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# Personal and motivational determinants of piano student performance in the context of self-determination theory. The Croatian study

## Abstract

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The aim of this study was to examine the contribution of personality traits and different types of motivation to explaining individual differences in piano student performance and satisfaction of basic psychological needs in an academic context. The research was conducted in 2017 on a sample of piano students (N = 92) attending four music academies (Music Academy in Zagreb, Arts Academy in Split, Music Academy in Osijek, and Music Academy in Pula), making up about 90% of the whole piano-student population in Croatia. Self-assessment instruments were used to examine five personality traits from the Big Five Model, types of motivation according to the continuum of self-determination, the satisfaction of three psychological needs according to the self-determination theory in the context of music

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academies, and three categories of performance – piano success in the academic year, piano competition achievements, and public performances. The results showed that personality traits and motivational determinants could not predict piano success at the academy. Still, conscientiousness and emotional stability do play a significant role in public performances and piano competitions. Identified motivation proved to be important for these criteria as well. The relationship between psychological needs, motivation, and personality traits pointed to the significant role of the intellect, agreeableness, and intrinsic motivation, which proved to be important for satisfying the needs for relatedness and autonomy.

### Keywords

motivation, music performance, personality traits, piano students, self-determination

## Introduction

The piano is the most represented instrument in music schools in the Republic of Croatia, with slightly less than 6,000 students having piano lessons in the school year 2018/2019. At music academies, the total annual enrolment quota for piano students is around 30, which means that annually around 120 Croatian students are actively engaged in piano study programs. Although the psychological aspects of studying at art academies in Croatia were rarely researched, according to the results of research conducted on other populations of students (Anderman & Wolters, 2006; Jordan et al., 2008; Ryan & Deci, 2000; Vansteenkiste et al., 2006), it can be assumed that intrinsic motivation plays an essential role in the education of future musicians and contributes significantly to the musical success of future professional pianists. Many authors discuss the importance of motivation for the development of an expert music performer.<sup>1</sup>

Given the importance of motivation in the education of future musicians, the theoretical framework for this research is self-determination theory.<sup>2</sup> SDT interprets the continuum of self-regulation and motivation and presents one of the few theories describing the process of transformation from amotivation through various degrees of extrinsic motivation to intrinsic motivation. The distinction between autonomous and controlled regulation is one of the main features of motivation

<sup>1</sup> K.A. Ericsson, R.T. Krampe, C. Tesch-Romer, C. *The role of deliberate practice in the acquisition of expert performance*, "Psychological Review" 1993, vol. 100, no. 3, pp. 363–406; S.A. O' Neill, G.E. McPherson, *Motivation*, [in:] *The Science and Psychology of Music Performance: Creative Strategies for Teaching and Learning*, eds. R. Purncutt, G.E. McPherson, Oxford 2002, pp. 31–41.

<sup>2</sup> R.M. Ryan, E.L. Deci, *Self-determination theory and the facilitation of intrinsic motivation, social development and well-being*, "American Psychologist" 2000, vol. 55, no. 1, pp. 68–78.

in the context of SDT.<sup>3</sup> Yet, internal motivation and external motivation are not conflicting and exclusive concepts because external goals can be intertwined with internal motivation, which is common in everyday life. Extrinsic and intrinsic motives are often intertwined in music education as well. The development of musical abilities and the improvement of musical performance skills require dedication as well as independent, daily practice and significant support from teachers, parents, academics and broader surroundings. Although often predominantly intrinsically motivated, future musicians also have external motivators, most often including participation in various forms of public performances along with national and international competitions. Moreover, sometimes the main criteria for a performer's success are participation and awards in music competitions. They are vital in piano pedagogy because pianists present a majority among instrumentalists and have fierce competition. According to Hodges and Sebald,<sup>4</sup> highly motivated future musicians, in addition to their personal, intrinsic motives for participating in competitions, also show professional and social ones that belong to introjected or identified motivation. Opsal<sup>5</sup> states that music competitions, in addition to external ones, satisfy certain internal needs of future musicians who affirm themselves in the world of professional music by participating in contests where they have excellent performances. Such experiences, in turn, increase their interest and motivation to pursue a music career.

