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Research Article

Instrument performance management in vocational music education: Relationship between self-efficacy perception and learning approaches

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Students receiving instrument education in institutions providing vocational music education are expected to enhance their self-efficacy perceptions regarding their instruments, identify their motivations, and develop strategies for their learning approaches. These efforts aim to address deficiencies encountered during the educational process and foster personal improvement. This study aimed to examine the relationship between the instrument performance management self-efficacy perceptions of vocational music education students and their learning approaches to instruments. Additionally, the study investigated whether students' learning approaches and self-efficacy perceptions varied based on factors such as gender, age, voluntary selection of their instrument, and engagement in other employment. The study sample comprised students from two universities in the Marmara region of Türkiye offering vocational music education. Data were collected using a relational survey method and included the personal information form developed by the researcher, the *Approaches to Instrument Learning Scale*, and the *Instrument Performance Management Self-Efficacy Perception Scale*. The findings revealed a generally positive relationship between students' instrument performance management self-efficacy perceptions and their learning approaches to instruments. Furthermore, it was found that students' learning approaches significantly predicted their self-efficacy perceptions. The study also determined that learning approaches varied based on gender, academic grade, and voluntary selection of instruments. Additionally, self-efficacy perceptions differed in some sub-dimensions depending on whether students voluntarily chose their instruments and whether they were employed in another field.

Keywords: Instrument education; Instrument performance; Learning approaches; Instrument learning approaches; Self-efficacy; Self-efficacy perception

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1. Introduction

Music education is a broad field of study that deals with all learning areas, including cognitive, affective and psychomotor (McClellan, 2023). It is based on students not only progressing in line with their abilities, wishes and interests, considering their individual differences, but also helping them reach the competence required by the profession in the field they are educated (Uçan, 1997). Music education, which requires a highly disciplined work process, basically carries the common goal of providing individuals with musical knowledge and skills, regardless of its type (Özen, 2004). The field of music education, which can be defined in its simplest form as the process of

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providing, changing and developing musical behavior to individuals, is divided into three types, namely general, amateur and professional music education, according to the purposes it aims to gain qualifications. Since these three types have common areas along with their own special and different areas, they can communicate by supporting each other when necessary (Uçan, 1997).

One of the basic dimensions of vocational music education, which is generally given in formal education institutions, is instrument education, which can be defined as a discipline that covers all the methods used in the learning and development of an instrument (Parasız, 2009). Instrument eduction, which includes various methods, approaches and behaviours, allows students to develop their skills in the cognitive, affective and psychomotor areas related to their instruments and to become professionally competent (Uçan, 1997). With a planned and programmed approach, it aims to enable students to acquire the skills they will need in a wide range of areas, from technical competence to creative musical interpretation (Nelson, 2023). Teaching and learning activities constitute the basic tools of this point (Hesapçıoğlu, 2008).

Instrument education progresses based on gaining mastery over the instrument and achieving effective learning. It focuses on gaining a deep understanding of the proficiency of technical skills, knowledge of music theory and interpretation, which are considered crucial for effective performance (Nelson, 2023). The performance exhibited is evaluated among the basic success indicators of the performer. Performance is an effective communication tool used by music, which is a source of communication, and it is important (Gordon, 2012). Performance, which can be expressed as the natural result and product of the instrument education process with the points it focuses on, is described as one of the basic components of instrument education (Uçan, 1997).

It is quite difficult to explain performance, which is an interdisciplinary concept, with a single definition. In many different disciplines such as sociology, economics, psychology, etc., there are different definitions that are created according to the goals and objectives of the profession to which it belongs, and that are suitable for the specific characteristics of the profession (Holton, 1999). However, in general terms, performance can be defined as a concept that determines the outcome or product of a purposeful and planned activity task quantitatively or qualitatively (Helvacı, 2002; Nursoy & Şimşek, 2001). It can be expressed as the transformation of learned information into observable behavior when needed (Senemoğlu, 2023).

For effective performance, performance management is required, which serves the purpose of improving and developing the performance level, by acquiring the necessary behaviors to gain or increase motivation. Achieving positive successes, avoiding results that include negative failures, and being successful in benefiting from results that are considered positive failures constitute the main objectives of the performance management process (Brumback, 1988). The management process, which continues by determining new targets and measures that improve current results in order to achieve better, and restarting the process, includes a cyclical structure (Budak, 2016). Performance management basically focuses on acquiring skills related to "self-management" (Helvacı, 2002). Performance management, which is seen as a flexible process, is stated to be related to “managing expectations” and is grouped under four headings that can be repeated continuously: “planning”, “taking action”, “monitoring”, “reviewing” (Armstrong, 2006). It is possible to integrate this entire process into the field of instrument education by organizing and shaping effective development plans in the areas of “career management”, “time management”, “stage management”, “executive cognitive skills”, “motivation” and similar areas (Can & Yorulmaz Birdal, 2021). Accordingly, we can interpret the reflection of the performance management process on students' instrument education as the "planning" phase, which includes the process of what to do, what they will need and how to achieve what they will need while working on their instrument performances; the "taking action" phase, which includes the process of carrying out practices on instrument performances in order to achieve the goals and activities decided in the planning phase, that is, to fulfill the plan; the "monitoring" phase, which includes the process of controlling and measuring progress during the time when studies on instrument performances are carried out in order to reach the determined goals; the "review" phase, which

includes the process of determining whether the resulting instrument performances are compatible with the planned goals, what has been achieved and what has not been achieved, and what new solutions are planned to improve or eliminate any missing aspects. If we need to give more concrete examples, in this process, a repertoire selection appropriate to the students' skill levels can be made in line with their career management goals, and systematic studies can be carried out to overcome technical difficulties and develop musical expressions by giving importance to efficient use of time. Students can gain experience by performing in front of a teacher. They can improve their performances by attending rehearsals and develop their stage management skills by advancing their studies with arrangements appropriate to the program flow. A process focused on individual development and performance success can be created by evaluating and improving performances with technical and artistic skills through feedback (see Figure 1).

