

Article

Polish Adaptation and Psychometric Evaluation of the Self-Rated Creativity Scale for Online Assessment in Higher Education

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Abstract

Despite the growing use of brief self-report measures of creativity in digital higher education, no Polish adaptation of the Self-Rated Creativity Scale (SRCS) has been psychometrically evaluated. The present study translated and evaluated the Polish SRCS as an online assessment instrument for higher education. The sample comprised 406 university students studying in Poland (age range = 18–57 years; $M = 22.04$, $SD = 4.01$; 72.4% women) from artistic and non-artistic majors. The sample was randomly divided for exploratory factor analysis (EFA; $n = 203$) and confirmatory factor analysis (CFA; $n = 203$). Participants completed the Polish SRCS, the Openness subscale of the IPIP-NEO-PI-R, and the Cognitive Flexibility Scale. In the initial 12-item EFA, the six retained items had primary pattern loadings of 0.717–0.819; in the re-estimated brief solution, primary loadings ranged from 0.688 to 0.842 with negligible secondary loadings. CFA favored correlated two-factor models over one-factor models for both the full and brief versions, with excellent fit for the 6-item model ($CFI = 1.000$, $RMSEA = 0.000$, $SRMR = 0.017$). Internal consistency was good (Cronbach's $\alpha = 0.80$ – 0.84 ; McDonald's $\omega = 0.80$ – 0.84), scalar invariance was supported across gender and study major, and correlations with openness and cognitive flexibility ranged from $r = 0.34$ to 0.44 (all $p < 0.001$). The 6-item Brief Polish Self-Rated Creativity Scale (BSRCS-6_PL) appears to be a reliable and efficient measure of creativity-related self-beliefs for online research and group-level screening in higher education; however, its educational utility requires direct implementation and predictive validity studies.

Keywords: self-rated creativity; BSRCS-6_PL; Polish validation; online assessment; digital assessment; educational measurement; cognitive flexibility; openness to experience; measurement invariance; higher education



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1. Introduction

Creativity is widely regarded as a central resource for individual adaptation, well-being, professional success, and innovation in cultures and economies (Pinkow, 2023; Sternberg & Lubart, 1998). With the increasing societal demand for creative competencies in education, science, and the labor market, the need for efficient, psychometrically sound measures of creativity has grown substantially (Silvia et al., 2012; Steger et al., 2023). Among the available approaches, brief self-report scales of perceived creativity complement performance-based measures of creative thinking and creative achievement, capturing the motivational and self-evaluative facets of creative functioning that are theoretically distinct from objective creative potential (Tierney & Farmer, 2002). The Self-Rated Creativity Scale (SRCS) is a recent example of such an instrument (Tan & Ong, 2019). Although it has demonstrated favorable psychometric properties in Asian samples, its applicability in

Central European populations, including Poland, remains unexamined. The present study addresses this gap by introducing and validating the Polish version of the SRCS and by testing its construct validity against a theoretically informed set of personality, cognitive, and temperamental correlates.

Poland provides a substantively relevant context for this adaptation. Its higher education system includes first-, second-, and long-cycle programmes offered by university-type and non-university institutions, while specialised art schools form an integral part of the national higher education system. Second- and long-cycle programmes explicitly prepare graduates for specialist and creative professional work. The institutional coexistence of artistic and non-artistic study pathways therefore provides a useful context for examining whether a self-rated creativity measure operates equivalently across disciplinary settings rather than assuming that findings from other educational and cultural systems transfer directly to Polish students (Cygan & Szapiro, n.d.; Foundation for the Development of the Education System, 2025).

In digital higher education, brief psychometric instruments can serve as low-burden screening tools that help instructors and program coordinators identify students' creativity-related self-beliefs at the group level. The brief Polish Self-Rated Creativity Scale (BSRCS-6_PL) is especially suited to this purpose because it separates two interpretable dimensions: Innovation Behavior, referring to self-reported engagement in generating useful and improvement-oriented ideas, and Perceived Creativity, referring to students' perceived creative capacity. Used responsibly, such screening does not diagnose creativity or rank students; rather, it can inform educational design by identifying cohorts that may need stronger support for creative confidence, innovation-oriented tasks, feedback practices, or opportunities for problem-based learning.

1.1. Defining Creativity

Across disciplines, creativity is most commonly defined as the capacity to produce ideas, behaviors, or products that are simultaneously novel (original) and useful or appropriate within a given context (Boden, 2008; Runco & Jaeger, 2012; Sternberg & Lubart, 1998). This twofold criterion of originality and utility has been extended by contemporary dynamic frameworks that emphasize the contextual, processual, and developmental nature of creative activity (Corazza & Lubart, 2020; Pinkow, 2023). A widely adopted taxonomic distinction differentiates between “Big-C” (eminent, domain-transforming creativity), “pro-C” (professional expertise), “little-c” (everyday creativity), and “mini-c” (personally meaningful insights), highlighting that creativity is not the privilege of a few exceptional individuals but a continuous human capacity (J. C. Kaufman & Beghetto, 2009). Such egalitarian conceptions of creativity, which treat creativity as a normally distributed individual difference, provide the theoretical justification for self-report approaches in non-elite samples.

Cognitively, creativity has been conceptualized as the outcome of an interplay between divergent and convergent thinking processes (Acar et al., 2024; Guilford, 1950), supported by working memory, attentional flexibility, semantic search, and inhibitory control (Pinkow, 2023). Dispositionally, creativity has been linked to personality traits such as openness to experience, autonomy, and persistence (Feist, 1998; McCrae, 1987). Motivationally, intrinsic and approach-oriented orientations have been emphasized as engines of creative engagement (Amabile et al., 2005; Tan et al., 2019). Finally, contemporary integrative models recognize that creative output emerges from the dynamic interaction of person, process, product, and press variables (Pinkow, 2023). The multidimensional and context-sensitive nature of creativity, therefore, calls for measurement strategies that combine performance-based and self-evaluative approaches.

1.2. Measuring Creativity: Performance Tasks and Self-Report Questionnaires

Three main families of creativity measures are commonly distinguished (Silvia et al., 2012). The first comprises divergent-thinking tasks, such as the Torrance Tests of Creative Thinking (Torrance, 1966) or the Alternative Uses Task (Guilford, 1967), which yield indices of fluency, flexibility, originality, and elaboration. The second consists of biographical inventories and achievement checklists, such as the Creative Achievement Questionnaire (Carson et al., 2005) and the Inventory of Creative Activities and Achievements (Diedrich et al., 2018; Steger et al., 2023), which document past creative behavior in different domains. The third family (self-report scales of perceived creativity) assesses respondents' subjective evaluation of their creative abilities and includes such instruments as the Short Scale of Creative Self (SSCS) (Karwowski, 2012), the Kaufman Domains of Creativity Scale (KDCS) (J. C. Kaufman, 2012), the Scale of Creative Attributes and Behavior (SCAB) (Kelly, 2006), and the Self-Rated Creativity Scale (SRCS) (Tan & Ong, 2019).