According to the self-determination theory, intrinsic motivation is a prerequisite for optimal satisfaction of the basic psychological needs for autonomy, competence, and relatedness that prove to be essential for subjective well-being. Satisfying these psychological needs leads to growth and more pronounced well-being of the individual. These needs can be satisfied, among other things, in the academic context. The need for autonomy in the context of the music academy can be met, for example, by a freer choice of musical activities or compositions to play. Teacher (piano pedagogue) support is also crucial for autonomy, as indicated

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<sup>3</sup> E.L. Deci, R.M. Ryan, *Self-determination theory: A macrotheory of human motivation, development, and health*, "Canadian Psychology" 2008, vol. 49, no. 3, pp. 182–183.

<sup>4</sup> D. Hodges, D. Sebald, *Music in the Human Experience. An Introduction to Music Psychology*, New York 2011.

<sup>5</sup> S.K. Opsal, *Competition and extrinsic motivation in the band classroom: A review of literature and suggestions for educational practice*, "Honors Program Theses" 2013, vol. 13, <http://scholarworks.uni.edu/hpt/13>.

by the data from other domains of the educational context.<sup>6</sup> A meta-analysis of research<sup>7</sup> which explored the benefits of teacher support for autonomy found that autonomy results in higher self-esteem and sense of competence, greater creativity and flexibility of thinking, and better long-term memory. For example, research on students of medicine found that autonomy provides more self-determined forms of student behaviour in class.<sup>8</sup>

In addition to motivation, musical abilities or talent, dedicated work and effort are indisputably important for excellent music performance, while some authors add personality traits as well. According to Bogunović “motivation in learning music has an integrative function, because by directing activities towards a specific goal, it unites all processes in a whole, as well as personality capacities relevant to achieving the chosen goal within the framework of music performance”.<sup>9</sup>

Therefore, this research tried to examine whether personality traits, in addition to motivation, contribute to the success of future pianists. The starting theoretical model is the Big-five model of personality. According to Radoš,<sup>10</sup> personality traits and motivation combined with abilities can predict the realization of musicality in musical performance. The personality structure of musicians has long been addressed by various authors, suggesting the existence of characteristic ‘musical’ traits, such as introversion<sup>11</sup> or emotional sensitivity.<sup>12</sup> However, research has rarely questioned the role of personality traits from the five-factor model in music students’ performance. The starting point of this research was the assumption of conscientiousness as a significant predictor of performance. Previous research on conscientiousness as a significant predictor of school and academic performance, outside of musical context, has confirmed that this personality trait is closely related to academic performance measured by different criteria.<sup>13</sup> High con-

<sup>6</sup> J. Reeve, *Self-determination theory applied to educational settings*, [in:] *Handbook of Self-determination Research*, eds. E.L. Deci, R.M. Ryan, Rochester 2002, pp. 183–203.

<sup>7</sup> R.M. Ryan, E. L. Deci, *Self-determination theory...*, op. cit., pp. 68–78.

<sup>8</sup> G.C. Williams, E.L. Deci, *Internalization of biopsychosocial values by musical students: A test of self-determination theory*, “*Journal of Personality and Social Psychology*” 1996, no. 70, pp. 767–779.

<sup>9</sup> B. Bogunović, *Muzički talent i uspješnost*, Beograd 2008, p. 107.

<sup>10</sup> K. Radoš, *Psihologija muzike*, Beograd 2010.

<sup>11</sup> A.E. Kemp, *The Musical Temperament: Psychology and Personality of Musicians*, New York 1996; T.M. Wubbenhorst, *Personality characteristics of music educators and performers*, “*Psychology of Music*” 1994, nr. 22, pp. 63–74.

<sup>12</sup> A. Altares, *Darovitost i podbacivanje*, Beograd 2006.

