Employing Musical Intelligence to Develop Listening Skills: A Study Arts Education Students

Fadhel Aram Lazem[1]*, Jabbar Khammat Hamzah[2]

[1] Collage of Fine Arts, Wasit University, Iraq. Email: aramf594@gmail.com
[2] Mustansiriyah University, College of Basic Education, Iraq. Email: bdr.jabbarkhammat@uomustansiriyah.edu.iq

*Correspondence: aramf594@gmail.com

RITA_21
June 2024
ISSN: 2340-9711
e-ISSN: 2386-7027

Received:11-01-2024
Revised: 25-04-2024
Accepted: 28-05-2024
Published: 30-06-2024

Abstract
The study objective was to employ musical intelligence to develop listening skills for students of the art education department. For this purpose, data was collected from 40 students of music education where 20 were males and 20 were females. Through an experimental design, one group with a minimum level of control pretest and posttest analyses were conducted with the intervention of a training unit. The post-test analysis results show that musical intelligence and listening skills (cognitive and skills achievements) have a statistically significant difference with the presence of the training unit. The study findings enhanced the understanding of the relationship between musical intelligence and listening skills which highlights the role of targeted training interventions in enhancing cognitive and skill development. Practically, these results emphasize the importance of integrating structured training units into educational curricula which provides a framework for enhancing musical education and listening proficiency in students. The study limitations and future directions were also discussed at the end of the study.

Keywords: Musical Intelligence, Listening Skills, Listening Art, Arts Students.

 DOI: https://doi.org/10.24192/2386-7027.2024.v11i21.06

INTRODUCTION

Listening skills are important in both the education and personal development of individuals and it also act as a cornerstone of effective communication and learning.[1] In the context of music education, listening is a primary mode through which students absorb information, interpret concepts, and engage in deeper understanding.[2] This is particularly significant in fields such as music education, where the ability to discern nuances in sound, rhythm, and harmony directly affects a student's learning outcomes.[3] They also further argued that listening enhances comprehension which enables learners to process complex auditory information which further helps them in the development of cognitive skills and memory retention. Umida[4] also further explained that incorporating listening strategies in classrooms encourages students to appreciate the subtleties of contents which helps them to increase critical thinking and problem-solving abilities. In music education specifically, listening sharpens auditory discrimination and helps students develop a refined ear for musical elements which is essential to increase students' performance.[5]

Researchers also emphasize that listening skills play a crucial role in collaborative and interactive environments.[6] An individual with strong abilities contributes well to improve the better teamwork and conflict resolution by promoting clear communication and reducing misunderstandings.[7] Thompson, *et al*.[8] argued that listening skills not only help individuals internalize information but also enhance their ability to respond appropriately in both academic and social settings. These previous studies shown that listening skill is an important factors and if it is not improved then consequences of not improving listening skills are significant across various domains. Within the context of education, poor listening could lead to misunderstandings, reduced comprehension, and lower academic performance, as students struggle to grasp key concepts and instructions.[9] In other context of professional environment, ineffective listening could result in miscommunication, errors, and strained relationships with colleagues which could impact to productivity and teamwork of any individual.[9] Furthermore, poor listening affects personal interactions, limiting emotional intelligence and empathy, and potentially damaging social connections.[10] Over time, individuals with underdeveloped listening skills may experience reduced personal and professional growth due to missed opportunities for learning and self-improvement.[11]

Musical intelligence plays an important role in increasing the listening skills of the individual because it enables the individual to perceive, differentiate, and understand the nuances of sound, rhythm, and melody.[12] It also helps to strengthen auditory sensitivity, allowing learners to recognize patterns and structures in music.[13] This heightened ability to listen critically not only improves musical performance but also fosters deeper emotional and intellectual engagement with music.[13] On the other hand, training unit interventions could significantly increase musical intelligence which helps to improve listening skills by providing structured opportunities to engage with sound, rhythm, and melody in a focused manner.[14] These interventions allow students better to identify musical patterns, tones, and subtleties.[14] Through guided practice, learners refine their ability to process and respond to complex auditory information, strengthening both their musical perception and critical listening abilities. Further study,[12] also emphasized that training raises more advanced listening skills, benefiting both musical and non-musical contexts. Thus, based on these studies, the study focused on exploring the impact of musical intelligence influence to improve listening after the intervention of the training unit.

Different empirical studies have been conducted on the relationship between musical intelligence on listening skills. These studies have majorly focused on musical intelligence and listening skills abilities. For instance, Zu[12] Azmoudeh, and Salame[15], Sternberg ,and Kibelsbeck[16], Veisi, *et al*.[17], and researched to explore musical intelligence within music education departments' listening skills while these studies have seldom addressed how targeted training units can amplify these skills. However, these studies often lack emphasis on the role of structured training interventions, which could further enhance the development of listening skills. Therefore, this study focused on the interventions of training units to improve musical intelligence that increases listening skills.[18] This argument is supported by past research which demonstrated that training unit as interventions enhance the effect of any learning activity of studies. Furthermore, extant studies geographically also have limited attention on Iraq with most research focusing on Western or Asian educational institutions.[14,19] These studies leaving a gap in understanding how musical intelligence and listening interventions function within Iraqi educational contexts. The need for empirical investigations in Iraq is particularly pronounced, as no significant research has explored the impact of musical intelligence training interventions on listening skills in this region.[20] Expanding this research to Iraq could provide valuable insights into how training

units could optimize auditory learning outcomes. Therefore, to address previous gaps, study has following research objective employing musical intelligence to develop listening skills for students of the Art Education Department.

This study objective contributed from both of theoretical and practical perspective especially in the context of developing listening skills with the presence of musical intelligence interventions. Theoretically, this study fulfill the gaps through expanding the understanding of how structured training units can enhance the relationship between musical intelligence and listening skills, an area previously underexplored in empirical studies. While prior research has largely focused on this relationship without emphasizing the role of training interventions, this study provides new insights into how targeted educational practices can further develop auditory abilities. Practically, this research also holds particular importance for educational institutions in Iraq, where research on musical intelligence and listening skill development remained limited. Through focusing on Iraqi universities, this study offered an important localized perspective which is demonstrating how training interventions could be applied to enhance musical and auditory learning outcomes. Therefore, this study contributed to the development of curriculum design in music education, particularly in regions where such interventions have not been extensively studied. The study is further divided into four chapters, literature review, research methodology, data analysis, and results. Lastly, discussion and implications of the study.

