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The Development of Environmental Song-Based Materials Using a Scientific Approach for Teaching English

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Abstract

The aim of this study is to develop and validate environmental song-based materials using a scientific approach which follow the stages of research and development. The writer created environmental lyrics and put them on traditional melodies that are familiar to the students. The materials were tried out using preliminary field test, main field test, and operational field test. An expert in materials development validated the materials in terms of its content, lay out, and visual design. To assess the readability of the materials, thirty first grade junior highschool students participated as participants in the main field test. Questionnaires were distributed to them to find out their attitude and responses towards the songs and the activities which follows the stages of scientific approach. Ninety first grade junior highschool students as participants participated in the operational field test. The result of the preliminary field test revealed that theoretically the developed songs and activities which follow the stages of scientific approach was well accepted, with minor revision.The result of main field test indicated that empirically 85% (N= 30) of the participants attitude towards the materials are positive; moreover their comprehension of the content is very good, namely 96% (N=30%). Next, the result obtained from 90 participants in the operational field test revealed that the materials are effective, since 52% of the participants' scores are at the comprehension level ranging between 86%-100% which is excellent, while 28% of the participants' scores are at the comprehension level ranging between 71% - 85% which is good. A further research on a larger size of samples is suggested to prove the effectiveness of the developed materials.

Keywords: environmental songs, scientific approach.

INTRODUCTION

English as a foreign language (FL) has been introduced as a compulsory subject in public junior high schools in Indonesia. For young learners to be proficient in English it is important to teach them starting from a content they are familiar with. Thus, emphasis should be more on the content rather than on the language so that it will give them comfort in learning the content and the language simultaneously. The content should be interesting and informative. The writer has analyzed the content of six English textbooks that have been used throughout Indonesia and found out that the books could not equally fulfill the needs of junior high school students throughout Indonesia, since the contents are not equally familiar to the students and have also been beyond the reach of their particular socio-cultural environment. This actually is both a challenge and also an opportunity for English teachers, educators, and textbook writers to develop their creativity and innovation in enriching the existing textbooks by developing content-based materials to suit the needs of junior high school students in their particular regions. Conforming to this Curtain (1995) in (http://carla.umn.edu/ cobaltt/CBI.html) suggests that content-based instruction should emphasize a connection to real life. Furthermore Curtain and Pesola (1994) in (http://carla.umn.edu/ cobaltt/CBI.html) state that the curriculum concepts being taught through the foreign language (English) should be appropriate to the grade level of the students. Therefore the researcher should develop materials related to real life situation using English as a foreign language at a level which is appropriate to the first year students' level of English proficiency. It is also stated by Dornyei (2012:264) that a younger starting age of language acquisition can either be an advantage or a hindrance depending on the properties of the environment. Therefore it can be inferred that language acquisition depends on the environment of the students.

Many researches have indicated that students, especially at the lower level are afraid to face the English class for various reasons. To overcome this, the writer has used songs as instructional materials, since it has widely been accepted and known that songs can create a friendly, comfortable and pleasant atmosphere. Songs can also create positive group dynamics at particularly the lower level. Moreover, students can sing the songs chorusly, so they do not have to worry about making mistakes because the singing and activities are done in groups. They sing together to improve their pronunciation, to play roles in groups**,** and to do various activities**.** The song lyrics that have been developed contain lessons about the students' local environment they are familiar with, but are not yet aware of how to preserve and take care of it. It is also expected that through these materials they will also be able to talk about their environment and natural wealth resources. According to the Indonesian

National Curriculum for primary and secondary education, the school curriculum should be based on the socio-cultural characteristics, and environment of the students (the Indonesian Minister of Education and Culture, 2010). Regarding this matter, schools have been given the exemption to determine, design and develop their own instructional materials which are appropriate and are in accordance with students particular needs.. Some environmental issues in Indonesia are flood, illegal logging, and smuggling endangered birds which are apprehensive. One example of teaching students to take care of their environment is by raising their awareness of how to safe cockatoos from extinction. One way of doing this is by having students work on mini projects and problem solving activities.

