

Article

Enhancing Music Learning Motivation: An ARCS-Based Curriculum

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Abstract: We developed a Music Learning Motivation Curriculum (MLM) Curriculum based on Keller's ARCS Model of Motivation for a general music course. The curriculum incorporates the model's four components: Attention, Relevance, Confidence, and Satisfaction. Each lesson integrates these components to enhance student motivation. This article describes a twelve-lesson curriculum designed for implementation in a university general music education classroom. It analyzes results from the self-adapted Music Lesson Content Motivation Survey (based on Keller's Instructional Materials Motivation Survey, or IMMS), administered at the course's conclusion. Results from a three-question course learning survey administered after each lesson are also included.

Keywords: College service-learning, Music literacy, Narrative skills, Students with special needs, General music education

1. Introduction

My experience teaching general music education reveals that college students often require enhanced engagement, connections to real-world applications, increased confidence, and satisfaction to succeed in music courses. To address this, a novel Music Learning Motivation (MLM) curriculum, based on Keller's ARCS Model, was developed and implemented in a college-level String Music Appreciation course. This curriculum integrated the four ARCS components (Attention, Relevance, Confidence, and Satisfaction) into each lesson, fostering students' listening skills and creative expression. Students translated their emotional responses to music into thematic reports for the campus's Aesthetic Education Program, culminating in a collaborative campus life play with original compositions. This twelve-lesson MLM curriculum focused on cultivating all four ARCS components. This study investigates the curriculum's effectiveness, specifically examining whether its integration enhances student motivation and whether performance on the four ARCS components varies across colleges.

2. Literature Review

Bennett Reimer's *A Philosophy of Music Education* (2003) establishes a fundamental link between the value of music education and the inherent value of music itself, effectively bridging aesthetic theory with practical application for educators and students. This influential work remains a cornerstone for understanding music's multifaceted role in education. Building upon Reimer's framework, Ji (2020) examines the compatibility between his aesthetic theory and Taiwan's 12-year curriculum, highlighting the cultivation of aesthetic perception through active musical engagement and response. University-level general music education extends this foundation, enriching and expanding the curriculum to enhance student motivation and contextualize musical content. Moreover, consistent curriculum development in higher music education (Cox, 2007) promotes ongoing professional development for teachers and fosters a sustained commitment to innovative teaching. Finally, a practical planning framework (Mellizo, 2020) enables educators to address potential biases in traditional curricula through a critical examination of content, pedagogy, and assessment, ultimately creating more inclusive and engaging musical learning experiences. This commitment to stimulating student motivation and fostering meaningful musical growth is paramount for educators.

Keller's ARCS model (1987, 2006, 2010) proposes that effective instruction demands a systematic approach to motivational design, carefully considering learner goals, providing appropriate stimulation and challenge, and acknowledging the emotional impact of both success and failure to cultivate attention, relevance, confidence, and satisfaction. The model's adaptability is evident in its widespread application across diverse academic fields, including business and the social sciences. Action research consistently

demonstrates that ARCS-aligned strategies significantly enhance student motivation and learning outcomes, particularly for non-IT students in programming (Tien, 2020; Wang, 2022). However, a review of the broader literature (Li & Keller, 2018) reveals inconsistencies in the reported effects of the ARCS model across various contexts and methodologies, highlighting that employing the ARCS model is merely an initial step in course design. The ultimate success of a course hinges on effective management and robust assessment mechanisms to verify and refine its design, ensuring demonstrable improvements in student learning.

3. Research Methods

3.1. Materials

A self-designed Music Learning Motivation (MLM) curriculum, incorporating three components of Keller's ARCS model, was implemented in a twelve-lesson university general music education course focused on string music appreciation (see Fig. 1 for a detailed breakdown of curriculum content and ARCS components; see Table 1 for the course schedule and activities, including live-guided concert listening). This study investigated the MLM curriculum's effectiveness in enhancing college students' music literacy. Assessment consisted of a three-question learning survey after each lesson and a single administration of a self-adapted Music Lesson Content Motivation Survey (based on Keller's Instructional Materials Motivation Survey, or IMMS) upon course completion to gauge the curriculum's overall impact on student learning.

