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The Impact of Intelligence Quotient On The Learning Outcomes of Musical Art in State Schools

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Abstrack

This study aims to determine, describe and analyze the impact of intelligence quotient on learning outcomes in the musical art. This research was conducted on student representatives with a total sample of 324 students. The method used in this study was a quantitative method with an ex post de facto approach and correlational design. The data collection techniques used a psychological scale in the form of intelligence quotient tests, documents on the results of learning musical art and interviews with student representatives. The data analysis technique used was a simple linear regression test with the Best Linear Unbiased Estimated standard. The results showed that there is a significant and positive impact of intelligence quotient on the learning outcomes of musical art with the contribution percentage of 16.1% and 83.9% influenced by other factors that are not part of the research variables. Based on the results of the analysis and discussion, the researchers hope that this research can (1) facilitate students in getting new insight and experience related to intelligence quotient tests, (2) be a guide for teachers in understanding the conditions related to students' intellectual abilities, (3) be material considerations of art education teachers in designing intellectual-based learning and (4) be the basis for developing intelligence quotient tests. The suggestions from the researchers are certainly addressed to many parties, education implementers for the government, schools, teachers, further researchers and students.

Keywords: Intelligence Quotient, Learning Outcomes, Musical Art

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INTRODUCTION

Art Education in Public School is used as a medium in education or education through art media (Kristanto, 2017). A more concrete idea was explained by Triyanto in Rohidi (2014) that the target of art education in education is used as a vehicle in the learning process which includes expression, imagination, creation, recreation, and appreciation. The explanations of Kristanto (2017) and Triyanto in Rohidi (2014) provide an understanding that art education does not create individuals as artists who have high skills but it provides a vehicle or media, namely art in learning.

Art education is identical with creativity education which lies in providing the students with creative experiences through the use of intelligence, emotional and artistic (physical) skills to produce creative works as solutions (UNESCO dalam Sugiarto, 2019: 122). This statement serves as a guide that the intelligence ability is one of the abilities exists in art education.

Intelligence Quotient is a term of intelligence that tend to be known. This perception arised because of the reality of environmental demands where the intelligence quotient or IQ becomes a benchmark that is often used by the institutions, public or even educators to determine an individual's performance.

This trend phenomenon is in line with Gottfredson in Kaya, Juntune, & Stough, (2015) related to the opinion of IQ in the view of society which stated that intelligence measured by IQ tests is the most impactive predictor of individual performance at school and work. This statement is admitted by majority of psychologists.

The scientific evidence explained that Intelligence Quotient (IQ) comes from the outer layer of the human brain, namely the Neo-Cortex so that humans are able to calculate, understand formulas, learn various languages, and operate what they want (Marsuki, 2014: 6).

The intelligence quotient is an individual's ability to organize and use formal rules, such as linguistics and mathematics (Said, 2018). This opinion shows that the intelligence quotient can help solving a problem or work related to numbers, shapes, mathematical symbols, grammar, and logical thinking concepts. The theory of intelligence quotient in this study is used as a basis for making the test questions to measure the students' intelligence quotient.

Moving on from the researcher's argument that music is not only a medium that can reach the sense of hearing but it also can reach the sense of sight, this makes the music practice can be used as a medium in training someone's reading, writing, listening and speaking. It is supported by the musicological concept described by Yahya, Muttaqin, & Muchsin (2020) that the virtue of the musicological approach refers to the concept of composition, harmony, form of the song and form of the presentation. The musical elements in a composition include melody, rhythm, harmony, and dynamics (Prior, 2004:2). The forms of music conveyed can be visualized into a written literature or performances.

