

# PSYCHOLOGICAL FOUNDATIONS OF SUCCESS IN LEARNING MUSIC AT ELEMENTARY SCHOOL AGE

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## ABSTRACT

**Background.** The paper presents results from the Belgrade's Institute of Psychology five-year longitudinal research project, which examined the role of musical, personal and environmental variables in students' success during the early stages of formal instrumental study.

**Aims.** The purpose of the study was to explore the relationships between relevant psychological characteristics, some attributes of family background and main components of music success in order to increase our understanding of music efficiency antecedents at the initial stages of individual instrumental tuition.

**Method.** The participants were 993 six to twelve aged students of various instruments, across five specialized music schools in Belgrade. Parents' sample included 512 males and 506 females. There were 165 teachers who participated in the study. Music aptitude, cognitive and psychomotor measures, motivational and personality dimensions were assessed, along with family indicators of musical stimulation, music study encouragement and active parental involvement during learning music. The criteria for musical success covered a) aspects of school achievement (instrumental and solfeggio marks, assessments of exam performance, teachers' ratings of students' curriculum mastering) and b) performance efficiency (public performances and competitions).

**Results.** The assumption of qualitatively discrete, yet interrelated levels of musical success is confirmed. Within the ability domain, musical abilities proved to be the most influential and related primarily to school achievement. Mothers' and fathers' supports are different (accordingly to their 'instrumental' and 'expressive' family roles), though encouragement and involvement by both parents are closely associated with performance efficiency. Motivational components significantly underlie all aspects of musical achievement, as well as a number of personality traits related to higher levels of music competence.

**Conclusions.** In a final analysis, the specific 'threshold hypothesis' turned out to be the rule of the day: the family background and personal motivation components – as given musical abilities - are the crucial agents of higher levels of performance efficiency. Encouraging and supportive parents – who instill intrinsic motivation into the talented – are indispensable to turn necessary but not sufficient music potential into performing efficiency.

## 1. BACKGROUND

The paper presents results from the five-year project entitled "Success in music learning - prediction of music achievement at elementary school age" conducted by the Institute of Psychology, at the University of Belgrade. The project examined the role of musical, personal and environmental variables in students' success during the early stages of formal instrumental study. A broad spectrum of predictor variables and achievement criteria was taken into account.

Numerous relevant precursors of musical success pertaining to students - musical, cognitive, affective and connotative, as well as certain aspects of the family environment - were included. Musical success was analyzed by taking into account the most representative aspects and levels of students' achievements not only in school setting (classes and exams), but also in extracurricular activities such as instrumental performance efficiency at different levels of importance.

## 2. AIMS

1. To identify the key components of students' music achievement at the elementary-school age.
2. To explore the structure of relationships among the relevant psychological characteristics, some attributes of family environment and the main components of music success in order to increase our understanding of music efficiency antecedents at the beginning of individual instrumental tuition.

## 3. METHOD

The study (1996-2001) was conducted in five specialized music schools in Belgrade. The participants were 993 students (664 girls and 329 boys) aged 6-12, playing different instruments. The parents' sample included 512 fathers and 506 mothers. There were 165 instrumental teachers, who participated in the study.

Music success was monitored from one to five years: along with objective information on students' achievements we have gathered the teachers' assessments of students' progress during music studies.

The achievement criteria covered 10 indicators of school achievement and performance efficiency:

- Instrumental school mark for a performance
- Solfeggio school mark
- Curriculum mastering (quantitative and qualitative aspects)

Assessments of exam performance

- Sight reading efficiency
- Public performances (4 types)
- Competitions (participation and awards at different levels)

Composite measures: of music accomplishments were also used:

- Music Success Index 1 (school and performance achievement)
- Music Success Index 2 (all previous measures included)
- Student dropout rate from music studies

In gathering information about predictor variables numerous instruments were applied. Music aptitude/ability measures included 'Primary Measures of Music Audiation' by E. Gordon, and Bentley 'Measures of Musical Abilities'. Cognitive abilities were assessed by Raven's 'Standard Progressive Matrices', Goodenough-Harris 'Draw-a-man test', and 'Bender-Gestalt test' for young children (adaptation by H. Santucci - N. Granjon). For assessment psychomotor abilities we used Moede's test as we also used teachers' ratings of aptitudes/abilities.