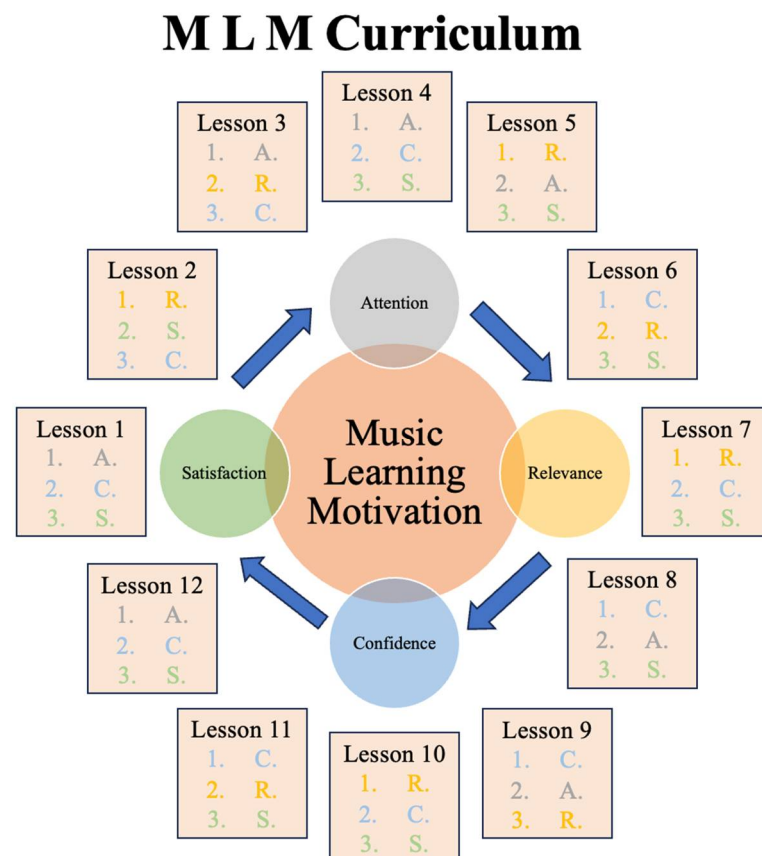


Fig. 1. The content of the Music Learning Motivation Curriculum.

Table 1. Twelve lessons of MLM curriculum in string music appreciation using the concepts of ARCS Model.

Lesson	Content	Activities	Highlight																
1	MLM Curriculum: Attention, Confidence, Satisfaction	<div>1. Plan and goal of the <i>String Music Appreciation</i></div> <div>2. Overlook classification of string instruments and listening to string music.</div>	<div>Classification for String Instruments</div> <table><thead><tr><th></th><th>Bowed String Instruments</th><th>Plucked String Instruments</th></tr></thead><tbody><tr><td rowspan="6">Names</td><td>Violin</td><td>Guitar</td></tr><tr><td>Viola</td><td>Ukulele</td></tr><tr><td>Cello</td><td>Harp</td></tr><tr><td>Double bass</td><td>Theorbo</td></tr><tr><td>Erhu</td><td>Electric guitar</td></tr><tr><td>Musical saw</td><td>Electric bass</td></tr></tbody></table> <div></div>		Bowed String Instruments	Plucked String Instruments	Names	Violin	Guitar	Viola	Ukulele	Cello	Harp	Double bass	Theorbo	Erhu	Electric guitar	Musical saw	Electric bass
	Bowed String Instruments	Plucked String Instruments																	
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	Cello	Harp																	
	Double bass	Theorbo																	
	Erhu	Electric guitar																	
	Musical saw	Electric bass																	
2	MLM Curriculum: Relevance, Satisfaction, Confidence	<div>1. Understanding J. S. Bach’s Partitas and Suites for solo instruments.</div> <div>2. Extended understanding of Pachelbel’s <i>Canon</i> is a piece of music based on eight notes of the basso Ostinato.</div>	<div>A partita/ suite is a musical composition, usually consisting of a series of dance movements, written for a <u>solo instrument</u> or a <u>small ensemble</u>.</div> <div>Basso Ostinato of the <i>Canon</i></div> <div></div> <div>D A B F# G <u>D</u> G A</div>																
3	MLM Curriculum: Attention, Relevance, Confidence	<div>1. Understanding the role that the violin has played in the history of Jazz music.</div> <div>2. Practicing clapping on 2 and 4 beats, singing bass line, and respond.</div>	<div>History of Violin in Jazz</div> <div>How do the sounds of strings in jazz combine with other instruments to produce effects? How violin works in Jazz ensembles?</div> <div>Blues Scales</div> <div></div>																

Table 1. Cont.






