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DEVELOPING ELECTRONIC ANIMATED MEDIA TO HELP STUDENTS OF ELEMENTARY SCHOOL UNDERSTAND MOTION PREPOSITIONS

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ABSTRACT

This paper is directed to find out an alternative way for students of Elementary School in understanding motion prepositions. The result of this study is in form of courseware which is directed to overcome learners' difficulties in understanding and using motion prepositions. This study is used as an adjunct to English learning processes and this courseware can be accessed every time in indefinite pace as self-learning media based on the learners' own ability.

In developing attractive learning media, the concept of independent learning and instructional animation are the basis of the study. It is supported by some components namely: attention-gaining material, pretest/posttest, instructional objectives, tutorial, content, exercises, and feedback. The result of the try out shows that most of the students become more understand the uses and the differences of the motion prepositions in sentences.

Keywords: *Motion Prepositions, E-Learning Animated Media, Attention-gaining material, Instructional Objectives, Courseware*

In some developing countries, English is considered as second language or as foreign language. It is the principal language chosen for international business and for communication between countries all over the world. English is also used in all sides of human activities in that country, from science, education, entertainment, politics and others. All sides of human life are related to English as the International Language.

Indonesia, as one of developing country, considered English as a language that should be known by all people in the early ages. Previously, English was originally first taught in high schools, and it has been taught in primary or even pre-primary schools in the last decade. In addition, parents have introduced English to their children in their early ages by given them simple instruction or simple vocabulary. Some of them also send their children to language institutions to learn English at an age earlier then ever before. It is supported by Indonesia's Minister of Education in his statement that English is intended to provide students an opportunity to gain science and at the same time develop their knowledge of English in anticipation of the environmental condition which has been influenced by the development of science, technology, arts, and cultures such that the knowledge of English is a demand.

The fact that English has been taught to the earlier ages created the English teachers to be more creative. A great deal of effort has been trying to make English teaching and learning interesting, especially for children. So many books are written in attractive way in order to attract learners' motivation and attention to learn English. Firstly, the existence of children English books has accommodated the learners' need of English but together with the advance

of technology, they can not accomplish the learners' needs. The role of teachers in creating good environment to learn English, and the teachers' creativity become the most important thing for children in learning English.

Beside the creativity and the attractive books used in English learning, the used of technology is also has an important role in achieving successful English learning. Computer as a means of Information Technology development has proven that it holds a significant role in teaching learning process, especially in language learning.. Many language institutions and schools use computers as a supporting means in language teaching and in learning process. It is supported by the fact that computer can be used as a medium of real communication in the target language, including composing and exchanging messages with other students in the classroom or around the world (Oxford, 1990, p.79). The abundant research, studies, and class experiments in the use of information technology in language learning reported that technology brought more advantages and development than disadvantages.

The technology that has been used mostly by educators and trainers is internet which is created on the concept of web. Using internet as learning resources has some advantages such as: (1) it can be accessed by many people in the same time in unlimited time; (2) it can be used as distance learning which is used individually based on their own level or capability, and (3) it can be responded via e-mail to the trainers or educators. Beside the advantages, there are some disadvantages of using internet as learning resources, such as it must be connected to the internet which means that it can not be used on stand-alone computer.

Considering that using internet can not be used for stand-alone computer, there are many educators and trainers who have created and designed learning materials in the form of software which can be accessed by all computers without connecting to internet to be used as an alternative media. This kind of software is preferred by learners and is even more popular among students because they are associated with fun and games or because they are considered to be fashionable. The learners' motivation therefore increases, especially whenever a variety of activities are offered, which make them feel more independent.

The existing learning software is to improve the conventional methods in language learning which primarily depend on the presence of teachers in the classroom to convey the material. The teaching learning process which relies on books often causes students' lack of interest as well, especially when there is no instructional objectives provided in the book and it easily generates students' boredom in learning language. Besides, the use of books for teaching learning have some weaknesses such as there are no varieties tests provided to measure the students' achievement in learning, and the feedback given by the book is very limited or not given at all. The most apprehensive thing in conveying conventional teaching learning method is that it must be held in a classroom setting.

The electronic learning material that is effectively designed will facilitate the achievement of desired learning outcomes (Pramono, 1996:124). In addition, learning using computer will equip learners with a skill to choose the desired topic, based on their level of ability and will improve the learners' motivation in learning. It is emphasized by Kweldju (1995:37) who argued that computer has self-access procedure which is completed with eye-catching color and animation to increase the users' attractiveness.

Realizing that the numbers of electronic learning software are so many, the teachers and educators must be more selective in choosing the most suitable e-learning materials because not all the software are carefully designed and are provided with adequate feedback. Feedback in the software becomes the most important thing because without feedback, a learner is left to perform with no sense of direction or measure of correctness (Cates, 1988:115).

In order to create ideal learning software, some aspects should be considered, such as: (1) the software must be designed to support the available curriculum, (2) the software must

contain the learning objectives, (3) the software must use multimedia animation, (4) the product software must be analyzed and must be tested by the experts of subject material, learning technology and computer graphic.