A recent performance-based development is the Creative Problem-Solving Skills Test (CPSS-T), which uses open-ended tasks to assess fluency, flexibility, originality, and elaboration across several problem formats (Yurt, 2025). Such instruments provide direct evidence of creative performance, but they require more administration time and rater-based scoring than a brief online self-report.

Performance-based and self-report measures capture related but distinct facets of the creative person. Whereas divergent thinking tests target creative potential as a cognitive ability, self-report scales of perceived creativity primarily index creative self-beliefs, including creative self-efficacy (i.e., one's confidence in being able to produce creative outcomes) and creative personal identity (i.e., the centrality of creativity to one's self-concept) (Tierney & Farmer, 2002). Meta-analytic evidence indicates that creative self-beliefs predict actual creative behavior and achievement above and beyond ability measures, in part because they shape motivation, persistence, and the willingness to engage in creative tasks (Karwowski, 2011, 2012). Self-report measures also have practical advantages: they are economical, easy to administer in online surveys, and well-suited to large-scale or cross-cultural research (Silvia et al., 2012; Steger et al., 2023). However, they share limitations of all self-reports, including susceptibility to common method bias, social desirability, response styles, and self-evaluative biases linked to gender, narcissism, or culture (Goncalo et al., 2010; Hora et al., 2021). For these reasons, the psychometric quality of self-report creativity scales, including their factorial structure, reliability, measurement invariance, and convergent–divergent validity, deserves careful empirical scrutiny.

The present study selected a self-report instrument because the target construct was students' creativity-related self-beliefs rather than performance-based creative potential, and because the intended use was low-burden online assessment in large higher-education samples. Performance tasks were not included because they assess a partially distinct construct and would have required standardized task administration and scoring beyond the scope of this adaptation study. Consequently, the study provides evidence about the validity of self-perceived creativity, but not criterion validity against objective creative performance.

From an educational-assessment perspective, a brief online scale has practical value when it is psychometrically transparent and invariant across relevant student groups. The BSRCS-6_PL can be administered at the beginning of a course, module, or study program to obtain a rapid profile of students' creative self-perceptions. The two subscales may help distinguish students who see themselves as capable of innovative action from those who endorse a broader creative self-image. This distinction is relevant for improving teaching quality because innovation-oriented behavior may be strengthened through project-based learning, design tasks, and collaborative problem solving, whereas Perceived Creativ-

ity may require feedback, autonomy support, and classroom climates that reduce fear of failure.

1.3. Development of the Self-Rated Creativity Scale

The Self-Rated Creativity Scale (SRCS) was developed by [Tan and Ong \(2019\)](#) to provide a brief, theoretically grounded instrument for assessing individuals' perceptions of their own creative behavior and Perceived Creativity. The authors conducted three studies to examine the factor structure, reliability, validity, and measurement invariance across Chinese and Malay undergraduates in Malaysia. The SRCS was derived from a 13-item supervisory rating tool and was iteratively refined through item-total analyses, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). They found that a bifactor model comprising one general creativity factor and two specific factors (Useful and Novelty) provided the best fit, with the general factor accounting for most of the variance. Additionally, they demonstrated partial measurement invariance across ethnic groups, indicating the scale's potential utility in diverse Malaysian populations, though mean comparisons across groups may be limited. Reported reliability has consistently been good, with McDonald's omega coefficients of 0.877 for the general factor of self-rated creativity, and 0.67 and 0.81 for the Useful and Novelty subscales, respectively. Convergent validity of the modified SRCS was assessed by examining the relationship between the SRCS factors and Creative Self-Efficacy (CSE). The results showed positive correlations between the general factor and the Novelty subscale of the SRCS and CSE, whereas Usefulness was not significantly associated with CSE.

While this study provided preliminary support for the SRCS in assessing self-perception of creativity, further examination of both convergent and discriminant validity is required. The study primarily focused on undergraduate students from two public universities in Malaysia, which may limit the sample's diversity and the applicability of the findings to other populations. In particular, the findings may be influenced by Malaysia's specific cultural context, and the results may not apply to other cultural settings without further validation ([Tan & Ong, 2019](#)). The study highlights the need for future research to replicate the findings across different populations and contexts, which may take time and resources and potentially delay the broader impact of the work on the field of creativity research. To date, no published study has adapted and validated the SRCS in a Polish-speaking population. Such cross-cultural adaptation is theoretically important because creativity is conceptualized differently across cultures (e.g., Chinese versus Western conceptions), and the meaning of self-rated creativity may vary as a function of educational systems, cultural valuation of artistic activity, and prevailing gender norms ([Niu & Sternberg, 2002](#)).

1.4. Gender Differences in Self-Rated Creativity

Meta-analytic evidence on objective creative performance has consistently shown small and inconsistent gender differences, with comparable mean levels of divergent thinking and creative achievement in men and women ([Baer & Kaufman, 2008](#)). In contrast, gender differences in self-rated creativity tend to be more pronounced and systematic. Several studies have reported a "male hubris–female humility" pattern, in which men rate their own creative abilities, intelligence, and innovative behavior higher than do equally creative women ([Furnham, 2023](#)). This pattern parallels findings on self-estimated intelligence and creative self-efficacy, in which men tend to overestimate and women tend to underestimate their actual abilities ([Hora et al., 2021](#)). Such differences are typically interpreted as reflecting socially conditioned self-evaluative biases rather than genuine cognitive differences and have been shown to vary with domain, with men reporting higher

self-rated creativity in scientific or mechanical domains and women in interpersonal or artistic domains (J. C. Kaufman, 2012; Repeykova et al., 2024).

From a psychometric perspective, a valid comparison of mean self-rated creativity scores across genders requires that the underlying measurement model operates equivalently for men and women, that is, that scalar measurement invariance holds (F. F. Chen, 2007; Putnick & Bornstein, 2016). When invariance is established, the ability of a self-report instrument to detect theoretically expected gender differences (e.g., the male-hubris effect on creative behavior) itself constitutes construct validity evidence. However, the original SRCS have not previously been examined from this perspective. In this study, gender differences will be examined using the SRCS for the first time in the Polish population.

1.5. Differences in Self-Rated Creativity Between Artists and Non-Artists

A second theoretically meaningful source of construct validity evidence concerns differences in self-rated creativity between people who identify professionally as artists and those who do not. Studies comparing artists, art students, and creative professionals with control samples have repeatedly shown that artists score higher on openness to experience, divergent thinking, creative self-efficacy, and Perceived Creativity (Benedek et al., 2025; Burch et al., 2006; Chamorro-Premuzic et al., 2010; Furnham, 2023). Artists also tend to value originality more strongly than non-artists, who may instead emphasize realism or technical accuracy when evaluating creative products (Kozbelt & Serafin, 2009). Affective and personality correlates further differentiate artists from non-artists: artists are typically less alexithymic, more emotionally intense, and exhibit higher levels of latent schizotypy in domains compatible with creative ideation (Botella et al., 2015; Burch et al., 2006; Merola et al., 2025).