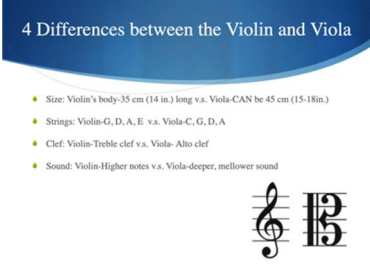
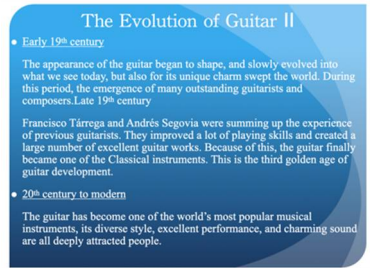
Lesson	Content	Activities	Highlight
4	MLM Curriculum: Attention, Confidence, Satisfaction	<ol style="list-style-type: none"> 1. Understanding the way Passacaglia is composed and its musical characteristics. 2. Feeling and imagination of Bach's "Toccat and Fugues" composed for the organ. 	<p>Passacaglia</p> <p>It is a dance form of the late Baroque period. The word is derived from the Spanish "passacalle" (street song).</p> <p>The main features are as follows:</p> <p>Rhythm and Melody: It has a steady rhythm and a solid melody. A restrained and firm character.</p> <p>Basso Ostinato: A fixed bass theme runs throughout the entire piece, giving it a unique structure and musicality.</p> <p>Variations: The composer made many variations on the music and presented it in different ways, showing the composer's creativity and skills.</p> <p>Emotional Expression: It is often characterized by its firmness and deep emotional expression. Its musicality can range from reserved and meditative to passionate and emotive.</p> <p>Musical instrument arrangement: Various instrument combinations can be used, the most common being string instruments and keyboard instruments.</p>  <p>Organ</p>
5	MLM Curriculum: Relevance, Attention, Satisfaction	<ol style="list-style-type: none"> 1. Understanding the different musical styles presented by the cello in different music periods. 2. Feeling the charm of Bach's cello suites. 	<p>The "King" Cello by Andrea Amati</p> <p>The reconstitution of the "King" Cello</p> 
6	MLM Curriculum: Confidence, Relevance, Satisfaction	<ol style="list-style-type: none"> 1. Describing the characteristics of plucked string instruments. 2. Knowing that the banjo is often used in country music bands. 	<p>Mandolin v.s. Banjo</p> 
7	MLM Curriculum: Relevance, Confidence, Satisfaction	<ol style="list-style-type: none"> 1. Impressed by the music chosen by one group of students. 2. Impressed by the combination of plot and music by one group of students. 	<p>TIMELINE</p> <p>The boy wants to return the book → For Lina's Calabash</p> <p>They meet at the library → Solid of Renner</p> <p>They play together and the end → Canon in D</p> <p>CHOICE & CONNECTION</p> <ul style="list-style-type: none"> Renowned for its romantic themes, conveying tender emotion. This song is very sentimental and symbolize unspoken feeling, emphasizing the budding romance, gentle melody. Has simple structure and catchy melody to describe how an attraction happened. The elegant harmony gives a serene vibe while presenting the view of the library which is the second place where an unexpected encounter happens once again.
8	MLM Curriculum: Confidence, Attention, Satisfaction	<ol style="list-style-type: none"> 1. Understanding Mozart's life and works. 2. Listening to live concerts makes more immersed in the experience. 	<p>MOZART: TWO PIANO QUARTETS</p> <p>Rei-Li Hall, Chung Yuan Christian University</p> <p>2024/4/22 (Mon.) 19:00</p> <p>Manhattan Chamber Music Society</p>