Figure 1
Components of performance management

Note. Adapted from Armstrong (2006).

For an effective performance management process, it is important for the students to have conscious awareness of themselves and their instrument. The level of awareness can vary depending on many factors in individuals. Usher and Schunk (2018) emphasize in their studies that these factors that affect the level of awareness can cover a wide range of areas, including the emotional states of people, their habits and tendencies towards beliefs. As awareness increases, people's clear-thinking skills improve, making them more competent in revealing and using their inner abilities (Allender, 2023). Ryan (1987) emphasized in his study, where he drew attention to the importance of mind and body awareness while expressing the principles of playing an instrument, that the students can show much better development in their instruments as their awareness increases. This is a statement that should be evaluated very carefully in terms of instrument education. Awareness helps the individuals evaluate their thoughts and replace inappropriate thoughts with realistic thoughts, contributing to more realistic thinking (Barniç, 2018).

In an effective performance management process, students' efficacy beliefs are also considered as one of the important elements. Efficacy beliefs can be considered as a tool for individuals to

control themselves (Klassen & Usher, 2010). In the instrument performance management process, the student's knowledge of what he/she can do can be associated with self-efficacy, which is considered as one of the determinants of the performance levels he/she will exhibit. Bandura (1986) defines the concept of self-efficacy as the individual's belief in his/her ability to organize and successfully perform the necessary activities to achieve a specified performance. According to social cognitive theorists, an individual's self-efficacy perception strongly affects his/her preferences, the effort he/she makes to perform a task, and the level of anxiety he/she experiences (Işıksal & Aşkar, 2003). Bandura stated that the perception of self-efficacy is affected by four main sources of information: "direct experiences" regarding the individual's own success experiences, "indirect experiences" regarding the success experiences of other people, "verbal persuasions" regarding advice and similar positive or negative expressions of the people around him, and "psychological states" regarding the various factors that affect internal experiences (Senemoğlu 233). These effectiveness beliefs develop within the framework of four main sources of influence, which include "cognitive", "motivational", "emotional" and "selective" processes, which generally function in harmony (Bandura, 1995). McPherson and McCormick (2006) point out in their study that students can make improvements in their instrument education performance by increasing their self-efficacy beliefs. In this field, there are also different studies containing results emphasizing that the perception of self-efficacy is an important factor in determining the individual's self-efficacy level and that it can contribute to the individual effectively overcoming the difficulties encountered during the instrument education process (Afacan & Kaya, 2022; Hendricks et al., 2015).

Learning approaches can be considered as another important concept that has a positive or negative impact on the process by helping students determine their professional goals, get motivated, and plan appropriate strategies for an effective performance management process. Marton and Säljö (1976) used this concept for the first time in their study and stated that students may have two approaches to learning: deep and surface. Later, different studies on students' learning approaches brought about different evaluations (Biggs et al., 2001; Newble & Entwistle, 1986). As a result of these evaluations, learning approaches, which were evaluated in three dimensions named "deep, surface and strategic approaches", began to be evaluated with two dimensions named deep and surface learning approach and two sub-dimensions under each of these two dimensions, in line with the results obtained from subsequent studies. In addition, the deep learning dimension includes deep motivation and deep strategy sub-dimensions, and the surface learning dimension includes surface motivation and surface strategy sub-dimensions (Aydıner, 2018). Deep learning, which aims to learn by understanding, is an approach that includes features that reshape knowledge by considering existing knowledge and needs, relate it to previous knowledge and experiences, attach importance to the task, derive general principles from case studies, and organize knowledge in a consistent structure. Surface learning, which aims to complete the given task, is seen to be an approach that focuses only on performing the task, receives information passively, associates new information without understanding it, remembers information only for evaluation purposes, sees the task as an external obligation, fails to derive general rules from case studies, and gets caught up in unnecessary details of the task (Erden & Altun, 2012). In this regard, it can be thought that in learning approaches, deep learning is basically structured with the deep motivation formed by internal approaches and the deep strategy associated with learning by understanding, while surface learning is structured with the surface motivation formed due to external influences and the surface strategy associated with task-oriented learning.

Learning approaches and self-efficacy include a wide area associated with many subjects in instrument education (Piji Küçük & Durak 2021; Pirlibeylioğlu, 2023). It is important for students who receive instrument education in vocational music education institutions to be able to complete the deficiencies they may need in their education processes, to increase their self-efficacy perception of their instruments to improve themselves, and to determine the motivations and

strategies related to their learning approaches. With these, they can contribute to themselves. To obtain these contributions, students' development of their self-efficacy perceptions in instrument performance management in terms of time, career, stage, executive cognition, motivation, etc. may also be beneficial in terms of performing, especially during the instrument education process. In addition, learning approaches can be effective in the development of self-efficacy perception. The existing self-efficacy of students at the beginning of vocational instrument education can make a difference as a result of the learning approaches they use later. In his study, Ekinci (2015) emphasizes that teacher candidates' teaching self-efficacy beliefs can be affected by the type of learning approach they adopt. When compared to studies on approaches in instrument learning and instrument performance self-efficacy perception in the field, it has been seen that there are fewer studies examining the relationships between approaches in instrument learning and instrument performance management self-efficacy perceptions (Kandemir & Yokuş, 2023; Özer, 2020). For this reason, it is thought that different studies examining the relationship between these two variables in different ways can benefit the field. Considering the role of the instrument performance management process, examining the relationship between the approach levels of students receiving vocational music education in instrument learning and instrument performance management self-efficacy perceptions may be important in understanding the relationship between students' performance management skills and learning strategies. In this regard, the aim of this study is to examine the relationship between the self-efficacy perceptions of instrument performance management and the level of approach in instrument learning of students who receive individual instrument education in music education programmes in fine arts education departments of education faculties that provide vocational music education in undergraduate education in Turkey and in music departments of fine arts faculties. In addition, it was examined whether the learning approaches of students receiving vocational music education were a significant predictor of the students' instrument performance self-efficacy perceptions. It was also examined whether the students' instrument performance self-efficacy perceptions and learning approaches differed according to gender, age, choosing their instruments voluntarily, or tendency to work in another professional field. It is thought that the findings obtained may contribute to students' awareness of the subject and to identify areas in which they feel deficient or in need of improvement.

