

Learning through an interactive multimedia CD to strengthen musicality and character values

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ABSTRACT: This study aimed to produce a multimedia interactive learning product for senior high-school students, a CD titled Technology Arts Research Arrangement (TARA). The product included music education materials based on 'Mensahang Lah Mirah', a traditional song from Indonesia's Bangka Belitung province. The research used the research and development method of Gall et al. (1996). Data collection took place at the high school, SMAN 2 Pangkalpinang; both the control and experimental classes consisted of 35 students. Data were collected by observation, questionnaire, interview and documentation and analysed using descriptive qualitative techniques and quantitative statistical tests including multivariate analysis of variance. The result of this research is a multimedia interactive learning product. The data show that the developed media is effective in increasing the students' musicality and tolerance, but it is not effective in increasing the students' mutual cooperation.

1 INTRODUCTION

The twenty-first century is an era that differs significantly from previous ones; technological diffusion is rapid and students increasingly have easy access to Internet-based resources via their personal electronic devices such as smartphones and notebooks. This is as true of music as it is of any other domain. Indonesian high-school students are now more familiar with modern songs than with traditional songs. Zulhendri's (Pramudita, 2016) study of children's knowledge of different musical genres showed that students' recognition of the modern pop song, Pop Dewasa (adult), exceeded 60% whereas local or traditional songs had dramatically lower recognition rates, less than 10%.

Traditional songs reinforce important pro-social values, such as kindness. Furthermore, learning traditional songs should be implemented in educational settings, particularly music arts learning.

Lack of familiarity with traditional songs contributes to lower musicality. The authors have observed that many students in the tenth-grade class at SMAN 2 Pangkalpinang school in Indonesia's Bangka Belitung province sang traditional songs incorrectly. Further, students were unable to sing in groups of two to four parts, in other words, Soprano Alto, Tenor and Bass (SATB).

The lack of knowledge of traditional songs affects not only students' musicality, but also their values; with intolerance and individualism a growing problem. Therefore, learning (including music arts learning), which strengthens students' character values, such as tolerance and mutual cooperation, is necessary.

In teaching and learning processes in schools, teachers may attempt to teach students traditional songs; however, teaching methods are frequently limited to speech and texts. Students may become bored and rapidly lose interest. Similarly, teachers may not use classroom facilities to their full advantage, including projectors and speakers. These problems could potentially be overcome by using a multimedia interactive learning programme that encourages students' interest in their local songs.

For these reasons, this study aimed to develop an interactive multimedia learning product, the Technology Arts Research Arrangement (TARA) CD, which contained the song 'Mensahang Lah Mirah', a traditional song from Indonesia's Bangka Belitung province. The purpose of developing the product was to strengthen students' musicality as well as tolerance and mutual cooperation.

2 LITERATURE REVIEW

2.1 *Interactive multimedia learning*

Interactive multimedia systems are computer-based digital environments that enable the user to choose where they want to go next within the environment. According to Bedi et al. (2011), learning via multimedia is more complex than traditional learning in which the medium is speech and/or text. As indicated by the term's morphology, 'multimedia' is the combination of various media: text, sound, graphics, video, animation and so on.

2.2 *Arrangement of the traditional song 'Mensahang Lah Mirah'*

The TARA CD is an interactive multimedia learning environment that contains arrangements of traditional Indonesian songs, of which 'Mensahang Lah Mirah' is one. The arrangement is for four voices and is suitable for a chorus or vocal group. The arrangement is tailored for male and female voices of senior high-school-level students using the ranges and tessituras described by Steinman (2010).

2.3 *Musicality and character values*

2.3.1 *Musicality*

Sture Brandstrom (as cited in Jaffurs, 2004) found two distinct views on musicality: an 'absolute' view and a 'relativistic' view. The absolute view sees musicality as inherited, and able to be measured by achievements such as performing, composing and improvising. The relativistic view sees musicality as socially constructed and something of which all people are capable.

In this study, to avoid subjectivity in the assessment of musicality, an absolute definition is adopted: musicality is measured by musical achievements, including performance. The performance is based on the syllabus and lesson plan, 'Indonesian Music Performance (local song of Bangka Belitung)' which is arranged for a SATB vocal group. The song is performed inside or outside the class, and it is the performance that is evaluated to measure musicality.

