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Blanka Bogunović, Sanela Nikolić, and Dejana Mutavdžin

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Basic Psychological Needs, Motivational Regulation Styles, and Success in High-School Music Students

Ana Protulipac[1], Sanja Stevanović[2], Dejana Mutavdžin[3], and Blanka Bogunović[4]

[1] *Music School Dr Vojislav Vučković, Belgarde, Serbia*
[2] *Music School Marko Tajčević, Lazarevac, Serbia*
[3,4] *Faculty of Music, University of Arts, Serbia*
[1]ana.protulipac.97@gmail.com, [3]dejana.mutavdzin@fmu.bg.ac.rs, [4]blankabogunovic@fmu.bg.ac.rs

Abstract

This Self-Determination Theory-based research focuses on psychological needs and motivation in a frame of specialist music education in Serbia. It aims to contribute to a better understanding of the relationship between Basic Psychological Needs (BPNs; Autonomy, Competence, Relatedness), motivation, and success in music in the Serbian music education context. A convenience sample comprises 207 music high-school students from 6 music schools in Serbia (M_{age} = 16.45, SD_{age} = 1.42; 75 male, 121 female, 11 other; 61 from the theoretical department [TD], 146 from vocal-instrumental departments [VID]). In a frame of the broader research project, participants filled in 3 scales: BPNSFS Music (24 5-point Likert-type items composing 6 subscales: satisfaction and frustration subscales of each of the 3 BPNs), RAI-SRQ Music (24 7-point Likert-type items composing 6 motivation subscales: Amotivation, Extrinsic Motivation, Negative Introjection, Positive Introjection, Identification, and Extrinsic Motivation), and a 7-point Likert-type single-item scale intended for self-estimation of musical success. Competence Satisfaction proved to be the statistically significant positive predictor, while Competence Frustration was a negative predictor of SESIM. Amotivation was also a statistically significant negative predictor of SESIM. When it comes to intergroup differences, the needs for Autonomy and Competence are to a greater extent satisfied in VID than in TD students. In contrast, the need for Competence is significantly more frustrated in TD than in VID students. Also, VID students are more intrinsically motivated to participate in musical activities than TD students who are significantly more Amotivated for such activities. Results confirm that psychological needs, namely the need for Competence and Autonomy, are clear predictors of Self-estimated musical success. There seem to be more similarities between older high-school students and music students at HME, which speaks about early professional identity formation. The insight into the results of TD students has important pedagogical implications, and asks for extra attention on the part of psychological consulting services in music schools. The same is true for those VID students who do not find themselves as successful as they would like.

Introduction

Being among the main drivers of goal-oriented behavior, Basic Psychological Needs (BPNs) and Motivational Regulation Styles are the subjects of numerous studies concerning music education (e.g., Evans & Liu, 2019; Freer & Evans, 2018). These concepts are integrated into Self-Determination Theory (SDT; Ryan & Deci, 2012, 2017), a theory of motivation, which posits that each person has three Basic Psychological Needs: Autonomy – the need for self-mastery and moral independence; Competence – the need to feel effective and successful in activities one is doing in life, or generally speaking; and Relatedness – the need for making relationships, for belonging, relating and connecting with others. These three needs are essential for optimal psychological development and well-being (Deci & Ryan, 2008, 2017). From the SDT's perspective, the social environment determines whether BPNs will be frustrated or satisfied and to what extent. The internalization of social values determines the Motivational Regulation Styles, which, in turn, reflect the BPNs fulfillment or frustration (Ryan & Deci, 2017).

The SDT defines motivational regulation styles that lie on a continuum between Amotivation (lack of any motivation regulation) and Intrinsic motivation (being led by enjoyment

or interest in doing the personally relevant activity). In between, different styles of extrinsic motivation (individuals engage in action due to external incentives or reward) are further elaborated, from relatively external to the self to relatively internal and aligned with the self; namely, continuum starts with Amotivation, followed by External, Introjected (positive and negative), Identified, Integrated and ends with the Intrinsic motivational style, considered to be the most favorable (Ryan & Deci, 2000). The main idea of SDT is that the higher the BPNs satisfaction of individuals is, the more they are autonomous and self-determined, and have an internal locus of behavioral and emotional control.