Therefore, based on the IQ theory from Peter Lauster mentioned in Marsuki(2014), it includes three indicators, namely figure ability, verbal ability, and numerical ability. It is clear that through music and its forms, it can certainly lead to training on IQ indicators such as visual abilities described by Widyati & Mubarak (2016) about "*Transformasi Musik dalam Bentuk Arsitektur*" (The Transformation of Music in Architectural Forms) as well as training the verbal skills as presented in a research by Israel(2013) about "Language Learning Enhanced by Music and Song" and training the mathematical or numerical abilities as described in the book written by Wright(2009) entitled "Mathematics and Music". This means that conceptually music learning (cognitive and psychomotor) has a relationship with intelligence quotient. In addition, the success of this cognitive and

psychomotor activity cannot be separated from the attitudes shown.

This argument is strengthened by a finding by Wolf Singer that SQ activities in the form of spiritual attitudes bind or combine the intelligence quotient (IQ) and emotional quotient (EQ) (Zohar & Marshall, 2005:123). The music education learning in public schools does not only include the skill and knowledge aspects but there is another aspect developed, namely attitude. This explained that the music learning must include three aspects in its development, namely attitude, skills and knowledge that become one unit and cannot be separated.

This research is suitable conducted with the research object of highschool students because it is a transition time for the students to continue their studies to university or work. The students who enrolled the university or work are required to pass several tests, one of which is directly related to the intelligence quotient test. Therefore, the school will support this research other than for the interests of the author but also a means for the students to have an experience of intelligence quotient test.

This research is classified as a unique research because it has a contribution and novelty, both in the continuity of education in general and in art education itself. The contribution to education generally is related to the steps of making the test questions and measuring intelligence quotient based on theory.

The contribution of art education is as the basis for statistical consideration related to the determination of IQ in the music learning outcomes, so that this consideration leads to the development of learning based on the intelligence ability (music education). It should be noted that what distinguishes this research from previous research is that it is regarding to the formulation of questions based on the theory and it also relates to what is influenced by the intelligence quotient, namely the learning outcomes of music education.

In order to make the results of the research more positive and significant, the

research was conducted on a wide scale taking into account the limitations of cost and time as well as the distribution of music subjects that represent the population. Therefore, a representative sample is determined, namely SMA Negeri 4 Pekalongan, SMA Negeri 1 Wonotunggal and SMA Negeri 1 Weleri.

In conclusion, based on the knowledge of the author, this research has never been studied by previous researchers. However, the previous research has a contribution or relevance to previous research, including: a research entitled "*Relationship between intelligence quotient and musical ability in children with cochlear implantation*" by Soleimanifar, Jafari, Zarandy, Asadi, & Haghani, (2016) which discussed about the relationship between musical ability in children with the cochlear implantation, where there is an experimental class in children with cochlear implantation and a control class in normal children, both classes were tested through a musical ability test with MBEMA standards and intelligence quotient (IQ). The results of analysis showed that there is a positive and significant correlation between the intelligence quotient and musical ability in children with cochlear implantation.

A research by Thania & Kadir (2019) with the title "*Hubungan Kecerdasan Emosional Dengan Hasil Belajar Seni Musik Siswa Kelas XI SMA Negeri 1 Ujungbatu*" (The Relationship of Emotional Quotient with Musical Art Learning Outcomes of Grade XI Students of SMA Negeri 1 Ujungbatu), the discussion contains the analysis process in the form of prerequisite tests to hypothesis testing related to the search for the significance of relationship between emotional quotient with learning outcomes in music education. Several previous studies provide references to the current research conducted. The most important thing is the previous studies that have been mentioned as a comparison to show that the current research topic proposed by the author is a research that has originality, novelty, and deserves to be conducted.

Based on the topic, this research leads to the correlational research where it aims to analyze the influence of intelligence quotient on music education learning outcomes. The analysis was conducted using SPSS (Statistical Product and Service Solution) 21st version.

METHODS

This study used a quantitative method with an ex post facto approach and a correlational design with a bivariate form. The ex post facto or the research after facts is a research in which its variables studied (the dependent variable) already existed at the time the research was conducted (Purwanto, 2015:181). The sample of this study was 324 students as representatives of the senior highschool students under the Education Department of Regional XIII of Central Java Province.