LITERATURE REVIEW

Musical Intelligence

Musical intelligence appears in the ability to use music to express thoughts and feelings and to share the musical sense with others.[21] In another context, other authors defined musical intelligence which referred to the capacity to recognize, create, reproduce, and reflect on musical patterns and sounds. They also enforced that it consisted of sensitivity to rhythm, melody, pitch, tone, and the emotional nuances of music, allowing individuals to engage with and understand musical compositions in both performance and appreciation.[12] In another way, Fonseca-Mora, *et al*.[22] pointed out that musical intelligence shows the distinguish between melodies and repeating them correctly, Studies have also found that a person who suffers from clear tone does not have his musical abilities affected by any disorder and that a person who suffers from a musical disability maintains his basic linguistic.[16] Furthermore, musical intelligence includes "the ability to perceive music (as a music connoisseur), musical analysis (as a music critic) or (as a composer), and musical expression (as a musician) .[17] In addition, Sternberg and Kibelsbeck[16] further emphasized that musical intelligence is characterized by the distinct ability to recognize sounds, taste tones, and remember the melodies and expressions through it. Therefore, people with this intelligence love to sing, play musical instruments, and chant melodies.[22,23] They also prefer learning through singing, rhythm, and melody. They have the ability to express and perceive musical forms, compose, and create the meanings that makeup sound, its expression, and the feeling of tones, rhythms, and musical timbre, so this intelligence is seen in musicians, sound engineers, composers, and singers.[24]

Music Listening Skills

Researchers believe that listening is a dynamic process that transforms audible material into meaning in the brain, and it is linked to some activities, namely sensation, interpretation, and response.[25] Likewise, listening is a type of auditory reading and a skill that requires the listener to give the speaker the highest levels of attention and focus to understand the message (the audible material). Analyzing it, interpreting it, evaluating it, and expressing an opinion about it. Listening is reading by ear, accompanied by mental operations.[16] Other research also identified some advantages of listening skills, which meet the needs of learners in situations such as speeches, listening to radio and television, and music.[26] Furthermore, it is also suitable for some special activities in the field of learning, such as music and singing. As, listening skills are important, and listening skills could be in the context of music education which are closely tied to both cognitive and skills achievements.[26] Cognitive achievements in listening refer to the development of intellectual capabilities, such as recognizing musical structures, patterns, and styles, which enhance a student's theoretical understanding of music.[27] These cognitive processes allow students to engage deeply with musical content, fostering critical thinking and analytical skills.[28] On the other hand, skill achievements in listening involve the practical application of these cognitive insights, such as improving the ability to identify musical elements during performance or composition.[29] Listening is therefore the most crucial element in learning music the reason being it provides the link between the teachers and learners by explaining what has been learned

on paper and then demonstrating it on the instruments.[30] This two-fold activity of listening strengthens both the enhancement of theoretical content knowledge and the development of performance skills; hence, it is a necessary part of musical instruction.[27]

Empirical Studies

Various empirical studies have been conducted on the relationship of musical intelligence and listening skills. Some of them include charting the progress and effects of augmented musical intelligence within a context of more competent listening skills responsible for growth in encountered cognitive advantages within music learning.[15,27] For example, Chapman[21] conducted a study on the musical intelligence approach to learning and recognizing the musical. They found that musical intelligence is a significant predictor of listening skills. On this basis, Luo[31] analyzed how students with higher musical intelligence prefer to score highly in tasks that called for analysis of specific auditory features such as structural and theoretical aspects of music. They further demonstrated that these students had better thinking, including reasoning and problem-solving capabilities because of enhanced listening masters as a result of high musical intelligence and success. Further, Rogers, and Metzler-Baddeley[19] conducted research on students with different levels of musical intelligence to improve their listening skills. It was found that not only did the higher musically intelligent participants comprehend the musical concepts more accurately and comprehensively, but also demonstrated greater efficiency in applying the gained musical knowledge into practical teaching /learning tasks like improvisation and notational performances.

Further, a study on listening activities based on musical intelligence was discussed[16] where they focused and found learners who succeed in listening tasks demonstrate higher musicianship have higher musical intelligence. Furthermore, Garabello[32] conducted a study and found that higher accuracy of students with high musical intelligence then they have higher listening skills which enhanced their overall musical literacy. Further research has used experimental designs to evaluate the effectiveness of interventions aimed at improving listening skills. Furthermore, Garabello[32] used targeted listening exercises to improve students' music understanding and practical abilities, finding that those with higher musical intelligence experienced greater improvements in both areas. These findings were supported by Şen[33], whose study showed that musical intelligence is a significant predictor of success in listening tasks, which in turn influences both theoretical understanding and practical performance. Castro, and Moreno[34] research also highlighted that musical intelligence enables students to engage deeply with listening tasks, thereby fostering the kind of comprehensive learning necessary for both cognitive and skills-based achievements in music education.

Nurdin[35] also found that children who received music instruction showed significant improvements in their listening skills and overall cognitive abilities compared to those who did not participate in musical training. Furthermore, the study also found the significant impact of musical intelligence on skills enhancement.[35] In addition, Chikezie[36] also reported that musical intelligence allowed students to engage more reflectively with listening tasks, enhancing both their cognitive achievements and practical performance abilities. Similarly, Hussain, *et al*.[37] found that students with advanced musical intelligence not only performed better in listening-based cognitive assessments but also demonstrated superior skills in musical performance, composition, and improvisation. Furthermore, Al-Ghazu, and Al-Sa'di[38] revealed that students with greater musical intelligence showed higher motivation and engagement in listening activities, which contributed to their success in both cognitive and skills achievements.

