

Speech Influence of Text Reading Instruction in Computer Based Learning

Fitri Imansyah

Department of Electrical Engineering Tanjungpura University, Pontianak, Indonesia

Corresponding Author: Muhammad Fahmi Faisal

-----ABSTRACT-----

This study discusses the extent to which the utterance influences readability of the text by computer to the learning outcomes of students using instructional software. So that would be obtained for comparison to see if additional facilities required in the manufacture of speech sounds instructional software as an alternative media in teaching and learning. Through Design Randomized Control group pretest-posttest then use interactive program with an additional facility speech voice reading the text to a group of samples, and the test results will be compared against the teaching materials other sample groups that use interactive program without using additional facility speech voice reading the text. To see the students' responses to the interactive program with an additional facility speech voice reading the text, they are given some of the questions in the form of a questionnaire. This research revealed that the qualification has the lowest value is qualified readiness, from a list of questions can be concluded that it is not the overall student is ready to use interactive programs due to the still insufficient means of a computer, but in general interactive programs are not eligible to be used as media alternatives in the learning process at the Faculty of Engineering, University Tanjungpura, it is seen from the score for personal Affect, systematic arrangement, task relevance, understandability, credibility, suitability, and the workload which each reach a score ≥ 3.67 .

KEYWORDS; *influence of speech, instructional software, randomized control group.*

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I. INTRODUCTION

Computer Assisted Instruction (CAI) is teaching using the computer as a tool. Through a specific instructional program, student can obtain information. This information system has been programmed in such a way that students carry out learning activities according to a given program. The computer program is certainly created by a programmer and an expert on the field of study concerned. So students can communicate via computer and the teacher's role has been replaced by computers [4].

Interactive software for education has been widely available on the market or made specifically for a particular purpose. The software should also be used as an alternative medium for the delivery of materials to college. There are some interface components that are important to consider in making instructional software, including the selection and layout of images, text, speech, voice, coloring and others.

Of the few studies that have been done, it was concluded that they found significant differences between the results obtained by students who learn the material through software instructional when reading the text of assisted (read out) by another person than if he read his own [2].

Usually an instructional software found many texts as a medium of dialogue, the issues raised in this research is to see how far the influence of speech reading of the text issued by the computer to the learning outcomes of students using instructional software. Likewise, the lack of research the extent to which the benefits of speech sounds assistance issued by the computer to help the readability of the text.

The purpose of this study was to examine how far the influence of speech reading of the text issued by the computer to the learning outcomes of students using instructional software. So that would be obtained for comparison to see if additional facilities required in the manufacture of speech sounds instructional software as an alternative media in teaching and learning.

Thus, it seems reasonable to choose the subjects of Physics to be the center of attention in this study. That is, this study tried to find a breakthrough by designing models that can accelerate learning in the pursuit of material coverage and also help teachers and students to achieve the depth of the material through a problem-solving strategies in an interesting and not boring. This kind of learning model approach requires the use of learning technology or technology education [9].

This interactive learning model, based on the findings of previous studies, has advantages compared with other approaches models. The findings of the study include: First, research Alistair Morgan (1993), who called it the "Education with Technology", found that this model provides efficiency and effectiveness index up

to 64.5%. So compared to the conventional approach has the advantage of 1.5 times. Second, research Abell and Smith (1994) conducted to the "at-risk students" (students-students at high risk) for trend-outs at school Dropt Indian River County, Florida, was found to reduce the risk of Dropt-out to 79%. Third, research conducted by the Vero Beach High School [2] may even prevent drop out until over 80%. Fourth, research conducted by the General Education Development (GED) interactive model can reduce students live classes until she was over 86% [2] Fifth, research McDermott (1994) in a school favourite who was given the nickname "The Nation's Largest Fully Accredited School System" shows that the interactive model of learning can increase longevity and interest in the majority of students (83%) in physics. Sixth, research Tobin & Gallagher (1997) also showed that the interactive program can increase the motivation and interest of students whose age is actually younger than the class that should be entered as well as prevent Drop out between them. Seventh, Randy Yerrick (1999) in his research found excess interactive program is as he stated: "Simulation of interactive programs allow the preparation and demonstration of multiple simulations so that inertia and balanced forces can be contrasted as competing explanations of the same simulated event." eighth, of the many research findings are assessed and research done by themselves, which are then summarized in his article entitled quite bombastic "a True Solution", Frederick Bennett (1999) came to the conclusion that:

Computerized interactive programs are Able to Reviews their hold interest, to challenge them, and to the make learning interesting. Reviews These programs dramatize the efficacy of computerized education and show that computers, without a teacher between children and machines, can teach students of different ages, teach them well, and the make learning enjoyable. Poor students will not be the beneficiaries of computerized education, average and bright students will achieve equal, or even greater gains.