Developing environmental songs using a scientific approach

Prior to developing environmental songs the researcher listed environmental topics and asked teachers and students to put a check mark on the topics that interest them. Next, she collected local songs with melodies that are familiar to teachers and students Then, she wrote lyrics with environmental content and put them on the selected melodies. This is in line with Graham who likes to create lyrics and set them on traditional melodies (Graham in Orr, 1999: 49). The content of the songs should be interesting and informative. It should also allow students to experience and to engage with the content of each song. Moreover, the activities should aim at getting students to think, to visualize, and to relate what they have learned with their lives and local environment. In developing the activities based on the songs she considers Tomlinson"s text-driven approach to materials development (Tomlinson, 2007: 119-121) and also the scientific approach which is applied in Indonesia. Both approaches can drive students to engage cognitively and affectively with the content of the songs. There are five stages in the scientific approach: (1) observing, (2) questioning, (3) exploring, (4) associating, and (5) communicating.

Chart 2 indicates how the researcher relates Tomlinson's text driven approach with the scientific approach in developing the activities. There are three main stages in text driven approach. . The first stage is *song selection* consisting of two steps: a) decide on the topic and content for writing the lyrics, and b) select melodies familiar to the students and put environmental lyrics on them. The second stage is *song experience* consisting of three main activities: a) readiness activities which include 'observation' and 'questioning'; b) experiental activities which include 'exploring' and 'associating'; c) development activities which include 'communicating'. The third stage is *input response activities* consisting of three steps: a) try-out the first draft theoretically using a preliminary field test, which should possibly be revised; b) try-out the second draft empirically using a main field test on a group of 30 respondents and make the necessary revision; c) operational field try-out to test the effectiveness of the environmental songs . The steps are shown in chart 1.

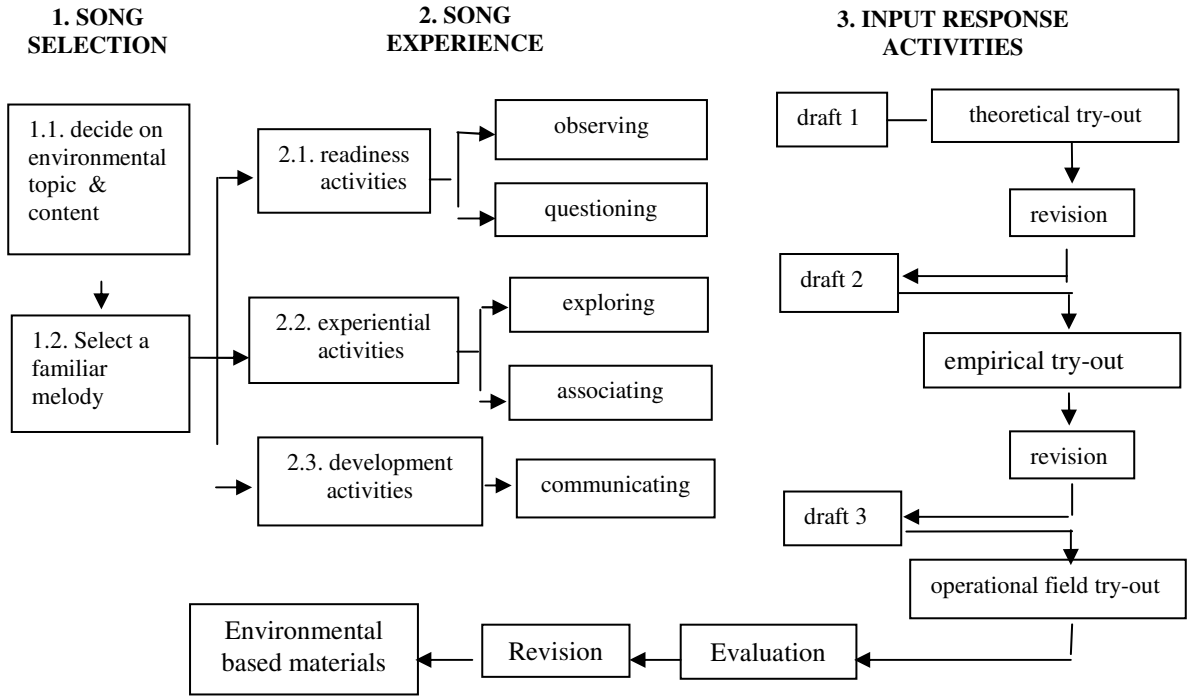

Chart 1. Stages in developing environmental songs for content-based materials

The Development of Activities Based on Environmental Songs

In developing the activities and tasks based on the environmental song, the five stages of scientific approach should be followed as determined by the latest regulation issued by the Indonesian Minister of Education and Culture (2013). The five stages are: a) observing, b) questioning, c) exploring, d) associating, and e) communicating. Each stage consists of several activities. The stages and activities are shown in chart 2.

