

Listening to Music and Creative Behaviour Among Education Students: A Pilot Study

Śluchanie muzyki a zachowania twórcze studentów kierunków pedagogicznych:
badanie pilotażowe

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Abstract: This article presents the findings of a pilot study examining creative behaviour among education students and its relationship with the frequency and type of music they listen to. The study used a diagnostic survey and questionnaire technique. Creative behaviour was assessed using the Creative Behaviour Questionnaire (KANH III), which measures conformity–nonconformity and algorithmic–heuristic behaviours, while an additional questionnaire collected data on music listening frequency and music type. The final sample comprised 49 education students. The respondents demonstrated an average level of creative behaviour. No statistically significant relationship was found between the overall KANH III score and either the frequency or type of music listened to. However, among women, music listening frequency was moderately and negatively correlated with scores on the conformity–nonconformity scale. The type of music listened to was not significantly associated with creative behaviour. As a pilot study, these findings indicate the need for further research with larger samples to clarify the relationship between music listening and creative behaviour among students in higher education.

Keywords: music listening, creative behaviour, creative attitudes, music listening frequency, education students, higher education

Abstrakt: Artykuł przedstawia wyniki badania pilotażowego dotyczącego zachowań twórczych studentów kierunków pedagogicznych oraz ich związku z częstotliwością i rodzajem słuchanej muzyki. W badaniu zastosowano metodę sondażu diagnostycznego i technikę ankiety. Zachowania twórcze oceniano za pomocą Kwestionariusza Twórczego Zachowania KANH III, mierzącego wymiary konformizm–nonkonformizm oraz zachowania algorytmiczne–heurystyczne, natomiast dodatkowy kwestionariusz służył do zebrania danych dotyczących częstotliwości i rodzaju słuchanej muzyki. Ostateczna próba badawcza obejmowała 49 studentów kierunków pedagogicznych. Badani uzyskali przeciętny poziom zachowań twórczych. Nie stwierdzono statystycznie istotnego związku między ogólnym wynikiem KANH III a częstotliwością ani rodzajem słuchanej muzyki. W grupie kobiet wykazano natomiast umiarkowaną ujemną korelację między częstotliwością słuchania muzyki a wynikami w skali konformizm–nonkonformizm. Nie stwierdzono statystycznie istotnego związku między rodzajem słuchanej muzyki a zachowaniami twórczymi. Wyniki badania pilotażowego wskazują na potrzebę dalszych badań prowadzonych na większych próbach, które pozwolą dokładniej określić zależności między słuchaniem muzyki a zachowaniami twórczymi studentów szkół wyższych.

Słowa kluczowe: słuchanie muzyki, zachowania twórcze, postawy twórcze, częstotliwość słuchania muzyki, studenci kierunków pedagogicznych, szkolnictwo wyższe



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INTRODUCTION

The Council of the European Union recommends that higher education institutions contribute more to developing those competencies that are essential for students' active engagement and

the development of their general abilities (Council of the European Union 2017). This, in turn, can be achieved by stimulating creative behaviours, which help resolve internal conflicts, including those related to personal development (Limont 2016).

Nęcka defines creativity as a process characterised by novelty and intrinsic value. Novelty is a relative characteristic, while value can take cognitive, aesthetic, pragmatic, or ethical forms (2005). Human creativity may manifest itself in various ways, as both individual development as well as social and cultural factors play an important role in creativity (Popek 2010). However, it should be emphasised that although every individual possesses unique creative potential, not everyone makes use of it to the same extent (Szmidski 2007).

As human functioning involves the continuous interplay of adaptive and creative processes (Bernacka 2001), the characteristics of creative attitudes may be considered across two dimensions: conformity–nonconformity and algorithmic–heuristic behaviours. Conformity primarily concerns the degree of compliance and subordination, whereas nonconformity relates to independence in thinking and decision-making. Algorithmic behaviours include activities based on established patterns, whereas heuristic behaviours involve discovering new ideas and relationships. According to Karwowski and Gralewski (2011), the level of creative attitude within these dimensions increases with higher levels of intrinsic and goal-directed motivation, suggesting that these attitudes can be developed. Kataryńczuk-Mania (2010) also notes that contact with music may be a predictor of motivation to engage in psychophysical activity. It is therefore worth considering the use of music in fostering creative attitudes, particularly since music is readily accessible in the contemporary world. Such considerations are further supported by studies demonstrating that listening to music may improve attentional focus (De Francesco et al. 2025), enhance overall physiological well-being (Bora, Krishna and Phukan 2017), and facilitate knowledge acquisition through unconscious exposure to music in the surrounding environment (Pi et al. 2024)

Mendecka (2010) argues that the creative process makes use of cognitive mechanisms in a distinctive way. Consequently, these processes, like the aforementioned cognitive mechanisms themselves, can be studied because they are psychological systems that can be measured (Nęcka 2004). This assumption forms the foundation of the present study.