Self-Determination Theory in Music Domain

SDT has been more frequently applied in music education research in the last decade. That is so because motivation is crucial for students' achievement, music performance, well-being, and intentions to continue participating in music learning throughout school and into adulthood (Evans & Liu, 2019). Research findings showed that students' motivational resources are decisive for the commitment to choosing music as an educational and/or professional direction, among other competing activities (e.g., Radoš et al., 2003). Especially emphasized is its role in sustaining numerous hours of practice (e.g., Evans & Bonneville-Roussy, 2016), and in various achievements that empower long-term success in learning and performing music (Bogunović, 2010). One of the important sources of motivation relevant to full engagement and realization of musical skills is, undoubtedly, the creativity and aesthetic dimensions that connect music with the sense of self (Evans & Liu, 2019).

Basic Psychological Needs and Motivation in Music Education

Satisfaction of BPNs has a positive effect on motivation – it leads to the internalization of motivation-related values from the social environment, and the alignment of personal values with those of the environment (Ryan & Deci, 2017). Therefore, the satisfaction of BPNs increases the quality of motivation (autonomous motivation) characterized by persistence, self-direction, and an internal drive for independence (Freer & Evans, 2019; Ryan & Deci, 2017). When these three important needs are satisfied, people are more likely to experience intrinsic motivation rather than extrinsic (Evans & Liu, 2019). Since intrinsic motivation is associated with increased well-being (Deci & Ryan, 2000), they also experience growth, wellness, and the realization of their full potential (Evans & Bonneville-Roussy, 2016).

Psychological needs have considerable explanatory power in other life domains and educational settings, and are the focus of recent attention in music education (Evans, 2015). Data from various research shows that students learn more, enjoy learning, participate more frequently in class activities by asking questions and providing teacher feedback, and focus more on their work when their psychological needs are fulfilled (e.g., Jang et al., 2010). Diversely, the frustration of the BNP leads to lesser growth, lower motivation (Chen et al., 2015) or stagnation of the individual and, consequently, lower accomplishments and dropouts (Evans et al., 2012), or a decrease in further development (Evans & Liu, 2019). When thwarted, they develop psychological ill-being (Ryan & Deci, 2002) and, therefore, amotivational regulation style.

In the high-school context, Legutki (2010) found that internalized motivation, supported by the satisfaction of needs, was associated with students' intentions to continue studying in a band program. According to results obtained by Evans et al. (2013), active participation in the performance and learning music was associated with the satisfaction of BPNs, while the decision to cease learning music was associated with the unfulfillment of BPNs. Evans and Bonneville-Roussy's (2016) research findings confirmed the hypothesis that music students whose psychological needs were satisfied by the music environment would have more autono-

mous motivation towards music, as well as the hypothesis that autonomous motivation predicts practice frequency, quality of practice, and preference for the challenge.

Among university students, satisfaction of psychological needs has also been associated with the amount of practice and higher performance quality (Evans & Bonneville-Roussy, 2016). Psychological needs, satisfaction, and frustration played a significant role in some crucial outcomes in music education, such as practice time duration, intentions to continue studying music, and global self-esteem (Evans & Liu, 2019). Another research showed that BPNs satisfaction positively predicted fun in performing and practicing music, and dissatisfaction produced the opposite effect (Arribas-Galarraga et al., 2022).

The decisive role of intrinsic motivation for the various music achievement measures, already at the early level of instrumental tuition, was confirmed in the longitudinal study in elementary music schools when results pointed out motivation as the first predictor of music performance success, followed by parental support and music abilities at the third place, while the duration of practice was significant for the competition participation and achievements (Bogunović, 2010; Radoš et al., 2003). The continuous influence of intrinsic motivation at the next developmental stage was shown in the cross-sectional research at the adolescent level when curiosity as a representative of the intrinsic motivation theoretical framework was the strongest predictor at the adolescent level, before musical abilities and sensitivity as personality dimension (Bogunović, 2010).