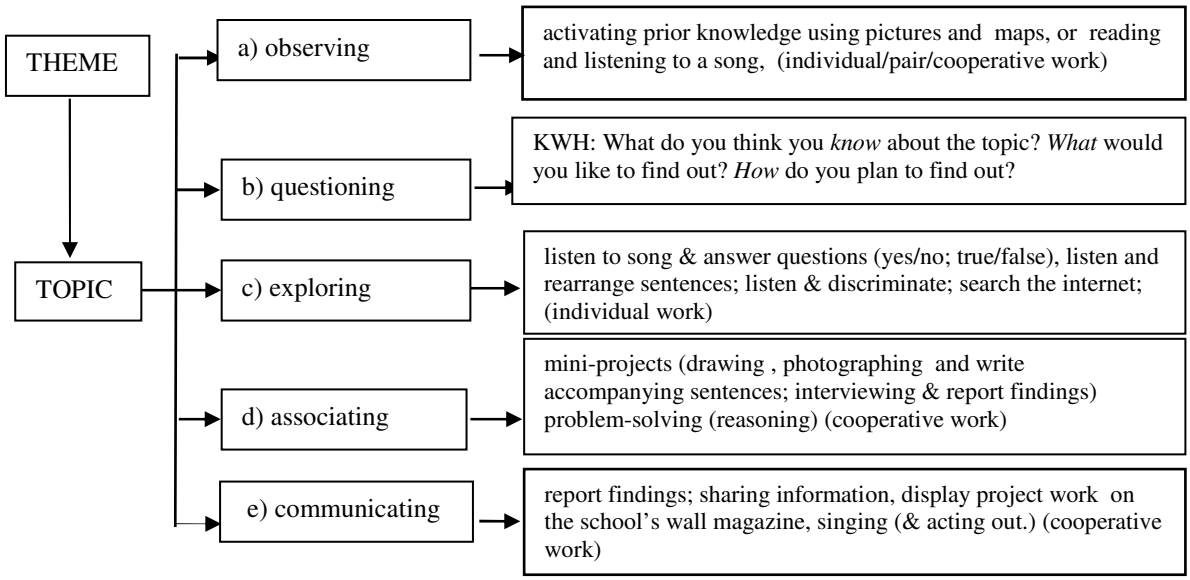

Chart 2 Task- Based Activities on Environmental Songs

With reference to the discussion concerning the importance of environmental education as content and English language learning in context, and also the stages and activities in developing the songs and activities, the researcher has initiated to develop song-based materials for students to learn English language with emphasis on raising their awareness and knowledge about their local environment. The song-based materials are expected to be suitable for teaching and learning listening, speaking, reading and writing. Furthermore, they are also expected to be suitable for teaching pronunciation and vocabulary. In other words, the songs should be developed to teach English integratedly.

The developed materials should undergo evaluation for potential and suitability to find out the strengths and weaknesses to answer questions that Cunningsworth (1995:14) raises, namely, *what would this coursebook be good for?* and *would it be good for my class?* from these two questions it can be inferred that it is very important to identify the benefit and strengths of the developed materials and that it is also important to find out whether the objectives suit the students' need in learning English. The topics and activities that the researcher has developed should be important and relevant for the students to activate their background knowledge on the content. This would lead students to the improvement of learning the language, and to think critically about things that are related to their real life and surroundings. Moreover, the student-centered activities have been developed to guide and facilitate the students in revealing the unknown world around them through participating cooperatively in task-based activities, mini project and problem-based activities to practically protect and preserve particularly their near environment.

RESEARCH METHOD

This study uses a research and development design of Borg and Gall (1989) in developing and validating the environmental song-based materials and activities. There are 4 songs being developed, namely 'Let's Keep the Environment Clean and Green', 'Let's Visit Banda Islands', 'Clove Trees in Lease Islands' and ' Seramese Cockatoos'. The focus of this research is to find out the results of a) preliminary field test, b) main field test, and c) operational field test. For the preliminary field field test an expert in materials development validated the materials using two questionnaires. In the first questionnaire on material development**,** five main aspects are assessed and each aspect is elaborated into several sub-aspects. The questionnaire uses a Likert-type scale of 1-4 (where 4 = strongly agree) and contains 17 questions. The first main aspect deals with objectives and include three sub-aspects, namely generalobjectives, specific objectives, and the lay out of instructional objectives. The

second main aspect deals with instructions and included three sub-aspects, namely the lay out, the written form, and the appeal of the instruction. The third main aspect deals with content analysis to validate five sub-aspects, namely whether the content and objectives are in mutual accord; whether the content of the lessons are interesting and informative; whether the content will be comprehensible for students; whether the content is written in logical order; and last whether the appeal of content is good. The fourth main aspect deals with activities and tasks with a focus on three sub-aspects, namely whether the activities and objectives are in mutual accord; whether the activities cater for students' cognitive and affective skills; and whether the activities and tasks are appealing. The fifth main aspect deals with songs and include three sub-aspects, namely, whether the topic and the content of the songs are in mutual accord, the pace of the songs, and the appeal of the songs.