<sup>13</sup> T. Chamorro-Premuzic, A. Furnham, *Personality traits and academic performance*, “*European Journal of Personality*” 2003a, vol. 17, no. 3, pp. 237–250; D.T. Feyter, R. Caers R., C. Vigna, D. Berings, *Unraveling the impact of the Big Five personality traits on academic performance: The*

scientiousness could affect dedicated and committed instrument practice, responsibility in achieving performance objectives, and persistence in work, all of which contribute to achieving high performance. Daily long-term music instrument practice requires perseverance, discipline, and responsibility, and it can be assumed that this is a characteristic of highly conscientious individuals. For other personality traits, based on the existing knowledge, it was not possible to set specific hypotheses. Still, there is a possibility that other personality traits can in some way contribute to the explanation of the different criteria of piano student performance, making it one of the tasks of our study.

The aim of this study was to examine the relationship between personality traits, motivation, and psychological needs in the population of piano students in Croatia and to examine which aspects of personality and motivation explain the differences in piano student performance and satisfaction with their psychological needs. For the purposes of the research, the criteria operationalized as piano performance in the academic year, a composite of public performances and a composite of piano competition achievements. The study started from the assumption that there would be a significant correlation between personality traits, motivation, and satisfying psychological needs in the context of music academies and that primarily intrinsic motivation and conscientiousness would be significant predictors of student performance.

## Method

### Sample

The study involved  $N = 92$  piano students with an average age of  $M = 1.08$ , ranging from 18 to 27 years. The total number of respondents included 18 first-year students, 18 second-year students, 21 third-year students, 21 fourth-year students, and 14 fifth-year students at the Academy of Music University of Zagreb, Arts Academy University of Split, and music academies at University of Osijek and University of Pula.

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*moderating and mediating effects of self-efficacy and academic motivation*, "Learning and Individual Differences" 2012, vol. 22, no. 4, pp. 439-448, <https://doi.org/10.1016/j.lindif.2012.03.013>; E.E. Nofle, R.W. Robins, *Personality predictors of academic outcomes: Big five correlates of GPA and SAT scores*, "Journal of Personality and Social Psychology" 2007, vol. 93, no. 1, pp. 116-130; M. Spengler, M. Brunner, R. Martin, O. Lüdtke, *The role of personality in predicting (change in) students' academic success across four years of secondary school*, "European Journal of Psychological assessment" 2016, vol. 32, no. 1, pp. 95-103.

## Instruments

In addition to the General Data Questionnaire, which examined respondents' sociodemographic features and aspects of student performance, the research also applied an adapted version of the Academic Motivation Scale, context-specific basic psychological needs satisfaction scale, and a questionnaire for examining personality traits from the Big Five Model.

*The General Data Questionnaire* collected the data on the year of study (1–5), age, gender, piano success (1–5), piano competition achievements (participation in national and international competitions, results in national and international competitions), public performances, solo recitals, and performances with orchestra.

*The adapted Version of the Academic Motivation Scale (AMS-C28)*<sup>14</sup> is intended to examine motivation in an academic context and is based on self-determination theory and the continuum of motivation.<sup>15</sup> The questionnaire consists of 28 items relating to various reasons why participants chose to study piano at a music academy. The task of the participants was to assess on a seven-point scale how much each reason applies to them (1 meaning *absolutely not* and 7 meaning *absolutely yes*). In line with the original scale, six total scores were constructed for six motivational factors – including three types of intrinsic motivation – knowledge (e.g. *Because I experience pleasure and satisfaction while discovering new compositions*), stimulation (e.g. *For the pleasure I experience when listening to performances of renowned musicians*), and accomplishment (e.g. *For the satisfaction I feel when I am in the process of accomplishing difficult pieces*), and three types of extrinsic motivation – identified (e.g. *Because I think that music academy will help me better prepare for the career of a pianist*), introjected (e.g. *To prove to myself that I am capable of graduating from music academy*), and external regulation (e.g. *In order to obtain a more prestigious job later on*). Each factor includes four items, with a higher score indicating a higher degree of respondents' motivation. Psychometric characteristics for overall scores by subscales are shown in Table 1.