Key musical elements are rhythm, melody, harmony and dynamics (Kamien, 1980). 'Rhythm' is the well-ordered flow of the music – time in music can be compared to time in all aspects in life, including speed and intensity. 'Melody' is a series of single tones that have pitch. Melody begins, continues and finishes; melody has direction, form and continuity. Tension and release may be achieved through melodic movement, including through contrasts in pitch. Such tension and release may be experienced as hope and coming. 'Harmony' is the building of chords and how the chords are ordered. A chord is the combination of at least three notes heard together. A chord is a group of simultaneous tones, whereas melody is a series of individual tones that are heard one after the other. 'Dynamics' refers the degree of loudness or tenderness in music. Loudness is the amplitude of the vibration that produces sound. A player may stress a tone by playing it louder than other tones in the phrase – a dynamic accent. The change in the music's dynamics as loudness gradually increases from soft to loud engenders enthusiasm and emotion in the performance. Dynamics are not always written in the music but can be understood and produced by the players.

In skill practice of musicality at school, students may focus on the musical score or music notation at the expense of musical expression or feeling. In evaluating musicality, musical expression needs to be included so students can 'feel' the song and so that it can also be felt by the audience.

Rismawan (2014) stated that 'expression' is the way that performers convey their feelings or thoughts. The way people express their feelings depends on the situation and conditions in which they find themselves. Musical expression reflects the meanings experienced in the heart and mind, which are expressed through inspiration and appreciation of the song.

2.3.2 Character values

Lickona (2013) stated that character values consist of operative values – values in action (p. 51). He asserts that the development of good character is made up of three attributes: knowing the good (judging what is right), desiring the good (caring deeply about what is right) and doing the good (acting out what is right). Character consists of 'operative' values and 'action' values.

As someone develops 'good character', they express values such as kindness. As a result, they are able to respond to situations in accordance with those moral values. 'Character' has an 'affective' component. Based on Andersen (as cited in Mardapi, 2011), there are two methods that can be used to measure affect: observation and self-report. The observational method is based on the assumption that affective character can be seen in behaviour and attitudes and/or psychological reactions. The self-report method assumes that the individual is best placed to know their own affect.

Nevertheless, honesty is needed if an individual is to accurately express their affective characteristics. In this research, the self-report method is used. Students complete a questionnaire that contains 30 questions. The questions are arranged based on Mardapi's (2011) indicators:

(1) Tolerance

Tolerance is the attitude and action that respects diversity of backgrounds, opinions and beliefs. Indicators of tolerance values are:

- a. does not disturb someone else who has opinions that differ from their own;
- b. accepts an opinion even if it is different from their own;
- c. can apologise for their mistakes;
- d. able and willing to work with those who have different backgrounds, opinions or beliefs;
- e. does not compel others to share their opinions or beliefs;
- f. willing to learn from other beliefs and opinions, so that they can understand the other person (open-minded); and
- g. open toward, or willing to accept, new experiences.

(2) Mutual cooperation

Mutual cooperation is working together to achieve a shared purpose, by sharing tasks and helping each other unconditionally. Indicators of mutual cooperation are:

- a. being actively involved in cleaning the classroom with classmates;
- b. being willing to fulfil a commitment to do a task;
- c. being willing to help others without expecting a reward;
- d. being active in group work;
- e. focusing on the group's work;
- f. not wishing to prioritise personal interest over others' interest;
- g. looking for ways to reconcile differences of opinion or thought between themselves and other people; and
- h. encouraging others to cooperate to achieve shared goals.

3 METHOD

3.1 The research and development method of Gall et al.

The product development in this research used the model of Gall et al. (1996), which consists of ten steps:

- a. Research and information collecting: This was the first step in analysing needs and was conducted through observing the teaching and learning process during a music arts lesson.
- b. Planning: In this step, the researcher created a plan for developing a multimedia product to enhance music arts learning.
- c. Developing a preliminary form of the product: In this step, the researchers arranged 'Mensahang Lah Mirah' in four parts for a SATB vocal group. Finale score-writing software was used for this purpose.
- d. Preliminary field testing: The 'Mensahang Lah Mirah' score was trialled with nine students of Candra Gemilang vocal group from SMAN 5 Karawang school. The purpose of the trial was to assess the suitability of the score's vocal range for children at senior high-school level.
- e. Main product revision: After the first trial, it was necessary to modify the score by altering the bass part, which was too difficult and too low.
- f. Main field testing: After revising the score, the score was then trialled with the larger ensemble of 20 students from Candra Gemilang vocal group from SMAN 5 Karawang school. At this time, the tutorial video was recorded, which consisted of five video segments: four segments contained a student demonstrating each of the four voices (soprano, alto, tenor and bass) and the fifth video segment contained 20 students singing in four parts (SATB) with one teacher as conductor.
- g. Operational product revision: In this step, the score and tutorial video from the previous step were integrated into the interactive multimedia learning tool.
- h. Operational field testing: Nine students from SMAN 2 Pangkalpinang school's vocal group participated in the operational field testing. In this step, the multimedia tool was used for the first time as a learning tool. This testing aimed to ensure that the product was free of bugs and functioned as expected, so that it could be used successfully in the experimental class in Step j. The researchers also, in this step, sought evaluations from the media and content experts.
- i. Final product revision: Based on field observations and expert evaluation obtained during the previous step, the product underwent final modifications.
- j. Implementation: The product was tested with tenth-grade students of SMAN 2 Pangkalpinang school. The implementation step was taken with the control class, X IPS 2 class. The step also involved X IPS 5 class through the socialisation of the multimedia learning product development.