2. Method

2.1. Research Design

The research design was determined as the relational survey design, one of the quantitative research methods. In the relational survey design, the relations between two or more variables are examined without any effort to change or influence them (Fraenkel et al., 2012).

2.2. Population and Sample

The population of the research consisted of music education programmes in fine arts education departments of education faculties that provide vocational undergraduate education in the Marmara region and music departments in fine arts faculties. Four-year undergraduate education is provided in both institutions, which accept students through an aptitude test. Conservatories are in a very different context from other music institutions because they have a long education process starting from primary school ages, and therefore they were not included in the scope of the research.

Convenience sampling, one of the non-probability sampling methods, was used to create the sample group participating in the research. In convenience sampling, the suitability of participants, their willingness and accessibility are taken into account (Creswell, 2012). This sampling was preferred in terms of convenience, time and resource savings, as well as convenience, voluntariness and accessibility. The research was conducted with undergraduate students studying in music education programs. Before the study, an application was made to

Marmara University Institute of Educational Sciences by filling out the necessary form for the ethics committee report of the research. After the form was approved, the data collection tools were applied to the students face-to-face in the spring semester of the 2023-2024 academic year and data were collected. Consent forms were obtained from the students before the data collection process. Data from a total of 114 students were obtained in the study.

Table 1
Distribution of students receiving vocational music education according to their demographic characteristics

Variables	*f*	%
Department		
Music Department	72	63.2
Department of Music Education	42	36.8
Programme		
Performance	61	53.5
Musicology	11	9.7
Music Education	42	36.8
Gender		
Female	60	52.6
Male	54	47.4
Grade		
1st Grade	24	21.1
2nd Grade	28	24.6
3rd Grade	32	28.1
4th Grade	30	26.3
Individual Instrument		
Bow Instruments	27	23.7
String Instruments	31	27.2
Wind Instruments	14	12.3
Keyboard Instruments	34	29.8
Voice	8	7.0
The Situation of Choosing an Individual Instrument Voluntarily		
Yes	106	93.0
No	8	7.0
Consideration of Working in Another Field of Work		
Never	47	41.2
Rarely	25	21.9
Sometimes	29	25.4
Often	8	7.0
Always	5	4.5
Total	114	100

As seen in Table 1, it was found that 63.2% of the students participating in the study were in the music department, 52.6% were female, 28.1% were 3rd grade students, 29.8% received training in keyboard instruments as an individual instrument, 93% chose their individual instrument voluntarily, and 41.2% did not consider working in another field of work.

2.3. Data Collection Tools

The Personal Information Form developed by the researcher, the Instrument Performance Management Self-Efficacy Perception Scale prepared by Can and Yorulmaz Birdal (2021), and the Approaches in Instrument Learning Scale prepared by Aydıner-Uygun (2018) were used as data collection tools in the study.

The Instrument Performance Self-efficacy Scale, created by Can and Yorulmaz Birdal (2021), was developed to measure the instrument performance management self-efficacy perception levels

of students receiving instrument education. The 5-point Likert scale uses the following ratings: 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree). High scores indicate positive perception level while low scores indicate negative perception level. Students in the sample group evaluate the items on the scale by choosing one of these ratings. The scale comprises 47 items across five sub-dimensions: career management, time management, stage management, instrument practice management, and executive cognition and motivation management. The numbers of the items according to the sub-dimensions are as follows: 1-9 career management, 10-16 time management, 17-24 stage management, 25-39 instrument practice management, 40-47 executive cognition and motivation management. The internal consistency coefficients (Cronbach's Alpha) of the scale were calculated as α = 0.865 for career management, α = 0.869 for time management, α = 0.901 for stage management, α = 0.893 for instrument practice management, and α = 0.855 for executive cognition and motivation management. The overall reliability coefficient of the scale was determined as 0.953. In the reliability analysis, the Cronbach's Alpha value for the entire scale was found to be 0.944 and it was concluded that it was at a highly reliable level in the reference value range of 0.80<0.944<1.00.

The Approaches in Instrument Learning Scale, developed by Aydıner-Uygun (2018), was designed to assess the learning approaches of students undergoing instrument education. The 5-point Likert scale includes the following ratings: 1 (never), 2 (rarely), 3 (sometimes), 4 (often), and 5 (always). The scale has 2 dimensions which are Deep Learning Approaches and Surface Learning Approaches. There are 23 items in the scale. In the deep learning approaches dimension of the scale, there are items related to deep motivation and deep strategy. There are items related to surface motivation and surface strategy in the surface learning approaches dimension. The Cronbach alpha reliability coefficient of the scale was calculated as 0.92 for the deep learning approach dimension and 0.88 for the surface learning approach dimension. The overall Cronbach alpha reliability coefficient of the scale was determined as 0.94. In the reliability analysis, Cronbach's Alpha value for the entire scale was found to be 0.732 and it was concluded that it was at a highly reliable level in the reference value range of 0.60<0.732< 0.80.

The personal information form prepared by the researcher was prepared to determine the demographic characteristics of the students. The form consists of seven questions.