Those statements inspired the writer as an English teacher to develop an innovative and attractive electronic learning media as a means to convey a material in computer based learning with the aim to provide an interactive instruction in a specific area which is delivered on a CD-ROM by using Macromedia Flash. It is expected that by using the interactive media, the learners' imagination and understanding will be facilitated in learning a certain material.

She believes that using computers in education through Computer Assisted Learning (CAL) is more effective than using Internet based technologies. CAL is run either straight from a CD or flash disk or over local network so the constraint of the internet –slow download times for multimedia materials may not apply. It means that it has the potential to offer more advanced, interactive, multimedia learning experiences than it is currently reasonable to expect from the Web.

Based on the reality that learning is a systematic process with some components which influence each other in achieving learner's successful learning, the writer recognized that in a learning process there must be an interaction between learner and the learning resources to achieve the ideal learning objectives. The writer believed that using interactive electronic media in the form of computer in learning language will create more advantages in learning process as stated by Harmanto (2002) that Learning using computers can be accessed by anyone in anytime and it can be applied individually based on their own ability (Harmanto, 2002).

As an English teacher which has been teaching English both for adult and for young learners for ages, she has so many experiences in dealing with students. Using an interactive and attractive ways in teaching English can reduce learner's bored in learning for the first time, but if it is not combined with the use of technology it will be disastrous, especially in teaching motion prepositions which need real movement of object.

It is supported by Tomasello who said that learning to use prepositions is fundamentally important in young learners' grammatical development (Tomasello, 1987). It is also supported by the reality that the students' mistakes in understanding preposition in YPPI I Elementary school are often happened, especially in motion preposition even though it has been aided by pictures.

The above reasons generate the writer to be more creative in finding out interactive material to assist learners in understanding preposition, especially motion preposition. It is caused by her experience when she taught prepositions to young learners using a picture on white board, and it doesn't help them to be comprehensible with the meaning of those prepositions.

Knowing about the difficulties, the writer anxious to create an attractive learning media using computer to learn English prepositions. . It is also supported by Pramono's research (2004) which is said that the visual representations are intrinsically effective in supporting language learning.. Those reasons accentuated the writer to create and develop the interactive media in a form of CD-ROM.

The decision in developing materials in the form of CD-ROM has been made based upon some considerations as follows:

a. The development must have many advantages for learners such as it must help them to learn the subject matter (motion prepositions) easier, so that they will not get confused in understanding the meaning of and using motion prepositions in sentences. Ultimately, it must support learners to be more independent learners.

b. The development of materials for motion preposition needs to be done in order to facilitate English learners who find difficulties in grasping the meaning and function of motion prepositions.

c. The development media of using computer in understanding motion prepositions are extremely suitable by using animated visualization as stated by Galton that the most appropriate illustrative scenarios to present to subjects in an experimental investigation of motion preposition would be animated sequences (Galton, 2002)

The above considerations underline the reasons of using animation in learning motion preposition, which is clarified as follows:

1. Animation has "translation" characteristics that involves "the movement of whole entities from one location to another and can be perceived with respect to the border of the animation or other material within the animated display". (Lowe, 2002, p.3)
2. Understanding concepts using animation was significantly improved if verbal explanation ran concurrently with the animation.
3. Animations have the potential to be especially beneficial for instruction presenting dynamic contents because animated pictures can show information about two important visual attributes: motion and trajectory (Pramono, 2005,p.22)
4. Animated illustrations seem to be superior for the visualization of spatial aspect and dynamic process in preposition learning because a preposition usually indicates the spatial and temporal relationships of its object to the rest of the sentence.

Literature Review

There are some theories which support the study of developing e-learning media to facilitate learners in learning motion preposition, such as: Computer-Based Learning, Designing E-Learning Software, Characteristic of E-Learning Software, Using Animation in Learning Motion Preposition.

Computer- Based Learning

According to Hick and Hyde a teaching process directly involving a computer in the presentation of instructional materials in an attractive mode to provide and control the individualized learning environment for each individual student (Joiner, 1982:29)

It is stated that in learning using computer students interact with computer directly. The interaction between students and computers are in individual setting, based on their own language capacity and ability, so that the computer usage in language learning can be arranged by the students itself.

Based on the above reasons, the interactive method of teaching learning process in class cannot be done maximally. As the consequence, computer is designed to overcome those problems by creating some interactive programs in order to attract students' attention to increase their motivation in learning. It is hoped that using computer as an alternative teaching and learning media will increase students' motivation because it is designed attractively by involving students' or learners in the program so that there is an extensive interaction between computer and students.

The Advantages of Computer Based Learning/ Teaching

The advantages of the use of computers in lecture theatres are caused by a few factors. The most important one is that simple large problems can be solved in a straightforward way in front of students' eyes.(Miller, 98). Some advantages of using computer in learning are:

1. Computers can give information about mistakes and the total time of learning spent by learners to do the exercises.
2. Learning by using computer train students to be skilful to choose the material they want to learn.

3. Learning by using computer will help students who find difficulties in class meeting to review the material again individually.