*Context-Specific Basic Psychological Needs Satisfaction Scale* was constructed relying on the items that are commonly used in the study

<sup>14</sup> R.J. Vallerand, L.G. Pelletier, M.R. Blais, N.M. Brière, C. Senécal, E.F. Vallières, *The academic motivation scale: A measure of intrinsic, extrinsic and amotivation in education*, "Educational and Psychological Measurement" 1992, no. 52, pp. 1003–1008.

<sup>15</sup> R.M. Ryan, E.L. Deci, *Self-determination theory...*, op. cit., pp. 68–78.

of basic psychological needs, which make a part of Basic Psychological Needs Satisfaction in General Scale (BNSG-S) and Basic Needs Satisfaction at Work Scale.<sup>16</sup> In the context of the theory of self-determination, the scale examines the possibility of satisfying the psychological needs for autonomy (e.g. *At the academy, I feel compelled to do things that I do not want*), competence (e.g. *I manage to do my tasks at the academy excellently*), and relatedness (e.g. *Some people from my class are my close friends*) in the context of the music academy. The scale consisted of 14 items, and the task of the participants was to assess how much each item applied to them on a five-point scale, where 1 meant *I completely disagree* and 5 *I completely agree*. A higher score indicates a greater ability to satisfy psychological needs in the context of music academy. Psychometric characteristics for the results by subscales are shown in Table 1.

*Personality Traits Questionnaire* (International Personality Item Pool – IPIP)<sup>17</sup> consists of 50 items intended to measure five basic personality traits from the Big Five Model (extraversion, emotional stability, agreeableness, conscientiousness, intellect). Each feature was assessed with 10 items, and the task of the participants was to mark the one which best suits them (1 – *completely incorrect* and 5 – *completely correct*). Psychometric characteristics for scores by personality traits are shown in Table 1.

**Table 1.** Psychometric characteristics of the measures used

	n	Cronbach α	M	SD	Observed range	Skewness	Kurtosis
<b>Motivation</b>							
Knowledge	4	0.70	22.11	4.09	10–28	–0.64	0.19
Experience	4	0.79	21.61	4.65	10–28	–0.39	–0.71
Progress	4	0.79	21.54	5.03	11–28	–0.42	–0.86
Introjected	4	0.75	17.49	6.01	4–28	–0.39	–0.41
Identified	4	0.70	21.43	4.59	10–28	–0.53	–0.35
External	4	0.66	15.44	5.30	4–28	–0.01	–0.38
<b>Personality traits</b>							
Extraversion	10	0.77	33.16	6.07	19–48	–0.05	–0.07

<sup>16</sup> M. Gagné, *The role of autonomy support and autonomy orientation in prosocial behavior engagement*, "Motivation and Emotion", 2003, no. 27, pp. 199–223.

<sup>17</sup> L.R. Goldberg, *A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several five-factor models*, [in:] *Personality Psychology in Europe*, eds. I. Mervielde, I.J. Deary, F. de Fruyt, F. Ostendorf, Tilburg 1999, pp. 7–28.

	n	Cronbach $\alpha$	M	SD	Observed range	Skewness	Kurtosis
Agreeableness	10	0.68	40.84	4.52	28–50	–0.44	0.26
Conscientiousness	10	0.79	37.05	6.05	19–50	0.02	0.09
Emotional stability	10	0.79	29.36	6.69	16–47	0.40	–0.15
Intellect	10	0.61	39.40	4.25	28–50	–0.26	0.37
<b>Needs</b>							
Competence	5	0.77	20.17	3.33	8–25	–0.72	0.76
Connection	5	0.78	18.13	4.38	5–25	–0.66	0.38
Autonomy	4	0.72	12.56	3.30	4–20	–0.10	0.39

n – number of items

## Procedure and Data Analysis

Participants completed questionnaires during a class on piano teaching methodology, after their teacher had explained the purpose of the questionnaire and given the instructions on how to complete it. Participation in the study was anonymous and voluntary. The data were analyzed using the STATISTICA13 software. As skewness and kurtosis parameters were within the range acceptable for application of parametric methods, that is ranging from  $-1$  to  $+1$ ,<sup>18</sup> the data analyses included the use of descriptive parameters, correlation analyses (Pearson correlation coefficient), and stepwise regression analyses, which examined the contribution of personality traits and motivational determinants to the criterion variables of performance and satisfaction of psychological needs.