3.2 Data analysis technique

Assessing the feasibility of the multimedia programme was done using a Likert scale. The scale integers used were: 1 (Very inappropriate), 2 (Inappropriate), 3 (Appropriate enough) and 4 (Very appropriate) (Sugiyono, 2010). The percentage calculation process was done by comparing the observed frequency with the expected frequency. The percentage is calculated using the following formula:

$$\text{Percentage} = \frac{\text{observed frequency}}{\text{expected frequency}} \times 100$$

The resulting percentage was compared with the feasibility scale in Table 1.

Table 1. Feasibility scale (Arikunto, 2012).

Achievement percentage	Scale number	Interpretation
76–100	4	Very appropriate
56–75	3	Appropriate
40–55	2	Less appropriate
0–39	1	Not appropriate

The effectiveness of the multimedia product was determined using IBM SPSS software to test the data for normality and homogeneity and to generate descriptive and multivariate statistics (Multivariate Analysis Of Variance, MANOVA).

4 RESULT

4.1 *Product presentation*

The media contained within the TARA CD are text, sound and video (for a tutorial). The product developed in this study is an interactive multimedia product which enhances the teaching and learning process. The traditional song, 'Mensahang Lah Mirah', comes from Indonesia's Bangka Belitung province, the location of this study. The lyrics of this song are:

Mensahang-sahang lah mulai mirah (The field is already reddish,)
Musim petik ge mulailah (it is time to begin the harvest.)
Banyak keluar bujang kek miak (The man and woman go out,)
Memetik sambil berdendang (harvesting while singing together.)
Tangan memetik mate berpandang (Hands pick, eyes see each other,)
Ati berdebar dak kruan (hearts beat quickly.)
Tingok betingok janji bejanji (They see each other and make a promise)
Kelak pulang bedue (to come back together.)
Surelah dateng, ari nek malem (The afternoon will come and the day will become night,)
Sedenget agik nek pulang (we will be back soon.)
Bulan tersenyum, bujang ge girang (The moon smiles, and the man will be happy;)
Miak seneng ati e (the woman will be happy too.)
La la la la la la la la la (La la la la la la la la la)
Bujang kek miak betinten-tinten (Men and women are side by side.)
Pulang ke rumah bedue (They come home together.)
Malem ni cuma beseneng-seneng (Tonight we will be happy together,)
Isok lah begawe ulik (tomorrow we will work again.)

According to Sutrisna Ekowibowo, expert on Bangka Belitung's traditional music, the values of tolerance and mutual cooperation contained in the song make 'Mensahang Lah Mirah' an appropriate choice for music arts learning.

The TARA CD contains the song 'Mensahang Lah Mirah' for four voices, represented in two types of notation, that is, a Western score and a numerical score.

4.2 *The appropriateness evaluation*

The evaluation of appropriateness was made by the media expert and the content expert. The media expert assigned a total score of 75 to the product (35 + 20 + 20). Using the formula presented earlier, the percentage can be calculated:

$$\frac{75}{100} \times 100 = 75\%$$

The appropriateness evaluation made by the content expert was 75 (8 + 39 + 28). The percentage of 75% was calculated by the same means as above. It can be seen that each expert's evaluation led to an appropriateness score of 75%, which equates to level 3 in Table 1. Hence, the multimedia product has been assessed as 'Appropriate'.

4.3 The effectiveness evaluation

The normality test results (Table 2) show that the data do not significantly deviate from a normal distribution ($p < .05$) (Pallant, 2013); hence, we concluded that the data are normally distributed.

Homogeneity testing was carried out using the Levene test; as the Levene statistic did not reach statistical significance, we accepted that the variances are equal across the samples. The MANOVA shows that the data have an F score greater than the F table, with $p > .05$; the data from both groups are homogeneous.

As indicated in Table 4, based on Box's test, Box's M was 5.416, which was not statistically significant ($p > .05$), so that the data in both groups are homogeneous.