Moreover, Heidari Panah[6] also explored how musical intelligence improved students' listening abilities and cognitive engagement. The findings indicated that students involved in group performances not only improved their listening skills but also demonstrated enhanced cognitive understanding of musical structures and concepts. Further, Christiner, *et al*.[39] also found that intelligence increases listening skills by sharpening the abilities of individuals through recognizing tones and patterns. It increases deeper engagement with sound, enabling better comprehension of complex auditory information. This heightened sensitivity not only benefits musical performance but also improves general listening abilities in various contexts. In a similar vein, Wang[40] also found that musical intelligence enhances listening skills and they further also argued that further research could be explored in other countries to know the variation in results. Keeping in view the discussion and gaps, the following hypothesis is formulated below,

H1: There is no statistical difference between musical intelligence and listening skills (cognitive and skills achievements) with the presence of training unit in (pre- and post-test) process.

RESEARCH METHODOLOGY

The researchers followed the experimental design (one group) with minimum control, with two cognitive and skill achievement tests (pre and post) Table (1), to suit the topic of the research, and through a form to evaluate cognitive and skill performance, see (Appendix - 1)

Table 1: The Experimental Design used by the Researchers in their Research Procedures.

The Group	Pre Test	The Variable Independent	Post Test	Variable Subordinate
One-group experimental	Cognitive + Skilled	Unit Training	Cognitive + Skilled	Cognitive and skill Students achievement

The research community consists of students from the Department of Art Education / College of Basic Education / Al-Mustansiriya University, who are continuing their studies for the academic year (2022-2023), and they number (274) male and female students, as shown in Table (2). The researchers chose (20) male students, and (20) female students, from the original community for the research, from the students of the third stage / Department of Art Education / College of Basic Education / Al-Mustansiriya University, who are continuing their studies for the academic year (2022-2023), and they were chosen for the following reasons. Firstly, they are the students with the highest score on the musical intelligence form that was presented to them. Secondly, students who are more suitable and prepared than the rest of the stages, because they studied the subject (Musical Education) in the previous stage (the second stage), and because there is a subject (musical taste) within their curriculum for the current stage (the third stage). They constituted 32% of the original community, which the researchers considered to be one experimental group to which their research procedures were applied, represented by the independent variable (the training unit). The study sample is presented in Table.2 below,

Table 2: Study Sample.

Number of Student	Male Students	Female Students	Total
The first stage	35	29	64
The second stage	38	30	68
The third stage	42	30	72
The fourth stage	39	31	70
the total	154	120	274

Operationalization of the Variables

Independent Variable: The musical intelligence with the presence of training unit in developing music listening skills in the subject (Musical taste), designed according to the Kemp model.

Dependent Variable: It is the variable observed in the cognitive and skill achievement of the students of the experimental group (research sample) after they have implemented the requirements of the training unit and what it includes in developing their skills in listening to music in the subject (Musical taste).

Controlling Variables: To achieve the internal and external integrity of the experimental research design (training unit), this requires identifying and controlling some (non-experimental) variables, which are as follows:

A) Chronological Age: The researchers fixed the chronological age of the students in the experimental group (the research sample), and it was found that the ages of the students (male and female students) ranged between (22-25) years, as the sample is considered relatively homogeneous in age.

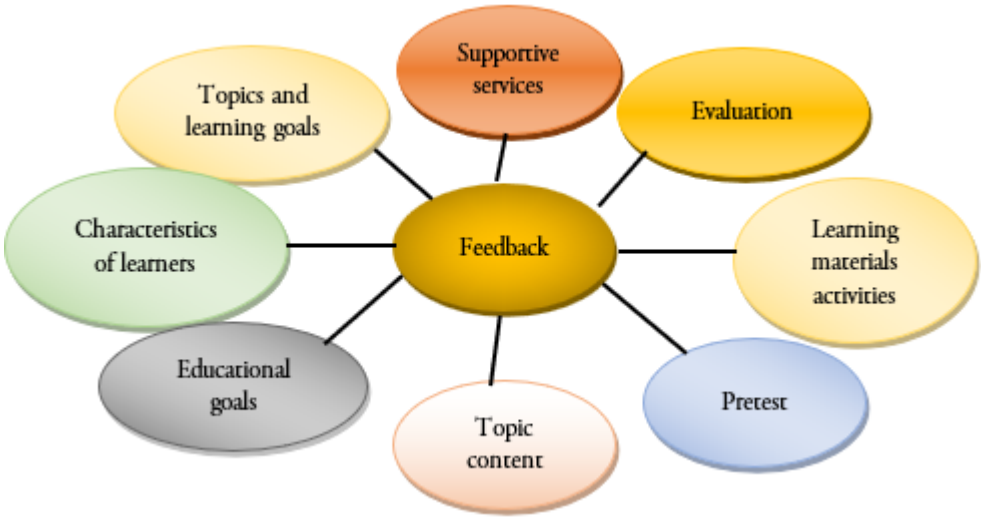
B) Gender of the Students: The researchers chose (20) male students and (20) female students, and thus the experimental group (research sample) was equivalent**.**

C) Time and Place of Implementing the Experiment: The researchers chose the first semester of the academic year (2022-2023). In the Department of Art Education / College of Basic Education / Al-Mustansiriya University.

D) Subject Teacher: This variable was controlled by the researchers teaching the experimental group in accordance with the requirements of the training unit.

Stages of Designing the Training Unit

Since the current research aims to develop music listening skills in the subject (Music taste) by designing a training unit that contains cognitive information and exercises in listening, therefore the educational and behavioral goals, practical activities and events, and the organization of the educational and training content (Table 3) were designed, with the aim of being able to measure What behavioral outcomes are achieved for the target group (the research sample), according to the steps of Kemp's model, can be clarified by the steps according to his educational model in diagram (1).



Scheme 1: Shows the Steps of the Kemp Model.

Table (3) Organization of educational content and behavioral goals

Table 3: Training Unit.