Approaching of technology education have proven that effectivity in developed countries has become very important for the development of our school for the various learning contexts in developing countries, according to research Seels and Richey (1994) and Winn (1996), requires facilities -Facilities learning in the context of "Teacher Mediated Instruction" and "Teacher Mediated learning".

Nowadays computers have been widely used in various fields of human life, including in the field of education for purposes such as:

1. Preparing the lesson material that can be used at any time
2. Storing additional information such as about the reading materials, learning resources, media use of the room, faculty and student circumstances.
3. Computer-Based Instructional Management System (CBIMS) used to: Check the results of the test; make a diagnosis of student learning outcomes; report the results of student learning; help activities to do and help students to practice solving problems [10]

Computer Assisted Instruction (CAI), which is teaching using the computer as a tool. Through a specific instructional program pupil / student can obtain information on specific sciences. Generally CAI is an interactive program for learning process where the teacher's position may be replaced by a computer [3]

II. METHOD

The method used in this research is to apply the use of interactive programs that use the additional facilities of reading the text to speech voice sample group, then the test results will be compared against the teaching materials other sample groups that use interactive program without using additional facility speech voice reading the text. To see the students' responses to the interactive program with an additional facility speech voice reading the text, they are given some questions like questionnaire [5].

The design used in this research is the design of Randomized Control group pretest-posttest, procedures performed in this design are as follows:

1. Choose experimental units randomly
2. Divide the experimental units on two groups, one group was treated, while the second group without treatment as the control group
3. Provide pretest to both groups and calculates the mean achievement for each group.
4. Provide posttest for both groups and calculates the mean achievement for each group.
5. Calculate the mean difference (posttest and pretest) of each group and comparing these differences statistically.

In this study, experimental and control groups each consisting of 15 students from the Technical University of Tanjungpura Pontianak. Materials provided on the pretest and posttest is the subject matter of Basic Physics multiple choice form distributed in four parts, namely the material Regular Straight Motion, Irregularly Changed, parabolic, and circular Regular, each of which comprises three of five questions. So the overall number of questions by 20 questions. The time given to students to do the whole matter is over 100 minutes. The procedure can be described in table 1 below:

Table 1. Procedure Design Randomized Control group pretest-posttest

| | Pretest Measurement | Treatment | Posttest Measurement |
|---------------|---------------------|-----------|----------------------|
| Group Trial | T ₀ | X | T ₁ |
| Group Control | T ₀ | - | T ₁ |

Questions to posttest to pretest the same as the question, but the answer choices are distinguished in turn (in the fox at random). In general, the material questionnaire is divided into 8 categories namely: Personal Affect, Systematic arrangement, Task Relevance, Understandability, Credibility, Suitability, Workload, Readiness (risks in 1986).

III. RESULTS AND DISCUSSIONS

A. Results

Before the treatment is given, each experimental group and a control group given a pretest and obtained the results as shown in Table 2:

Table 2. Values pretest and posttest

| Student Number | Value pretest | | Value posttest | |
|----------------|---------------|---------------|----------------|---------------|
| | Group Trial | Group Control | Group Trial | Group Control |
| 1 | 50 | 50 | 70 | 50 |
| 2 | 40 | 15 | 70 | 60 |
| 3 | 45 | 30 | 70 | 45 |
| 4 | 35 | 30 | 75 | 40 |
| 5 | 35 | 35 | 60 | 65 |
| 6 | 45 | 15 | 60 | 30 |
| 7 | 50 | 30 | 75 | 45 |
| 8 | 50 | 30 | 80 | 50 |
| 9 | 60 | 60 | 85 | 70 |
| 10 | 50 | 50 | 60 | 70 |
| 11 | 10 | 80 | 50 | 90 |
| 12 | 40 | 55 | 45 | 60 |
| 13 | 60 | 55 | 75 | 70 |
| 14 | 50 | 30 | 55 | 45 |
| 15 | 60 | 55 | 80 | 65 |

After the pretest, the experimental group performed learning using interactive program with an additional facility speech voice reading the text, while the control group using an interactive program without additional facility speech voice reading the text.

Posttest results showed that the average value for the experimental group was at 67.33, and the average score for the control group at 57.00. To see whether a significant increase from the results of the pretest posttest in the experimental group used the t test to prove it. Posttest and pretest results in experiments using groups using interactive program with an additional facility speech voice reading the text.

Posttest results showed that the average value posttest for the experimental group amounted to 67.33 while the average pretest score of 45.33. This means that 1.49 times larger, and can increase students' interest in and understanding of this course.

