Recognizing creativity in the music classroom. *International Journal of Music Education*, 33(4), 491–508. <https://doi.org/10.1177/0255761415607081>
44. Kopačin, B., & Birsa, E. (2022). Medpredmetno povezovanje glasbene in likovne umetnosti. *Didactica Slovenica – Pedagoška obzorja*, 37(1), 109–124.
45. Kovačič, B. (2016). Značilnosti glasbeno talentiranih učencev na razredni stopnji osnovne šole [Doctoral dissertation, University of Ljubljana]. <http://pefprints.pef.uni-lj.si/3710/>
46. Kovačič, B., Blažič, M., & Črčinovič Rozman, J. (2015). Factor structure of the characteristics of musically talented pupils at the elementary school level. *Didactica Slovenica – Pedagoška obzorja*, 30(2), 24–44.
47. Kozbelt, A., Beghetto, R. A., & Runco, M. A. (2010). Theories of creativity. In J. C. Kaufman and R. J. Sternberg (Eds.), *The Cambridge handbook of creativity* (pp. 20–47). Cambridge University Press. <https://doi.org/10.1017/CBO9780511763205.004>
48. Larsson, C., & Georgii-Hemming, E. (2019). Improvisation in general music education: A literature review. *British Journal of Music Education*, 36(1), 49–67. <https://doi.org/10.1017/S026505171800013X>
49. Loboda, M., Bedek, N., Žerak, U., Jurišević, M., & Vogrinc, J. (2020). Stališča študentov pedagoških smeri do nadarjenih in njihovega izobraževanja. *Didactica Slovenica – Pedagoška obzorja*, 35(1), 3–20.
50. Lothwesen, K. S. (2018). The profile of music as a creative domain in people's conceptions: Expanding Runco & Bahleda's 1986 study on implicit theories of creativity in a conceptual replication. *Musicae Scientiae*, 24(3), 1–22. <https://doi.org/10.1177/1029864918798417>
51. Lubart, T., & Guignard, J.-H. (2004). The generality–specificity of creativity: A multivariate approach. In R. J. Sternberg, E. L. Grigorenko, & J. L. Singer (Eds.), *Creativity: From potential to realization* (pp. 43–56). American Psychological Association. <https://doi.org/10.1037/10692-004>
52. MacDonald, R., Byrne, C., & Carlton, L. (2006). Creativity and flow in musical composition: An empirical investigation. *Psychology of Music*, 34(3), 292–306. <https://doi.org/10.1177/0305735606064838>
53. Madore, K. P., Addis, D. R., & Schacter, D. L. (2015). Creativity and memory: Effects of an episodic–specificity induction on divergent thinking. *Psychological Science*, 26, 1461–1468. <https://doi.org/10.1177/0956797615591863>
54. Matric, M., & Duh, M. (2019). Teachers' Perceptions of Gifted, Talented and EBD Students. *Didactica Slovenica – Pedagoška obzorja*, 34(2), 67–81.
55. Mavrič, M. (2019). Didaktična načela poučevanja glasbe v pedagogiki montessori. *Didactica Slovenica – Pedagoška obzorja*, 34(3–4), 66–79.
56. Mawang, L., Kigen, E., & Mutweleli, S. (2019). The relationship between musical self-concept and musical creativity among secondary school music students. *International Journal of Music Education*, 37(1), 78–90. <https://doi.org/10.1177/0255761418798402>
57. McMullen, W. E. (1976). Creative individuals: Paradoxical personages. *Journal of Creative Behaviour*, 10, 265–275. <https://doi.org/10.1002/j.2162-6057.1976.tb00148.x>
58. Mithans, M., Balažic, N., & Ograjšek, S. (2022). Učitelji razrednega pouka o usposobljenosti za delo z nadarjenimi. *Didactica Slovenica – Pedagoška obzorja*, 37(1), 50–64.
59. Mumford, M. D. (2003). Where have we been, where are we going? Taking stock in creativity research. *Creativity Research Journal*, 15, 107–120. [https://doi.org/10.1207/S15326934CRJ152&3\\_01](https://doi.org/10.1207/S15326934CRJ152&3_01)
60. Nakamura, J., & Csikszentmihalyi, M. (2001). Catalytic creativity: The case of Linus Pauling. *American Psychologist*, 56, 337–341. <https://doi.org/10.1037/0003-066X.56.4.337>
61. Nazario, L. (2021). Freedom as a trigger for musical creativity. *Research Studies in Music Education*, 44(1), 192–204. <https://doi.org/10.1177/1321103X20974805>
62. Oikkonen, J., Kuusi, T., Peltonen, P., Raijas, P., Ukkola-Vuoti, L., Karma, K., Onkamo, P., & Järvelä, I. (2016). Creative activities in music – A genome-wide linkage analysis. *PLoS ONE*, 11(2). <https://doi.org/10.1371/journal.pone.014867>
63. Pecleanu, I. S. E., & Tudorie, C. (2014). Initiatives towards an education for creativity. *Procedia – Social and Behavioral Sciences*, 180, 1520–1526. <https://doi.org/10.1016/j.sbspro.2015.02.301>