Units	Educational Content for the Unit	Type of Behavioral Goal	Number of Allocated Lectures	Number of Behavioral Goals
Training unit	Maqam alejam scale	Cognitive + skills	2	2
	Maqam al Nahawand scale	Cognitive + skills	2	2
	Maqam al Kurds scale	Cognitive + skills	2	2
	Maqam al Hijaz scale	Cognitive + skills	2	2
	Maqam al-Rast scale	Cognitive + skills	2	2
	Maqam Bayat scale	Cognitive + skills	2	2
	Maqam al saba scale	Cognitive + skills	2	2
	Maqam al sikah scale	Cognitive + skills	2	2
Total			16	16

Research Instrument Development

To reach the goals set for the research, and to identify the most important characteristics of those who will be subject to the scale, the two researchers designed the musical intelligence scale based on what was stated in the theoretical framework, and by reviewing the literature on the theory of multiple intelligences. The general and specific goals of the scale were determined, which helped the researchers measure what they wanted to measure. The scale was presented to a group of experts in art education, musical arts, teaching methods, and educational and psychological sciences, and it was modified by the experts (Appendix 1), and its paragraphs were linguistically audited. Thus, the final form of the scale, its application methods, and the method of answering it were determined. It was ready for application, and it was presented to the students and answered by them, recording their abilities and potentials, their characteristics, and their prior needs to reach a better organizational context, to benefit from it in building the

educational unit, in order to develop their skills in listening to music, see (Appendix-2).

Furthermore, study employed the two achievement tests along with cognitive and skill. The researchers developed a set of tests based on criteria included in the pre-determined behavioral goals, which are used like the two achievement tests (cognitive and skills) equipped with evaluation criteria, in order to determine the level of accuracy of the answers and on the basis of the scores recorded at the beginning of each test item. It included (16) items, each of which measured a set of cognitive and skill behavioral goals, calculated as required by the academic subject, distributed among different learning areas. The distribution of question items varied according to the requirements of the academic subject, so the number of cognitive test items became (8) distributed items. (2) points for each question. As for the skills test items, there were (8) items distributed over (5) points for each question. See (Appendix - 3).

Validity of the two achievement tests (cognitive and skill)

The researchers presented (the two achievement tests - cognitive and skill) in its initial form to a group of specialized experts with the behavioral goals for its evaluation. The experts made some observations on some of the paragraphs that the researchers reconsidered and corrected, and thus the agreement between them reached a rate of (98%), which gave a positive indicator. It was repeated, so the researchers found that the equation (Kuder-Richaradson/20) is the most suitable for finding the stability of (the cognitive achievement test), and it has been shown that the reliability coefficient in the cognitive achievement test for the current research is (89%). As for finding the stability of the skills achievement test, the researchers used the Cooper equation, and the performance of the examined students was evaluated by the arbitrators and the researchers simultaneously. It was applied to an exploratory sample of (4) students, and it was found that the correction stability coefficient In the skill performance test (was 0.88), the two tests were subsequently approved and were ready for application. Lastly, the application of training unit was tested. It required implementing the training unit in (51) days, one hour for the cognitive test and (2) hours for the skill test, distributed over (8) weeks, lesson duration (45) minutes. Thus, the experiment was carried out as planned in (24) sessions, (Appendix - 4) shows the days of application of the training unit for the period (11/9 - 12/28/2023), for the academic year (2022-2023).

DATA ANALYSIS AND RESULTS

The research objective of the study was to identify the impact of the training unit on musical intelligence to develop listening skills among students of Iraq educational institutions. For this purpose, hypothesis was there is no statistically significant differences between the average scores of the experimental group for the achievement test (cognitive and skills) pre- and post-test, at a significance level (0.05), regarding the application of the training unit to develop listening skills in the subject (music taste). To verify the validity of this hypothesis, the researchers used the Wilcoxon test (rank sign test) to extract the calculated (f) value in order to identify the differences between the scores of the experimental group students regarding their answers to the items of the cognitive and skill achievement test, pre- and post-test, and to determine the effectiveness of the training unit in Their cognitive and skill achievement. The Table 5 results shown that the calculated and tabulated (f) values at the significance level (0.05) regarding the answers of the experimental group students to the pre- and post-test items of the achievement (cognitive) test. It is the clear from the results that there are two values for (f), one of which is small, equal to (25), and the other is large, equal to (-80). When matching this result with the tabular values of the test, we find. The tabular value of (f) is equal to (21) (1) at the significance level (0.05) when the sample size is equal to (40). While, the small calculated value for (f) is equal to (25), which is greater than the tabulated value (21) at the significance level (0.05) when the sample size is (40). Therefore, the null hypothesis is rejected and the alternative is accepted, i.e., there are statistically significant differences in favor of the post-cognitive test. The above results are presented in Table 4 below,

Table 4: Cognitive Achievement Test.

Cognitive Achievement Test	Sample	Calculated (f) Value		Tabular (f) Value	Significance Level is 0.05
		Minimum	Greater		
pre- and post	40	25	- 80	21	Statistically significant

Furthermore, Table 5 results show the calculated and tabulated (f) values at the significance level (0.05) regarding the answers of the experimental group students to the achievement test items (skills - pre- and post-test). It is clear from the results of that there are two values for (f), one of which is small, equal to (23). The other is large, equal to (-82). When matching this result with the tabular values of the test, we find that the tabular value of (f) is equal to (21)

(1) at the level of statistical significance (0.05) when the sample size is equal to (40). However, the small calculated value for (f) is equal to (23), which is greater than the tabulated value (21) at the significance level (0.05) when the sample size is (40). Therefore, the null hypothesis is rejected and the alternative is accepted, i.e., there are statistically significant differences in favor of the post-test. The above results are predicted in Table 5 below,

Table 5: Skill Achievement Test.

Skills Achievement Test	Sample	Calculated (f) value		Tabular (f) Value	Significance Level is 0.05
		Minimum	Greater		
pre- and post	40	23	82-	21	Statistically significant

DISCUSSION

Listening skills are important in both education and the personal development of individuals and act as a cornerstone of effective communication and learning.[1] In the context of music education, listening is a primary mode through which students absorb information, interpret concepts, and engage in deeper understanding.[2] Literature cited that musical intelligence played an important role to increase the listening skills of students. Therefore, research aimed was to explore the musical intelligence to develop listening skills for students of the art education department. For this purpose, the research selected the total 40 students from third stage of the Department of Art Education, College of Basic Education at Al-Mustansiriya University. These students were chosen from the original research community. The study was conducted during the academic year 2022-2023. Overall, study hypothesis results demonstrated that the application of a specialized training unit to increase the student's musical intelligence significantly improved both the cognitive and skill-based achievements of students at Baghdad in the subject of "music taste. These findings showed that students who participated in the training increased their musical intelligence which achieved greater cognitive understanding of the subject material.