Table 1. *Cont.*

Lesson	Content	Activities	Highlight
9	MLM Curriculum: Confidence, Attention, Relevance	<ol style="list-style-type: none"> Understanding the first modern violin appeared in the 16th century (1500s). Knowing that for some musical instruments, the bow is used to produce sound. 	
10	MLM Curriculum: Relevance, Confidence, Satisfaction	<ol style="list-style-type: none"> Understanding the development of violin bows. Feeling the emotional expression of different playing techniques. 	
11	MLM Curriculum: Confidence, Relevance, Satisfaction	<ol style="list-style-type: none"> Naming different ways in which a viola and a violin. Naming at least one band that has a violist in it. 	
12	MLM Curriculum: Attention, Confidence, Satisfaction	<ol style="list-style-type: none"> Naming at least three plucked instruments. Understanding the history of guitar evolution. 	

3.2. Methods

Of the students completing the twelve-lesson general music education course, 78 participated in the string music appreciation component. This group consisted of 43 women (55%) and 35 men (45%) from six different colleges and schools within the same university; most were undergraduates, with three graduate students. Despite diverse musical backgrounds and prior learning experiences, all 78 students completed the twelve-lesson MLM curriculum.

3.3. Implementaion Procedure

Over twelve weeks, students completed a three-question learning survey (based on the ARCS Model) after each lesson of the string music appreciation course, culminating in a final presentation. These three questions, aligned with the course content, assessed students' engagement with the Attention, Relevance, and Confidence components of the ARCS model. Additionally, a comprehensive 36-question survey (see Table 2), based on Keller's IMMS, was administered to assess overall motivational impact. This survey, encompassing various aspects of the MLM curriculum (music listening, instrument identification and creation, music and plot development), incorporated the four ARCS components (Attention, Relevance, Confidence, and Satisfaction) and utilized a five-point Likert scale (1=totally unable; 2=not very good; 3=okay; 4=probably okay; 5=absolutely). Finally, after college students completed the thirteen-week course, they conducted a single administration of a self-adapted Music Lesson Content Motivation

Survey (based on Keller’s Instructional Materials Motivation Survey, or IMMS) upon course completion to gauge the curriculum’s overall impact on student learning.

Table 2. A three-question learning survey.

Lessons	Questions and ARCS
1	I can understand the meaning and feel “The Swan” composed by C. Saint-Saëns for “The Carnival of the Animals.” (A.)
	Can you simply classify string instruments? (C.)
	I can infer which instrument it might be based on the range of sounds (register) it produces. (S.)
2	I can understand Bach writing pieces for solo instruments to play multiple dance movements to be called Partitas or Suites. These dance movements were popular throughout Europe during the Baroque period. (R.)
	The two Preludes composed by Bach introduced today are unaccompanied partitas for violin and suites for cello. While listening, I can feel the ups and downs of music as well as the flow of the music. These feelings ultimately produce the imagination that comes to mind. (S.)
	I know that Pachelbel’s famous “Canon” is based on eight notes of Basso Ostinato for the entire composition. (C.)
3	I can understand the role that the violin has played in the history of Jazz music. (A.)
	I can understand how strings blend with other instruments in jazz. (R.)
	I can feel the beauty of playing jazz on the violin. (C.)
4	I can understand what basso ostinato is, which refers to a group of bass combinations that appear repeatedly in the same order in a piece of music. (A.)
	I can understand the way Passacaglia is composed and its musical characteristics. (C.)
	I can feel and imagine Bach’s “Tocatta and Fugues” composed for the organ. (S.)
5	I can understand the different musical styles presented by the cello in different music periods. (R.)
	I can understand cello bows used in different periods. (A.)
	I can feel the charm of Bach’s Cello Suite. (S.)
6	I can name and describe the characteristics of at least one plucked string instrument. (C.)
	I know that the mandolin, a plucked instrument family, has the same tuning as the violin, and it is composed of two pairs of eight strings. (R.)
	I know that the banjo is often used in country music bands. Its body has a round frame and its sound has a plunky and nasal sound. (S.)
7	I can name at least one group of classmates’ midterm project topics. (R.)
7	I was impressed by the music chosen by one group of students. (C.)
8	I was impressed by the combination of plot and music by one group of students. (S.)
	I can understand Mozart’s life and works. (C.)
8	Through music-guided listening, I can feel the beauty of music more deeply. (A.)
9	Listening to live concerts makes me more immersed in the experience. (S.)
	I understand that the first modern violin appeared in the 16th century (1500s). (C.)
9	I understand the origin of the word luthier and know that it refers to a musical instrument maker. (A.)
	I know that for some musical instruments, the bow is used to produce sound, such as the violin family. The musical saw, the treble yazheng, and ajaeng are relatively special instruments. (R.)
	I can understand the development of violin bows and the characteristics of modern bows. (R.)
10	I can name at least one violin playing technique. (C.)
11	I can feel the emotional expression of different playing techniques in a piece of music. (S.)
	I can name at least three ways in which a viola is different from a violin. (C.)
11	I know that the viola is an alto range instrument, and the longest-used clef is the alto clef. (R.)
12	I can name at least one band that has a violist in it. (S.)
	I understand that an important core value in general music education is teamwork and collaborative learning. (A.)
12	I understand the practical implications of turning the idea of a midterm theme into a video for the final. (C.)
	I understand that using music as an imaginative tool to connect stories can help me express my ideas better. (S.)