Table 2. Normality test.

NPar Tests		One-Sample Kolmogorov-Smirnov Test					
		musik 2	toleransi 2	gotong 2	musik 5	toleransi 5	gotong 5
N		35	35	35	35	35	35
Normal	Mean	77.8571	3.3743	3.2562	83.4286	3.5352	3.3419
Parameters ^{a,b}	Std.	5.97614	.27725	.26269	6.61676	.31736	.29220
	Deviation						
Most Extreme	Absolute	.217	.154	.223	.212	.140	.123
Differences	Positive	.217	.154	.223	.212	.112	.123
	Negative	-.154	-.089	-.165	-.188	-.140	-.121
Kolmogorov-Smirnov Z		1.284	.909	1.318	1.255	.831	.727
Asymp. Sig. (2-tailed)		.074	.380	.062	.086	.494	.667

a. Test distribution is Normal.
b. Calculated from data.

Table 3. Homogeneity test.

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Musikalitas	.273	1	68	.603
Toleransi	2.877	1	68	.094
Gotong	.159	1	68	.691

Table 4. MANOVA test.

Box's Test of Equality of Covariance Matrices ^a	
Box's M	5.416
F	.859
df1	6
df2	33502.189
Sig.	.524

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + Kelompok

The effectiveness result showed a statistically significant difference between the experimental and control classes in 'musicality', while there was no statistically significant difference between the classes in the 'mutual cooperation' score.

4 CONCLUSION

The results of the research are:

- a. The contents of the TARA CD product, which include:
 - 1) Learning objectives, with achievement targets for the learning process.
 - 2) Materials that contain the SATB arrangement for a vocal group of the traditional song 'Mensahang Lah Mirah' from the Indonesian province of Bangka Belitung, including:
 - (a) bar notation of the musical score; (b) numerical notation of the musical score; (c) a tutorial video, which are the tutorials for each of the SATB voices and the combination of all four voices; (d) audio of the original song in one voice in MP3 format.
 - 3) Song profile that contains the song's lyrics and their meaning.
- b. The feasibility results obtained from the experts' evaluations show that the feasibility of the product is 75%, and it is at level 3 with an interpretation of 'Appropriate', meaning that the TARA CD multimedia product is appropriate for implementation in a music arts learning programme in senior high schools.

REFERENCES

- Arikunto. (2012). *Dasar-dasar evaluasi pendidikan edisi 2* [The Basic Foundation Of Education Evaluation Edition 2]. Jakarta: PT, Bumi Aksara.
- Bedi, K., Coric, A. & Samardzija, D. (2011). Project based learning: Students' design of interactive multimedia CD/DVD with educative content in secondary school. In *Central European Conference on Information and Intelligent Systems* (p. 97). Varazdin, Croatia: Faculty of Organization and Informatics.
- Gall, M.D., Borg, W.R. & Gall, J.P. (1996). *Educational research: An introduction* (6th ed.). White Plains, NY: Longman Publishing.
- Jaffurs, S.E. (2004). Developing musicality: Formal and informal practices. *Action, Criticism, and Theory for Music Education*, 3(3), 18–27.
- Kamien, R. (1980). *Music: An appreciation*. New York, NY: McGraw-Hill.
- Lickona, T. (2013). *Educating for character*. Jakarta, Indonesia: Bumi Aksara.
- Mardapi, D. (2011). *Penilaian Pendidikan Karakter* [Character education assessment]. Yogyakarta, Indonesia: UNY Press.
- Pallant, J. (2013). *SPSS survival manual* (5th ed.). Maidenhead, UK: McGraw-Hill Education.
- Pramudita, M. (2016). Pembelajaran Lagu Daerah dalam Menanamkan Apresiasi Siswa Kelas V di SD 3 Blimbing Kidul Kabupaten Kudus (*Learning Local Songs to Instilling Appreciation of Class V Students in Blimbing Kidul Elementary School, Kudus Regency*), Semarang: Semarang States University.
- Rismawan, S.A. (2014). *Ekspresi Musikal dan Fungsi Musik Saestu Band Reggae bagi Masyarakat Kota Semarang* [Musical Expression and Music Function of Saestu Reggae Band for the Community in Semarang]. *Jurnal Seni Musik*, 3(1), 20–28.
- Steinman, P.M.W. (2010). *Becoming a choral music teacher*. New York, NY: Routledge.
- Sugiyono. (2010). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* [Educational research methods: Quantitative, qualitative, and R&D approaches]. Bandung, Indonesia: Alfabeta.