The data collection techniques used in this study were tests, documents, and interviews. The intelligence quotient of the students was measured through an IQ test which is based on 3 indicators, namely verbal, numerical and spatial abilities based on the intelligence test theory developed by Peter Lauster. Previously, the IQ instrument was validated both in terms of construction and content by two lecturers, namely a bachelor of psychology, master of mathematics education and master of language education. Furthermore, the validity and reliability tests were conducted on 251 students outside the population with the same characteristics and the calculations were assisted by using the application of SPSS 21st version so that the researchers found 36 out of 40 IQ test questions that represented IQ indicators and were feasible to use in this study.

The IQ test was carried out online assisted by three applications from google, namely (1) google form as a medium for answering the questions; (2) extended form.io as software in providing time limits on google forms; and (3) auto proctor software to anticipate fraud. The IQ test was carried out within 20 minutes for 36 questions that have

been selected based on the validity and reliability tests. The selection of this duration is based on Carter (2005:28-50) who sets the average duration of the IQ test on 20 minutes for 20 test items and it is reinforced by the statement that people on average gets normal IQ predicate or standard (100). It means that to do the IQ test, the students only need to answer correctly according to their age.

The procedures for the test implementation include: (1) Students were expected to prepare a mobile phone or laptop in doing the questionnaire; (2) Students had good internet signal and access; (3) Students prepared themselves 5 minutes before the predetermined schedule; (4) Students were expected to work honestly in accordance with their own abilities or without cooperation with others; (5) Students answered the questions they thought they could; (6) Students were allowed to bring blank paper for counting; (7) Students were prohibited from using any counting aids; (8) Students were not allowed to look for answers on the internet; (9) The Google forms were facilitated with the supervisor application, so the students who tried to cheat and caught by the application were considered disqualified; (10) Students were expected to occupy a quiet room during the exam; (11) There was no additional time for participants who were late and (12) The allocation time is 20 minutes for 36 questions.

While the instructions were available in the contents of the google form on the link provided, including: (1) Students should fill in the identity according to the question instructions; (2) Students should read the questions carefully; (3) Students should give an honest answer by giving a check mark (o) to the answer column with options (a, b, c or d); (4) Students should read the instructions for each indicator or each session carefully and (5) Students should review the identity and answer if there was still time.

Furthermore, there were 2 data analysis techniques, namely descriptive statistics and inferential statistics. The descriptive statistics in this study was used to present the data on

intelligence quotient and learning outcomes of music education in the form of tables and frequency tables. While the inferential statistics was used to analyze the simple linear regression on descriptive data (Sudijono, 2008: 5). The analysis used standard parametric statistical rules of the best linear unbiased estimator. There are (1) data prerequisite tests including linearity test (accepted based on the Anova table (linearity) sig 0.00 < 0.05), normality test (asympt. Sig 0.136 > 0.00), homoscedasticity test (accepted by scatter plot where data does not form a pattern), the autocorrelation test (accepted by the Durbin Wattson table is around $1 < DW (1.227) < 3$ means there is no autocorrelation) compared to the multicollinearity test (accepted by the collinearity statistical table about $0.1 < VIF (1,000) < 10$, meaning that the data not multicollinearity) (Field, 2009); and (2) Data analysis test includes simple correlation test, simple regression test, determination test, and t test (Sulaiman, 2004). The data analysis test is discussed in the results and discussion.

RESULTS AND DISCUSSIONS

The Learning Outcomes of Musical Art

The data that the researchers took related to the outcomes of learning music was secondary data, which means that the data was a document from the teacher in measuring the students in music education subject that included assessment of (1) attitude (affective), in the form of a combination of spiritual attitude and social attitude scores; (2) skills (psychomotor), in the form of practical assessment in music learning and; (3) knowledge (cognitive), in the form of daily assessments and mid-semester assessments. Each of these three aspects will be averaged for each aspect. Furthermore, the average score for each aspect (attitude, skill and knowledge) is totaled to obtain the average score of the three aspects. The following is descriptive data on the learning outcomes of music education which is the average of the total combined affective,

psychomotor and cognitive scores for 324 students:

Table 1. Music education learning outcomes

interval	Frequency	Percent	Average
75-76	10	3.1	
77-78	21	6.5	
79-80	54	16.7	
81-82	57	17.6	
83-84	57	17.6	
85-86	47	14.5	
87-88	53	16.4	
89-90	20	6.	
91-93	5	1.5	
Total	324	100	83

Further explanation is that there are 3.1% of 10 students who get the score of 75-76; 21 students or 6.5% of the total students scored in the range of 77-78; 54 students or 16.7% of the total students scored in the range of 79-80; there are 57 students or 17.6% of the total students getting scores between 81-82; there are 57 students or 17.6% of the total students getting scores between 83-84; there are 47 students or 14.5% of the total students who scored 85-86, there were 16.4% or 53 students who scored 87-88; 20 students or 6.2% of the total student scored in the range of 89-90; and the highest score range is 91-93 there are only 5 students who get it or about 1.5% of the total students. The average score obtained by the students from the 3 schools is 83 or in good category.

Intelligence Quotient Results

This sub-chapter discussed about the results of intelligence quotient, the IQ test was obtained through an intelligence quotient test or IQ test which consists of 36 questions arranged based on three indicators, namely verbal, mathematical and spatial abilities.

Table 2. Intelligence Quotient Outcomes

Interval	Frequency	Percent	average
0-25	0	0.0	
25-49	9	2.8	
50-69	30	9.3	
70-79	16	4.9	
80-89	49	15.1	
90-99	27	8.3	
100-109	56	17.3	
110-119	46	14.2	
120-139	59	18.2	
140-180	32	9.9	
Total	324	100	103

Based on the descriptive statistical explanation of intelligence quotient, it can be seen that the representatives of senior highschool students under the Education Department of Central Java Province have an average IQ of 103 or above the classification average.

The Influence of Intelligence Quotient on Musical Art Learning Outcomes

The first test in this discussion is Pearson simple product moment correlation test which is used to find out how much influence that IQ has on the learning outcomes of music education.

Correlations			
		HASIL BELAJAR	IQ
HASIL BELAJAR	Pearson Correlation	1	,401**
	Sig. (2-tailed)		,000
	N	324	324
IQ	Pearson Correlation	,401**	1
	Sig. (2-tailed)	,000	
	N	324	324

** . Correlation is significant at the 0.01 level (2-tailed).

Figure 1 . Simple Correlation Test

Based on Figure 1, it can be seen that the relationship between IQ and the learning outcomes in music education is 0.401 or it is in the criteria for a moderate and one-way relationship.

The second test is a simple linear regression test that is used as a prediction or

estimation of the Y value or the learning outcomes of music education which is influenced by the X2 variable or intelligence quotient. The following is the result of calculations using IBM SPSS 21st version software:

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1							
(Constant)	77,724	,739		105,154	,000		
IQ	,054	,007	,401	7,858	,000	1,000	1,000

a. Dependent Variable: HasilBelajar

Figure 2 . Simple Linear Regression Test

Based on the Simple Linear Regression Test of Figure X2 against Y, it can be seen that the regression constant (a) is 77.724 and the regression coefficient (b) is 0.054 which indicates a positive direction so that every 1% increase in IQ value will increase the regression coefficient value by 0.054. Thus the regression models that can be used are:

$$Y = a + bX \text{ or } Y = 77.724 + 0.054 X$$

(Intelligence Quotient)

The third test is the determination test or the R square test is used to find out how much the percentage of intelligence quotient (X) in affecting the learning outcomes of music education (Y). The bigger value of R square (R^2), the bigger independent variable can explain the dependent variable. The following is the result of the calculation using IBM SPSS 21st version:

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,401 ^a	,161	,158	3,426

a. Predictors: (Constant), IQ

b. Dependent Variable: HasilBelajar

Figure 3 . Determination Test

This can be seen from the R Square column (R^2) of 0.161, it means that there is a significant impact of intelligence quotient on learning outcomes of musical art by 16.1% and 83.9% is affected by other independent variables.