1. PILOT STUDY METHODOLOGY

The aim of the present study was to determine the level of creative behaviour among selected students enrolled in education programmes and the significance of the frequency and type of music they listen to in shaping these behaviours. The research problem was formulated as the following question: “What is the level of creative behaviour among the respondents, and what is the significance of the frequency and type of music they listen to in shaping these behaviours?” The specific research questions were as follows: “What is the level of the respondents’ creative behaviour on the conformity–nonconformity and algorithmic–heuristic behaviour scales?” and “What is the correlation between the frequency and type of music listened to and creative behaviour on the conformity–nonconformity and algorithmic–heuristic behaviour scales among the respondents?”

A diagnostic survey was selected as the research method for this study. The questionnaire technique was employed, and the research instrument was a survey questionnaire (Pilch and Bauman 2001). The first part of the questionnaire consisted of demographic questions concerning the respondents’ gender and age, as well as the frequency and type of music they listened to. The second part comprised the Creative Behaviour Questionnaire (KANH III) (Bernacka, Popek and Gierczyk 2016). The questionnaire was designed to provide an empirical measure of human characteristics reflecting behavioural tendencies that, when considered together, are regarded as manifestations of creative behaviour. KANH III consists of two scales: conformity–nonconformity and algorithmic–heuristic behaviours. Respondents evaluated 26 statements by selecting one of the following responses: yes – rather yes – no opinion – rather no – no (Bernacka 2014). Each response is assigned a corresponding number of points which, after being summed and compared with sten scores, indicate the level of creative behaviour, both overall and within the individual scales (Bernacka, Popek and Gierczyk 2016).

The study was conducted in 2026 and involved 52 participants. The respondents were students enrolled in education programmes at the University of Zielona Góra. Data collected from three respondents were incomplete; therefore, the final sample comprised 49 participants. Women constituted 69% of the sample (34 participants), while men accounted for 31% (15

participants). The respondents ranged in age from 18 to 31 years, with a mean age of 21.2 years. Participation in the study was voluntary, and all respondents were guaranteed complete anonymity.

2. RESEARCH RESULTS

The students participating in the study reported their music listening habits. They indicated the frequency of their music listening using the following categories: several times a month; several times a week; daily for up to 1 hour; daily for 1 to 3 hours; and daily for more than 3 hours (Table 1).

Table 1. Frequency of listening to music (own study)

Table showing the frequency of music listening among 49 education students by gender. Most respondents listened to music daily, with the largest group reporting 1–3 hours of listening per day. Smaller groups listened for more than 3 hours daily, up to 1 hour daily, or several times a week. No respondents reported listening only several times a month.

Frequency of listening to music:	Gender	Number	% of the Total	Cumulative % of the Total
More than 3 hours daily	Female	9	18.4%	18.4%
	Male	4	8.2%	26.5%
1 - 3 hours daily	Female	16	32.7%	59.2%
	Male	6	12.2%	71.4%
Up to 1 hour daily	Female	5	10.2%	81.6%
	Male	5	10.2%	91.8%
Several times a week	Female	4	8.2%	100.0%
	Male	0	0.0%	100.0%

Source: Jamovi 2024.

91.8% of the respondents (45 participants) reported listening to music daily, while only 8.2% (4 participants) reported listening to music several times a week. None of the respondents reported listening to music less frequently, that is, only several times a month.

The question concerning the types of music listened to allowed multiple responses from the following categories: instrumental and vocal (so-called classical), pop, rock, hip-hop, electronic, and other. The respondents reported listening to all of these types of music: 5 indicated instrumental and vocal (so-called classical) music, 39 pop, 18 rock, 31 hip-hop, 8 electronic, and 17 other types of music.

The second part of the questionnaire consisted of the Creative Behaviour Questionnaire (KANH III). Table 2 presents descriptive statistics for the respondents' scores, together with a breakdown by the conformity–nonconformity (K–N; K = conformity, N = nonconformity) and algorithmic–heuristic behaviours (A–H; A = algorithmic behaviours, H = heuristic behaviours) scales, with separate results for women (F) and men (M)

Table 2. Descriptive statistics for the KANH III Questionnaire Scores (own study)

Table presenting descriptive statistics for KANH III creative behaviour scores among 49 education students, including total scores and separate results for women and men on the conformity–nonconformity and algorithmic–heuristic behaviour scales. Mean, median, standard deviation, minimum, and maximum values are reported. The overall mean KANH III score was 63.8, indicating an average level of creative behaviour.

	KANH III Total score	KANH III Women	KANH III Men	K-N Scale Women	K-N Scale Men	A-H Scale Women	A-H Scale Men
N	49	34	15	34	15	34	15
Missing values	0	0	0	0	0	0	0
Mean	63.8	62.6	66.5	30.6	35.3	32.3	35.3
Median	62	62.0	69	31.0	37	32.0	37
Standard deviation	10.2	9.06	12.3	5.75	6.56	4.90	6.56
Minimum	43	47	43	17	22	20	22
Maximum	86	86	83	45	47	44	47

Source: Jamovi 2024.

The average KANH III score among the education students was 63.8 points. The mean age of the participants was 21.2 years, therefore, the overall creative attitude score was compared with the sten norms for individuals aged 20–22 years (Bernacka, Popek and Gierczyk

2016). This indicated an average score, reflecting a combination of creative and reproductive attitudes, with no clear predominance of either.