3.4. College Student Music Lesson Content Motivation Survey Outcomes

A music lesson content motivation survey was administered, collecting basic demographic information (Table 3) and data from a 36-item lesson content motivation scale (also detailed in Table 3). This scale, which used a five-point Likert scale (1 = not true; 2 = slightly true; 3 = moderately true; 4 = mostly true; 5 = very true), measured four dimensions—attention (12 items), relevance (9 items), confidence (9 items), and satisfaction (6 items)—reflecting the four key components of effective learning: attention, relevance, confidence, and satisfaction. The survey’s design ensured a comprehensive assessment of the motivational factors influencing student engagement in the music lessons. To maximize engagement, lessons incorporated storytelling, interactive elements, and diverse musical materials to stimulate concentration and imagination. Connecting music lessons to real-world applications, such as participation in cross-domain collaborative aesthetic design competitions, proved crucial for encouraging students to integrate professional knowledge and creative abilities. This practical application enhanced the perceived value and

relevance of the musical skills being developed. Building confidence was achieved through achievable goals, positive reinforcement, constructive feedback, and realistic expectations, fostering competence and persistence. The music lessons actively encouraged active imagination and creative breakthroughs, fostering a sense of ownership and creative expression among the students. Finally, a supportive learning environment that celebrated achievements, promoted self-reflection, and provided positive experiences (such as completing and presenting class tasks) cultivated a sense of accomplishment and satisfaction, boosting motivation.

Table 3. Music lesson content motivation survey.