Success in Music

It is rather apparent that high achievements are an important target in music education and performance. It is difficult to operationalize music accomplishments so that they can be precisely and objectively measured. The reason is mainly reflected in the complex nature of musical education (McPherson & Schubert, 2004). In some studies, aiming to examine motivation, students' intention to continue practicing and studying music, as well as self-esteem were mentioned as indicators of musical success (Evans & Liu, 2019; Kingsford-Smith & Evans, 2021). A qualitative analysis showed that students' success criteria could be related to personal assessment and personal experience, which adds to the abovementioned difficulty of objectively operationalizing musical success (Bogunović, 2010). Though, there are plentiful studies that show the crucial impact of motivation on various music accomplishments (e.g., academic achievements, performance examination results, public performances, competitions, length of musical training) at different age levels (e.g., Bogunović, 2023; McCormick & McPherson, 2007; McIntyre et al., 2018; McPherson & O'Neill, 2010; Miksza et al., 2016). In other research in the field of musical education in Serbia, musical success was classified into two categories: academic music success, and performance success – participation and awards in music competitions at various levels of public performances (Bogunović, 2010; Radoš et al., 2003).

The relation between BPNs and various achievement criteria was recently investigated in a few studies in Serbian samples, where performance experience (frequency in different performance settings – solo, chamber, orchestra), instrumental examination mark, and Self-estimated success in music (Bogunović, Stekić, & Mutavdžin, 2023), as well as solo performance frequency (Bogunović, Jovanović, et al., 2023), were taken into consideration as measures of musical success, at the university-students samples.

The present study presents a replica of the abovementioned studies to a certain extent, and deals with BPNs and Motivational Regulation Styles and their relation to the subjective achievement criteria on the sample of music high-school students.

Aims

Starting from the SDT (Ryan & Deci, 2000) and following it, considering the context of specialist music education in Serbia as a research framework, we aimed to explore the relationship between BPNs, Motivational Regulation Styles, and Self-estimated success in music (SESIM) in a sample of music high-school students. In addition, when it comes to these three concepts, we wanted to examine possible differences between music students of different gender, ages, and study department groups they are enrolled in.

In music education in Serbia, research tapping into these questions while using SDT as a conceptual model is starting to emerge, but only when it comes to university music students (e.g., Bogunović, Jovanović, et al., 2023; Bogunović, Stekić, & Mutavdžin, 2023). By opening these questions in the Serbian music education context and concerning adolescent music high-school students, we aim to expand the knowledge about the relationship of BPNs and motivation with musical success on different developmental levels.

Method

Sample

The participants constituting a convenience sample of this quantitative empirical research came from 6 music high-schools in Serbia (*Stanković*, *Kosta Manojlović*, *Dr. Vojislav Vučković* [Belgrade], *Marko Tajčević* [Lazarevac], *Josif Marinković* [Vršac], and *Isidor Bajić* [Novi Sad]). The sample comprises 207 music high-school students (age range 13-21; M_{age} = 16.45, SD_{age} = 1.42). Sixty one of participants were enrolled in theoretical department (TD), while 146 of them were attending vocal-instrumental departments (VID), namely: accordion, jazz, piano, poly-instrumental module (guitar, harp, percussions), string instruments, vocal studies, and wind instruments. Regarding gender, 75 of participants declared as male, 121 as female, and 11 marked the option 'Other'. Since the last ones constitute a notably smaller group than groups of males and females, they were excluded from the analysis of intergroup differences between respondents of different genders.