2.4. Data Analysis

All data were analyzed using the statistical data analysis program IBM SPSS. Before moving on to the analysis, it was tested whether the data provided the assumption of normality. First, the skewness/kurtosis coefficient was examined and it was seen that the values of the items in both scales were between −1 and +1. Then, Levene's Test was applied to test the equality of variances and it was determined that the variances were homogeneous (p > .05). The findings show that it is appropriate to analyze the data obtained from the study group with parametric tests. The distribution of the participants according to their demographic characteristics was analyzed with frequency and percentage tables, Instrument Performance Management Self-Efficacy Perceptions and Instrument Learning Approach levels were analyzed with descriptive analysis, whether Instrument Performance Management Self-Efficacy Perceptions and Instrument Learning Approach levels differed according to the variable of tendency to work in another field was analyzed with One-Way Analysis of Variance [ANOVA], and the relationship between Instrument Performance Management Self-Efficacy Perceptions and Instrument Learning Approach levels was analyzed with Pearson Product Moment Correlation.

In cases where there was a significant difference in the attitude levels of Turkish language teacher candidates towards research after the independent groups t-test, Cohen's d was calculated to determine the effect size. "Cohen's d value of .20 and below is considered as 'small' effect, up to .50 as 'medium' effect, up to .80 as 'large' effect and above .80 as 'very large' effect" (Leech et al., 2005, pp. 56). Multiple regression analysis technique was used to predict the effect of independent variables on the dependent variable.

3. Findings

In the first part of the findings, the results of the analyses according to the basic demographic variables and in the second part, the relationships among the variables and the regression results are presented. Table 2 presents the *t*-test results of instrument performance management self-efficacy according to gender.

Table 2
Gender-based comparison of instrument performance self-efficacy in vocational music students

	Descriptive Statistics			*t-test*			*Effect*
	n	*Mean*	*SD*	*t*	*df*	*p*	*(d)*
Career Management							
Female	60	3.98	0.55	1.79	112	.075	
Male	54	3.77	0.72				
Time Management							
Female	60	3.62	0.64	.368	112	.714	
Male	54	3.57	0.73				
Stage Management							
Female	60	3.64	0.85	.078	112	.938	
Male	54	3.63	0.77				
Instrument Practice Management							
Female	60	3.69	0.60	1.18	112	.239	
Male	54	3.55	0.68				
Executive Cognition and Motivation Management							
Female	60	3.76	0.71	.303	112	.762	
Male	54	3.72	0.63				
Overall							
Female	60	2.88	0.33	−2.34	112	.021	0.43
Male	54	3.05	0.44				

As shown in Table 2, the results of the independent samples *t*-test conducted to examine whether the instrument performance management self-efficacy perceptions of students receiving vocational music education differ by gender revealed a significant difference in favor of males ($M = 3.05$) in the total instrument performance management self-efficacy perception ($p < .05$). According to this finding, male students scored higher than female students in total instrument performance management self-efficacy perception. The effect size of this difference was determined to be medium ($d = 0.43$).

Table 3 presents the ANOVA results of instrument performance management self-efficacy according to grade. Table 3 reveals that no significant difference was observed in the results of the One-Way ANOVA regarding whether the instrument performance management self-efficacy perceptions of students receiving vocational music education varied by grade level. The findings indicate that the self-efficacy perception levels of these students do not vary according to their grade level.

Table 4 shows the *t*-test results of instrument performance management self-efficacy based on whether the instrument choice was voluntary. The results indicated a significant difference in favor of those who chose –Yes– ($M = 3.69$) for the Stage Management sub-dimension ($p < .05$) and for the Executive Cognition and Motivation Management sub-dimension ($p < .05$). The findings show that self-efficacy perceptions for Stage Management and Executive Cognition/Motivation Management are higher among students who chose their instruments voluntarily compared to those who did not. The impact degree of these differences was very high for Stage Management ($d = 0.86$) and Executive Cognition and Motivation Management ($d = 0.83$) sub-dimensions.

Table 3
Grade-based comparison of instrument performance self-efficacy in vocational music students

	Descriptive Statistics			*ANOVA*		*Post Hoc*
	n	*Mean*	*SD*	*F*	*p*	*LSD*
Career Management						
First grade	24	4.11	0.56			
Second grade	28	3.73	0.60	1.54	.208	-
Third grade	32	3.84	0.50			
Fourth grade	30	3.88	0.82			
Time Management						
First grade	24	3.52	0.69			
Second grade	28	3.49	0.59	.595	.620	-
Third grade	32	3.68	0.55			
Fourth grade	30	3.68	0.88			
Stage Management						
First grade	24	3.63	0.78			
Second grade	28	3.43	0.92	1.43	.238	-
Third grade	32	3.61	0.66			
Fourth grade	30	3.87	0.85			
Instrument Practice Management						
First grade	24	3.61	0.61			
Second grade	28	3.48	0.66	.671	.572	-
Third grade	32	3.69	0.51			
Fourth grade	30	3.68	0.77			
Executive Cognition and Motivation Management						
First grade	24	3.91	0.73			
Second grade	28	3.74	0.68	1.06	.367	-
Third grade	32	3.59	0.61			
Fourth grade	30	3.76	0.68			
Overall						
First grade	24	3.74	0.48			
Second grade	28	3.57	0.56	.770	.513	-
Third grade	32	3.69	0.40			
Fourth grade	30	3.76	0.66			

Table 4
Comparison of instrument performance management self-efficacy based on voluntary instrument choice

	Descriptive Statistics			t-test			Effect (*d*)
	n	Mean	*SD*	*t*	*df*	*p*	
Career Management							
Yes	106	3.88	0.62	0.40	112	.68	
No	8	3.79	0.90				
Time Management							
Yes	106	3.59	0.68	0.04	112	.96	
No	8	3.58	0.75				
Stage Management							
Yes	106	3.69	0.76	2.73	112	.00	0.86
No	8	2.90	1.05				
Instrument Practice Management							
Yes	106	3.62	0.64	0.24	112	.80	
No	8	3.56	0.54				
Executive Cognition and Motivation Management							
Yes	106	3.77	0.66	2.24	112	.02	0.83
No	8	3.23	0.64				
Overall							
Yes	106	3.70	0.52	1.36	112	.17	
No	8	3.44	0.63				

Table 5 presents the t-test results of learning approaches according to gender.