The mean scores for women and men on the conformity–nonconformity scale were similar and corresponded to an average level of nonconformist behaviour in both groups. Likewise, the mean scores on the algorithmic–heuristic behaviour scale indicated an average level of these behaviours for both women and men (Bernacka, Popek and Gierczyk 2016).

Statistical analyses were performed using Spearman’s rank-order correlation coefficient. No statistically significant relationship was found between the overall KANH III score and either the frequency of music listening or the type of music listened to. However, a statistically significant correlation was identified among the women between the conformity–nonconformity scale score and the frequency of music listening ($\rho = -0.422$) (Table 3). This represents a moderate negative correlation, suggesting that more frequent music listening among the surveyed women was associated with lower scores on the conformity–nonconformity scale of the KANH III questionnaire. It should be noted that higher scores indicate a higher level of nonconformist behaviour.

Table 3. Correlation matrix (own study)

Correlation matrix showing the relationship between the conformity–nonconformity scale score and frequency of music listening among women. A statistically significant moderate negative correlation was found between the two variables, with Spearman’s $\rho = -0.422$ and $p = 0.013$, indicating that more frequent music listening was associated with lower conformity–nonconformity scale scores.

		K-N Scale (Women)	Frequency of Listening to Music (Women)
K-N Scale (Women)	Spearman’s ρ	—	
	df	—	
	p	—	
Frequency of Listening to Music (Women)	Spearman’s ρ	-0.422*	—
	df	32	—
	p	0.013	—
Note. * $p < .05$; ** $p < .01$; *** $p < .001$			

Source: Jamovi 2024.

3. ANALYSIS OF THE FINDINGS

The findings of the present study indicate that the level of creative behaviour among the selected education students can be regarded as average, both in terms of nonconformist and heuristic behaviour. These findings are consistent with those reported by Pufal-Struzik (2017), who examined the level of creative behaviour among students at a selected university and university of technology. The researcher concludes that “a significant proportion of students do not demonstrate a high level of active and intentional engagement in bringing about changes in their environment and within themselves, which requires a creative attitude” (Pufal-Struzik 2017, 45). Therefore, it is necessary to support the development of creative behaviour among students enrolled in all fields of study in Poland, particularly those preparing for professions involving work with other people. I share the researcher’s opinion that universities need to create environments that foster creative activity (Pufal-Struzik 2017). In particular, participation in Student Research Clubs should be encouraged. These organisations provide opportunities not only for research activities but also for activities of a social nature, which consequently contribute to the personal development of young people (Olender-Jermacz 2024). While traditional university classes often lack the technical possibilities to implement the content fully proposed by students, such opportunities exist in these types of organisations. Such involvement is a strong stimulus for the development of creative behaviour, which may, in turn, contribute to a higher individual level of creative behaviour among students.

As noted earlier, the main type of music listened to by the respondents was pop music. A study conducted by Weiner (2024) among 60 students of Maria Curie-Skłodowska University in Lublin produced different results, with the respondents expressing the strongest preference for alternative and rock music. I agree with the researcher’s view that “The universalisation of musical genres also depersonalises music to some extent and makes it difficult for listeners to identify their favourite genre” (Weiner 2024, 107). Today, music accompanies people in almost every area of life, creating a musical background of which they are often unaware. Consequently, the boundaries between individual music genres may become blurred, making it difficult to distinguish between them clearly. These observations provide grounds for further research on musical preferences involving larger groups of students.

The present study revealed a negative correlation between the frequency of music listening among the surveyed women and their scores on the KANH III questionnaire on the conformity–nonconformity scale. The vast majority of the surveyed women (91.2%) reported listening to pop music. Stepanović Ilić et al. (2024), examining the musical preferences of adolescents, suggest that pop music is negatively correlated with independent thinking and behaviour based on creativity and exploration. Therefore, I find justification for conducting further research on the music listened to by students at Polish universities and for exploring the importance of music listening in shaping their personalities. Every university in Poland should provide opportunities to experience cultural diversity, including opportunities for conscious engagement with music.

CONCLUSION

Creative behaviours may serve as an indicator of an individual's openness to acquiring new knowledge and skills in an unconventional way, based on personal reflection, inquiry, and curiosity. These characteristics are important in the education of students enrolled in education-related study programmes, as effective problem-solving in their future professional work – particularly with children – often requires flexibility in seeking solutions. Therefore, understanding the level of creative behaviour among students and identifying ways of fostering its development may support academic education at Polish universities. One such means is contact with music, even through simply listening to it. This activity is widely accessible and does not require any knowledge of the principles of music. The present pilot study demonstrated that the level of creative behaviour among the surveyed students was average and that a statistically significant negative correlation existed between one component of the creative attitude (measured on the conformity–nonconformity scale) and the frequency of music listening among the surveyed women. Although the study should be replicated with a larger sample of respondents, the findings support the recommendation that universities in Poland encourage discussions with students about the importance of listening to music in personality development and provide them with diverse creative experiences.

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