Measures

For this paper, we will present the data obtained on the following three measures: Basic Psychological Needs Satisfaction and Frustration Scale – Music (BPNSFS Music; Chen et al., 2014), Relative Autonomy Index Questionnaire – Music (RAI-SRQ Music; Sheldon et al., 2017), and a 7-point Likert-type single-item scale where participants are required to rate their own success in music (SESIM). BPNSFS Music (Chen et al., 2014) consists of 24 5-point Likert-type items composing 6 subscales, estimating satisfaction and frustration of each of the three BPNs: Autonomy Satisfaction (α = .72), Autonomy Frustration (α = .67), Relatedness Satisfaction (α = .75), Relatedness Frustration (α = .68), Competence Satisfaction (α = .75), and Competence Frustration (α = .75). RAI-SRQ Music (Sheldon et al., 2017) also has 24 items composing 6 motivation subscales (motivational regulation styles; 7-point Likert-type items): Amotivation (α = .84), Extrinsic Motivation (α = .66), Negative Introjection (α = .74), Positive Introjection (α = .79), Identification (α = .84), and Intrinsic Motivation (α = .94). The Self-estimated success in music was used as an achievement criterion, that is, individually assessed success in music activities, in general. This decision was informed by the findings obtained in Serbia (Bogunović, 2017; Bogunović, Stekić, & Mutavdžin, 2023), albeit on the music university student population, which indicated a low variability of the general academic average and the average grade in the main music subject, when used as measures of musical success.

Procedure

Within a larger study conducted during late February and the beginning of March 2022,

participants from 6 music high-schools, filled in an online inventory distributed via Google Forms.

Data analysis

The data were analyzed using the IBM SPSS Software, Version 21.0. Multiple regression analysis and *t*-test for independent samples were the main methods for data analysis.

Results

As can be seen in Table 1 in the Appendix, BPNs of our participants are relatively satisfied. Still, the frustration of the need for Autonomy attracts attention and will be discussed later in the text.

The Relationship between Basic Psychological Needs, Motivational Regulation Styles and Self-Estimated Success in Music

Starting from the SDT's postulates (Ryan & Deci, 2000), we have conducted 2 multiple regression analyses to see whether scores on BPNSFS Music and RAI-SRQ Music subscales (separately) are predictors of SESIM. Scores on all 6 BPNSFS subscales can account for around 29% of the SESIM variance, $R^2 = .29$, $F(6, 180) = 12.32$, $p < .001$. Competence Satisfaction ($B = 0.41$, $SE\ B = 0.14$, $\beta = .27$, $p < .01$), and Competence Frustration ($B = -0.33$, $SE\ B = 0.11$, $\beta = -.28$, $p < .01$) proved to be significant predictors of SESIM. When we used motivational regulation styles (scores on RAI-SRQ Music subscales) as predictors, the model also was significant, $R^2 = .13$, $F(6, 189) = 4.88$, $p < .001$, with Amotivation ($B = -0.28$, $SE\ B = 0.08$, $\beta = -.35$, $p = .001$) being the only significant predictor of SESIM.

Differences in BPNs, Motivational Regulation Styles, and SESIM as to Gender, Age, and Study Department

The existence of intergroup differences (gender, age, music study department) when it comes to satisfaction and frustration of BPNs, motivational regulation styles, and SESIM, was examined using the *t*-test for independent samples.

Findings that follow, concerning gender differences, were obtained only on the data provided by the respondents who identified themselves as male or female. When observing the differences between males and females on BPNSFS Music and RAI-SRQ Music subscales, we have noticed that the need for Autonomy is significantly more satisfied in males than in females, $t(184) = 2.15$, $p = .03$, $M_{males} = 4.25$, $SD_{males} = 0.58$, $M_{females} = 4.03$, $SD_{females} = 0.85$. The same is true when it comes to the satisfaction of the need for Competence, $t(183) = 3.64$, $p < .001$, $M_{males} = 4.32$, $SD_{males} = 0.63$, $M_{females} = 3.92$, $SD_{females} = 0.85$. Consistent with the previous, the need for Competence is significantly more frustrated in females than in males, $t(177) = -2.33$, $p = .02$, $M_{males} = 2.08$, $SD_{males} = 0.88$, $M_{females} = 2.41$, $SD_{females} = 1.10$. Males in our sample are also more Extrinsically motivated to participate in musical activities ($M_{males} = 2.00$, $SD_{males} = 1.20$) than females are ($M_{females} = 1.66$, $SD_{females} = 1.05$), $t(191) = 2.10$, $p = .04$. It is interesting to notice that males in our sample perceive themselves as more successful in music ($M_{males} = 5.33$, $SD_{males} = 1.11$) than females do ($M_{females} = 5.19$, $SD_{females} = 1.29$); the difference between the 2 groups approached significance, $t(194) = 1.91$, $p = .058$.