A self-report creativity measure should be sensitive enough to detect these well-documented group differences. If artists report higher self-rated creativity than non-artists, this provides convergent evidence of construct validity by showing that the scale tracks meaningful real-world differences in creative identity and engagement (Karwowski & Lebuda, 2016). However, the SRCS (Tan & Ong, 2019) has not yet been examined across artist and non-artist populations. Therefore, this study was the first to assess the SRCS's sensitivity to nuanced differences in creative behavior between artists and non-artists.

1.6. Creativity and Openness to Experience

Among the Big Five personality traits, openness to experience has emerged as the most reliable and theoretically central correlate of creativity (Feist, 1998, 2019; Feist & Barron, 2003; McCrae & Costa, 2011). Openness encompasses imagination, aesthetic sensitivity, intellectual curiosity, and a preference for novelty and complexity (McCrae, 1987; McCrae & Greenberg, 2014), all of which support the generation, evaluation, and elaboration of original ideas (DeYoung, 2014; DeYoung et al., 2012; Silvia et al., 2009, 2012).

The mechanisms linking openness and creativity include intrinsic motivation, engagement in the creative process, cognitive flexibility, and engagement of brain networks supporting associative thinking (Beatty et al., 2018; X. Chen et al., 2019; Tan et al., 2019). These mediational pathways suggest that openness should correlate with self-rated creativity not only directly but also through cognitive-control variables such as cognitive flexibility. Establishing a robust positive association between SRCS scores and openness in a Polish sample would therefore constitute important convergent validity evidence.

1.7. Creativity and Cognitive Flexibility

Cognitive flexibility refers to the awareness that multiple options exist in any given situation, the willingness to be flexible, and the self-efficacy to adapt behavior accordingly (Martin & Rubin, 1995). It is conceptually related to executive functions of set-shifting and inhibitory control (Dajani & Uddin, 2015; Diamond, 2013). When operationalized via

the Cognitive Flexibility Scale (CFS), it taps a self-reported dispositional capacity rather than performance on switching tasks. Cognitive flexibility has long been considered an antecedent of creative thinking because creative problem-solving requires overcoming functional fixedness and rigid mental sets (Filippetti & Krumm, 2020).

A growing body of empirical work supports a robust positive association between cognitive flexibility and various creativity indices. Q. Chen et al. (2014) demonstrated, using voxel-based morphometry and resting-state functional connectivity, that individual differences in cognitive flexibility mediate the link between creative achievement and brain regions implicated in flexible cognition. Lin et al. (2014) showed that positive affect enhances creative performance, with cognitive flexibility fully mediating the relationship. In bilingual samples, cognitive flexibility partially mediates the relationships among bilingualism, openness, and creativity (X. Chen et al., 2019; Kim & Runco, 2022). Together, these findings support the prediction that self-rated creativity will be strongly and positively correlated with cognitive flexibility.

1.8. The Present Study

The present study had three interrelated aims. First, it sought to translate the SRCS into Polish and to provide initial psychometric evidence regarding its factor structure, internal consistency, and measurement invariance across gender. Second, it sought to test the convergent validity of the Polish SRCS by examining its associations with openness to experience and cognitive flexibility, as well as its capacity to discriminate between students of artistic and non-artistic majors, and to detect theoretically expected gender differences. Third, it sought to compare the predictive utility of personality and cognitive variables in accounting for individual differences in self-rated creativity, thereby positioning the SRCS within a broader nomological network. Based on the literature reviewed above, the following hypotheses were formulated:

In addition to its psychometric aims, the study was framed as a contribution to online educational assessment. If the shortened BSRCS-6_PL demonstrates reliability, factorial validity, and invariance across gender and study major, it may provide a concise tool for monitoring creativity-related self-beliefs in higher education and for evaluating whether curricula, teaching methods, or creativity-supportive interventions are associated with stronger innovation behavior and Perceived Creativity.

Factor analyses of the Polish SRCS will support two related but distinguishable dimensions corresponding broadly to Usefulness and Novelty. A correlated two-factor model is expected to fit better than a single-factor model, while the possibility of reporting an overall composite score will be evaluated without assuming a separately identified general latent factor.

H1. *The Polish SRCS will demonstrate acceptable to excellent internal consistency, with Cronbach's α and McDonald's ω coefficients exceeding 0.70 for all scales.*

H2. *Configural, metric, and scalar invariance of the Polish SRCS will be supported across women and men, as well as among artistic and non-artistic participants, allowing for unbiased mean-level comparisons.*

H3. *Convergent validity will be supported by positive correlations between self-rated creativity, openness to experience, and cognitive flexibility.*

H4. *Consistent with the male hubris effect, men will score slightly higher than women on self-rated creative behavior, while differences in Perceived Creativity are expected to be smaller and less consistent.*

H5. *Students in artistic majors will score higher than those in non-artistic majors on self-rated creativity and openness to experience.*

2. Materials and Methods

2.1. Participants

Data were collected from a convenience sample of 411 university students recruited from Polish higher education institutions via a snowball sampling strategy. Three respondents who did not provide informed consent and two respondents who provided clearly insincere or invariant responses to attention-check items were excluded, yielding a final analytic sample of $N = 406$. Participants ranged in age from 18 to 57 years ($M = 22.04$, $SD = 4.01$) and identified as women ($n = 294$; 72.4%), men ($n = 91$; 22.4%), nonbinary persons ($n = 15$; 3.7%), or agender persons ($n = 6$; 1.5%). Most participants were full-time students ($n = 365$; 90.3%) and were enrolled across all years of bachelor's and master's programmes. The sample was drawn from universities, technical universities, and academies of fine arts, with the largest single subsamples coming from the University of Opole ($n = 86$; 21.2%) and the Academy of Fine Arts in Warsaw ($n = 59$; 14.5%). For substantive analyses comparing artistic and non-artistic students, participants were classified into students of artistic majors ($n = 232$; 57.14%; including fine arts, music, acting, art therapy, and interdisciplinary art programmes) and students of non-artistic majors ($n = 174$; 42.86%; including pedagogy, physiotherapy, and psychology). Approximately 47.8% of participants were employed at the time of the survey, of whom 21.4% reported that their work was congruent with their field of study. The deliberate inclusion of a large artistic-major subgroup increased power for invariance and between-field comparisons, but it also makes the total-sample composition unrepresentative of the broader Polish university population; pooled descriptive estimates should therefore be interpreted cautiously. All participants studied at higher education institutions in Poland and completed the survey in Polish.

2.2. Procedure

Data were collected online via Google Forms between 25 October 2024 and 23 February 2025. The survey link was disseminated through multiple channels, including student social media groups, official student council Instagram accounts, direct email invitations to academic institutions, printed QR codes on university campuses in Opole, and direct private messages. The average completion time was approximately 13 min. Before participating, all respondents received information about the study's aims, the voluntary and anonymous nature of participation, the right to withdraw at any time, and the aggregate-level data analysis. Informed electronic consent was required before completing the questionnaires. The study protocol was approved by the Research Ethics Committee of the University of Opole (approval no. 80/2024).