## Results

Table 2 shows the correlation matrix of all variables in the study. Personality traits were not correlated with piano success, but they were correlated with other performance criteria. Specifically, there was a significant positive relationship between emotional stability, conscientiousness, and intellect and public performances, as well as between

<sup>18</sup> F. Gravetter, L. Wallnau, *Essentials of Statistics for the Behavioral Sciences*, 8th ed, Wadsworth 2014.

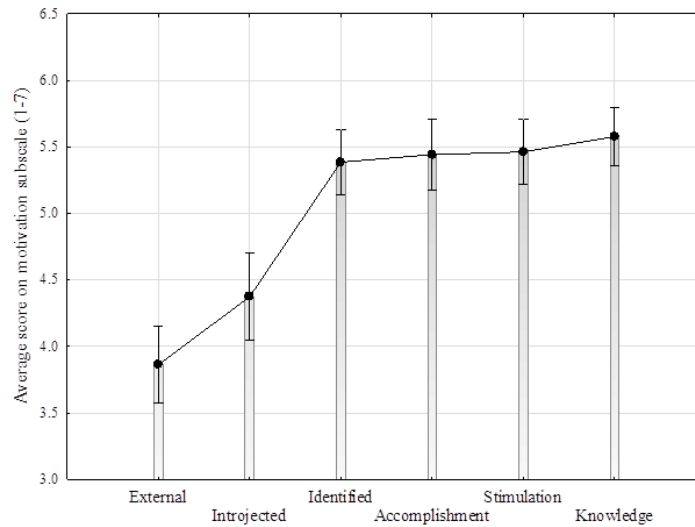


conscientiousness and competition. Unexpectedly, motivation did not prove relevant for almost any criterion, i.e. a significant correlation was found only between identified motivation and public performances. Satisfying the need for competence was significantly positively correlated with piano success and public performances, while other needs did not prove to be related to student performance.

Among other results, it is necessary to point out the negative correlation between intellect and external, i.e. introjected motivation, and the positive correlation between conscientiousness and intrinsic motivation (knowledge), as well as identified motivation. A significant positive correlation between agreeableness and intrinsic motivation (stimulation) was noticed regarding the relationship between personality traits and motivation. The connection between personality traits and the satisfaction of psychological needs leads to the conclusion there is a positive correlation between all personality traits and the need for competence, and a positive connection between conscientiousness and the need for autonomy. Regarding the relationship between motivational characteristics and satisfaction of needs, it was shown that the need for autonomy is positively correlated with all types of motivation except external motivation. The need for competence is positively correlated with all kinds of intrinsic motivation and identified motivation. The need for relatedness was significantly positively correlated with all types of intrinsic motivation as well.

Figure 1 also shows the average results of different types of motivation. The results follow a continuum of self-determination, from the lowest values of external regulation to the highest values for the three types of intrinsic motivation ( $F = 46.39$ ;  $df = 5, 430$ ;  $p < .01$ ). A subsequent analysis (the Scheffe test) showed there were significant differences between external motivation and all others, as well as introjected motivation and all others. Identified motivation and the subtypes of intrinsic motivation did not differ from each other.

In order to examine the contribution of personality traits and motivation to the explanation of individual differences in piano student performance, three stepwise regression analyses were performed, the results of which are shown in Table 3. The *forward stepwise* method was employed. Personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and intellect) and six types of motivation were introduced in all analyses, making a total of 11 predictors.



**Figure 1.** Different types of motivation in piano students

None of the predictor variables reached the input significance level ( $F = 3.5$ ), making it possible to conclude that the selected predictors are not relevant to piano performance at the music academy. It can be further seen from Table 3 that significant predictors of public performances are identified motivation and emotional stability that explained 21% of the variance criteria.