4. Using computer, the weak students who cannot follow the material and are shy to ask will have a chance to review the material themselves as many time as they want.

5. Computer Based Learning supports the individual learning which is suggested in modern education (Tsai and Pohl, 1981).

6. Computer-based learning enable students to be accustomed with computer which is become important thing in this era and it will support many contributions for training and carrier in the future (Dhaif, 1989:13)

7. The research shows that computer is an effective learning media (Kearsey, 1976 as quoted by Thompson, 1980:40).

The Form of Computer-Based Learning

According to Kemp and Dayton (1985:246) there are five forms of learning using computer: tutorials, drill and practice, problem solving, simulations, and games. Tutorial learning is a process of conveying new information to students in forms of explanation, exercises, and branching. Drill and practice is given to measure the students' ability to understand certain knowledge. Problem solving is a process to give a solution about certain problem happened in teaching learning process. Games is one teaching forms which is given in order to increase students motivation and competition to learn something in a fun way.

Interaction between computer and learner is an individual interaction (Pramono, 1996). A teaching process is directly involving a computer in the presentation of instructional materials in an interactive mode to provide and control the individualized learning environment for each individual student.

Benefits of Animation in Learning Motion Preposition

The number of English prepositions often causes difficulties for learners in distinguishing the kinds and meaning, especially if the preposition is related to motion as there are only few lines to distinguish them.

Animation is one of media which is able to convey a vast amount of information in a very short period of time, and can be a powerful method of reinforcing concepts and topics first introduced to students through text, discussion, or other media. Though still in its fledgling stage, animation holds the promise of allowing visual learners and those with special needs new and powerful ways to comprehend complex phenomena.

The design of animations involves manipulation of various dynamic characteristics. Animation has "translation" characteristics that involves "the movement of whole entities from one location to another and within the animated display (Pramono: 2004: 21).

Types and Usage of Prepositions

Prepositions denote spatial relations, which are principally used to predicate constraints on such attributes as location, orientation, and disposition (Hersekovits, 1997: 160). Preposition expressing spatial relations are of two kinds: prepositions of location, which is called prepositions of place (static) and prepositions of direction, sometimes called motion prepositions (Purdue University, 2002).

According to Linstromberg a preposition expresses a relationship between a *subject* and a *landmark.* Landmarks and Subjects are often (but not always) nouns, noun phrases, or pronouns (Linstromberg: 1997: 15).

Preposition of direction are dynamic and have a directional meaning, such as *to, from, up, down, through, towards*, and appear with verbs of motion (movement) such as *roll, walk, swim, come, go*, etc. Each fits in a syntactic frame:

NP [activity verb] Preposition NP as with

The ball	*rolled across*	*the street*
Figure		*Ground*
Moving Object		*Reference Object*

Here the Figure is the moving object; the Ground is still the referent of the object of the preposition; the preposition constrains the trajectory; or path of the Figure (Herskovits, 1997:162)

Expected Product specification

In order to improve the learning quality, Computer-Based Software must be designed through good learning principle. Besides, the designed of computer-based learning software must enclose the characteristics *programmed instruction.* The main characteristics of programmed instructions according to Burke (1982:23) are: (1) small steps, (2) active responding, and (3) immediate feedback.

In addition to that, the CD-ROM was produced as a Computer Assisted Learning product. It has some specifications as follows:

- It can be used to convey a new material but it is as an alternative media because the major media is still based on books.
- It can be used as an individualized learning media because:
- It can be accessed in unlimited time and space without depending on the Internet facility.
- It is the realization of self-learning material which has instructional objectives in it.
- There are a summary and exercises which are completed with the feedback.
- It gives a chance to learners to study the material freely based on their own capacity.
- The material has specific components which can assist learners to learn easily, as follows

Benefits of Software Development

Developing this e-learning media is directed to overcome learners' confusion and learners' mistake in understanding motion preposition. This study belongs to developing domain, especially in developing learning resources in order to enrich the learning media in computer based technology.

This study is also intended to improve English learning process which relies on the book with the presence of a teacher in the classroom to the computer based technology which can be accessed every time in indefinite space based on their own capability as self-learning media.

Assumption and Development Limitation

Developing e-learning media to help students in understanding motion preposition is based on the related assumption, as follows:

- An attractive learning resources will arouse students' learning motivation
- Developing animated media is required to develop the education quality
- This development study is intended to design a self-learning media through CD-ROM
- A learning process using CD-ROM is properly used for computer literacy students

Discussion

Computer-Based Learning Software Development

Developing media in teaching learning technology is the implementation of a design which has been made. It cannot be separated from designing, managing, and evaluating as said by Seels & Richey (1994:9) that instructional teaching is a theory and practice of design, development, utilization, management and evaluation processes and resources for learning.

In order to create interactive and innovative learning software, developer follows a designing and developing procedure. The procedures that must be overtaken to assist the writer in developing qualified e-learning material software are known as ADDIE or Analysis, Design, Development, Implementation and Evaluation (Sambel, 2005).

Analysis

The first step is analyzing the learners' characteristics which are going to use the e-learning material. The learners' characteristics that should be identified are the level of learners, whether the program is used in class or not, and whether the program is used as individual learning or not. Then, it is continued by designing and organizing the learning software.