2.3. Measures

2.3.1. Self-Rated Creativity Scale (SRCS)

Self-rated creativity was assessed with the Self-Rated Creativity Scale (SRCS), a 12-item self-report instrument designed to capture individuals' perceptions of their own creative behavior and Perceived Creativity. Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The present study evaluated both the complete Polish 12-item adaptation (SRCS-12_PL) and an empirically selected 6-item brief form (BSRCS-6_PL). Subscale scores were treated as the primary outcomes; overall scores were considered descriptive composites rather than evidence of a unidimensional latent creativity factor. The original SRCS demonstrated good reliability, with McDonald's $\omega = 0.85$ for the general creativity composite in the third validation sample. The

Polish translation used in the present study was developed through forward and backward translation by two bilingual experts in psychology and English, followed by review by a panel of 12 competent judges. The panel consisted of advanced psychology students in the fourth year of the master's programme at the University of Opole, including two bilingual translators with C1-level English, a graduate of English philology, and a graduate of psychology with C1-level English. Four independent Polish renderings of each item were generated and iteratively evaluated for fidelity to the original meaning, idiomatic naturalness, and target-language clarity until consensus was reached. The final Polish version is presented in Appendix B.

2.3.2. Openness to Experience

Openness to experience was assessed with the Openness subscale of the Polish adaptation (Rowiński et al., 2014) of the Short Form-International Personality Item Pool-Revised NEO Personality Inventory (SF-IPIP-NEO-PI), originally developed by Costa and McCrae (1992) and validated by Goldberg (1999). The Openness scale consists of 18 items rated on a 5-point Likert scale (1 = completely inaccurate to 5 = completely accurate), and covers six facets: imagination, artistic interests, emotionality, adventurousness, intellect, and liberalism. Total scores range from 18 to 90, with higher scores reflecting greater openness. The internal consistency was adequate (Cronbach's $\alpha = 0.85$) in the Polish adaptation study (Rowiński et al., 2014) and the current sample (Cronbach's $\alpha = 0.72$).

2.3.3. Cognitive Flexibility

Cognitive flexibility was assessed using the Cognitive Flexibility Scale (CFS) (Martin & Rubin, 1995) in the Polish adaptation (Piórowski et al., 2017). The CFS consists of 12 items rated on a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree), of which eight are scored in the direct direction, and four are reverse-scored. The total score ranges from 12 to 72, with higher scores reflecting greater perceived capacity to recognize multiple behavioral alternatives, willingness to be flexible, and self-efficacy in flexible behavior. The CSF showed satisfactory reliability in the original version (Cronbach's $\alpha = 0.76$), and the current sample ($\alpha = 0.72$).

2.4. Analytic Strategy

Before the analyses, distributional properties were inspected. The total sample was randomly divided into two equal subsamples. Group 1 ($n = 203$) was used for exploratory factor analysis (EFA), estimated by principal axis factoring with oblimin rotation. Sampling adequacy was evaluated with the Kaiser–Meyer–Olkin index and Bartlett's test of sphericity. A PC-based parallel analysis was examined alongside theoretical interpretability and fit of the factor solution. Because the original SRCS distinguishes Usefulness and Novelty, a two-factor solution was evaluated even when parallel analysis indicated a dominant first dimension. The initial 12-item pattern matrix was used for item selection. For the deliberately brief form, items were retained when their primary pattern loading was at least 0.70, their secondary loading was small, and the resulting form preserved three indicators for each theoretical dimension. The EFA was then re-estimated using only the six retained items.

SRCS items were rated on a five-category ordered response scale. The EFA used the continuous-item specification in JASP, which was considered acceptable for initial exploration because each item had five categories and univariate skewness and kurtosis were modest. For confirmatory analyses in Group 2 ($n = 203$), the indicators were treated as ordered and models were estimated using weighted least squares mean and variance adjusted (WLSMV), with scaled fit statistics. This categorical-data estimator was selected to reduce bias associated with non-normal ordered indicators (Flora & Curran, 2004; Li, 2015;

Rhemtulla et al., 2012). Convergence between the EFA and highly robust WLSMV CFA was treated as evidence of structural robustness, while future replication using polychoric EFA or ESEM remains desirable.

The item-reduction procedure was not iterative. First, a complete two-factor EFA was estimated for all 12 items and the full pattern matrix was retained for reporting. Six items (2, 3, 4, 5, 8, and 10) met the stringent brief-form criterion in this initial analysis and were selected simultaneously. A second EFA was then estimated for these six items. In WLSMV CFA, one-factor and correlated two-factor models were tested separately for both the complete 12-item form and the 6-item brief form. Second-order models were not interpreted as distinct tests of a general factor because the higher-order factor had only two first-order indicators. Bifactor models were also examined, but they produced inadmissible solutions with negative latent variance estimates and were therefore not interpreted.

Reliability was estimated using Cronbach's α and McDonald's ω . Average Variance Extracted (AVE) was computed for each factor, with values of at least 0.50 indicating adequate convergent validity at the factor level. Discriminant validity between the two factors was assessed with the Heterotrait–Monotrait (HTMT) ratio, with values below 0.85 indicating adequate discriminant validity. Measurement invariance of the BSRCS-6_PL across gender (women vs. men; $n = 385$) and study major (artistic vs. non-artistic; $N = 406$) was tested sequentially through configural, metric, and scalar multi-group CFA models. Invariance was judged using $\Delta\text{CFI} \leq 0.010$ and $\Delta\text{RMSEA} \leq 0.015$. Convergent validity was evaluated through Pearson correlations with openness and cognitive flexibility. Group differences were tested using independent-samples t tests and Cohen's d . Statistical significance was set at $p < 0.05$. Analyses were conducted in JASP using the lavaan R package for CFA and measurement invariance.

3. Results

3.1. Exploratory and Confirmatory Factor Analyses

All inter-item correlations were positive, and item-total correlations were above 0.40 (range = 0.43–0.71). In Group 1 ($n = 203$), the 12-item data were suitable for factor analysis, $\text{KMO} = 0.900$, Bartlett's $\chi^2(66) = 1011.285$, $p < 0.001$. Mardia's tests indicated multivariate non-normality (skewness = 19.017, $p < 0.001$; kurtosis = 194.351, $p < 0.001$). PC-based parallel analysis indicated one dominant component: the second empirical component eigenvalue (1.221) was below its simulated mean (1.305). Nevertheless, the theory-guided two-factor EFA produced an interpretable pattern consistent with the original item grouping and acceptable approximate fit, $\chi^2(43) = 84.538$, $p < 0.001$, $\text{CFI} = 0.956$, $\text{TLI} = 0.932$, $\text{RMSEA} = 0.069$, 90% CI [0.047, 0.091], $\text{SRMR} = 0.040$. The factors correlated at $r = 0.653$. The complete pattern matrix is reported in Table 1.