I. Basic Information	
1	Affiliate college and schools:
2	Grade: <input type="checkbox"/> Freshman <input type="checkbox"/> Sophomore <input type="checkbox"/> Junior <input type="checkbox"/> Senior (above) <input type="checkbox"/> 1 st master year <input type="checkbox"/> 2 nd master year (above)
3	Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female
4	My attitude towards General Education is <input type="checkbox"/> Like very much <input type="checkbox"/> Like <input type="checkbox"/> Normally like <input type="checkbox"/> Don't like it very much <input type="checkbox"/> Very annoying
II. Lesson Content Motivation Scale	
The following scale has four aspects with a total of 36 questions: Confidence (9 questions), Attention (12 questions), satisfaction (6 questions), and relevance (9 questions). Please check the appropriate answer for your situation.	
1	When I first looked at this lesson, I had the impression that it would be easy for me.
2	Something interesting caught my attention at the beginning of this lesson.
3	The content of this course was harder to understand than I thought.
4	After I read the syllabus (the introduction to the course), I felt confident that I knew what I was supposed to learn from this lesson.
5	Completing the activities in this lesson gave me a satisfying feeling of accomplishment.
6	It is clear to me how the content of this lesson is related to things I already know.
7	There were so many things in the course that it was hard to pick out and remember the important points.
8	Many parts of this lesson look very engaging.
9	There are pictures or examples in the lesson materials to illustrate the importance of this course.
10	Completing this lesson successfully was important to me.
11	The presentation of this lesson helped to hold my attention.
12	This lesson is so abstract that it was hard to keep my attention on it.
13	As I worked on this lesson, I was confident that I could learn the content.
14	I enjoyed this lesson so much that I would like to know more about this topic.
15	The content of this lesson seems dry and unappealing.
16	This lesson is relevant to my interests.
17	The lesson content was organized and presented in a way that helped keep my attention.
18	There are explanations or examples of how people use the knowledge in this lesson.
19	The activities in this lesson were too difficult.
20	This lesson has things that stimulated my curiosity.
21	I really enjoyed studying this lesson.
22	The amount of repetition in this lesson caused me to get bored sometimes.
23	The content and presentation of this lesson made me think it was worth learning.
24	I learned some things that were surprising or unexpected.
25	After working on this lesson for a while, I was confident that I would be able to pass it.
26	This lesson was not relevant to my needs because I already knew most of it.
27	Grading on the midterm project makes me feel like my hard work is paying off.
28	A variety of listening to music, activities, discussions, etc., helped me stay focused on the lesson.
29	The presentation of the lesson content is boring.
30	I could relate the content of this lesson to things I have seen, done, or thought about in my own life.
31	Lesson content often contains too much information, which can be annoying.
32	It felt good to successfully complete this lesson.
33	The content of this lesson will be useful to me.
34	I could not really understand quite a bit of the content in this lesson.
35	Because of the well-planned lesson content, I have the confidence to learn it well.
36	It was a pleasure to work on such a well-designed lesson.

4. Results

Seventy-eight college students enrolled in a string appreciation course, completing twelve modules of the MLM curriculum and a three-question learning survey after each module. Each survey question offered five response options (A-E), scored 1-5 respectively (A = 1, B = 2, C = 3, D = 4, E = 5). The average score for each question per session was calculated by summing the scores and dividing by the number of respondents. A session was considered to have elicited a positive response if the average score across the three questions exceeded 3. Table 4 presents the results of the twelve three-question learning surveys.

Table 4. Measuring a three-question learning survey outcomes.

12 modules of lessons	Average Score of Q.1	Average Score of Q.2	Average Score of Q.3	Average Score of Each Lesson
1	3.9	3.9	3.7	3.8
2	4.0	4.2	3.9	4.0
3	4.3	4.4	4.4	4.3
4	4.1	4.0	4.0	4.0
5	4.3	4.3	4.4	4.3
6	4.5	4.2	4.4	4.3
7	4.3	4.3	4.2	4.3
8	4.3	4.5	4.4	4.4
9	4.3	4.3	4.3	4.3
10	4.3	4.3	4.4	4.3
11	4.5	4.4	4.3	4.4
12	4.9	4.8	4.9	4.9
Overall Average Score	4.3 (86%)			

Supplementary Note:

1. The average score for the three-question learning survey was 4 or higher in 11 of the 12 lessons; only the first lesson had an average score of 3.8. This lower score in the first lesson may reflect the students' unfamiliarity with the course content.
2. The average scores for answering the three questions on each lesson design increased.
3. The gradual increase in average scores indicates that students became increasingly familiar with the course content.

The survey results for the 78 college students' course content learning motivation scale were calculated based on their five-option responses. Responses were scored 1–5 (1 = “not true,” 2 = “slightly true,” 3 = “moderately true,” 4 = “mostly true,” 5 = “very true”). The average score for each student was determined by summing their scores and dividing by the number of questions answered. Higher scores indicated greater acceptance of the course content's learning motivation. Table 5 provides detailed item-level results.

Table 5. Measuring the results of students taking music course from 6 different colleges.