Design

Determine the design of the software

There are three kinds of design to be used according to Burke (1982), *functional design*, *physical design*, and *logical design*. *Functional design* is related to the function of the software as media to introduce new material and to convey it in order to strengthen learning motivation. *Physical design* is related to the type of the design, which is divided into linear, branch and repetition. *Logical design* covers the mode of the design, which is divided into deductive (rules followed by examples) and inductive mode (examples followed by rules). As a developer, the writer must choose one of those design modes in order to be applied in the software development.

Developing Flowchart

Flowchart is used to communicate the ideas of the developer and the graphic designer. It is used to describe the main parts of the software and to arrange the steps of designing the courseware. See the flowchart in Appendix 1.

Writing Storyboard

Storyboard is a media which is used by developer and graphic designer to communicate about the form of material and the activity that will be appeared in the software.

Learning Media Development

Developing learning media in the form of software is the realisation of learning technology application especially for developing learning resources. It is expected to reduce the obstacles of limitation in finding learning resources. See Appendix 2.

Try-out and Evaluation

The next step which must be done is doing the trial test or user acceptance test which will evaluate the e-learning media. The material must be tested in order to verify the validity of the material. The processes of verifying the validity are through trial test which is done by group of students to represent some students to use the software development. The result of the trial test will be evaluated. The steps of evaluating learning software can be seen in Appendix 3.

After the media is created, the next step is try-out and evaluation. The tryout and evaluation is needed in order to measure whether the product can achieve the set specification, i.e.

- It can be used to convey a new material but it is as an alternative media because the major media is still based on books.
- It can be used as an individualized learning media because:
- It can be accessed in unlimited time and space without depending on the Internet facility.

- It is the realization of self-learning material which has instructional objectives in it.

- There are a summary and exercises which are completed with the feedback.

- It gives a chance to learners to study the material freely based on their own capacity.

- The material has specific components which can assist learners to learn easily, as follows.

The result of try out shows the following:

(1) Attention Gaining Material could gather an average score of 100 %. The result showed that the component of attention-gaining material could attract the students' attention at the start and could motivate them to learn.

(2) The Instructional Objectives of this courseware could gather an average score of 88.9 %; that means the students understood the objectives of learning using this developed courseware.

(3) The clarity of doing the pretest and the understanding of the students on pre-test items and the appropriateness of animation with the items got an average score of 70.4 %. It can be concluded that the pre test components were good.

(4) The clarity of the tutorial and the attractiveness of the explanation could get an average score of 100%. It can be concluded that the tutorial component of this product was very good.

(5) The content with respect to the comprehensibility of the material, the appropriateness of the animation with the story, and the attractiveness of the animated pictures got an average score of 88.9 %, therefore, it can be considered that the content of this developed product was good.

(6) The exercises of this product got an average score of 74.1 % with respect to the attractiveness of the items, the quality of the animations used, and the appropriateness of the items.

(7) The average score of the feedback is 88.9% with respect to the effectiveness and appropriateness of the feedback.

(8) The practicality to operate this courseware, the benefits of using this courseware, and the possibility to use this courseware without the help of teachers got an average score of 88.9%. It can be concluded that this courseware development can be used as an individual learning to enrich the learners' competence on motion prepositions.

Based on the data above, it can be concluded that this courseware development obtains good response from learners and has good quality as an alternative learning resource. The main interface can be seen in Appendix 4.

Conclusion

Finally, it can be concluded that this developed courseware can be used as an alternative media for learning new material to increase the learners' motivation in learning. In addition, this courseware can be used to introduce the model of electronic learning using computer for young learners.

It is known that the material that is taught via this courseware is appropriate with the material of the English Subject for grade five of elementary school students