Individually, the musical intelligence impact with the presence of the training unit also showed a statistically significant different impact on cognitive achievement in the findings of post-test results. These findings show that this improvement could be attributed to the interactive and structured nature of the training, which allowed students to engage more deeply with the content. Before the training, students had a more limited understanding of the theoretical aspects of music, such as recognizing different musical styles, historical contexts, and auditory distinctions. Providing the training to the students significantly enhanced their cognitive engagement by encouraging active listening, critical thinking, and the analysis of musical elements. The findings are aligned with broader education research of Castro, and Moreno[34], where they found that when students are actively involved in their learning process, they are more likely to absorb and retain complex information. Active learning methods, like those applied in this training, allow students to construct meaning from the content, leading to a deeper understanding of music theory and auditory appreciation. Thus, based on these findings it is argued that educational institutions in Iraq should focus on training units to increase the student's musical intelligence that will increase the listening skills of the students.

In addition, musical intelligence after the post-test of training also significantly increases students' practical skills in terms of listening in Iraq educational institutions. These findings show that before the training, students' practical engagement with music was limited to basic listening and interpretation. However, after undergoing training in musical intelligence, they showed marked improvements in their ability to apply theoretical knowledge in practical scenarios, such as identifying and evaluating different musical structures and styles with greater confidence and accuracy. This development of practical skills is essential, as music education involves not just learning about music but also applying that knowledge in real-world listening and performance contexts. The results are consistent with the findings of Chapman[21] and Rahayu, *et al.*[41], which also highlighted how practical, hands-on activities increase deeper learning. In fields like music, where theoretical knowledge must be balanced with skill proficiency, structured training that focuses on both aspects enhances students' ability to integrate what they learn into practical application. These findings ensured that Iraqi educational institutions should properly focus on training sessions to improve their musical intelligence which would increase their musical listening. This can increase their interest in music intelligence which could improve their social and economic development.

The study findings reflect an educational approach that emphasized theory integration with practice to promote holistic student development. In higher education, particularly in subjects like music, where both cognitive knowledge and

practical ability are required, structured training units like the one applied in this study can serve as effective tools for promoting comprehensive learning. These providing students with both theoretical insights and opportunities for practical application, such training programs prepare students for future academic and professional success. Educational research supports this dual approach, noting that when students are challenged both cognitively and practically, they are more likely to develop the critical thinking, problem-solving, and practical skills necessary for long-term achievement. In this way, the findings at Baghdad University emphasized the significance of pedagogical strategies that blend cognitive engagement with skill development which ensures that students becomes well in their music education.

Implication and Future Directions

The study with findings has some of the theoretical and practical implications which contributed to the growing body of research in the context of music education through highlighting the impact of structured training on training on enhancing students' musical intelligence which improved their cognitive achievements, and skill development. Through focusing on listening skills, the study supports the theory that targeted educational interventions can improve both intellectual and practical aspects of musical learning. This is particularly relevant in the context of musical intelligence, where active engagement in listening and critical analysis leads to greater cognitive understanding and skill proficiency. The study further expands the existing knowledge by providing evidence from a previously unexplored context, as it is the first to investigate the effects of such training on students in Baghdad, Iraq. These findings could also helped to other researchers to conduct their research to emphasized the significance of integrating focused pedagogical approaches into music education to cultivate both cognitive and experiential learning outcomes.

Along with theoretical implications, the study also contributed practically to the educational institutions in Iraq and also for other others. This study found that incorporating proper training units into music education can enhance students' listening skills which leads to better academic performance and practical abilities. These improvements suggest that educational policymakers and curriculum developers should consider implementing similar training programs to boost musical intelligence and overall student achievement. For teachers and educators, the study offers a practical model for enhancing student engagement by blending cognitive content with skill-based exercises, providing a holistic approach to music education. Furthermore, the current study framework could also be adopted for other Iraq and other regional areas' educational institutions to improve the quality of music education and enhance a new generation of musically intelligent students.

Along with significant contributions, the study still has various limitations that could addressed in future research. Firstly, the study employed the experimental research design which limited the scope of the study, further research could be explored on longitudinal research design to increase research generalizability. Secondly, the study was limited to one Iraq city (Baghdad), and which findings could not be generalized to other cities or other countries. Therefore, further research could be explored on other countries to increase the generalizability of the findings. Lastly, the study was not conducted on a purely quantitative approach, hence future research could be explored on a questionnaire-based study to increase the study results variations.

CONCLUSION

The research aimed to explore musical intelligence to develop listening skills for students of the art education department. For this purpose, data was collected from 40 students. The researchers chose (20) male students, and (20) female students, from the original community for the research, from the students of the third stage/ Department of Art Education / College of Basic Education/Al-Mustansiriya University, who are continuing their studies for the academic year (2022-2023). The efficiency of the educational content of the training unit in its cognitive and skill aspects. This was demonstrated through post-cognitive and skill tests, as well as the efficiency of the experimental group in their understanding and acceptance of the training unit. The results show that musical intelligence enhances musical achievement and skill achievements in the pre-test and post-test. These results indicated the effectiveness of the training unit prepared according to the Kemp model and its superiority in developing music listening skills among students of the Art Education Department, which relied on formative evaluation through feedback that aims to reveal the extent of comprehension of the students of the experimental group. The process of developing students' music listening skills is related to their musical intelligence, their characteristics, their prior needs, and the nature

of educational tasks, to reach a better organizational context in the learning and teaching process. The process of dividing performance skills into sequential and gradual steps in their information contributed greatly to developing students' cognitive and performance skills, as they were distributed logically according to their degree of complexity, as they were learned in a gradual and goal manner from easy to difficult. The study findings also recommended that education units should be adopt the training unit that was tried in the subject of musical taste in Iraqi institutes and colleges as a study subject.