Music Lesson Content Motivation Scale						
	Average on College of Electrical Engineering and Computer Sciences (14 students)	Average on School of Design (12 students)	Average on College of Engineering (9 students)	Average on College of Business (37 students)	Average on College of Humanities and Education (3 students)	Average on College of Sciences (3 students)
Attention subscale	4.3	4.0	4.1	4.0	3.3	4.0
Relevance subscale	4.2	3.8	4.1	4.2	3.6	4.0
Confidence subscale	3.6	3.4	3.7	3.6	3.7	3.0
Satisfaction subscale	4.2	4.0	4.3	4.2	3.7	4.0
Average	4.1	3.8	4.0	4.0	3.6	3.7
Overall Average	3.9 (78%)					

Supplementary Note:

This is a single administration of a self-adapted Music Lesson Content Motivation Survey (based on Keller's Instructional Materials Motivation Survey, or IMMS) upon course completion.

Survey results from six colleges showed students' course content motivation scores averaging more than three points above the mean. Across the four subscales (attention, relevance, confidence, and satisfaction), three consistently scored more than four points above average, while the confidence subscale scores ranged from three to four points. However, the three students from the College of

Humanities and Education scored consistently between three and four points across all subscales, significantly lower than the other five colleges. The overall average course content motivation score for the 78 respondents was 3.9 (78% of the maximum 5-point scale), indicating predominantly positive student feedback on the course design.

5. Conclusions and Future Works

This study investigated the feasibility of integrating the Music Motivation Learning (MLM) curriculum into a college-level music appreciation course. Positive student responses to three learning motivation surveys administered after each of the twelve lessons demonstrated that the MLM-integrated course structure effectively stimulated student learning. Furthermore, a post-course survey of 78 students revealed that 78% expressed positive views of the course content design. These findings suggest that the MLM curriculum offers a valuable framework for structuring music courses, fostering musical literacy, and promoting story imagination and interactive improvisation to enhance student motivation.

This study yielded positive results—average learning survey scores of 4.3 (86%) and course content motivation scores of 3.9 (79%)—suggesting that improvements to the MLM curriculum are warranted to better address diverse music literacy levels among college students. However, limitations included uneven participation across six colleges and a relatively small sample size. Future research with a larger, more balanced participant pool, including pre- and post-tests, is needed for rigorous validation of the curriculum's effectiveness. While positive learning motivation growth was observed, future studies should incorporate qualitative data to explore students' perceptions of their music literacy development in more detail. This future research will utilize multiple class sections to allow for the use of t-tests (for comparisons between two classes) or ANOVA (for comparisons between three or more classes).

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References

1. Cox, J. (2007). *Curriculum Design and Development in Higher Music Education*; Brussels, Belgium: Association Européenne des Conservatoires.
2. Ji, L. (2020). The compatibility between aesthetic theory and Taiwan's 12-year curriculum. *Journal of Music Education Research*, 15(2), 45–60.
3. Keller, J.M. (1987). Development and use of the ARCS model of instructional design. *Journal of Instructional Development*, 10(3), 2–10.
4. Keller, J.M. (2006). *Motivation and Performance*; Cambridge, MA, USA: Academic Press.
5. Keller, J.M. (2010). *Motivational Design for Learning and Performance: The ARCS Model Approach*; New York, NY, USA: Springer.
6. Li, K., & Keller, J.M. (2018). Use of the ARCS model in education: A literature review. *Computers & Education*, 122, 54–62. <https://doi.org/10.1016/j.compedu.2018.03.019>
7. Mellizo, J. (2020). Music education, curriculum design, and assessment: Imagining a more equitable approach. *Music Educators Journal*, 106, 57–65. <https://doi.org/10.1177/0027432120917188>
8. Reimer, B. (2003). *A Philosophy of Music Education: Advancing the Vision*, 3rd ed.; Upper Saddle River, NJ, USA: Prentice Hall.
9. Tien, K.Y. (2020). Exploring the Effects of ARCS Model for Military Ethics Course on Cadets' Learning Motivation. *Journal of General Education: Concept & Practice*, 9, 95–141. [https://doi.org/10.6427/JGEC.202103_9\(1\).0003](https://doi.org/10.6427/JGEC.202103_9(1).0003)
10. Wang, Y.H. (2022). The Effect of ARCS Motivation Model on Improving Students' Learning Motivation and Learning Anxiety in the Programming Course. *Contemporary Perspectives on General Education*, 4, 64–76.

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