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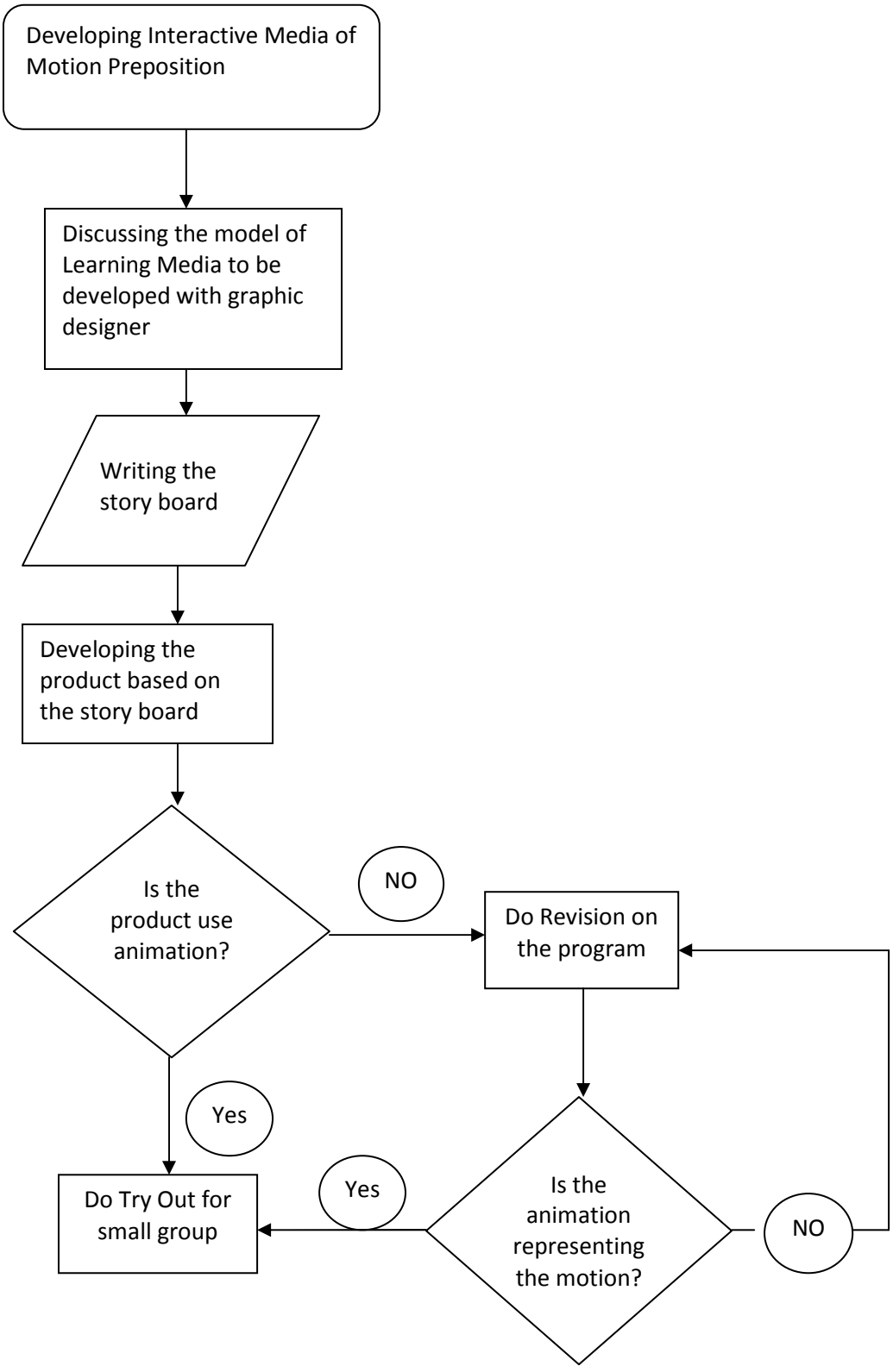