When it comes to age, aiming to divide the sample into groups with a roughly similar number of participants, we have formed 2 groups – one comprising students 13 to 16 years of age ($n_{younger} = 114$), and the other comprising students who are 17 to 21 years old ($n_{older} = 93$). The findings indicate that the need for Autonomy is significantly more frustrated in older participants ($M_{older} = 3.26$, $SD_{older} = 0.96$) than in younger ones ($M_{younger} = 2.95$, $SD_{younger} = 0.86$), $t(203) = -2.47$, $p = .014$. In the same vein, it seems that the need for Autonomy is significantly more satisfied in our younger participants ($M_{younger} = 4.22$, $SD_{younger} = 0.68$), than in the older ones ($M_{older} = 4.01$, $SD_{older} = 0.84$), but this difference only approached significance, $t(177) = 1.90$, $p = .059$.

As shown in Table 2 (Appendix), the needs for Autonomy and Competence are significantly more satisfied in students in vocal-instrumental departments than in their peers in theoretical department. Also, compared to students from the theoretical department, students from vocal-instrumental departments are more Intrinsically motivated to participate in musical activities. When it comes to the students from the theoretical department, their need for Competence is more frustrated, and they are more Amotivated to participate in musical activities than students in vocal-instrumental departments.

Discussion

The motivation for music achievements and its link to psychological needs whose fulfillment is a motor for an efficient growth mindset (Bogunović, 2017; Dweck, 1999) enticed this research aiming to discover more about relations between satisfaction/frustration of the BPNs, Motivational Regulation Styles conceptualized in the SDT (Ryan & Deci, 2000), and Self-perceived success in professional musical activities.

Basic Psychological Needs, Motivational Regulation Styles, and Relation to Self-estimated Success in Music

The results of the two multiple regression analyses, where scores on BPNSFS Music and RAI-SRQ Music subscales were taken as predictors of SESIM, showed that Competence Satisfaction and Competence Frustration are significant predictors of SESIM (Competence Satisfaction was positive, while Competence Frustration was a negative one). The finding emphasizes the importance of Competence, which relates to a desire to be effective in one's skills, abilities, and interactions in the social environment (Elliot et al., 2002), for the 'good feeling of self'. The frustration of Competence feeling leads to low self-esteem and certainly towards less investment, then decreasing skills and lower achievements.

Perhaps unexpectedly, Amotivation was the only Motivational Regulation Style predicting SESIM (negatively). Next to that, Amotivation is significantly positively correlated to Autonomy and Competence Frustration and negatively to all other BPNs (Table 1, Appendix). This implies the importance of these two needs for music engagement; whilst they are thwarted, the students' behavior is not motivationally regulated. This is understandable if we take into account the negative reinforcing cycle – when psychological needs are regularly not satisfied, there is no energy for the regulated behavior toward success. Students lose interest and stop actions. This finding has strong practical implications.

Basic Psychological Needs, Motivational Regulation Styles, and Gender

When differences as to gender were explored, it was found that the need for Autonomy is significantly more satisfied in males than in females, as well as Competence. Next to that, male students perceive themselves as more successful in music. These finding directly binds the fulfillment of the BPNs and, thru high self-estimation, points out the relatedness to the self, which is one of the SDT postulates (Ryan & Deci, 2000). Thus, those males who feel more Competent and Autonomous perceive themselves as more successful, and probably this link works as the reinforcing loop combined with objective accomplishments.

Surprisingly enough, the need for Competence is significantly more frustrated in females than in males. That means that girls musicians from music high-school feel less competent and less 'in charge' when music activities are in question. Hence, experiences of excessive difficulty and inability thwart the competence need, leading to feelings of ineffectance (Evans, 2015), which explains why females asses themselves as less successful in music than males do. These findings could be interpreted in the light of socio-cultural stereotypes or Social-role theory (Eigly, 2013), which claims that men and women, on a daily basis, act according to socially defined categories. That would mean that general stereotypes of men who, to a greater extent,

have 'instrumental' characteristics (dutifulness, order, achievement striving), and 'expressive' characteristics of females (warmth, compliance, emotions; Gill et al., 1987) are transferable on the sample of adolescent musicians.