64. Peñalba, A., Martínez-Álvarez, L., & Schiavio, A. (2021). The active musical room: Fostering sensorimotor discoveries and musical creativity in toddlers. *Journal of Research in Music Education*, 69(2), 128–151. <https://doi.org/10.1177/0022429420953062>
65. Qian, M., Plucker, J. A., & Yang, X. (2019). Is creativity domain specific or domain general? Evidence from multilevel explanatory item response theory models. *Thinking Skills and Creativity*, 33, 100571. <https://doi.org/10.1016/j.tsc.2019.100571>
66. Reid, J. B., King, F. J., & Wickwire, P. (1959). Cognitive and other personality characteristics of creative children. *Psychological Reports*, 5, 729–737. <https://doi.org/10.2466/PRO.5.7.729-737>
67. Rhodes, M. (1961). An analysis of creativity. *Phi Delta Kappan*, 42(7), 305–310.
68. Rogers, C. (1954). Toward a theory of creativity. *ETC: A Review of General Semantics*, 11, 250–258.
69. Runco, M. A. (2005). Creative giftedness. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (pp. 295–311). Cambridge University Press. <https://doi.org/10.1017/CBO9780511610455.017>
70. Runco, M. A., & Acar, S. (2012). Divergent thinking as an indicator of creative potential. *Creativity Research Journal*, 24(1), 66–75. <https://doi.org/10.1080/10400419.2012.652929>
71. Runco, M. A., & Jaeger, G. J. (2012). The standard definition of creativity. *Creativity Research Journal*, 24, 92–96. <https://doi.org/10.1080/10400419.2012.650092>
72. Rus, D. (2016). *Praktično pedagoško usposabljanje v študijskih programih druge stopnje – primerjalna analiza med fakultetami Univerze v Mariboru* [Doctoral dissertation, University of Maribor]. <https://dk.um.si/IzpisGradiva.php?lang=slv&id=64474>
73. Schiavio, A., & Benedek, M. (2020). Dimensions of musical creativity. *Frontiers in Neuroscience*, 14, 578932. <https://doi.org/10.3389/fninf.2020.578932>
74. Schutte, N. S., & Malouff, J. M. (2020). Connections between curiosity, flow and creativity. *Personality and Individual Differences*, 152, 109555. <https://doi.org/10.1016/j.paid.2019.109555>
75. Selby, E. C., Shaw, E. J., & Houtz, J. C. (2005). The creative personality. *Gifted Child Quarterly*, 49(4), 300–314. <https://doi.org/10.1177/001698620504900404>
76. Sicherl Kafol, B. (2001). *Celostna glasbena vzgoja*. Debora.
77. Sovansky, E., Wieth, M., Francis, A., & McIlhagga, S. (2016). Not all musicians are creative: Creativity requires more than simply playing. *Psychology of Music*, 44(1), 25–36. <https://doi.org/10.1177/0305735614551088>
78. Sternberg, R. (2000). Identifying and developing creative giftedness. *Roeper Review*, 23(2), 60–64. <https://doi.org/10.1080/02783190009554067>
79. Sternberg, R. J., & Lubart, T. i. (1999). The concept of creativity: Prospects and paradigms. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 3–15). Cambridge University Press. <https://doi.org/10.1017/CBO9780511807916.003>
80. Štemberger, T. and Cencič, M. (2016). Nekateri dejavniki spodbujanja ustvarjalnosti v vzgoji in izobraževanju. *Didactica Slovenica – Pedagoška obzorja*, 31(1), 28–43.
81. Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics*. Pearson.
82. Tafuri, J. (2006). Processes and teaching strategies in musical improvisation with children. In I. Deliège & G. A. Wiggins (Eds.), *Musical creativity: Multidisciplinary research in theory and practice* (pp. 134–157). Psychology Press.
83. Torrance, E. P. (1962). *Guiding creative talent*. Prentice-Hall, Inc. <https://doi.org/10.1037/13134-000>
84. Torrance, E. P. (1981). Predicting the creativity of elementary school children (1958–80) – And the teacher who “made a difference”. *Gifted Child Quarterly*, 25(2), 55–62. <https://doi.org/10.1177/001698628102500203>
85. Treffinger, D., Young, G., Selby, E., & Shepardson, C. (2002). *Assessing creativity: A guide for educators*. The National Research Center on the Gifted and Talented.
86. Walia, C. (2019). A dynamic definition of creativity. *Creativity Research Journal*, 31(3), 237–247. <https://doi.org/10.1080/10400419.2019.1641787>
87. Wallas, G. (1926). *The art of thought*. Harcourt Brace.
88. Webster, P. (1994). *Measure of creative thinking in music – II (MCTM-II): Administrative guidelines*. Northwestern University.

89. Wiggins, J., & Espeland, M. (2012). Creating in music learning contexts. In G. McPherson & G. Welch (Eds.), *Oxford handbook of music education* (pp. 341–360). Oxford University. <https://doi.org/10.1093/oxfordhb/9780199730810.013.0021>
90. Williamon, A., Thompson, S., Lisboa, T., & Wiffen, C. (2006). Creativity, originality, and value in music performance. In I. Deliège & G. A. Wiggins (Eds.), *Musical creativity: Multidisciplinary research in theory and practice* (pp. 161–180). Psychology Press.
91. Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, 9, 79–94. <https://doi.org/10.20982/tqmp.09.2.p079>
92. Yoo, H., & Kang, S. (2021). Teaching as improvising: Preservice music teacher field experience with 21<sup>st</sup>-century skills activities. *Journal of Music Teacher Education*, 30(3), 54–68. <https://doi.org/10.1177/10570837211021373>
93. Young, S. (2003). The interpersonal dimension: A potential source of musical creativity for young children? *Musicae Scientiae, Special Issue*, 175–191. <https://doi.org/10.1177/10298649040070S109>
94. Zadnik, K. (2021). Koristi Bachovih cvetnih plesov v vzgojno-izobraževalnem procesu. *Didactica Slovenica – Pedagoška obzorja*, 36(1), 53–65.
95. Zhou, K. (2018). What cognitive neuroscience tells us about creativity education: A literature review. *Creativity and Education*, 5(1), 20–34.



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