Motivational dimensions were identified by purposefully constructed 'M - questionnaire' which tapped a) general motivational indicators - the importance and enjoyment in learning music for the student, motivation for practice etc. (parents' assessments); and b) motivational dimensions relevant to the teaching process itself - effort, diligence, persistence etc. (instrumental music teachers' assessments). Adapted 'Cattell-Digman Scale' was used for the personality assessment of the children by their teachers.

The parents filled in an investigator-designed 'F-questionnaire' regarding the characteristics of the child's family environment in order to shed a light on the parental role in a) creating musically stimulative early childhood home environment, b) providing the child with opportunities, music study encouragement and general psychological support, c) active daily involvement in learning music.

## 4. RESULTS

The factor analysis of the music achievement components rendered a specific structure of criteria variables underlying the students' music success during their studies (Table 1). Two factors were identified: the first is 'school achievement factor', defined by the variables pertaining to the aspects of success in the both direct individual and group tuition (curriculum mastering, sight reading, instrumental performance, solfeggio). A curriculum mastering is the most valid measure of school achievement. The second factor is 'performance efficiency factor' which refers to different aspects of instrumental performance, primarily at an advanced and the highest level (public performance and competitions), but also those in school settings (exam performances, instrumental school marks). Competitions are the most representative measure of performance success. Our results confirmed that musical success is a composite, i. e. that there are qualitatively discrete, yet interrelated levels of musical achievement. They also prove that it was justifiable to include a large number of criteria variables as the components of music success. This finding represents the theoretical, methodological and practical contribution to research on musical success.

Criteria variables	Components	
	1	2
Instrument	0.45	0.61
Solfeggio	0.72	0.23
Public performances		0.84
Competitions		0.80
Curricula mastering	0.87	0.30
Exam performance assessments	0.25	0.67
Sight reading	0.89	
% of explained variance	51.4	16.2

**Table 1:** Factors structure matrix of criteria variables – Varimax rotation method.

The analysis of the effects of certain predictor variables on students' musical success shows that, as far as the *ability domain* is concerned, musical aptitude plays a major role. Whether they are in the form of musical potential or elementary music abilities, they are related to school achievement, especially to solfeggio and the mastering of school program requirements. Gordon's 'Tonal test' is deemed a better predictor of musical success than the 'Rhythm test'. Bentley's 'Chord Analysis' test is superior compared to the other three. The teachers' ratings of music abilities were also a significant predictor of music achievement. The results prove the significance of cognitive abilities as a factor that determines musical success: they are (especially the performance in the "Draw-a-man test") connected with certain types of school achievement. Perceptual-motor abilities also turned out significantly related to school achievement; sight reading efficiency in particular. Therefore, we were of the opinion that the above mentioned tests need necessarily be included in the battery to be used for the readiness assessments at the beginning of instrumental study.

Results show that parents and teachers agree in their assessments of students' *motivation* for music learning. Among these results, the most important one relates to the presence of intrinsic motivation components even at primary-school age (but see Sloboda and Davidson, 1996). The students' personal motivation is significantly related to all forms of musical achievement. Motivation is also closely connected with students' personality traits vital for achieving musical success, primarily with those underlying the consistent and responsible fulfillment of obligations (being disciplined, practical, enterprising), also those from the emotional domain (emotionally stable, relaxed, independent, self-confident). These findings amply demonstrate that there is a common pattern of intrinsic motivation, personality traits and musical success from the early age.