The second questionnaire is on visual design (Smaldino, Lowther, and Russell, 2008) to find out whether the materials that have been developed meet the criteria for the following three elements. The first is visual elements consisting of four sub-elements, namely arrangement, balance, color and legibility. The second is text element consisting of five sub-elements, namely, style, size, spacing, color, and use of capitals. The third element is appeal consisting of three sub-elements, namely surprise, texture and interaction. The checklist uses a Likert-type scale of 1 – 3 (where 3=exemplary).

Following the expert validation is a main field try-out which is conducted to get feedback from the participants to eliminate the weaknesses of the developed materials so that they can meet the intended objectives and quality. Thirty first year junior highschool students aged 12-13 participated as participants in the main filed try-out and test. They were given two kinds of questionnaires. The first questionnaire is an attitude questionnaire consisting of five questions and the second is a content questionnaire consisting of five questions. The first questionnaire was adopted from Dick, Carey, and Carey (2005: 289-290). Ninety students from 4 public junior high schools in Ambon city participated as participants in the operational field try-out and test. These four schools represented four districts in Ambon municipality. The try-out involved the implementation, observation and revision of the developed materials. The students were encouraged and motivated to learn and practice according to the activities provided in each lesson. Their performance was guided, monitored and evaluated by their teachers and the researcher. The purpose of this is to find out the affect of the developed materials to be used in the classroom. The test consists of 25 questions. The instruments used in collecting the data were questionnaires and test. The collected data were analyzed using qualitative and quantitative methods.

FINDINGS AND DISCUSSION

1. Result of Preliminary Try-Out

In the preliminary try-out, an expert in material development assessed two major aspects, namely the material development and the visual design.

1.1. Result of Material Development Questionnaire

Based on the data (17 components) the score for material development is 65 with a percentage of 95% which can be perceived as 'very good'. The rated aspects with their respective scores are shown in table 1.

Table 1 Result of Material Development Questionnaire

	Rated Aspects	**Score**
Objectives	1. general objectives and specific objectives are in mutual accord	**4**
	2. behavior/skills expected in the instructional objectives are well written	**4**
	3.lay out of instructional objectives is exemplary	**4**
Instruction	4. Lay out of the instruction is very good	4
	5. The instructions are well written	3
	6. the appeal of instructions are very good	3
Content analysis	7. content and objectives are in mutual accord	**4**
	8. content of the lessons are interesting and informative	**4**
	9. content of the lessons are comprehensible for students	**4**
	10. content is written in logical order	**4**

	11. appeal of instructional content is very good	3
Activities/ tasks	12. activities and objectives are in mutual content	**4**
	13. activities cater for students' cognitive and affective skills	**4**
	14. appeal of activities and tasks are very good	**4**
Songs	15. topic and content of songs are in mutual accord	**4**
	16 .songs are liked by the students	**4**
	17. appeal of songs are very good	**4**
	Total Score	**65**

1.2. Result of Visual Design Checklist

The checklist uses a scale of 1-3 (where 1 = poor, 2= acceptable, 3 = exemplary). Based on the data (12 components) the score for visual design is 33 with a percentage of 92% and can therefore be perceived as 'exemplary' The rated aspects with their respective scores are shown in table 2.

Table 2. Result of Visual Design Checklist

Rated Aspects		**Score**
a. Visual Elements	1. Arrangement	3
	2. Balance	3
	3. Color	2
	4. Legibility	3
b. Text Elements	5. Style	2
	6. Size	3
	7. Spacing	3
	8. Color	3
	9. use of capitals	3
c. Appeal	10. Surprise	3
	11. Texture	2
	12. Interaction	3
		33

2. Result of Empirical Try-out and Main Field Test

In the empirical try-out and main field test, 30 participants filled in two kinds of questionnaires namely attitude questionnaire and content questionnaire.