After using the program, 15 students are given a questionnaire to see their response to the use of the program. The questionnaire consists of 24 questions with an interval of eight classification score of 1-5 [16]. The average results of questionnaires for each category can be viewed like this:

1. Personal Affect

| No | Questions | Average Scores |
|----|--|----------------|
| 1 | How interesting did you find the system ? | 4.27 |
| 2 | How varied ? | 3.47 |
| 3 | Were you active or passive in using the system ? | 3.87 |
| 4 | Are you happy with your performance ? | 3.53 |
| 5 | Would you like to use the system again ? | 4.07 |
| 6 | Were you glad when the training session was over ? | 3.53 |

2. Systematic Arrangement

| No | Questions | Average Scores |
|----|---|----------------|
| 7 | How well organized was the training ? | 3.80 |
| 8 | Did the training seem to occur in the right order, or was it mixed up ? | 4.07 |

3. Task relevance

| No | Questions | Average Scores |
|----|--|----------------|
| 9 | Did you get a lot of information from using the system ? | 4.00 |
| 10 | Will the training help you in the field ? | 3.87 |

4. Understandability

| No | Questions | Average Scores |
|----|--|----------------|
| 11 | How clear were the instructions about how to use the system? | 3.60 |
| 12 | How easy to understand was the system as a whole ? | 4.33 |
| 13 | How easy was the written information to follow ? | 3.73 |

5. Credibility

| No | Questions | Average Scores |
|----|---|----------------|
| 14 | Do you think the information in the system is correct ? | 3.87 |
| 15 | Could you rely on what you learned from the system, when you are in the field ? | 3.87 |

6. Suitability

| No | Questions | Average Scores |
|----|--|----------------|
| 16 | Was this training relevant to you ? | 3.60 |
| 17 | Is this method of training appropriate ? | 3.73 |

7. Workload

| No | Questions | Average Scores |
|----|---|----------------|
| 18 | Did you find using the system easy or difficult ? | 3.53 |
| 19 | Was the system simple or complicated ? | 3.60 |
| 20 | Did you feel under time pressure or not ? | 4.07 |
| 21 | Were you relaxed or tense when using the system ? | 4.00 |
| 22 | Were you tired after using the system ? | 3.67 |

8. Readiness

| No | Questions | Average Scores |
|----|---|----------------|
| 23 | How often did you using computer in one day ? | 3.20 |
| 24 | Did you get a lot of place for using computer ? | 3.13 |

From the results obtained above average scores for each of the following qualifications:

| Result Score | Score Average |
|------------------------|---------------|
| Personal Affect | 3.93 |
| Systematic Arrangement | 3.79 |
| Task Relevance | 3.93 |
| Understandability | 3.89 |
| Credibility | 3.87 |
| Suitability | 3.67 |
| Workload | 3.77 |
| Readiness | 3.17 |

B. Discussion

From Table 2, to see if there is a difference significantly to mean the two groups, t test as follows: hypothesis about both of the above are mean in other words, statistically, the two groups did not differ significantly so it was considered feasible to be used as research sample. Viewing area hypotheses are: (df = 28) = 1.701, so it can be concluded that the hypothesis is accepted or in other words there was no significant difference between the two samples is the group experiments with sample groups.

It can be concluded that the hypothesis is accepted or there is a significant difference between the results of the experimental group posttest to pretest results conducted before using interactive program with an additional facility speech voice reading the text. From the data analysis, the use of interactive program with an additional facility speech voice reading the text can make a considerable contribution to the learning process with high indicators that the group of students who use interactive programs increased significantly in value compared to the values obtained before using the program. Likewise, if compared to the group of students who did not use interactive program without additional facility speech voice reading the text, the group of students who use interactive program with an additional facility speech voice reading the text gets higher yields significantly.

From the results above shows that the qualification has the lowest value is qualified readiness, from a list of questions can be concluded that it is not the overall student is ready to use interactive programs due to the still insufficient means of a computer, but in general interactive programs are not eligible to serve alternative media in the learning process at the Faculty of Engineering, University Tanjungpura, it is seen from the score for personal Affect, systematic arrangement, task relevance, understandability, credibility, suitability, and the workload which each reach a score ≥ 3.67 . When viewed from a whole list of questions, which reached a score ≥ 4 is in question number 1, 5, 8, 9, 12, 20 and 21. This shows that in general the students were interested and want to use your interactive program (1 and 5), students also assess that their lessons have been arranged so well that a lot of information on learning systems (8 and 9), overall these systems can also be easily understood by the students (12), students who use the program do not feel bored, instead of feeling relaxed during the study (20 and 21).

IV. CONCLUSION AND RECOMMENDATIONS

Based on the results and discussion can be concluded that, the instructional program with an additional facility of speech sounds reading the text can contribute high enough on learning with an indicator which shows that the group of students who use the program value is a significant increase compared to the value obtained before using it. Likewise, if compared to the group of students who use the program without any additional instructional facility speech voice reading the text gets higher yields significantly.

Based on the conclusions of this research, suggested that the Computer Assisted Instruction (CAI) can be used as an alternative tool in the learning process because it is more interactive as a substitute lecturer who teaches a learning materials. Overall the students are not yet ready to use the instructional program due to the still inadequate computer facilities. However, in general the instructional program are not eligible to be used as an alternative media in the learning process at the Faculty of Engineering, Tanjungpura University.

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