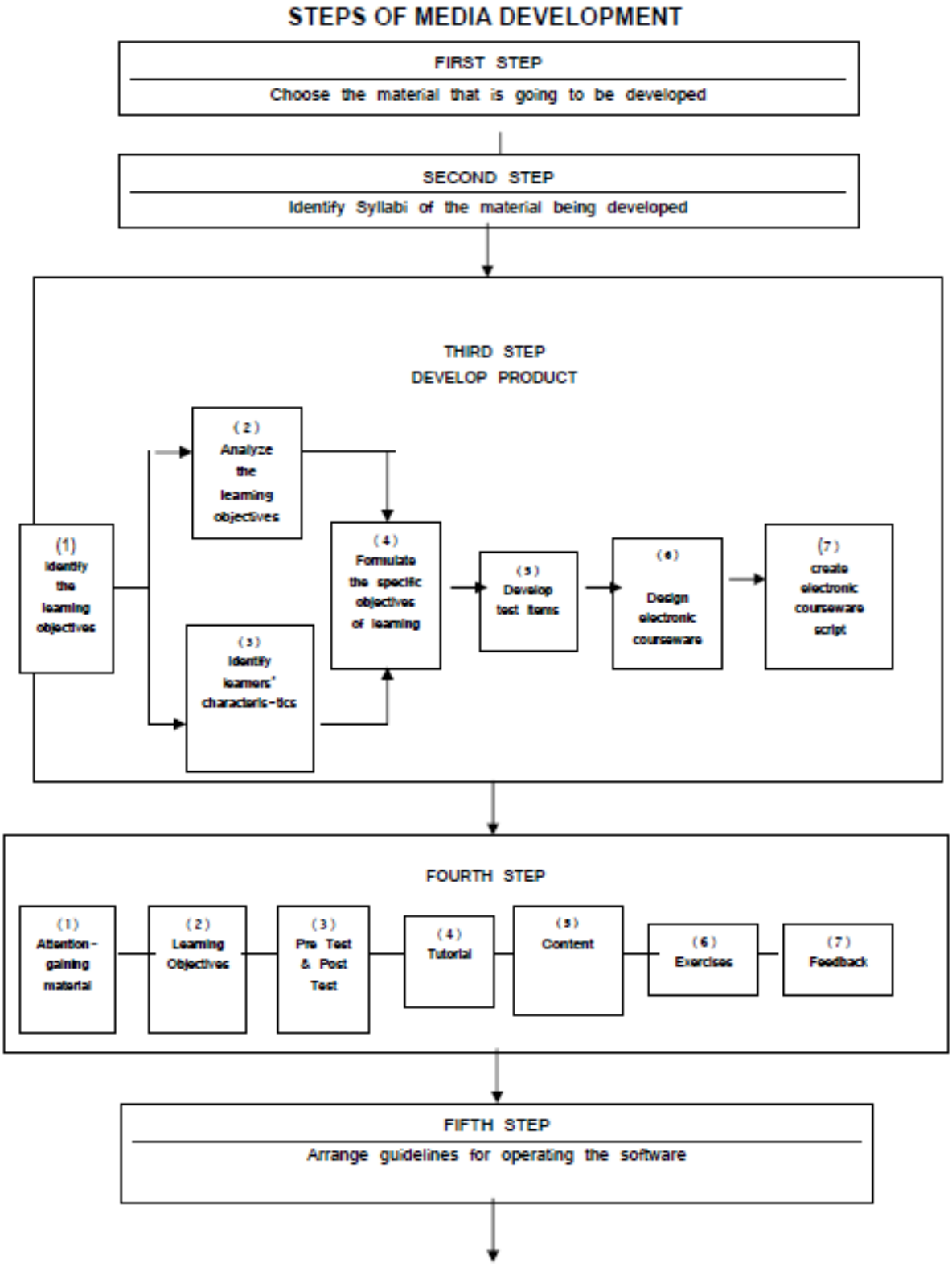
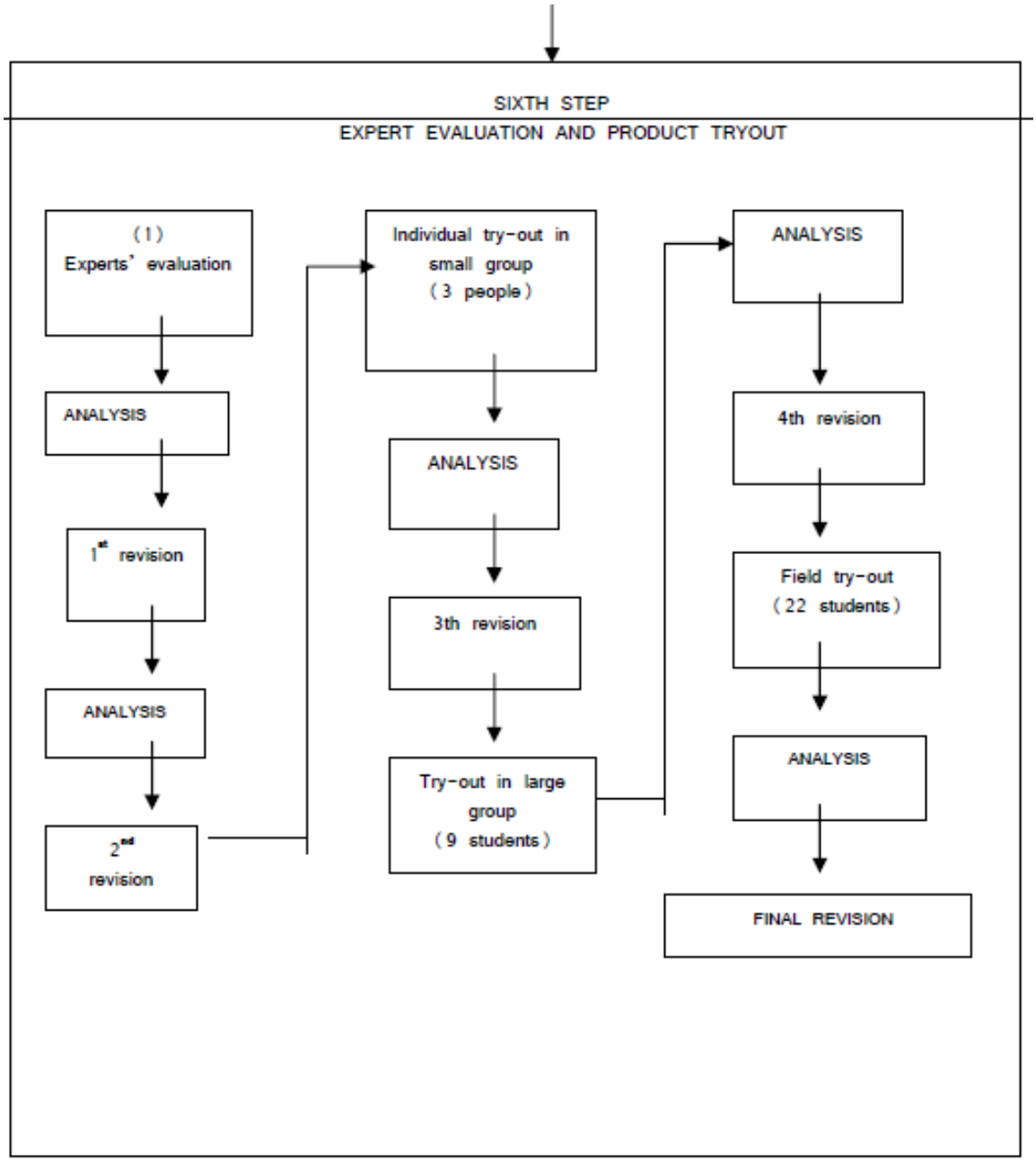
Appendix 1