**Table 3.** Results of regression analyses (forward stepwise method) with performance variables as criteria

Criterion	Step	Variables included in the model	$\beta$	$R (R^2)$	$F$	( $df$ )
Piano success						
Public** performances	1.	identified motivation	0.37*	0.37 (0.14)	14.26*	(1.90)
	2.	identified motivation	0.33 *	0.46 (0.21)	11.73*	(2.89)
		emotional stability	0.27			
Competitions***	1.	conscientiousness	0.31	0.31 (0.10)	9.64*	(1.90)

\* $p < 0.05$ .

\*\*Competitions – a composite variable created on the basis of participation in local competitions ( $x$ ), local competitions achievements ( $y$ ), participation in international competitions ( $z$ ), and international competitions achievements ( $d$ ) according to the formula:  $(x + y + z + d) / 4$ .

\*\*\*Solo performances – a composite variable created on the basis of public performances ( $x$ ), solo recitals ( $y$ ), and performances with orchestra ( $z$ ) according to the formula  $(x + y + z) / 3$ .

Finally, piano competitions achievements can be explained by conscientiousness, which was the only significant predictor with a total of 10% of the variance criteria explained.

Table 4 shows the results of three stepwise regression analyses with psychological needs as criterion variables and personality traits, motivation, and performance as predictor variables. Emotional stability and intrinsic motivation were significant predictors for relatedness. It means that students who achieved higher scores on stability and intrinsic motivation could more efficiently satisfy their relatedness need in the context of the music academy.

**Table 4.** Results of regression analyses (forward stepwise method) with psychological needs as criteria

Criterion	Step	Variables included in the model	$\beta$	R (R <sup>2</sup> )	F	df
Relatedness	1.	Knowledge	0.22*	0.22 (0.05)	4.66*	1.90
	2.	Knowledge	0.22*	0.29 (0.09)	4.15*	2.89
Emotional stability		0.19*				
Autonomy	1.	Knowledge	0.36*	0.36 (0.13)	13.79*	1.90
	2.	Knowledge	0.31*	0.43 (0.18)	9.75*	2.89
		Conscientiousness	0.22*			
	3.	Knowledge	0.22*	0.48 (0.23)	8.60*	3.88
		Conscientiousness	0.25*			
		Introjected motivation	0.24*			
Competence	1.	Knowledge	0.41*	0.41 (0.17)	18.11*	1.90
	2.	Knowledge	0.38*	0.52 (0.27)	16.87*	2.89
		Intellect	0.33*			
	3.	Knowledge	0.36*	0.57 (0.33)	14.40*	3.88
		Intellect	0.26*			
		Agreeableness	0.24*			
	4.	Knowledge	0.22*	0.60 (0.36)	12.40*	4.87
		Intellect	0.24*			
		Agreeableness	0.27*			
		Identified motivation	0.23*			
	5.	Knowledge	0.19	0.63 (0.39)	10.93*	5.86
		Intellect	0.24*			
		Agreeableness	0.26*			
		Identified motivation	0.23*			
		Piano success	0.16			

\*p < 0.05.

Knowledge was again a significant predictor for autonomy, together with conscientiousness and introjected motivation. Finally, competence had several significant predictors – knowledge, intellect, agreeableness, identified motivation, and piano success. Predictors explained 39% of the variance criteria.

## Discussion

Correlation analysis of the results on personality traits, motivation and satisfaction of psychological needs indicated a significant connection between these constructs. There were significant correlations between emotional stability, conscientiousness, and intellect and public performances as well as between conscientiousness and competition achievement. An explanation of the connection between conscientiousness and public performances, i.e. competition results, should be sought in the nature of the trait itself, which includes responsibility, discipline, organization, etc. It is evident that such a personality trait favors the effort, commitment, and conscientious practice necessary for public performances and national and international competitions achievements. This is supported by the results of Chamorro-Premuzic and Furnham,<sup>19</sup> who found that conscientiousness is closely linked to the motivation and hard work of organized and ambitious individuals. Furthermore, the results of this research showed a significant correlation between conscientiousness and all types of intrinsic motivation and identified motivation that is closest to intrinsic motivation on the self-determination continuum.<sup>20</sup> Earlier studies have also shown that conscientiousness is a significant predictor of work motivation<sup>21</sup> and academic performance.<sup>22</sup>