REFERENCES

1. SHAKHNOZA, Ismatova; ZAMIRA, Sodiqova and ASQAR, Olimjonov. "Improving Listening Skills of Elementary School Students Through Music and Songs." *Western European Journal of Linguistics and Education*, 2024, vol. 2, no. 4, pp. 61-65. https://westerneuropeanstudies.com/index.php/2/article/view/582

2. ESTEVE-FAUBEL, José María; BOTELLA-QUIRANT, María Teresa and ESTEVE-FAUBEL, Rosa Pilar. "Use of animated stories to improve music education practices of trainee primary school teachers in Spain." *British Journal of Music Education*, 2024, vol. 41, no. 1, pp. 87-102. DOI: https://doi.org/10.1017/S0265051723000244

3. BAKHRULLAYEVNA, Temirova Sabohat and KASIMOVA, Shohida. "The Role Songs as a Teaching Technique of Listening in the Higher Education." *Education Science and Innovative Ideas in the World*, 2024, vol. 41, no. 3, pp. 38-43. http://newjournal.org/index.php/01/article/view/12296

4. UMIDA, Mamatqulova. "Enhancing Listening Skills in Primary School Students." *American Journal of Interdisciplinary Research and Development*, 2024, vol. 28, pp. 253-260. https://ajird.journalspark.org/index.php/ajird/article/view/1146

5. MABINI, Jay P. "Comparative Analysis of Kodály, Suzuki, Dalcroze, Orff, and Gordon Music Learning Theory in Early Childhood Music Education: A Literature Review." *International Journal of Research Publications*, 2024, vol. 150, no. 1, pp. 956-967. DOI: https://doi.org/10.47119/IJRP1001501620246690

6. HEIDARI PANAH, Leila. *The Role of Multiple Intelligences and Art-Education in performance of IELTS candidates on Reading comprehension section of IELTS Exam and their motivations*. Doctoral dissertation, Universitat Politècnica de València, 2024. DOI: https://doi.org/10.4995/Thesis/10251/202762

7. NADIYYA, Roudhotun and SURYADI, Suryadi. "The Power of English Music to Improve Students' Listening Skills." *Ideguru: Jurnal Karya Ilmiah Guru*, 2024, vol. 9, no. 2, pp. 683-688. DOI: https://doi.org/10.51169/ideguru.v9i2.772

8. THOMPSON, Kathleen; LEINTZ, Pamela; NEVERS, Barbara and WITKOWSKI, Susan. "The Integrative Listening Model: An Approach to Teaching and Learning Listening." In *Listening and human communication in the 21st century*, edited by WOLVIN, Andrew D., Blackwell Publishing Ltd, 2010, pp. 266-286. DOI: https://doi.org/10.1002/9781444314908.ch12

9. VELEZ PARRALES, Luis Ariel. *English songs to enhance listening skills in the 1st semester of PINE major students*. Bachelor's thesis, La Libertad: Universidad Estatal Península de Santa Elena. 2024, 2024. https://repositorio.upse.edu.ec/handle/46000/11005

10. O'SULLIVAN, Jennifer. *An Exploration of Pedagogy and Creative Teaching of the Listening Component of the Irish Post-Primary Senior Music Syllabus*. Doctoral dissertation, Dublin City University, 2024. https://doras.dcu.ie/29475

11. TREß, Johannes. "Maker Music Education: Towards a Post-digital, Participatory and Empowering Music Education." *International Journal of Music Education*, 2024, p. 02557614241259755. DOI: https://doi.org/10.1177/02557614241259755

12. ZU, Jiaqing. "Promoting students' multiple intelligences through music education in the context of Chinese high schools." In *3rd International Conference on Education, Language and Art (ICELA 2023)*, Atlantis Press, 2024, pp. 738-757. DOI: https://doi.org/10.2991/978-2-38476-214-9_88

13. LI, Shu. "Intelligent Construction of University Music Education Teaching System Based on Artificial Intelligence Technology." *Journal of Electrical Systems*, 2024, vol. 20, no. 3s, pp. 530-539. DOI: https://doi.org/10.52783/jes.1326

14. AMBREEN, Munazza. "Musical Intelligence Profiles of Biology Students and Effects of Multiple Intelligences-based Approach: a Case of Islamabad Pakistan." *Educational Research and Innovation*, 2024, vol. 4, no. 2, pp. 45-53. DOI: https://doi.org/10.61866/eri.v4i2.99

15. AZMOUDEH, Yaas and SALAME, Issa. "The Effect of Musical Intelligence on Students' Academic Achievement in Science." *Journal of Academic Perspectives*, 2023, vol. 2023, no. 1, pp. 16-30. https://www.journalofacademicperspectives.com/app/download/970883196/Yaas.Azmoudeh.pdf

16. STERNBERG, Robert J and KIBELSBECK, Jaime G. "Teaching Musical Learning as Problem-solving: Applying a Theory of Musical Intelligence to Musical Instruction." *Psychology of Music*, 2022, vol. 50, no. 5, pp. 1696-1706. DOI: https://doi.org/10.1177/03057356211055215

17. VEISI, Saeed; KASHEFI, Fahime and IMANI, Sadaf. "Fittness the Causal-Structural Relationships of Successful Intelligence with Wisdom with the Mediation of Musical Intelligence in Piano Players." *Social Psychology Research*, 2024, vol. 14, no. 54, pp. 1-14. DOI: https://doi.org/10.22034/spr.2024.424119.1877

18. CHEN, Chung-An; HSIEH, Chih-Wei and CHEN, Don-Yun. "Can Training Enhance Public Employees' Public Service Motivation? A Pretest–Posttest Design." *Review of Public Personnel Administration*, 2021, vol. 41, no. 1, pp. 194-215. DOI: https://doi.org/10.1177/0734371X19872244

19. ROGERS, Fionnuala and METZLER-BADDELEY, Claudia. "The Effects of Musical Instrument Training on Fluid Intelligence and Executive Functions in Healthy Older Adults: A Systematic Review and Meta-Analysis." *Brain and Cognition*, 2024, vol. 175, p. 106137. DOI: https://doi.org/10.1016/j.bandc.2024.106137