The last test is the T test which is used to see the significance of the influence of

Intelligence Quotient (X) on the learning outcomes of music education (Y) with the assumption that other variables are constant or fixed. The t-test was performed by comparing t-count with t-table. The following is the result of the T test calculation through the IBM SPSS software 21st version.

Coefficients ^a									
Model	Unstandardized Coefficients			Standardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error		Beta				Tolerance	VIF
1	(Constant)	77.724				105.154	.000		
	IQ	.054	.739		.401	7.858	.000	1.000	1.000

a. Dependent Variable: HasilBelajar

a. Dependent Variable: HasilBelajar

Figure 4 . T test

Based on the calculation of the IBM SPSS software 21st version, it can be seen that t of 7.858 and t table of 1.960 or t of $7.858 > t$ table of 1.960, which means that the regression coefficient on intelligence quotient (IQ) is significant or intelligence quotient variable has an impact on learning outcomes of music education.

From the description of all data analysis tests, it can be concluded that the null hypothesis is rejected and the alternative hypothesis 1 is accepted or there is a significant and positive impact on intelligence quotient on the learning outcomes of music education in SMA Negeri under Education Department of the Regional XIII Education Office of Central Java Province and it meets the BLUE statistical criteria (Best Linear Unbiased Estimated) or the best unbiased estimator. Therefore, it can be interpreted that if there is an increase in spiritual intelligence, there will be an increase in learning outcomes for the musical art.

Further discussion based on the results of interviews with the students representatives who have intelligence quotient scores in the low, medium and high categories, it can be seen that there are obstacles related to the student signals and internet quota limitations during the implementation of online intelligence quotient tests. In addition, it can be seen that every student has the same opinion regarding the difficulty in completing the indicators of numerical ability and indicators mastery of verbal ability.

In this case, the factors which cause some students with moderate and low IQ have difficulty in dealing with learning mathematics (numeric) is because of their personality factors, including: (1) They do not like mathematics or prefer other subjects and they do not understand mathematics and (2) They do not like mathematics, tend to be careful in doing math problems, and do not re-check the answers if they have completed it (Purnamasari & Purnamasari, 2019).

Another factor that causes the high and low numeracy skills of the students is mentioned in the research of Alpadery, Astriyani, & Wathoni, (2020) in terms of the way teachers teach related to the use of the teaching media. The results showed that (1) when the teacher uses learning videos, the results of students' numeracy skills are very good; (2) when the teacher uses photo and sound media, the results of students' numeracy skills are quite good; and (3) when the teacher uses power point and pdf media the results of students' numeracy skills are not good.

Music has a strong relationship with mathematics or it can be interpreted that the numeracy skills can be trained through music education. This statement has been explained in the book "Mathematics and music" by David Wreight, one of which aims to explore the relationship between music and mathematics conceptually and practically. Wright (2009:17) said that the musical concepts discussed include diatonic and chromatic scales (standard and non-standard), intervals, rhythms, meters, forms, melodies, chords, progressions, octave equivalence, additional notes, timbre, formants, the same temperament, and alternative tuning methods. Mathematical concepts covered include integers, rational and real numbers, equivalence relations, geometric transformations, groups, rings, modular arithmetic, unique factorization, logarithms, exponentials, and periodic functions. Each of these ideas involve because they are connected in one way or another with the point where mathematics and music meet.

The basic concepts of mathematics contained in music were shown by Wright (2009:17) in the concept of determining the value of notation on a bar. The researchers give a simple example, namely in determining the bar on the image of a musical work.

The problem faced is the determination of the time signature. In this case, it can be solved by assigning a value to each notation, while musical works have 3 notations, namely notation 1, notation 2, and notation 3. The notation 2 has a value of $1/8$, and notation 3 has a value of $1/8$ (Benward, 2009:9).