A significant correlation between emotional stability and public performances was probably due to the fact that emotionally stable individuals more easily engage in the challenge of solo public performances or performances with the orchestra, since such individuals usually have lower levels of stage fright and anxiety, which can be very important

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<sup>19</sup> T. Chamorro-Premuzic, A. Furnham, *Personality predicts academic performance: evidence from two longitudinal university samples*, "Journal of Research in Personality" 2003, vol. 37, no. 4, pp. 319-338.

<sup>20</sup> R.M. Ryan, E.L. Deci, *Self-determination theory...*, op. cit., pp. 68-78.

<sup>21</sup> T.A. Judge, R. Ilies, *Relationship of personality to performance motivation: A meta-analytic review*, "Journal of Applied Psychology" 2002, no. 87, pp. 797-807.

<sup>22</sup> M. Spengler, M. Brunner, R. Martin, O. Ludtke, *The role of personality...*, op. cit., pp. 95-103.

during the preparation and performance. Previous research has also suggested a significant correlation between neuroticism and performance anxiety.<sup>23</sup> According to Craske and Craige,<sup>24</sup> auditions, judging, and performances in competitions are among the most stressful events for performers, especially if the audience is composed of renowned professors or music experts. Craske and Craig<sup>25</sup> provided evidence that in musicians with a less pronounced anxiety trait, performance anxiety is limited to physiological symptoms of arousal. At the same time, highly anxious performers may suffer large bursts of anxiety and behavioural changes during their performance.

Although research in the field of education also shows numerous advantages of intrinsic over extrinsic motivation when it comes to learning benefits and success,<sup>26</sup> this research has not confirmed the assumption of a direct connection between intrinsic motivation and performance criteria. However, the results showed that intrinsic motivation (all three aspects) is significantly more pronounced in relation to external motivation, and the results follow a continuum of motivation according to the self-determination theory.<sup>27</sup> Participants in this research are highly intrinsically motivated to engage in music, which is expected because the peculiarity of music education is that students must have an intrinsic motivation for daily long-term practice. In his research, Palekčić<sup>28</sup> examined motivation in a sample of high school students and found that the group of students attending music school had higher internal motivation than students attending general secondary schools. Enjoying a musical activity is essential for satisfaction and musical success. An intrinsically motivated student invests enormous effort in academic activities, persists in them because she / he is interested, enthusiastic about widening and deepening her / his knowledge, skills, and abilities. Moreover, internal motivation includes an affective attitude towards piano lessons, learning content and activities, and the student is motivated if the content is interesting and exciting,

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<sup>23</sup> W. J. Statham, *Predictors of Musical Performance: Personality, Anxiety and Flow*, Knoxville 2016.

<sup>24</sup> M.G. Craske, K. Craig, *Musical performance anxiety: The three systems model and self-efficacy theory*, "Behavioral Research Therapy" 1984, no. 22, pp. 267-280.

<sup>25</sup> M.G. Craske, K. Craig, *Musical performance anxiety...*, op. cit., pp. 267-280.

<sup>26</sup> A. Jordan, O. Carlile, A. Stack, *Approaches to Learning: A Guide for Teachers*, Berkshire 2008; M. Vansteenkiste, W. Lens, E.L. Deci, *Intrinsic versus extrinsic goal contents in self-determination theory: Another look at the quality of academic motivation*, "Educational Psychologist" 2006, vol. 41, no. 1, pp. 19-31; E.L. Deci, R.M. Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior*, New York 1985, <http://dx.doi.org/10.1007/978-1-4899-2271-7>.

<sup>27</sup> R.M. Ryan, E.L. Deci, *Self-determination theory...*, op. cit., pp. 68-78.