2.1. Result of attitude questionnaire

Here, five questions are assessed. The questionnaire uses a Likert-type scale of 1-5 (where 5 = strongly agree). Based on question number 1 until question number 5 for attitude questionnaire obtained from 30 participants, the result is a total score of 637 with a percentage of 85%. This indicates that students' attitude towards the material are *positive*. The details are shown in table 3.

Table 3 Result of *Attitude Questionnaire*

No	Questions	Score
1	The instructions are interesting	144
2	I know what I have to learn	125
3	The activities are sufficient	128
4	Sufficient *feedback* is given to do the tasks	125
5	I am confident in answering the test questions	115
	Total	637

2.2. Result of Content Questionnaire

In the content questionnaire**,** 5 questions are assessed. The questionnaire uses a Likert-type scale of 1-4 (where 4 = strongly agree). Based on question number 1 until question number 5 for content questionnaire obtained from 30 respondents, the result is a total score of 577 with a percentage of 96%. This indicates that the students comprehension of the content is *very good*. The details with their respective scores are shown in table 4.

Table 4 Result of Content Questionnaire

No	Questions	Score
1	I don't have problems in doing the activities/tasks	103
2	The activities/tasks are interesting	118
3	The activities/tasks support me in learning English	120
4	I enjoy using songs for learning English	118
5	I enjoy working in groups as suggested by the teacher	118
	Total	577

3. Result of Operational Field Try Out

In the operational field-try out**,** 90 participants, who were taught using the songs as media, participated in the test to find out their comprehension on the materials. The test consists of 25 questions. The grading system uses a 5 scale percentage interval of comprehension level (where 86% - 100% = excellent; 85% - 71% = good; 56% - 70% = sufficient; 41% - 55% = poor; 26% - 40% = very poor)), and a five scale grade point equivalents (where 4=A; 3=B; 2=C; 1=D; 0=E). The result shows that a) the comprehension level of 47 participants ranges between 86 – 100% with an equivalent of 4 = A; b) the comprehension level of 25 participants ranges between 71% - 85% with an equivalent of 3= B; and c) the comprehension level of 18 participants ranges between 56% - 70% with an equivalent of 2 = C. Thus, 52% or 47 participants have a grade point equivalent of A = 4 (excellent) and 28% or 25 participants have a grade point equivalent of B = 3 (good), while 20% or 18 participants have a grade point equivalent of C=2 (satisfactory).

Table 5. Result of Operational Filed Try-Out

Compre-hension level	Grade Point Equivalents										Criteria
	4 = A		B = 3		C = 2		D = 1		E = 0		
	No of Ss	%	No of Ss	%	No of Ss	%	No of Ss	%	No of Ss	%	
86%- 100%	47	52									Excellent
71%-85%			25	28							Good
56%-70%					18	20					Satisfactory
41%-55%											Poor
26%-40%											Fail

From the expert's judgement it is revealed that the song-based materials in terms of its objectives, instructions, content analysis, activities/tasks, and songs obtained a score of 65 (the ideal score is 68) with a percentage of 95%. This is an indication that the expert judgement is positive. The visual design elements obtained a score of 33 (the ideal score is 36) with a percentage of 92%. This also indicates that the expert's judgement towards the design was positive and that the design is 'exemplary'. In brief, it can be perceived that the developed materials and its visual design obtained a total score of 98 with a percentage of 94%.

From the main attitude questionnaire and the content questionnaire distributed to 30 students it is perceived that their attitude and responses towards the content of the materials are positive. The total score is 637 (the ideal score is 750) with a percentage of 85% (N=30) for attitude questionnaire; the total score for content questionnaire is 577 (the ideal score is 600) with a percentage of 96%. In brief, it is indicated that the total score for both attitude questionnaire and content questionnaire is 1214 with a percentage of 90%.

From the operational field test it is clear that students' comprehension towards the content of the materials are good, since the comprehension level of 47 students ranges between 86% - 100% with an equivalent of 4=A, while the comprehension level of 25 participants ranges between 71%-85% with an equivalent of 3=B. In brief, it can be perceived that the developed materials are effective.

CONCLUSION AND SUGGESTION

It can be concluded that the materials after being designed, developed, and revised through a theoretical try-out and empirical try-out perceive positive responses. It can also be concluded that the developed materials so far are effective in teaching English to first grade junior high school students. Even so, further research in terms of dessimination should be conducted to find out the effectiveness on a larger size of samples. It is also suggested to obtain insights from teachers to meet the quality of the developed materials.

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