In the initial 12-item pattern matrix, items 2, 3, 4, 5, 8, and 10 had primary loadings between 0.717 and 0.819 and small secondary loadings (absolute values ≤ 0.093). Items 1, 7, 9, and 11 had interpretable but lower primary loadings (0.500–0.566), item 6 showed weak loadings on both factors and high uniqueness (0.767), and item 12 was the only substantive cross-loading item (0.386 and 0.351). The six selected items were therefore re-estimated as a separate brief-form EFA. This model showed good sampling adequacy ($\text{KMO} = 0.821$; Bartlett's $\chi^2(15) = 470.577$, $p < 0.001$) and excellent fit, $\chi^2(4) = 2.899$, $p = 0.575$, $\text{CFI} = 1.000$, $\text{TLI} = 1.009$, $\text{RMSEA} = 0.000$, 90% CI [0.000, 0.092], $\text{SRMR} = 0.011$. Primary loadings ranged from 0.688 to 0.842, the largest absolute secondary loading was 0.119, and the factor correlation was 0.607.

In Group 2 ($n = 203$), WLSMV CFA compared one-factor and correlated two-factor structures for both the 12-item and 6-item forms (Table 2). For SRCS-12_PL, the one-factor model did not fit adequately, whereas the correlated two-factor model showed acceptable

fit: $\chi^2(53) = 76.470$, $p = 0.019$, CFI = 0.944, TLI = 0.930, RMSEA = 0.047, 90% CI [0.020, 0.069], SRMR = 0.045. The corresponding one-factor BSRCS-6_PL model fit poorly, but the correlated two-factor model fit excellently, $\chi^2(8) = 4.752$, $p = 0.784$, CFI = 1.000, TLI = 1.036, RMSEA = 0.000, 90% CI [0.000, 0.055], SRMR = 0.017. Standardized loadings in the brief two-factor model ranged from 0.727 to 0.850, and the standardized latent factor correlation was approximately 0.704. These results supported the correlated two-factor representation and favored the brief form when minimal response burden and simple structure were priorities.

Table 1. Pattern matrices for the full 12-item SRCS and the re-estimated 6-item brief form in Group 1 ($n = 203$).

Item	12-Item F1	12-Item F2	12-Item Uniqueness	6-Item F1	6-Item F2	6-Item Uniqueness
SRCS 01	0.226	0.523	0.522	—	—	—
SRCS 02	0.093	0.717	0.390	0.119	0.688	0.413
SRCS 03	−0.066	0.804	0.419	−0.063	0.788	0.435
SRCS 04	−0.048	0.751	0.480	−0.003	0.761	0.424
SRCS 05	0.798	−0.055	0.417	0.842	−0.033	0.324
SRCS 06	0.221	0.309	0.767	—	—	—
SRCS 07	0.500	−0.013	0.759	—	—	—
SRCS 08	0.819	−0.015	0.346	0.782	0.028	0.361
SRCS 09	0.566	0.073	0.620	—	—	—
SRCS 10	0.733	0.015	0.448	0.698	0.036	0.480
SRCS 11	0.516	0.211	0.547	—	—	—
SRCS 12	0.386	0.351	0.551	—	—	—

Note. Values are pattern coefficients from principal axis factoring with oblimin rotation. In JASP, F1 represented the Novelty/Perceived Creativity item cluster and F2 represented the Usefulness/Innovation Behavior cluster. The brief form retained items 2, 3, 4, 5, 8, and 10. Only item 12 showed comparable loadings on both factors; the remaining omitted items were not retained because their primary loadings were below the deliberately stringent 0.70 criterion and/or their uniqueness was high.

Table 2. Comparison of confirmatory factor models for the full and brief Polish SRCS in Group 2 ($n = 203$).

Version/Model	χ^2	df	p	CFI	TLI	RMSEA [90% CI]	SRMR	Decision
SRCS-12_PL: 1-factor	120.117	54	<0.001	0.843	0.808	0.078 [0.059, 0.097]	0.064	Not retained
SRCS-12_PL: 2-factor	76.470	53	0.019	0.944	0.930	0.047 [0.020, 0.069]	0.045	Acceptable
BSRCS-6_PL: 1-factor	53.484	9	<0.001	0.736	0.561	0.156 [0.118, 0.198]	0.076	Not retained
BSRCS-6_PL: 2-factor	4.752	8	0.784	1.000	1.036	0.000 [0.000, 0.055]	0.017	Retained

Note. CFA used robust DWLS for ordered indicators. CFI = Comparative Fit Index; TLI = Tucker–Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

A general latent creativity factor was not established. A second-order factor with only two first-order factors is not independently identified without additional constraints and therefore does not provide a distinct empirical test beyond the correlation between those factors. Attempts to fit bifactor models produced negative latent variance estimates (Heywood cases), indicating inadmissible solutions. Accordingly, the two subscale scores are the primary scores. An overall SRCS-12_PL or BSRCS-6_PL composite may be reported descriptively for continuity with prior research, but it should not be interpreted as a validated unidimensional general factor.

Model-based reliability estimates further clarified the trade-off between breadth and parsimony. For SRCS-12_PL, the Useful factor showed $\alpha = 0.836$, $\omega = 0.834$, and AVE = 0.563;

the Novelty factor showed $\alpha = 0.880$, $\omega = 0.877$, AVE = 0.483, and HTMT was 0.776. For BSRCs-6_PL, Innovation Behavior showed $\alpha = 0.804$, $\omega = 0.802$, and AVE = 0.577, whereas Creative Self-Perception showed $\alpha = 0.837$, $\omega = 0.840$, AVE = 0.639, and HTMT was 0.703.

3.2. Measurement Invariance Across Gender and Field of Study

To allow for valid mean-level comparisons between women and men ($N = 385$; women = 294, men = 91), as well as between art and non-art students ($N = 406$; artistic students = 232; non-artistic students = 174), multi-group CFA was conducted. The configural model showed adequate fit, indicating that the two-factor structure of the BSRCs-6_PL holds for both genders and study majors (Table 3). The metric model did not significantly degrade fit relative to the configural model, supporting equivalence of factor loadings across both genders and fields of study. All changes in fit indices were well within the recommended thresholds ($\Delta CFI \leq 0.010$; $\Delta RMSEA \leq 0.015$; $\Delta SRMR \leq 0.010$) (F. F. Chen, 2007). Scalar invariance was therefore supported, confirming H3 and licensing the comparison of latent and observed mean scores across genders and study fields.

Table 3. Measurement invariance of the BSRCs-6_PL across gender ($n = 385$) and study major ($N = 406$).