Partially corresponding results were gained in research on gender identity roles, personality dimensions, and performance success among higher music education (HME) students (Bogunović & Bodroža, 2015). Namely, it was shown that vulnerability to stress contributed to self-perception of being less successful among female students, especially those who had feminine gender identity. Next to that, femininity in men was strongly related to music achievement, assessed through the frequency of public performances and competitions. So, male students appeared to have higher achievements in performance. Findings implicated that gender identity has its role in attaining the complexity and sensitivity of artistic creation, which is then positively related to higher accomplishments or perception of one's possibilities, as well as beliefs about one's potential and chances. Interestingly, to a certain extent, this pattern repeats itself on two developmental levels, which speaks about a trend with some professional and educational implications.

Further, our results speak about males being more Extrinsically motivated, which is a bit unexpected concerning their confirmed need for Autonomy and Competence, which hypothetically would have relations with inner motivational sources. Also, previous international sample research speaks about intrinsic motives playing a major role in maintaining the motivational system, while extrinsic motives are less influential (e.g., MacIntyre et al., 2018). On the other hand, another research on a Serbian HME students sample showed Extrinsic motivation as predominant (Bogunović, Jovanović, et al., 2023). A result that can put more light into these findings is the significant correlation between Extrinsic motivational regulation style and frustration of Autonomy and Competence (Table 1, Appendix). These findings clearly speak about needs for Autonomy and Competence as promotors of Intrinsic motivation, and that their unfulfillment is related to inefficient or less long-term quality motivational styles.

Basic Psychological Needs, Motivational Regulation Styles, and Age

Age differences in BPNs fulfillment in music high-school students provide not so optimistic perspective of music education, but also on the music profession. Namely, in older group of adolescents Autonomy is significantly more frustrated while in younger group of adolescents the need for Autonomy is significantly more satisfied. Implications refer to the fact that professional demands on music high-students are gradually moving towards more control on the part of teachers in later years of schooling. The 'master-apprentice model' (Woody, 2021) probably planted its roots deeper and the conservative teaching patterns prevail.

Basic Psychological Needs, Motivational Regulation Styles, and Music Study Departments

Findings point out that Autonomy and Competence are significantly more satisfied in students enrolled in vocal-instrumental departments (VID), and these students are significantly more Intrinsically motivated to participate in musical activities. On the other hand, the need for Competence is more frustrated in students of the theoretical department (TD), who are also more Amotivated.

Higher results in performance mastery in VID students probably empower Competence Satisfaction feeling, and bring a stronger sense of Autonomy and a 'growth mindset' (Dweck, 1999). In a loop, these feelings strengthen Intrinsic motivation and fuel further investment into activity.

Competence Frustration of TD students, certainly and logically, predicts lower self-esteem in a highly competitive musical setting, where excellent results are strived for by students, and expected by instrumental teachers and parents. In these circumstances, lower results are often confronted with probably de-

creasing achievement motivation. Next to that, Amotivation causes low self-esteem and probably disables TD students to progress in enhancing skills. It would be a topic for further research to investigate the reasons for establishing Amotivation in TD students.

The position of TD students is specific in music education for gifted since the curricula is based on music theory and solfeggio courses where music analysis prevails, emphasizing the mastering of music cognitive skills and knowledge. In addition, the music high-school setting prioritizes instrumental performance skills, attracting more students and giving them a chance to 'shine'. Usually, playing musical instruments is seen as a primary musical activity.

The insight into the results of TD students on Competence Frustration has important pedagogical implications and asks for extra attention on the part of psychological consulting services in music schools. The same is true for those VID students who do not find themselves as successful as they would like.