Table 5
Comparison of Approach Levels in Learning Instruments by Gender

	Descriptive Statistics			*t-test*			*Effect (d)*
	n	*Mean*	*SD*	*t*	*df*	*p*	
Deep Motivation							
Female	60	3.65	0.66	.991	112	.324	
Male	54	3.53	0.63				
Deep Strategy							
Female	60	3.57	0.60	−0.42	112	.669	
Male	54	3.61	0.55				
Deep Learning Approach							
Female	60	3.61	0.60	.339	112	.735	
Male	54	3.57	0.55				
Surface Motivation							
Female	60	1.66	0.68	−3.46	112	.001	0.64
Male	54	2.18	0.91				
Surface Strategy							
Female	60	1.99	0.67	−1.87	112	.063	
Male	54	2.30	1.05				
Surface Learning Approach							
Female	60	1.83	0.62	−2.78	112	.006	0.51
Male	54	2.24	0.95				
Overall							
Female	60	2.88	0.33	−2.34	112	.021	0.43
Male	54	3.05	0.44				

As shown in Table 5, the independent group *t*-test revealed a significant difference in approach levels of students receiving vocational music education in learning instruments based on the gender variable. Males scored higher (M = 2.18) in the sub-dimension of surface motivation ($p < .05$), higher (M = 2.24) in the sub-dimension of surface learning approach ($p < .05$), and higher (M = 3.05) in the total approach level in learning instruments ($p < .05$). According to these findings, male students have higher total scores for surface motivation, surface learning approach, and the overall approach level in learning instruments compared to female students. The effect size of these differences was moderate: d = 0.64 for surface motivation, d = 0.51 for surface learning approach, and d = 0.43 for the total approach level in learning instruments.

Table 6 presents the ANOVA results of learning approaches according to grade. According to the results of the One-Way ANOVA, significant differences were observed across several sub-dimensions: Deep Strategy (F = 2.87, $p < .05$), Surface Motivation (F = 3.05, $p < .05$), Surface Strategy (F = 5.43, $p < .05$), and Surface Learning Approach (F = 4.68, $p < .05$). To identify which specific groups differed, the LSD test was conducted. For the Deep Strategy sub-dimension, first-grade students (M = 3.82) had higher mean scores compared to second-grade students (M = 3.52). In the case of Surface Motivation, fourth-grade students (M = 2.25) scored higher than first-grade (M = 1.63) and third-grade (M = 1.72) students. For the Surface Strategy sub-dimension, second-grade students (M = 2.26) had higher mean scores than first-grade students (M = 1.75), while fourth-grade students (M = 2.58) scored higher than both first-grade (M = 1.75) and third-grade (M = 1.92) students. In the Surface Learning Approach sub-dimension, fourth-grade students (M = 2.41) had higher mean scores than first-grade (M = 1.69) and third-grade (M = 1.84) students.

Table 6
Comparison of Approach Levels in Learning Instruments by Grade Level

	Descriptive Statistics			*ANOVA*		*Post Hoc*
	n	*Mean*	*SD*	*F*	*p*	*LSD*
Deep Motivation						
First grade	24	3.82	0.60	1.19	.316	-
Second grade	28	3.52	0.59			
Third grade	32	3.54	0.66			
Fourth grade	30	3.55	0.70			
Deep Strategy						
First grade	24	3.83	0.53	2.87	.040	1 – 2
Second grade	28	3.38	0.47			
Third grade	32	3.64	0.57			
Fourth grade	30	3.54	0.65			
Deep Learning Approach						
First grade	24	3.82	0.54	1.96	.123	
Second grade	28	3.45	0.48			
Third grade	32	3.59	0.56			
Fourth grade	30	3.54	0.66			
Surface Motivation						
First grade	24	1.63	0.84	3.05	.032	4 – 1 4 – 3
Second grade	28	1.95	0.81			
Third grade	32	1.77	0.62			
Fourth grade	30	2.25	0.97			
Surface Strategy						
First grade	24	1.75	0.66	5.43	.002	1 – 2 4 – 1 4 – 3
Second grade	28	2.26	0.79			
Third grade	32	1.92	0.83			
Fourth grade	30	2.58	1.00			
Surface Learning Approach						
First grade	24	1.69	0.73	4.68	.004	4 – 1 4 – 3
Second grade	28	2.10	0.74			
Third grade	32	1.84	0.68			
Fourth grade	30	2.41	0.94			
Overall						
First grade	24	2.98	0.38	1.49	.220	-
Second grade	28	2.89	0.37			
Third grade	32	2.90	0.38			
Fourth grade	30	3.82	0.60			

Table 7 presents the *t*-test results of learning approaches according to the voluntariness of choice of instrument. As shown in Table 7, no significant difference was found in the results of the independent group *t*-test, which was conducted to determine whether the approach levels of students receiving vocational music education in instrument learning differ according to the variable of choosing their individual instrument voluntarily ($p > .05$). According to the findings, the approach levels of students receiving vocational music education in instrument learning do not differ depending on whether they choose their individual instrument voluntarily.