The analysis of the *family influence* points out, even at a pre-school and primary-school age, willingness, on the part of both parents, to get actively and continually involved in providing great encouragement, opportunities, practical and educational assistance, though in different domains. The role of the mother is more significant in the pre-school period, in providing early music stimulation, and when the process of learning music begins, she proved to be instrumental in school achievements (instrument and solfeggio achievement and curriculum mastering). The results of the canonical analysis unequivocally show that the common pattern of family indicators and criteria variables is most significantly determined by the encouragement and active involvement of both parents, though, to a greater extent by the involvement of the mother, and also by both indicators of instrumental performance efficiency. This picture fits the traditional family pattern. Mothers' active participation is linked to everyday activities that learning music requires: mothers take children to lessons and concerts, they are highly involved in their individual practice and in instrumental lessons. The fathers' support is reflected in setting goals and making a realistic assessment of the prospects of a career in music; also, in providing financial support. These different and yet complementary forms of parental support (musical abilities *sine qua non*) are vitally important for achieving higher aspects of musical achievement – performance efficiency.

In order to explain the *specific correlation pattern of predictor variables and components of students' success*, to the final canonical analysis we included family environment characteristics, abilities, motivational dimensions, as well as the school achievement criteria and students' performance efficiency (Table 2). Results of the canonical analysis show that predictor and criteria variables are highly correlated ( $R=0.69$ ,  $p=0.02$ , d.f. 28) and that one and only statistically significant canonical variable explains 48% of the variance. The obtained results are significant, because they confirm the initial assumption of the multiple and complex interaction of factors which are linked to musical success. In this set of predictor variables, general motivation indicators showed to be most saturating, followed by the composite measure Index of family encouragement and support and musical ability. Considering the findings that personal motivation and home environment are significantly interrelated, it can be inferred that the adequate, encouraging and supportive family environment plays the key role in achieving musical success both in school and in public performances. The significance of musical abilities is further stressed when viewed in terms of school achievement, in solfeggio in particular.

Variable	Canonical variable
Predictor variables	
<i>Family variables</i>	
Index of family support	-0.60
<i>Abilities</i>	
Musical abilities	-0.40
Intelligence (Raven 'SPM')	-0.08
Intelligence ('Draw-a-man' test)	0.13
Perceptual-motor abilities	-0.06
Psychomotor abilities	-0.22
<i>Motivation</i>	
General motivational indicators	-0.68
Criteria variables	
Instrument	0.33
Solfeggio	-0.49
Public performances	-0.51
Competitions	-0.49
Canonical correlation	0.69
$\chi^2$ (df)	45.57 (28)
p	0.02

**Table 2:** Factor structure matrix of canonical variable: family indicators, abilities, motivation and music success components

## 5. CONCLUSIONS

This research is an answer to the critical question: which are determinants of musical achievement at the early stages of music education?

The results of this investigation are essentially parallel to those obtained in other studies. They point out to the interaction within and among different personality attributes and the family environment factors, as well as to their highly complex relationships to achievement criteria (Heller, 1989; Hallam, 1998; Trost, 2000). Unlike other studies, ours strives to be specific in highlighting the presence of inner motivation at such an early age. It is, in our view, the result of outstanding abilities and initial intrinsic interest of the children, of the importance their parents attach to specialist music education and children's pursuit of career in music, as well as a high degree of parental involvement in the activities of their children (which is rather typical for our country).

The results conclusively show that the most significant factors for students' high level performance efficiency (public performances and competitions) are certain aspects of family background which serve as 'environmental catalysts' (Gagnè, 1991). Their impact is both cumulative and interactive. An emotionally, socially, and musically rich family environment, created by encouraging and supportive parents, facilitates the manifestation of children's music aptitude, contributes enormously to their intrinsic motivation for music study and, consequently, to musical performance efficiency. Motivational components significantly underlie all the aspects of music achievement, as well as a number of personality traits related to higher levels of musical achievement.

As for school achievement (curriculum mastering, instrumental and solfeggio school marks), motivation as well as family support are also of primary importance, followed by music abilities. They are the “basic ingredients” of music accomplishments, an essential prerequisite for music studies. However, in order to achieve success in music school, primarily in instrumental study and solfeggio, encouragement and active involvement of both parents is essential.

In the final analysis, the specific “threshold hypothesis” turned out to be the rule of the day: the family background and personal motivation components - as well as the given musical abilities - are the critical agents of higher levels of performance efficiency. The parents, who provide encouragement, structure and support and thus instill intrinsic motivation into the talented, are indispensable to turn necessary but not sufficient music potential into high performance efficiency.

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