Sex (Men vs. Women)											
Model	χ^2	df	χ^2/df	CFI	RMSEA	SRMR	$\Delta\chi^2$	Δdf	ΔCFI	$\Delta RMSEA$	$\Delta SRMR$
Configural	42.18	16	2.63	0.973	0.092	0.038	—	—	—	—	—
Metric	43.51	20	2.18	0.975	0.078	0.038	1.33	4	0.002	−0.014	0.000
Scalar	48.75	24	2.03	0.974	0.073	0.037	5.24	4	−0.001	−0.005	−0.001
Study major (Artistic vs. Non-artistic)											
Configural	20.19	16	1.26	0.996	0.037	0.030	—	—	—	—	—
Metric	23.01	20	1.15	0.997	0.028	0.033	2.82	4	0.001	−0.009	0.003
Scalar	31.92	24	1.33	0.992	0.041	0.035	8.91	4	−0.005	0.013	0.002

Note. CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual.

3.3. Construct Validity

Pearson's correlations among both dimensions of creativity, Openness to Experience and Cognitive Flexibility, are presented in Table 4. Consistent with H4, the two subscales of SRCS-12_PL and BSRCs-6_PL showed parallel patterns of correlations with openness to experience and cognitive flexibility.

Table 4. Pearson's correlations among study variables ($N = 406$).

Creativity Dimensions	M	SD	Openness to Experience		Cognitive Flexibility	
			r	p	r	p
Innovation Behavior 12-item	14.42	2.90	0.26	<0.001	0.45	<0.001
Creative Self-Perception 12-item	28.36	5.25	0.39	<0.001	0.61	<0.001
Innovation Behavior 6-item	11.00	2.23	0.23	<0.001	0.39	<0.001
Creative Self-Perception 6-item	11.03	2.29	0.44	<0.001	0.52	<0.001

Regarding gender, mean-level comparisons within the gender-binary subsample ($n = 385$) yielded results consistent with the male-hubris pattern hypothesized in H5. Significant differences were found between men ($n = 91$, $M = 15.43$, $SD = 2.52$) and women ($n = 294$, $M = 14.15$, $SD = 2.91$), in Innovation Behavior of the SRCS-12_PL $t(383) = 3.78$, $p < 0.001$, $d = 0.45$. Men ($M = 29.96$, $SD = 4.65$) outperform women ($M = 27.95$, $SD = 5.34$)

also in Creative Self-Perception of the SRCS-12_PL, $t(383) = 3.23$, $p = 0.001$, $d = 0.39$. Similarly, men ($n = 91$) scored higher than women ($n = 294$) on the Innovation Behavior subscale of the BRCS-6_PL ($M = 11.68$, $SD = 2.45$ vs. $M = 10.79$, $SD = 2.05$), $t(383) = 3.42$, $p = 0.001$, $d = 0.40$, whereas the gender difference in Perceived Creativity of the BRCS-6_PL was small and nonsignificant ($M = 11.23$, $SD = 2.20$ vs. $M = 10.88$, $SD = 2.15$), $t(383) = 1.35$, $p = 0.178$, $d = 0.16$.

Independent-samples Student's t -tests were used to compare students in artistic and non-artistic majors ($N = 406$) and men and women ($N = 385$) on the two SRCS-12_PL and BRCS-6_PL subscales (Table 5). Consistent with H6, students in artistic majors scored significantly higher than those in non-artistic majors on openness (medium effect size) and both SRCS dimensions (small effect sizes). The difference was larger and stronger for Innovation Behavior, and smaller but still significant for Perceived Creativity. The fact that the artistic-non-artistic difference was more pronounced for Innovation Behavior than for Perceived Creativity is theoretically informative. It suggests that students of artistic majors differentiate themselves from non-artistic peers primarily through self-reported engagement in novel, problem-solving, and innovation-oriented behaviors, while differences in their general Perceived Creativity (although significant) are of smaller magnitude.

Table 5. Independent-samples Student's t -tests comparing students of artistic ($n = 174$) and non-artistic ($n = 232$) majors on openness and the two SRCS-12_PL and BSRCS-6_PL subscales ($N = 406$).

Variable	Non-Artistic <i>M</i> (<i>SD</i>)	Artistic <i>M</i> (<i>SD</i>)	<i>t</i> (404)	<i>p</i>	<i>d</i>	SE <i>d</i>
Openness to experience	63.33 (8.58)	68.27 (6.88)	−6.28	<0.001	−0.64	0.11
Innovation Behavior 12-item	13.81 (2.90)	14.88 (2.81)	−3.76	<0.001	−0.38	0.10
Creative Self-Perception 12-item	27.67 (5.22)	28.88 (5.22)	−2.31	0.022	−0.23	0.10
Innovation Behavior 6-item	10.52 (2.20)	11.38 (2.18)	−3.82	<0.001	−0.39	0.11
Creative Self-Perception 6-item	10.76 (2.30)	11.24 (2.26)	−2.07	0.039	−0.21	0.10

Note. Negative t - and d -values indicate that artistic students scored higher than non-artistic students. Cohen's d was computed with the pooled within-group standard deviation; SE = standard error of Cohen's d .

4. Discussion

The present study aimed to translate the SRCS (Tan & Ong, 2019) into Polish and to provide a comprehensive psychometric evaluation of the adapted instrument, including factor structure, internal consistency, measurement invariance across gender, and convergent and divergent validity in relation to openness to experience and cognitive flexibility. Overall, the findings support the Polish SRCS as a reliable, valid, and theoretically meaningful instrument for assessing self-perceived creativity in Polish university students.

4.1. Psychometric Properties: Factor Structure, Reliability, and Measurement Invariance

The results support a related two-level interpretation rather than a single preferred form. SRCS-12_PL preserved the original breadth of the Usefulness and Novelty domains and showed acceptable fit for a correlated two-factor CFA model. BSRCS-6_PL retained three high-loading items per dimension and showed a cleaner EFA pattern and excellent two-factor CFA fit. The brief factors were labelled Innovation Behavior and Perceived Creativity to reflect the narrower content of the retained items. Thus, the full version is preferable when content coverage and comparability with the original SRCS are priorities, whereas the brief version is preferable when response burden and factorial simplicity are priorities.

The gain in parsimony should not be equated with preservation of the full content domain. Removing half of the original items reduces coverage of risk taking, idea advo-

cacy, and broader problem-solving behaviors represented in SRCS-12_PL. BSRCS-6_PL should therefore be treated as a brief derivative, not as a psychometrically interchangeable replacement. Presenting both versions allows researchers to select the form according to the intended balance between content breadth and administration efficiency.

The relabeling reflects a shift in construct emphasis. The original Usefulness factor concerns ideas that improve goals, performance, or work quality, whereas the retained items emphasize self-reported improvement-oriented action; Innovation Behavior is therefore narrower and more behavioral. The original Novelty factor includes novelty, risk taking, advocacy, and creative problem solving, whereas the retained items mainly express a general perception of being a source of creative ideas and demonstrating creativity when opportunities arise. Perceived Creativity captures this self-evaluative emphasis, but the label does not imply equivalence with independently validated measures of creative self-efficacy or creative personal identity.