<sup>28</sup> M. Palekčić, *Unutrašnja motivacija i školsko učenje*, Beograd 1985.

i.e. if it presents a challenge, and if she / he feels comfortable during the lesson. However, high intrinsic motivation in this study did not prove to be related to performance, probably due to the high scores of most participants in these measures, or a homogeneous sample in which most participants are highly intrinsically motivated. Also, the relatively low variability of piano success, with the majority of participants achieving excellent success (60.23%) or very good success (35.23%), makes this measure insufficiently sensitive, which could affect the results on the correlations or predictor contributions to this criterion.

In addition to emotional stability, whose contribution to public performances has been explained earlier, the identified motivation also proved to be a significant predictor of public performances. On the self-determination continuum,<sup>29</sup> this is partly an internal type of motivation, and it is based on values that are of personal importance to the individual. Therefore, it is partly extrinsic and partly intrinsic motivation, yet the emphasis is on motivation based on what the individual considers valuable and essential. The obtained results are thus not surprising because for future pianists, public performance in the form of solo performances or performances with an orchestra is a confirmation of their piano success and potential for the development of the career of a successful musical artist – pianist. It takes a lot of competence, perseverance, effort, and dedicated practice to realize such performances during academic. Therefore, identified motivation is an indicator that future pianists experience public performances as a way of personal profiling and a way to have a successful career in the future. Conscientiousness was the only significant predictor of competition achievement. Conscientious individuals are extremely engaged in chosen activities and in music education this also applies to the quality of engagement, such as practicing difficult parts of compositions, focusing on structured practice, feeling pleasure in playing, continuous practice after exams and concerts.

The results of regression analyses with the satisfaction of psychological needs in the context of music academy as criteria showed that both personality traits and motivation significantly contribute to the satisfaction of needs. Specifically, more emotionally stable individuals better satisfy the need for relatedness, and conscientious ones the need for autonomy. Intellect and agreeableness, in turn, have proven to be predictive in satisfying the need for competence. The correlation

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<sup>29</sup> R.M. Ryan, E.L. Deci, *Self-determination theory...*, op. cit., pp. 68–78.

between intellect and competence has been established in previous research, as well as the negative correlation between neuroticism and all needs.<sup>30</sup> In addition to the mentioned personality traits, intrinsic motivation i.e. knowledge proved to be the most important predictor of satisfying needs, which points to the conclusion that intrinsic motivation and satisfying psychological needs are closely related. It is the self-determination theory that assumes that only intrinsically or autonomously motivated behaviors lead to the satisfaction of psychological needs resulting in psychological growth and satisfaction of individuals.<sup>31</sup> In the context of a music academy, it is possible to conclude that students who are motivated by music and have enrolled in an academy guided by inner interests, the desire for acquiring musical knowledge and performing skills can more successfully satisfy all their basic psychological needs.

## Conclusion

Before the conclusion, it is necessary to look at the shortcomings of the conducted research. The sample size is relatively modest, as this is a specific population, yet the sample covered the majority of the piano-student population in Croatia, making it representative. Certainly, in the following research, the relationship between the examined constructs could be tested on a sample of other students instrumentalists or future pianists from neighboring countries with a music education system similar to the Croatian. In addition to the sample size, it is necessary to point out slightly lower reliability coefficients on three variables (external motivation, agreeableness, and intellect), which were still within the limits of acceptability for research purposes, as well as low variability of piano success, which calls into question the sensitivity of this criterion and points to the need for using more sensitive measures of student music performance. Therefore, the parameters of public performances and competition results were also used in this research. Despite the shortcomings, the research results, in line with self-determination theory, confirmed the importance of intrinsic motivation in satisfying psychological needs in the context of the music academy, but no direct correlation was found between intrinsic motivation and performance indicators. Finally, personality traits have proven to

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<sup>30</sup> D. Bratko, J. Sabol, *Osobine ličnosti i osnovne psihološke potrebe kao prediktori zadovoljstva životom: Rezultati on-line istraživanja*, "Društvena istraživanja" 2006, vol. 15, no. 4-5, pp. 693-711.

<sup>31</sup> R.M. Ryan, E.L. Deci, *Self-determination theory...*, op. cit., pp. 68-78.

be important for public performances and competitions, but also for satisfying psychological needs.

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