Flow chart used in the development stage



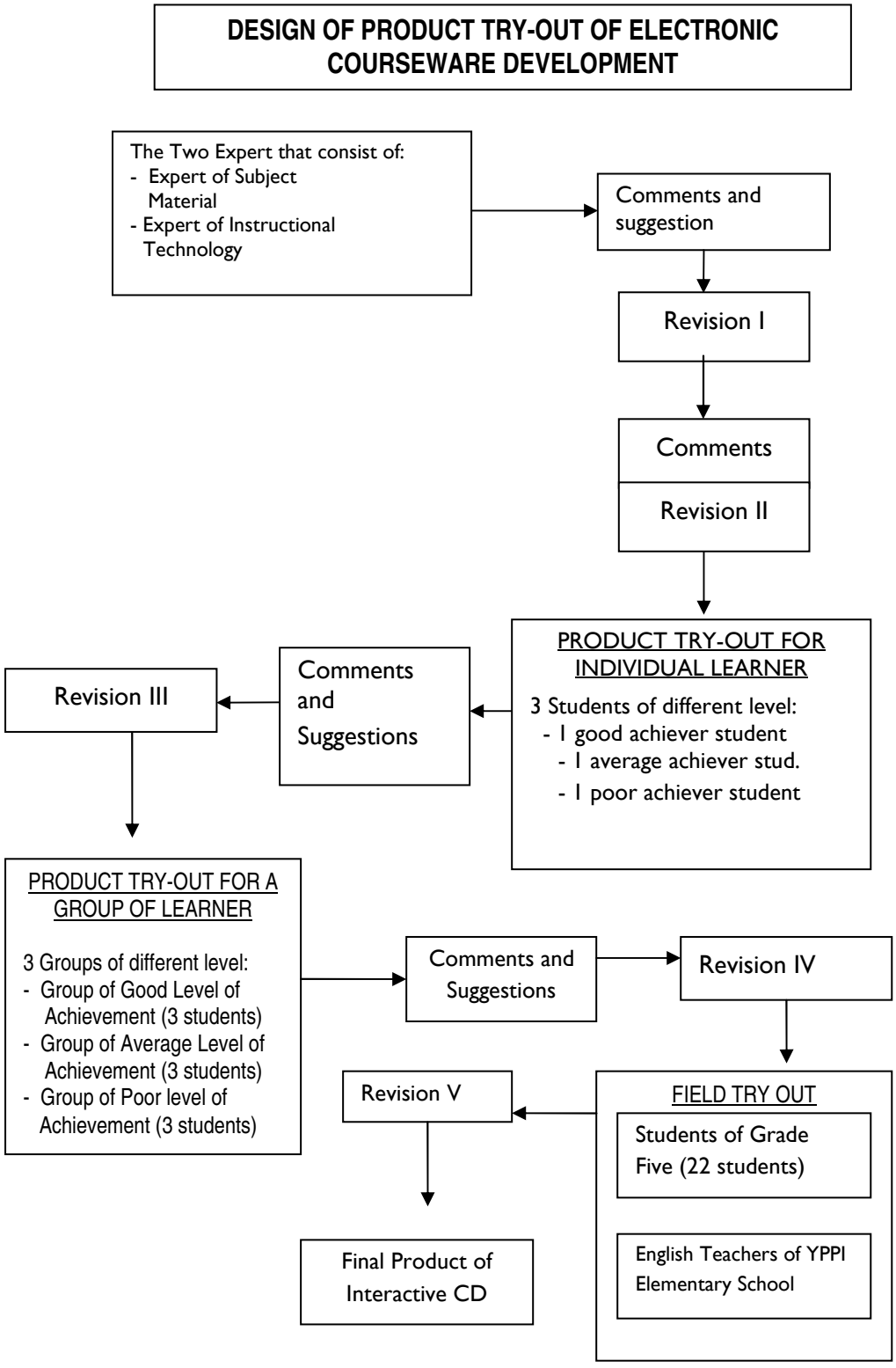
APPENDIX 2


STEPS OF MEDIA DEVELOPMENT
FIRST STEP
Choose the material that is going to be developed
SECOND STEP
Identify Syllabi of the material being developed
THIRD STEP
DEVELOP PRODUCT
(1) Identify the learning objectives
(2) Analyze the learning objectives
(3) Identify learners' characteris-tics
(4) Formulate the specific objectives of learning
(5) Develop test items
(6) Design electronic coursewares
(7) create electronic coursware script
FOURTH STEP
(1) Attention-gaining material
(2) Learning Objectives
(3) Pre Test & Post Test
(4) Tutorial
(5) Content
(6) Exercises
(7) Feedback
FIFTH STEP
Arrange guidelines for operating the software