Table 7
Comparison of Approach Levels in Instrument Learning Based on Voluntary Instrument Choice

	Descriptive Statistics			*t-test*		
	n	*Mean*	*SD*	*t*	*df*	*p*
Deep Motivation						
Yes	106	3.59	0.65	0.12	112	.89
No	8	3.62	0.48			
Deep Strategy						
Yes	106	3.59	0.56	0.16	112	.86
No	8	3.55	0.71			
Deep Learning Approach						
Yes	106	3.59	0.57	0.01	112	.99
No	8	3.59	0.57			
Surface Motivation						
Yes	106	1.91	0.84	0.11	112	.90
No	8	1.87	0.77			
Surface Strategy						
Yes	106	2.13	0.87	0.36	112	.71
No	8	2.25	1.09			
Surface Learning Approach						
Yes	106	2.02	0.81	0.13	112	.89
No	8	2.06	0.85			
Overall						
Yes	106	2.96	0.40	0.00	112	.99
No	8	2.96	0.21			

Table 8 shows the correlations between the study variables. The results revealed a moderately strong positive relationship between the total scores of instrument performance management self-efficacy perception and the scores of the approach level in instrument learning total (r = .44), deep motivation (r = .58), deep strategy (r = .63), and deep learning approach (r = .64) sub-dimensions. A low level of strong positive relationship was found between the total scores of instrument performance management self-efficacy perception and the sub-dimension scores of the approach level in instrument learning, surface motivation (r = −.29). A positive moderately strong relationship was found between the instrument performance management self-efficacy perception career management sub-dimension scores and the level of approach in instrument learning total (r = .32), deep motivation (r = .58), deep strategy (r = .59), deep learning approach (r = .62) sub-dimension scores. A positive low-level strong relationship was found between the instrument performance management self-efficacy perception career management sub-dimension scores and the level of approach in instrument learning total sub-dimension surface motivation (r = −.29), surface strategy (r = −.24), and surface learning (r = −.28) scores. A positive moderately strong relationship was found between the instrument performance management self-efficacy perception time management sub-dimension scores and the approach level in instrument learning total (r = .38), deep motivation (r = .56), deep strategy (r = .54), deep learning approach (r = .58) sub-dimension scores. No statistically significant relationship was found between the instrument performance management self-efficacy perception time management sub-dimension scores and the approach level sub-dimensions of instrument learning such as surface motivation, surface strategy and surface learning. A positive and low level strong relationship was found between the instrument performance management self-efficacy perception stage management sub-dimension scores and the approach level in instrument learning total (r = .20), deep strategy (r = .26), deep learning approach (r = .19) sub-dimension scores. No statistically significant relationship was found between the instrument performance management self-efficacy perception stage

Table 8

Correlation between Vocational Music Students' Self-Efficacy in Instrument Performance and Their Learning Approach Levels

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1.Career Management	1												
2.Time Management	.53***	1											
3.Stage Management	.50***	.26**	1										
4.Instrument Practice Management	.62***	.72***	.38***	1									
5.Executive Cognition and Motivation Management	.55***	.36***	.51***	.47***	1								
6. Overall IPMSP	.82***	.73***	.68***	.87***	.72***	1							
7.Deep Motivation	.58***	.56***	.11	.61***	.36***	.58***	1						
8.Deep Strategy	.59***	.54***	.26***	.60***	.42***	.63***	.77***	1					
9.Deep Learning Approach	.62***	.58***	.19*	.64***	.41***	.64***	.94***	.93***	1				
10.Surface Motivation	−.29**	−.17	.01	−.16	−.08	−.17*	−.29**	−.26**	−.29**	1			
11.Surface Strategy	−.24**	−.11	.01	−.08	.02	−.10	−.27**	−.30***	−.30***	.79***	1		
12.Surface Learning	−.28**	−.15	.01	−.13	−.03	−.14	−.29**	−.30***	−.31***	.94***	−.24**	1	
13.Overall ALIL	.32***	.38***	.20*	.45***	.33***	.44***	.56***	.61***	.62***	.53***	−.11	.53***	1

Note. IPMSP: Instrument Performance Management Self-Efficacy Perception; ALIL: Approach Level in Instrument Learning; ***$p < .001$; **$p < .01$; *$p < .05$

management sub-dimension scores and the deep motivation, surface motivation, surface strategy and surface learning sub-dimensions of the approach level in instrument learning. A positive moderately strong relationship was found between the instrument performance management self-efficacy perception instrument practice management sub-dimension scores and the approach level in instrument learning total (r = .45), deep motivation (r = .61), deep strategy (r = .60), deep learning approach (r = .64) sub-dimension scores. No statistically significant relationship was found between the instrument performance management self-efficacy perception instrument practice management sub-dimension scores and the approach level sub-dimensions of instrument learning, such as surface motivation, surface strategy and surface learning. A positive moderately strong relationship was found between the instrument performance management self-efficacy perception executive cognition and motivation management sub-dimension scores and the approach level in instrument learning total (r = .44), deep motivation (r = .36), deep strategy (r = .42), deep learning approach (r = .41) sub-dimension scores. No statistically significant relationship was found between the instrument performance management self-efficacy perception executive cognition and motivation management sub-dimension scores and the approach level sub-dimensions in instrument learning, such as surface motive, surface strategy and surface learning.

Table 9 presents the regression results of the learning approaches and self- efficacy perceptions.

Table 9

Multiple Regression Analysis Results of the Approach Level Sub-Dimensions' Effect on Instrument Performance Management Self-Efficacy Perception

Sub-dimensions	*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*p*
	B	*SE*	*β*		
β_0 (Constant)	1.309	.303	---	4.325	<.001
β_1 Deep Motivation	.190	.094	.231	2.036	.044
β_2 Deep Strategy	.445	.105	.482	4.238	<.001
β_3 Surface Motivation	−.113	.075	−.178	−1.503	.136
β_4 Surface Strategy	.148	.071	.245	2.066	.041
R = .668; R^2 = .447; Corrected R^2 = .426; F = 21.98; p < .001					

As shown in Table 9, deep motivation, deep strategy, surface motivation, and surface strategy sub-dimensions in instrument learning were found to predict instrument performance management self-efficacy and explain approximately 44.7% of the total variance. According to the standardized regression coefficient (β), the predictive order is deep strategy, surface strategy, deep motivation. Surface motivation has no predictive effect on instrument performance management self-efficacy perception. A 1-unit increase in deep strategy scores from the predictor variables increases the instrument performance management self-efficacy perception mean score by .445 units. A 1-unit increase in deep motivation scores increases the instrument performance management self-efficacy perception mean score by .190 units. A 1-unit increase in surface strategy scores increases the instrument performance management self-efficacy perception mean score by .148 units. The regression equation for predicting instrument performance management self-efficacy perception is as follows: Instrument Performance Management Self-Efficacy Perception = 1.309 + .445 *x* Deep Strategy + .190 *x* Deep Motivation + .148 *x* Surface Strategy.