20. AL-OBAYDI, Liqaa Habeb; TAWAFAK, Ragad M; PIKHART, Marcel; BIN-HADY, Wagdi Rashad Ali; YÜCE, Erkan and NASHRUDDIN, Nashruddin. "Music as a motivational factor in second language acquisition: Cross-cultural insights from Iraq, Turkey, Oman, Yemen, and Indonesia." *Research Square*, 2022. DOI: https://doi.org/10.21203/rs.3.rs-1814886/v1

21. CHAPMAN, Lorraine. *Towards an understanding of musical intelligence as a framework for learning to read and play piano notation*. Doctoral dissertation, UCL (University College London), 2023. https://discovery.ucl.ac.uk/id/eprint/10169386

22. FONSECA-MORA, Carmen; TOSCANO-FUENTES, Carmen and WERMKE, Kathleen. "Melodies that help: The relation between language aptitude and musical intelligence." *International Journal of English Studies*, 2011, vol. 22, no. 1, pp. 101-118. https://ssrn.com/abstract=1815339

23. UMINAR, Ajeng Ninda. "The Use of Percussion Instruments to Improve Musical Intelligence of Young Children." *Journal of Childhood Development*, 2023, vol. 3, no. 1, pp. 30-38. DOI: https://doi.org/10.25217/jcd.v3i1.3282

24. AMANI KHAMIS, Muhammad Othman. *The Effectiveness of an Integrated Program for Pre-School Children in Light of the Theory of Multiple Intelligences*. Master's thesis, Faculty of Education / Helwan University 2002, 2022.

25. AFRIYUNINDA, Eicha and OKTAVIANI, Lulud. "The Use of English Songs to Improve English Students' Listening Skills." *Journal of English Language Teaching and Learning*, 2021, vol. 2, no. 2, pp. 80-85. DOI: https://doi.org/10.33365/jeltl.v2i2.1442

26. SCHIAVIO, Andrea; KÜSSNER, Mats B and WILLIAMON, Aaron. "Music Teachers' Perspectives and Experiences of Ensemble and Learning Skills." *Frontiers in Psychology*, 2020, vol. 11, p. 291. DOI: https://doi.org/10.3389/fpsyg.2020.00291

27. AMANOV, Alisher. "Developing Language Skills By Listening To Teaching A Foreign Language." *Journal of Foreign Languages and Linguistics*, 2023, vol. 5, no. 5. https://fll.jdpu.uz/index.php/fll/article/view/8177

28. NGWOKE, Festus Uwakwe; UGWUAGBO, Walter and NWOKOLO, Basil Okwudilichukwu. "Refocusing on Listening Skills and Note-taking: Imperative Skills for University Students' Learning in an L2 Environment." *Theory and Practice in Language Studies*, 2022, vol. 12, no. 7, pp. 1241-1251. DOI: https://doi.org/10.17507/tpls.1207.01

29. AL-SHAMSI, Abdullah; AL-MEKHLAFI, Abdo Mohamed; AL BUSAIDI, Saleh and HILAL, Maher Mohammad. "The Effects of Mobile Learning on Listening Comprehension Skills and Attitudes of Omani EFL Adult Learners." *International Journal of Learning, Teaching and Educational Research*, 2020, vol. 19, no. 8, pp. 16-39. DOI: https://doi.org/10.26803/ijlter.19.8.2

30. AMINATUN, Dyah; MULIYAH, Pipit and HARYANTI. "The Effect of Dictogloss on Students' Listening Achievement." *Jurnal PAJAR (Pendidikan dan Pengajaran)*, 2021, vol. 5, no. 2, pp. 262-269. DOI: https://doi.org/10.33578/pjr.v5i2.8246

31. LUO, Yanmei. "Levels of Musical Intelligence Formation in Future Music Teacherss." *Collection of Scientific Papers «Scientia»*, 2023, pp. 68-69. https://previous.scientia.report/index.php/archive/article/view/913

32. GARABELLO, Viviana. *An Investigation of Musical Intelligence for a Positive Pedagogical Approach*. Doctoral dissertation, Wayne State University, 2020. https://digitalcommons.wayne.edu/oa_theses/770

33. ŞEN, Ebru. "Developing the music listening skills test (MLST) for pre-school and elementary school teacher candidates." *International Journal of Music Education*, 2024, p. 02557614241268010. DOI: https://doi.org/10.1177/02557614241268010

34. CASTRO, María del Carmen Rüdinger and MORENO, Carmen Castro. "Enhancing German Listening Skills through the Music of Kraftwerk: A Study on Spanish Learners." *Revista académica liLETRAd*, 2024, vol. 9, no. 2, pp. 59-76. https://revistaacademicaliletrad.wordpress.com/volumen-9

35. NURDIN, Fadilah Ekayanti. *The Analysis of Students Linguistic Intelligence and Its Effect on Their Speaking Skill: A Study at Sma Negeri 21 Makassar*. Doctoral dissertation, Universitas Hasanuddin, 2024. http://repository.unhas.ac.id:443/id/eprint/32438

36. CHIKEZIE, Ijeoma Joy. "Assessment of Multiple Intelligences and Effective Teaching and Learning of Ìgbò Language in South-east Geo-political Zone, Nigeria." In *Studies on Indigenous Signed and Spoken Languages in Africa*, edited by ASONYE, Emmanuel and EDWARD, Mary, Cambridge Scholars Publishing, 2024, pp. 178-193. https://www.cambridgescholars.com/product/978-1-0364-0224-2

37. HUSSAIN, Imran; RAHAT, Rubina and PARVEEN, Tahira. "Empowering Minds, Transforming Futures: Advancing Multiple Intelligences Through English Language Teaching in Pakistan." *International Research Journal of Social Sciences and Humanities*, 2024, vol. 3, no. 1, pp. 776-790. https://irjssh.com/index.php/irjssh/article/view/149

38. AL-GHAZU, Tasneem Mohammad and AL-SA'DI, Emad Tawfiq. "Jordanian EFL Students' Attitudes toward Using an Instructional Program Based on Multiple Intelligences in Teaching Speaking Skills." *Jordanian Educational Journal*, 2024, vol. 9, no. 2, pp. 96-111. DOI: https://doi.org/10.46515/jaes.v9i2.727