The complete pattern matrix also changes the interpretation of omitted items. Only item 12 showed similar loadings on both factors; the other omitted items were mainly characterized by primary loadings below the stringent 0.70 brief-form criterion or high uniqueness. Nevertheless, cross-loadings and high factor correlations may still reflect meaningful shared creativity variance. PC-based parallel analysis identified one dominant dimension, but the one-factor CFA models fit worse than the correlated two-factor models. The evidence therefore supports two related facets with substantial common variance, not a separately validated general latent factor.

Reliability evidence supported H2 for both forms. The full version provided strong internal consistency and broader content coverage, although AVE for its Novelty factor was marginally below 0.50. The brief form showed adequate AVE for both factors and a lower HTMT value, consistent with clearer discriminant validity. High reliability of the total composites does not override the poor fit of the one-factor CFA models; therefore, subscale interpretation should remain primary.

Importantly, the multi-group CFA confirmed configural, metric, and full scalar invariance across genders and field of study (H3), which is a necessary prerequisite for unbiased mean comparisons. To our knowledge, this is the first study to formally establish the scalar invariance of the SRCS across gender and study field (artistic vs. non-artistic) in a European sample, thereby addressing a notable gap in the prior international validation literature.

4.2. Convergent and Divergent Validity

Correlations between the Polish version of the BSRCS-6 and the validation variables provide strong evidence of construct validity. The convergent and divergent patterns indicate that the BSRCS-6_PL taps into approach-oriented, flexibility-related self-perceptions rather than into general affective valence. In support of H4, both BSRCS-6_PL scales correlated positively and moderately with openness to experience and cognitive flexibility. The magnitude of these associations aligns with meta-analytic findings in which openness to experience is the most consistent Big-Five predictor of creative self-beliefs (Karwowski & Lebuda, 2016) and with the broader literature highlighting cognitive flexibility as a core executive correlate of creative ideation (Beatty et al., 2018; Q. Chen et al., 2014, 2023; Diamond, 2013). The study supports the dual-pathway model, in which flexible cognition is a key engine of creative output (Baas et al., 2008; de Dreu et al., 2011; Nijstad et al., 2010).

It is noteworthy that openness to experience and cognitive flexibility were more strongly associated with innovative behavior than with Perceived Creativity in the present study. This pattern is theoretically meaningful because innovative behavior requires not only perceiving oneself as creative but also actively exploring, generating, promoting, and implementing novel ideas. Openness to experience may support this process by increasing

curiosity, tolerance for novelty, and a willingness to engage with unconventional ideas, as well as fostering aesthetic and intellectual exploration. Cognitive flexibility, in turn, may facilitate the behavioral translation of creative potential into action by enabling individuals to shift perspectives, generate alternative solutions, adapt to changing task demands, and overcome habitual response patterns. Thus, whereas Perceived Creativity reflects a relatively global self-evaluation of one's creative capacity, innovative behavior may depend more directly on dispositional openness and flexible cognitive processing.

This interpretation is consistent with prior research showing that openness to experience is one of the most robust personality correlates of creativity and creative achievement, although its effects are often modest and depend on the creativity criterion used (Dehkordi et al., 2024; S. B. Kaufman et al., 2016; Raya et al., 2023; Tan et al., 2019; Theurer et al., 2021). It is also consistent with the dual-pathway model of creativity, which holds that creative performance can emerge through flexible cognitive processing and exploratory search strategies (Baas et al., 2008, 2013; Nijstad et al., 2010). In the organizational literature, openness has also been linked to innovative work behavior, supporting the view that openness is relevant not only to creative self-beliefs but also to enacted innovation (Stergiopoulou & Meurs, 2025; Yesil & Sozbilir, 2013). By contrast, self-rated creativity and Perceived Creativity are best understood as subjective self-belief constructs that correlate with creative activity and personality traits but do not necessarily align closely with objective or behavioral indicators of creativity (Reiter-Palmon et al., 2012; Silvia et al., 2012). Accordingly, the stronger associations of openness and flexibility with innovative behavior than with Perceived Creativity may indicate that these traits are especially important for the behavioral expression of creativity rather than merely for endorsing a creative self-image.

4.3. Differences Across Genders and Artistic vs. Non-Artistic Fields of Study

Regarding gender, the present data replicated the “male hubris–female humility” pattern in self-rated creativity (Furnham, 2023; Pretz & McCollum, 2014). Men scored higher than women on Innovation Behavior (Cohen's $d = 0.40$), but not significantly on Perceived Creativity (Cohen's $d = 0.16$), supporting H5 in a domain-specific manner. Because meta-analyses indicate negligible gender differences in objective creative potential and divergent thinking (Baer & Kaufman, 2008), and because measurement invariance across gender was supported in the present sample, these mean-level differences plausibly reflect socio-cultural patterns of self-evaluation rather than genuine cognitive differences. The fact that the SRCS detects this differential and is particularly sensitive in the behavior-oriented Innovation Behavior subscale further supports its construct validity as a measure of subjective creative self-perception (Hora et al., 2021; Karwowski & Lebuda, 2016).

The BSRCS-6_PL's capacity to recover theoretically expected group differences provides further construct validity evidence. As predicted by H6, students of artistic majors scored significantly higher than students of non-artistic majors on both refined BSRCS-6_PL subscales, with a moderate effect on Innovation Behavior (Cohen's $d = 0.39$) and a small but reliable effect on Perceived Creativity (Cohen's $d = 0.21$). This domain-specific pattern is consistent with the well-documented profile of art students and creative professionals, who differentiate themselves from non-artistic peers primarily in self-reported engagement with original and innovative behaviors rather than in global self-perception alone (Benedek et al., 2025; Burch et al., 2006; Chamorro-Premuzic et al., 2010; Furnham, 2023). The fact that the behavior-oriented subscale (Innovation Behavior) is more sensitive than the more general identity-oriented subscale (Perceived Creativity) further supports the theoretical distinction between the two facets of self-rated creativity (Tierney & Farmer, 2002). From an applied perspective, these results are consistent with sociocultural and domain-specific accounts suggesting that creative engagement and creative identity are partly shaped by

socialization, educational experiences, and disciplinary cultures, and therefore should not be interpreted as simple expressions of underlying temperamental or executive-function differences (Baer, 2015; Glăveanu & Tanggaard, 2014; Karwowski & Beghetto, 2019; Lee & Portillo, 2022).

4.4. Limitations and Future Research

Several limitations qualify the interpretation of these findings. First, the sample consisted of self-selected university students, with an overrepresentation of women (72.4%) and of students of artistic majors (57.1%) relative to general population proportions. While the gender-binary subsample ($n = 385$) used in the multi-group CFA was sufficiently powered to support invariance testing, replication in more demographically diverse, age-heterogeneous, occupational, and clinical samples is warranted to evaluate the generalizability of the present psychometric findings. Second, all measures were self-report, which exposes the data to common method bias, social desirability, and response styles. In particular, the male-hubris pattern detected here should be interpreted as a self-evaluative phenomenon and should not be conflated with objective gender differences in creative ability. Future research should pair the SRCS with task-based creativity measures (e.g., the Alternate Uses Task, the Torrance Tests of Creative Thinking) and behavioral indicators of creative achievement (Carson et al., 2005; Diedrich et al., 2018) to evaluate its criterion validity.