After determining the notation values, the researchers specify the time signature of the time or by adding up the values in each notation. In this case, notation 1 + notation 2 + notation 3 or $1/2 + 1/8 + 1/8 = 4/8 + 1/8 + 1/8 = 6/8 = 3/4$, then we get 2 time signature results namely $6/8$ and $3/4$, these results are in accordance with the basic music theory stated in the discussion of types, time signatures, namely Triple Maters ($3/4$) and Compound Maters ($6/8$) (Benward, 2009:13).

The verbal ability can be developed through 4 learning developments, namely (1) Serial Learning; (2) Paired Associate Learning; (3) Free Recall; and (4) Introductory Learning (Basri & Neviyarani, 2021). In short, the four developments of verbal skills lead to the scope of learning which consists of materials and procedures that are detailed in the context of development.

Language is very closely related to thinking, so in this case the verbal ability is a factor that affects an individual's way of thinking. This is in line with Soeharno's statement in Wahyuddin (2017) who stated that the verbal ability is very closely related to the success of teaching and learning activities because with high verbal abilities, a person can easily understand the ideas as well as the concepts and they can easily think and solve problems in the form of words.

Music is closely related to verbal, it means that music does not only rely on the instrumentation of musical instruments but also the elements of music that are related to poetry

for its expression. This is in accordance with Suharto (2006) idea regarding the definition of song as a type of non-music that has a very important function in giving a certain impression on music through the song lyrics. Song lyrics give a new dimension to the song in the form of language. The conclusions from other studies have shown that language can be elevated higher with other help which can produce brain activation. Music may contain a lot of material to improve speaking and language skills holistically. From an early age, people learn how to talk and sing at the same time. It is a well-known fact that communication comes from speech and song. Speaking and singing embedded in the music, and they can greatly facilitate the verbal expression (Sağlam & Kayaoglu, 2010)

Researchers assume that the verbal skills can be formed through music learning. This assumption is supported by a research by Murray in Israel (2013) regarding to the efforts of improving verbal skills which stated that analyzing songs as poetry expands the students' grammar and vocabulary, developing the skills needed to learn the target language deeper. The students' pronunciation is also improved as they listen to the beat, rhythm, flow, and accent. They can also learn the different spoken and written forms of the target language.

The statement above is also reinforced by the descriptive statistics from the results of a research by Wijaya (2018) which stated that there is a significant difference in speaking ability between teaching speaking with songs, namely the post-test average of 17.47 and teaching speaking without songs with an average post-test of 13.85.

Furthermore, based on the research of Victoria, Sahrani, & Patmonodewo (2019), one of the efforts to improve children's visual abilities is through origami-based learning which refers to a teaching method that can improve the students' spatial ability in manipulating objects, namely by transforming a sheet of paper into a three-dimensional shape. The results of the research showed that there is an improvement of spatial ability in eight

meetings. However, the students experienced an improvement in spatial ability in different dimensions, namely topological dimensions, mental projection and projective relationships.

In studying the music education or music itself, it is not only related to something related to sound, but it is also related to visuals. This is in line with the opinion of Widyati & Mubarak (2016) that there are similarities that exist in several elements between architecture and music and it also has embodiments in the form of building music and architects. Therefore, music can be clearly visualized in written form (composition, harmony and form of the song) and the form of presentation.

Referring to the 2013 curriculum related to (1) art knowledge; (2) art appreciation and criticism; and (3) art creations (Sugiarto, 2019), the visual form in learning the musical art in public schools can refer to musicology. According to Yahya, Muttaqin, & Muchsin (2020), the virtue of the musicological approach refers to the concept of composition, harmony, form of the song and form of presentation. Musical elements in a composition include melody, rhythm, harmony, and dynamics (Prier, 2004:2).

The musicological approach can be used by teachers, educators or teachers as a medium in educating or teaching. This idea is in line with Yuni (2017) who stated that students should at least get musical experience through reading, listening, moving, and singing activities with music as the medium. According to Sugiarto (2019), one of the characteristics of Cultural Arts education is Multilingual (the development of students ability to express themselves creatively through visual language, motion, sound, roles and their combination) and Multidimensional (the development of various competencies including conception (knowledge, understanding, analysis, and evaluation), appreciation and creation by combining the elements of aesthetics, ethics, kinesthetic, and logic in harmony either it is verbal ability, numerical ability or spatial ability.