Conclusion

Results confirm that psychological needs, namely the need for Competence and Autonomy, impact the motivational profile of music students and self-estimation of musical success. There seem to be more similarities between older high-school students and music students at HME, which speaks about early professional identity formation being valid also for gender and study department differences. Gender differences confirmed the socio-culturally defined gender roles in adolescent musicians, which affects the efficiency of female musicians. It is striking that the need for Relatedness does not play a role in self-perception of success in music. It is unballacedly under fulfilled. It can be noted that an imbalance in the fulfillment of needs can create conflict between each one. Namely, the student's obsessive pursuit of Competence deprives the ability to fulfill the need for Relatedness (Bonneville-Roussy et al., 2013). This backdrop of trust and acceptance is a critical aspect of Relatedness, and without it, fulfilling the other needs of Competence and Autonomy is difficult (Evans, 2015).

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Appendix

Table 1. Descriptive statistics and correlations for BPNs Satisfaction and Frustration, Motivational Regulation Styles, and Self-estimated Success in Music.

Variable	*n*	*M*	*SD*	*Min*	*Max*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Autonomy Satisfaction	200	4.12	0.76	1	5	—												
2. Autonomy Frustration	205	3.09	0.92	1	5	-.35**	—											
3. Relatedness Satisfaction	204	3.95	0.86	1	5	.57**	-.32**	—										
4. Relatedness Frustration	203	2.17	0.86	1	5	-.24**	.41**	-.48**	—									
5. Competence Satisfaction	203	4.06	0.80	1.25	5	.62**	-.21**	.47**	-.24**	—								
6. Competence Frustration	205	2.30	1.03	1	4.75	-.47**	.32**	-.42**	.45**	-.65**	—							
7. Amotivation	206	2.19	1.53	1	7	-.56**	.34**	-.31**	.10	-.43**	.34**	—						
8. Extrinsic Motivation	204	1.81	1.11	1	6.50	-.21**	.18**	-.06	.12	-.10	.19**	.44**	—					
9. Negative Introjection	205	2.50	1.51	1	7	-.01	.10	-.02	.05	.02	.12	.05	.47**	—				
10. Positive Introjection	203	4.40	1.72	1	7	.37**	-.06	.23**	-.06	.31**	-.17*	-.34**	.07	.43**	—			
11. Identification	202	5.60	1.55	1	7	.48**	-.22**	.33**	-.11	.42**	-.30**	-.60**	-.22**	.24**	.64**	—		
12. Intrinsic Motivation	204	6.04	1.47	1	7	.53**	-.27**	.32**	-.08	.46**	-.32**	-.73**	-.40**	-.01	.48**	.78**	—	
13. Perceived musical success	207	5.31	1.26	1	7	.26**	-.17**	.30**	-.28**	.45**	-.49**	-.30**	-.04	.00	.21**	.25**	.20**	—

*$p < .05$. **$p < .01$.

Table 2. Differences in Satisfaction and Frustration of Basic Psychological Needs, Motivational Regulation Style, and Self-estimated Success in Music between students from different study departments.

Variable		Theoretical department		Vocal-instrumental departments		*t*	*df*	*p*
		M	*SD*	*M*	*SD*			
Basic Psychological Needs	Autonomy Satisfaction	3.89	0.84	4.22	0.71	-2.83	94	.01
	Autonomy Frustration	3.08	0.99	3.09	0.89	-.11	203	.91
	Relatedness Satisfaction	3.82	0.94	4.01	0.82	-1.38	202	.17
	Relatedness Frustration	2.12	0.97	2.19	0.81	-.512	201	.61
	Competence Satisfaction	3.79	0.81	4.17	0.78	-3.17	201	.002
	Competence Frustration	2.57	1.08	2.19	0.98	2.43	203	.02
Motivational Regulation Style	Amotivation	2.54	1.71	2.04	1.43	2.02	97	.046
	Extrinsic Motivation	1.82	0.93	1.80	1.18	.08	202	.93
	Negative Introjection	2.44	1.45	2.52	1.54	-.31	203	.76
	Positive Introjection	4.32	1.69	4.44	1.74	-.438	201	.66
	Identification	5.35	1.58	5.70	1.53	-.1.48	200	.14
	Intrinsic Motivation	5.67	1.63	6.20	1.38	-.2.22	96	.03
Self-estimated Success in Music	Perceived musical success	5.23	1.27	5.34	1.26	-.59	205	.56