SIXTH STEP
EXPERT EVALUATION AND PRODUCT TRYOUT
(1) Experts' evaluation
ANALYSIS
1st revision
ANALYSIS
2nd revision
Individual try-out in small group (3 people)
ANALYSIS
3th revision
Try-out in large group (9 students)
ANALYSIS
4th revision
Field try-out (22 students)
ANALYSIS
FINAL REVISION

Appendix 3

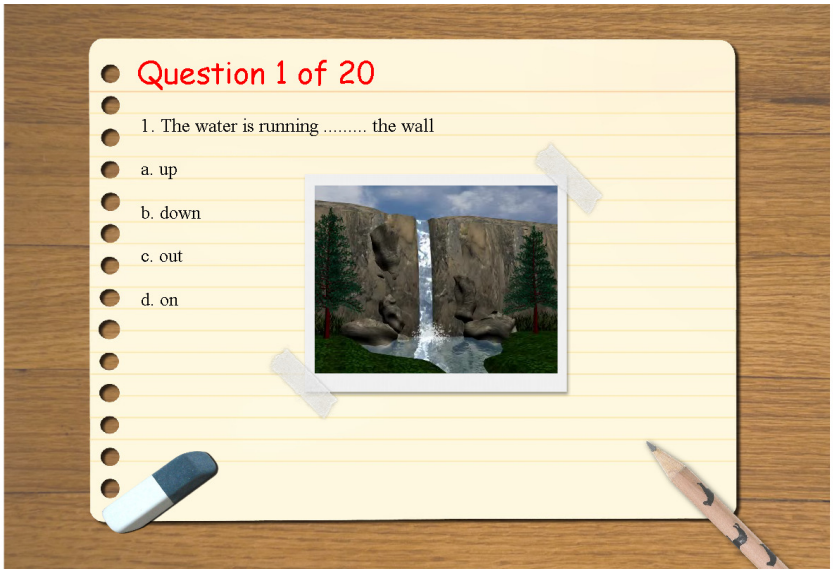
Product Evaluation Steps



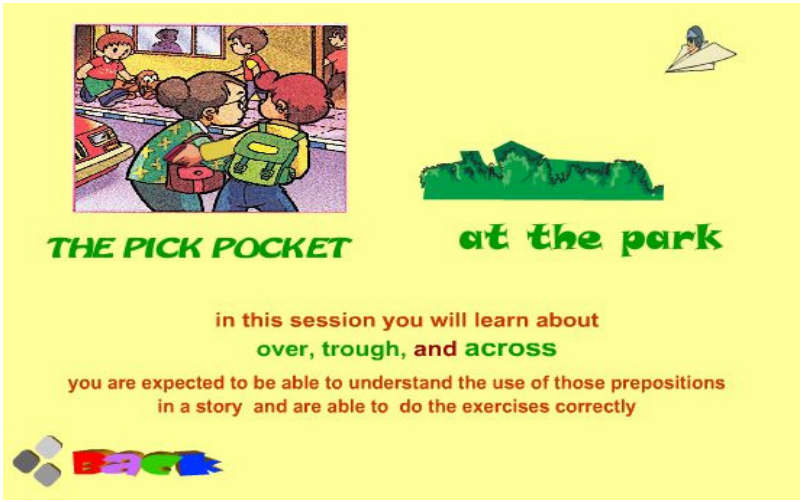
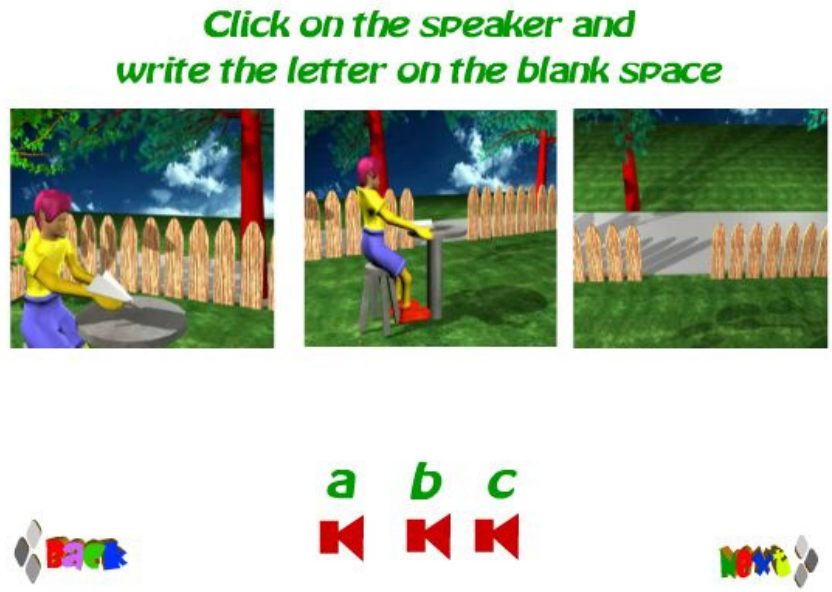
Appendix 4
The Main Interfaces

Home Menu

Pre-Test Questions



Menu Reading



Exercise Menu