39. CHRISTINER, Markus; BERNHOFS, Valdis; SOMMER-LOLEI, Sabine and GROß, Christine. "What Makes a Foreign Language Intelligible? An Examination of the Impact of Musical Ability and Individual Differences on Language Perception and How Intelligible Foreign Languages Appear." *Journal of Intelligence*, 2023, vol. 11, no. 3, p. 43. DOI: https://doi.org/10.3390/jintelligence11030043

40. WANG, Mei Ling Chen. "Mobile Mavericks: A Twenty-Year Retrospective on Advancements and Challenges in Language Learning." *International Journal of Current Educational Practice*, 2024, vol. 12, no. 2, pp. 140-149. DOI: https://doi.org/10.5281/zenodo.10952713

41. RAHAYU, Budi; BUDIONO, Elsa Afnidha Arsy and RUMASEB, Simon Hendrik. "Multiple Intelligence and the Performance of Indonesian EFL Learners." *International Linguistics Research*, 2023, vol. 6, no. 2, pp. 32-40. DOI: https://doi.org/10.30560/ilr.v6n2p32

Appendix 1: Names of the Specialized Experts whom the Researchers Sought.

n.	Name of the Expert	Scientific Title	Place of Work	Specialization
1	Dr. Abdel Moneim Khairy	experienced professor	College of Fine Arts / University of Baghdad	Art Education
2	Dr. Saleh Ahmed Al-Fahdawi	Professor	College of Fine Arts / University of Baghdad	Art Education
3	Dr. Majid Nafie Al-Kanani	Professor	College of Fine Arts / University of Baghdad	Art Education
4	Dr. Ihsan Shaker is an earthquake	Assistant Professor	College of Fine Arts / University of Baghdad	Music
5	Dr. Haitham Shaoubi Ibrahim	Assistant Professor	College of Basic Education / Al-Mustansiriya University	Musical Heritage

Appendix 2: Musical Intelligence Scale.

n.	Name of the Paragraph	Always	Sometimes	Never
1	I can focus my thoughts and pay attention to all the sounds I hear			
2	I am proficient in skills that require accuracy in listening to music			
3	The best ideas come to my mind while I am performing the skill of listening to musical scales.			
4	I access my thoughts when I practice one of my music listening skills (music reading)			
5	I can remember the tunes I listen to			
6	I learn quickly when I get an instrument instead of listening to someone teach me			
7	I can easily acquire new musical expressions when listening to music.			
8	I can imitate all the sounds I hear			
9	I can express the feelings that I feel after listening to the music I do			
10	I can remember and write down the music I hear for the first time			
11	I can understand various musical patterns, shapes, and rhythmic structures			
12	I can express an opinion after I finish listening to music.			
13	I can easily regain my speed and accuracy while performing the skills of listening to repeated tones			
14	My readiness to perform music listening skills increases, unlike others.			
15	I have a rhythmic way of speaking and moving.			
16	I can play a musical instrument or sing with a group			
17	I can tell you when the sounds are a cacophony.			
18	I respond with approval when I listen to a piece of music			
19	I am sensitive to environmental noise, such as rain dripping on the ground			
20	I subconsciously hum to myself			

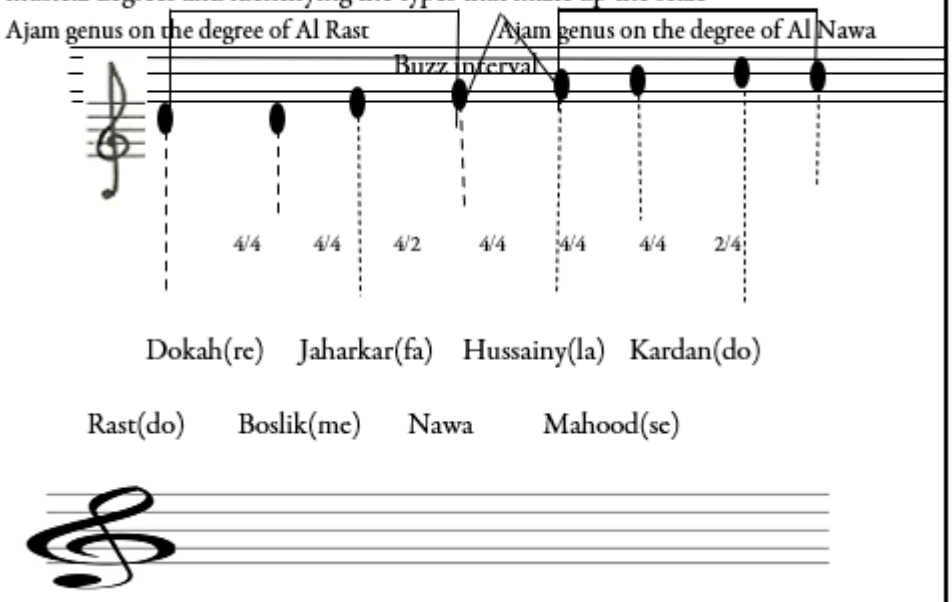
Q1: Listen to the following recording carefully and analyze the vocal notes you hear, specifying their locations and names?

5 marks for each paragraph

1 – listen to recording no. (1) Ajam scale.

Note: In the same way for the rest of the scales

Q4: Rewrite the musical scale on the next scale, writing the dimensions between the musical degrees and identifying the types that make up the scale



Appendix 3: Cognitive and Skill Performance Evaluation form.

Appendix 4: Shows the Days of Application of the Training Unit.

No.	Date Time	Application	Lecture Time in Hours		Lecture Place
			Cognitive	Skills	
Pre test	Sunday 1/11	Cognitive and skills achievement pretest Monday 2/11			Classes of Department of Art Education / College of Basic Education / Al-Mustansiriya University
Training unit	Monday 9/11	Maqam alejam scale	1	2	
	Monday 16/11	Maqam al Nahawand scale	1	2	
	Monday 23/11	Maqam al Kurds scale	1	2	
	Monday 30/11	Maqam al Hijaz scale	1	2	
	Monday 7/12	Maqam al-Rast scale	1	2	
	Monday 14/12	Maqam Bayat scale	1	2	
	Monday 21/12	Maqam al saba scale	1	2	
	Monday 28/12	Maqam al sikah scale	1	2	