4. Discussion and Conclusion

This section includes the results concerning the relationships between students' instrument performance management self-efficacy perceptions and learning approaches in vocational music education. It examines whether learning approaches predict students' instrument performance management self-efficacy perceptions, and whether these perceptions and learning approaches differ based on gender, age, choice of instrument, or employment in another field.

Based on the significant relationship between the overall approach level in instrument learning, deep motivation, deep strategy, and deep learning approaches, students with high levels of these factors tend to have higher self-efficacy perceptions. Conversely, as students' surface motivation approaches increase, their self-efficacy perceptions tend to decrease. These results align with Ekinci's (2015) research on teacher candidates' learning approaches and self-efficacy, where Schriver and Czerniak (1999) found that the learning strategies and approaches used in education enhance students' self-efficacy. This suggests that improving students' self-efficacy perceptions is connected to their development of effective learning approaches.

The results also point that the relationship between the overall approach level in instrument learning, deep motivation, deep strategy, and deep learning approaches supports career management. Students with lower levels of surface motivation, surface strategy, and surface learning approaches can manage their careers more effectively. Career management involves evaluating one's current professional status, setting future goals, and making the necessary preparations to achieve these goals (Can & Yorulmaz Birdal, 2021). Therefore, using effective learning approaches as part of an instrumental education process can positively impact career management. Deep motivation can help students choose career goals with intrinsic motivation, while deep strategy enables them to make meaningful learning plans and manage their careers in line with these goals.

It was also revealed that students who effectively used the relevant approaches—specifically in the sub-dimensions of the overall approach level in instrument learning, deep motivation, deep strategy, and deep learning—enhanced their perceptions in the sub-dimensions of time management, practice management, and executive cognition/motivation. This suggests that learning approaches contribute to students improving their performance management process more efficiently. Similar findings were reported by Esen and Şenol Sakin (2021), who found that students' performance and learning processes became more effective through strategies for the effective and efficient use of time, in line with the current study's results.

Time management refers to determining priorities and using time efficiently while studying, planning the process with methods aligned with practice management goals, and executive cognition/motivation refers to the student's awareness and willingness regarding their cognitive characteristics. For successful and effective performance, music education students should develop effective study habits and manage their time correctly (Özen, 2004; Özmenteş, 2013). Aydıner Uygun (2018) highlights that the duration of instrument practice may vary based on students' learning and motivational styles, and the strategies used in this process are crucial for quality in instrument studies. In the study, it was observed that stage management perceptions among students who were active in the approach level in instrument learning, deep strategy, and deep learning sub-dimensions increased. Stage management can be understood as a process that involves developing strategies for tasks such as making preliminary preparations before the stage, coping with stress, and gaining stage dominance. Research in the field shows that learning strategies contribute positively to performance (Şeker, 2022; Yokuş, 2013).

The multiple regression analysis of the effect of the approach level sub-dimensions in instrument learning on instrument performance management self-efficacy perception revealed that deep strategy, surface strategy, and deep motivation sub-dimensions significantly predicted instrument performance management self-efficacy, while surface motivation was not a significant predictor. The result from the deep strategy sub-dimension, which focuses on deep and systematic learning, indicates that students' adoption of a planned and in-depth learning approach strengthens their self-efficacy perceptions towards instrument performance. Phan (2014) found a positive effect of deep learning approaches on self-efficacy beliefs and noted that these approaches are key to changes in academic self-efficacy over time. Honicke et al. (2023) highlighted that the performances and self-efficacy perceptions of students with an instrument performance background in vocational education can be influenced by the learning approaches adopted in the performance management process.

Additionally, it was found that the perception of self-efficacy in performance management did not show a significant difference across the overall scale and its sub-dimensions based on the gender variable. This finding is consistent with many studies in the literature, suggesting that self-efficacy perception may be more closely related to individual work discipline, teaching methods, or interest in the instrument than demographic characteristics like gender. Some studies support this view (Öztutgan, 2018; Şeker, 2017), while others indicate that gender can influence self-efficacy perception (Birer & Sonsel, 2013; Coşkun Şentürk & Bölek, 2019; Nielsen, 2004; Özmenteş, 2014). This suggests that self-efficacy determinants may vary across different sample groups, cultural contexts, and research methods. The study also observed that performance management self-efficacy perception did not differ significantly according to the grade variable in the overall scale and its sub-dimensions. Similar findings are reported in the literature, supporting the idea that self-efficacy perception does not significantly differ by grade level (Eren & Engür, 2019; Temiz, 2017). However, other studies indicate that grade level can impact self-efficacy perception (Birer & Sonsel, 2013; Lehimler, 2016; Pirlibeylioğlu & Bilgin, 2022). It may be that increasing knowledge and experiences with grade level can positively influence self-efficacy perception, though individual characteristics and motivation also play a role in shaping self-efficacy.

The results also showed that performance management self-efficacy perception did not differ significantly across the overall scale and the career management, time management, and instrument practice management sub-dimensions based on students' voluntary choice of their instruments. However, in the findings from the stage management and executive cognition/motivation sub-dimensions, students who chose their instruments voluntarily reported higher self-efficacy perceptions than those who did not. These results align with the general level and stage management sub-dimension of the same variable found in the study on instrument performance management self-efficacy perceptions of music department students by Yorulmaz Birdal (2021). The high self-efficacy perceptions of students who voluntarily chose their individual instruments are expected, as noted by Şeker (2022), who found a significant positive change in these perceptions.