The results of this research regarding the influence of intelligence quotient to the results of music education are strengthened by a research from Soleimanifar, Jafari, Zarandy, Asadi, & Haghani (2016) who conducted a study entitled "*Hubungan antara intelligence quotient dan kemampuan bermusik pada anak dengan implantasi koklea*" (The relationship between intelligence quotient and musical ability in children with cochlear implantation). This study is a comparative study between the children with cochlear implantation (CI) and the children with normal hearing who were divided into a control class and an experimental class in children aged 6-8 years without formal music training which showed the results with a significant direct correlation between IQ and music. The scores are control ($r \geq 0.38$) and experimental ($r \geq 0.37$) groups.

Furthermore, a research entitled "*Pengaruh Kecerdasan Intelektual, Kecerdasan Emosional dan Kecerdasan Spiritual Terhadap Kinerja Melalui Kepuasan Kerja Tenaga Kependidikan di Universitas Jember*" (The Impact of Intelligence Quotient, Emotional Quotient, and Spiritual Quotient on Performance Through Job Satisfaction of Education Staffs at Jember University) by Sibasopait (2018) resulted to positive and significant impacts on each intelligence: Intelligence Quotient, Emotional Quotient, and Spiritual Quotient in which it affects the job satisfaction and performance of education staffs at the headquarter of Jember University. The results of the current research are in line with and also contradict to the theory by Goleman (2009:58-59) which stated that the intelligence quotient contributes 20% to life success, while 80% is contributed by other factors. In line with this study, IQ affects the learning outcomes of music education and it is different from the results of this research which shows the contribution of intelligence quotient to the learning outcomes of music education by 16.1%, while 83.9% is contributed by other factors.

In order to maximize the student learning outcomes (affective, psychomotor and

affective), not only is it based on the development of IQ, but there are other factors such as other intelligences described by Hakim(2018) who stated that there are three types of intelligence in humans including IQ, SQ and EQ. Furthermore, there is a more concrete explanation by Syah(2014:184-185) who stated that the factors which affect the intelligence include (1) internal factors, there are two aspects in this factor, namely physiology and psychology; (2) external factors, there are two types of influencing environment in this factor, namely social and non-social environment; and (3) learning approach factors, there are several types of approaches in learning, namely methods, media, strategies, and learning models.

CONCLUSIONS

Based on all the descriptions above, it can be seen that this study aims to determine and describe the influence of intelligence quotient on learning outcomes of music education in public snior highschool students under the Education Department of Regional XIII of Central Java Province. The results of the study were obtained through various tests which included (1) instrument prerequisite tests; (2) prerequisite test for data analysis using the BLUE (Best Linear Unbiased Estimator) standard to obtain the best data with unbiased estimation; and (3) test data analysis or hypothesis testing. Based on the hypothesis testing and data analysis, it can be concluded that:

There is a significant influence of intelligence quotient on the learning outcomes of music education in public high schools under Education Department of Regional XIII of Central Java Province and there is a contribution of intelligence quotient of 16.1% and 83.9% is influenced by other factors.

The indicators of intelligence quotient that affect is the verbal, numerical, and spatial abilities. Other variable factors which are generally not examined in this study include:

(1) internal factors (2) external factors and (3) learning approach factors.

Researchers hope that apart from making it easier for the students to get new insight and experience related to intelligence quotient tests, it can be used as a guide for the teachers in understanding the conditions related to students' intelligence abilities, as consideration for art education teachers in designing the intelligence-based learning and as a basis for developing IQ tests. The disclaimer that the IQ test made by the researchers is not the standard determined by IPSI (Indonesian Psychological Association), therefore this IQ test cannot be used as a requirement to register to an institution and it is not an official measuring tool.

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