Because artistic-major students comprised 57.1% of the sample, the pooled descriptive statistics and factor solution may partly reflect a creativity-salient educational subgroup. Although the invariance analyses support score comparability across study fields, invariance does not establish population representativeness, and the unequal field composition may affect parameter precision and overall estimates.

Data collection extended across the autumn–winter semester and included holiday and examination periods. Changes in workload, availability, or affect may therefore have influenced who participated and how students responded. No date-stratified analyses were conducted, so such academic-calendar effects cannot be ruled out.

Third, the cross-sectional design precludes inferences about temporal stability and directionality. Future studies should examine the test–retest reliability of the Polish SRCS, its longitudinal relationships with creative achievement, and its sensitivity to creativity-enhancing interventions. Fourth, the present study tested measurement invariance only across gender and field of study. Future work should also test invariance across age groups and educational levels to evaluate whether the Polish SRCS operates equivalently across these subpopulations. Finally, the present study did not include established Polish-language creative self-belief instruments as criterion measures. Future research should examine the convergent and incremental validity of the Polish SRCS relative to such instruments, as well as to alternative experimental studies or using standardized tests of creativity.

Although the scale is proposed for online educational screening, the present study did not evaluate classroom implementation, responsiveness to educational interventions, prediction of academic or creative outcomes, or decision utility. Educational applicability should therefore be treated as a plausible use case rather than as an empirically demonstrated conclusion.

Accordingly, the findings cannot be generalised beyond similar self-selected, Polish-language university samples without replication in probability-based or nationally representative samples, non-student populations, and other cultural and linguistic contexts.

Finally, the EFA used the continuous-item specification, whereas CFA treated indicators as ordered and used robust DWLS. The convergence of the two-factor pattern across these specifications strengthens confidence in the result, but replication with polychoric

EFA, ESEM, or bifactor-ESEM is needed to examine common and cross-loading variance more flexibly.

5. Conclusions

The present findings support two complementary Polish forms. The SRCS-12_PL retains the broader content of the original instrument and is preferable for comprehensive assessment and cross-study comparability. The BSRCS-6_PL provides an efficient online measure of two narrower facets, namely Innovation Behavior and Perceived Creativity, and is preferable when response burden is a central constraint. Neither form should be interpreted as an objective measure of creative ability.

In practical educational assessment, the BSRCS-6_PL may be used at the beginning of courses, study programs, or creativity-supportive interventions to identify groups of students who may benefit from targeted instructional support. Low scores in Innovation Behavior may indicate the need for more project-based, design-based, or problem-based learning opportunities that explicitly require idea generation, implementation, and improvement-oriented action. Lower scores in Perceived Creativity may indicate the need for autonomy-supportive feedback, psychologically safe learning environments, and teaching strategies that strengthen students' confidence in their creative potential. These applications remain provisional until supported by implementation, predictive validity, and intervention sensitivity evidence.

The refined 6-item, two-factor version demonstrated strong internal consistency, simple structure, and scalar measurement invariance across gender and artistic versus non-artistic study fields. Its two subscales should be treated as the primary scores. An overall six-item composite may be reported descriptively, but the present analyses do not establish a unidimensional latent general factor of creativity. Future studies should examine test–retest reliability, predictive validity, classroom implementation, and sensitivity to educational interventions.

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Abbreviations

The following abbreviations are used in this manuscript:

AVE	Average Variance Extracted
BSRCS-6_PL	A 6-item Brief Self-Rated Creativity Scale
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CFS	Cognitive Flexibility Scale
EFA	Exploratory Factor Analysis
HTMT	Heterotrait–Monotrait
KMO	Kaiser–Meyer–Olkin
RMSEA	Root Mean Square Error of Approximation
SRCS	Self-Rated Creativity Scale
SRMR	Standardized Root Mean Square Residual

Appendix A. Self-Rated Creativity Scale (SRCS-12)

Below are a number of statements that may or may not apply to you. Please select a number from 1 (strongly disagree) to 5 (strongly agree) for each statement to indicate the extent to which you agree or disagree with that statement.

1. I suggest new ways to achieve goals or objectives.
2. I come up with new and practical ideas to improve performance.*
3. I search out new technologies, processes, techniques, and/or product ideas.*
4. I suggest new ways to increase quality of work.*
5. I am a good source of creative ideas.*
6. I am not afraid to take risks.
7. I promote and champion ideas to others.
8. I exhibit creativity on the work when given the opportunity to.*
9. I come up with creative solutions to problems.
10. I often have a fresh approach to problems.*
11. I suggest new ways of performing work tasks.

Scoring: For SRCS-12, arithmetic means may be calculated for Usefulness (items 1–4) and Novelty (items 5–12). For BSRCS-6, sum or mean scores may be calculated for Innovation Behavior (items 2, 3, and 4) and Perceived Creativity (items 5, 8, and 10).

*The marked items are included in the Brief Polish Self-Rated Creativity Scale (BSRCS-6).

Appendix B. Skala Samooceny Kreatywności (SSK-12)

Poniżej znajduje się szereg stwierdzeń, które mogą lub nie dotyczyć Ciebie. Wybierz cyfrę od 1 (zdecydowanie się nie zgadzam) do 5 (zdecydowanie się zgadzam) dla każdego stwierdzenia, aby wskazać, w jakim stopniu zgadzasz się lub nie zgadzasz się z danym stwierdzeniem.

1. Wynajduję nowe metody osiągania celów i zadań.
2. Wymyślam nowe i praktyczne sposoby aby ulepszyć wykonanie.*
3. Poszukuję nowych technologii, procesów, technik i/lub pomysłów.*
4. Znajduję nowe sposoby aby podwyższyć jakość pracy.*
5. Mam dużo kreatywnych pomysłów.*
6. Nie boję się podejmować ryzykownych działań.
7. Dzielę się pomysłami i rozpowszechniam je.
8. Jeżeli tylko mogę, wykazuję się kreatywnością w pracy.*
9. Często miewam nowe i innowacyjne pomysły.
10. Potrafię kreatywnie rozwiązywać problemy.*

11. Podchodzę do problemów w nowatorski sposób.
12. Proponuję nowe sposoby wykonywania zadań.

Punktacja: Dla SSK-12 można obliczyć średnie wyniki dla Użyteczności (pozycje 1–4) i Nowości (pozycje 5–12). Dla SSSK-6 można obliczyć sumy lub średnie dla Zachowania Innowacyjnego (pozycje 2, 3 i 4) oraz Postrzegana Kreatywność (pozycje 5, 8 i 10).

*Zaznaczone itemy wchodzą do Skróconej Skali Samooceny Kreatywności (SSSK-6).

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