Students who choose an instrument based on their preferences tend to establish a closer relationship with it, which can enhance their confidence when performing on stage (Macintyre et al., 2014). Various studies have shown that students who willingly choose their individual instruments tend to have higher motivation towards their instruments (Erdem, 2013; Öztürk, 2020). The lack of a significant difference across the overall scale and the sub-dimensions of career management, time management, and instrument practice management may be due to factors such as personality structure, teacher qualifications, and different study groups. Özmenteş (2013) highlights that personality structure, teacher qualifications, and student-teacher communication are important factors in improving students' performance levels.

On the other hand, it was found that the performance management self-efficacy perception differed in the career management sub-dimension and the total of the instrument performance management self-efficacy perception based on whether students were inclined to work in another field. Students who did not consider working in another field or were less inclined to do so had higher self-efficacy perceptions than those who were more inclined. In the executive cognition and motivation management sub-dimension, similar results were observed; students who did not consider working in another field also had higher self-efficacy perceptions. This suggests that students may be focusing on aligning their professional careers with their education, and their self-efficacy perceptions play a crucial role in this process. The findings indicate that career management, executive cognition/motivation, and self-efficacy perceptions interact as students successfully direct and develop their musical careers. Moreover, identity development may also play a significant role in this context. Bennett and Chong (2018) highlight the importance of understanding the relationship between career motivations and identity formation in the study of music teacher candidates' career motivations and future career plans.

The study concluded that the perception of self-efficacy in instrument performance management did not significantly differ in the sub-dimensions of time management, instrument practice management, and stage management based on students' inclination to work in another field. Since these dimensions pertain to more specific aspects, the findings may be attributed to individual differences and variations in students' identities. Factors such as differing career goals, levels of self-awareness, and individual qualifications could influence students' priorities and shape their self-efficacy perceptions. The study found that male students exhibited higher levels of surface motivation, surface learning approaches, and overall approach levels in instrument learning compared to female students. While similar results have been reported in other studies, there are also findings showing differences in favor of females or no differences between genders. For instance, Hüzmeli (2017) reported results consistent with this study in research on music teachers' study approaches. In contrast, Akın (2013) found no significant gender differences in learning styles among music teacher candidates, while Aksu and Kurtuldu (2015) reported significant findings favoring female students in similar research. These variations suggest that factors beyond gender, such as personal characteristics, may also influence learning approaches.

The study identified grade-level differences in students' approaches to learning instruments and their selection of individual instruments. First-year students were more likely to employ deep strategies compared to second-year students, with this tendency diminishing in the second year. Meanwhile, fourth-year students demonstrated higher use of surface strategies than first- and third-year students. Additionally, fourth-year students exhibited higher levels of surface motivation, surface strategies, and surface learning approaches in instrument education compared to other grade levels. This trend may be explained by the high motivation of first-year students to learn, understand, and analyze new information, which aligns with their use of deep learning approaches. In contrast, the elevated surface motivation of fourth-year students might reflect the growing influence of external factors such as nearing graduation, exam preparation, and post-graduation career concerns. These external motivators may contribute to a shift toward surface learning approaches. Contrasting findings have been reported in other studies, such as those by Akın (2013) and Aydıner Uygun (2012), highlighting the complexity of learning approaches across different contexts.

The study revealed that students' instrument learning approaches did not differ significantly in the overall scale or sub-dimensions based on their individual instrument selection. This suggests that personal preferences during the instrument selection process do not influence or determine students' learning approaches. Erden and Altun (2012) emphasize that while deep and surface learning tendencies may have innate origins, they can be shaped by the cultural and educational systems in which students are immersed. Consequently, it can be inferred that learning approaches are influenced by a combination of individual, cultural, and environmental factors. In vocational instrument education, standardized curricula and teaching methods are typically followed. Given that teachers often employ similar instructional strategies, the voluntary selection of an instrument might not significantly impact students' learning approaches. However, other studies have reported that students who voluntarily choose their instruments tend to perform better in their learning processes (Öztürk, 2020; Şeker, 2022). These discrepancies could arise from variations in the determinants influencing students' instrument choices or differences in how the relationship between learning approaches and instrument education is understood and implemented across different studies.

The study found differences in students' deep motivation, deep strategy, deep learning approach, and surface learning approach in relation to their tendency to consider working in another field, while no significant differences were found in other sub-dimensions or the overall scale. Students who rarely or never considered working in another field exhibited higher deep motivation than those who occasionally or frequently thought about it. Similarly, students who never considered working in another field had higher deep strategy scores compared to those who occasionally, frequently, or always thought about it, and those who rarely considered it had higher

scores than students who frequently did. For deep learning approaches, students who never considered working in another field scored higher than those who occasionally or frequently considered it, and those who rarely considered it scored higher than those who frequently did. This suggests that students less inclined to think about working in another field may utilize deep motivations and strategies more effectively in their learning processes. Conversely, students who always considered working in another field exhibited higher surface learning approaches than those who never considered it. These findings imply that students' expectations about their academic and career development may influence their learning approaches. Students likely shape their future goals and expectations based on past experiences—whether successful or unsuccessful—and on the information and observations from their environment. This aligns with the idea that students project their potential areas of success or challenge and adjust their academic and career plans accordingly (Brown & Lent, 2005).

In conclusion, this study demonstrated that students' learning approaches significantly influence their instrument performance self-efficacy perceptions. The findings highlight that students who adopt deep learning approaches exhibit higher self-efficacy and performance, underscoring the critical role of learning approaches in this process. Conversely, the negative impact of surface learning approaches on self-efficacy and performance emphasizes the need to promote strategies that foster deep learning. It is recommended that educational programs incorporate methods to cultivate deep learning approaches, encouraging students to enhance their skills and strengthen their professional commitment.

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Data availability: The datasets generated during and/or analysed during the current study are available from the corresponding author on a reasonable request.

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