Students’ Impression towards Science Virtual Test (SVT) on Digestive System Topic

C Mahfira1, Y Sanjaya2, L Rusyati1

1International Program on Science Education, Universitas Pendidikan Indonesia, Bandung, Indonesia
2Biology Education Department, Universitas Pendidikan Indonesia, Bandung, Indonesia

*Corresponding Author’s email: cladinea.mahfira95@student.upi.edu

Abstract During the past few years, technology has significantly support the improvements in assessment. Computer-based test (CBT) comes up as a new type of assessment which offers many benefits. The implementation of computer-based test in term of students’ perspective gives rise to numbers of mixed reactions. Students’ impression is one of the essential things for the implementation of SVT. The purpose of this study was to investigate the impression of students toward SVT. The method used in this research was descriptive method. The participant was 98 students from Junior High School “X” in East Bandung. Students’ impression questionnaire was used as the instrument. There are four aspects tested in this instrument which are students’ experience, technical activity, preference and media of SVT.

The result shows that SVT generally gives positive impression to students. Students have a positive experience and did not encounter significant problem when implementing SVT. Students prefer to use SVT and students think the media of SVT is already good.

1. Introduction
Nowadays the improvement of technology is very rapid. During the past few years, technology has significantly support the improvements of assessment. Recent developments in computer technologies have influenced many areas including educational testing and assessment [1]. Indonesia also did developments in assessment influenced by technology. Based on Surat Keputusan Kepala Badan Penelitian dan Pengembangan Kementrian Pendidikan Dan Kebudayaan No 017/H/EP/2015 in respect of Penetapan Satuan Pendidikan Penyelengara Ujian Nasional Berbasis Komputer Tahun 2015, in 2015 585 Indonesian schools implemented CBT for conducting national examination.

Paper based test (PBT) now has been replaced by Computer-Based Test. It is because paper based test has several limitations. Some limitations of paper based test are tedious processes as the examination was conducted at various and distant center simultaneously and marked manually, high risks of accidents during travels by both staff involved and the prospective students for the paper examination, cost of conduct of the examination including honoraria for invigilators, coordinators, markers collators and other allied staff, subjective scoring and plausible manipulation of results, late release of results and missing grades, bank draft method of payment by candidates riddled by fraud, loss of money, stress and trauma [1].

Computer-Based Test comes up as a new type of assessment that offers several benefits to overcome paper-based test limitation. Computer-Based Test minimize costs for long-term
applications, reduce fraudulent practices, and reduce the use of paper compared to traditional paper pencil tests, they enable usage of different item types compared to traditional paper pencil tests, along with, they make the integration of audio-visual materials possible and enable the rater to easily adjust the student response time [2][3]. Computer-based test also enable the use of several tools such as videos and voice recording to support information in the question, automated analysis of results from entire candidate cohorts and immediate feedback for the test taker [4]. In addition, CBT provide opportunities to measure complex form of knowledge and reasoning than traditional settings [3].

The implementation of computer-based test in term of students’ perspective gives rise to numbers of mixed reactions. Students’ impression is one of the essential things for the implementation of SVT. The attitude and opinion of the test takers is the important aspects. It affects the face validity of an assessment. If students or the test takers do not have confidence in tests, they will affect their level of engagement and cooperation [4]. In addition, a number of researchers have discussed the importance of behavioral and cognitive aspects of computer anxiety as a potential source of interference in Computer Based Assessment (CBA) administration [5]. While, one of “user” factor that can lead to difficulties in CBA applications is the level of anxiety of the respondents [6]. At the end, by implementing SVT on digestive system topic, this study aims to find out students’ impression towards SVT.

2. Method

The research method that used in this research was descriptive method because McMillan and Schumacher stated that descriptive method dealing with making description of current or past status of phenomena [7]. It describes characteristics of a group of subject and report on actual condition. Descriptive method does not involve manipulation of independence variables. This method is appropriate with the purpose of this research which is find out students’ impression towards SVT.

The location of this research was public school “X” in East Bandung. This school implements 2013 National Curriculum for teaching learning process in their school. Bahasa Indonesia is used as the main language in this school. Based on Indonesia ministry of education this school has ‘A’ for the accreditation. The school has a good quality in technology facilities to support this research. The participate was 98 students in grade 8. The students came from three classes. The participants consist of 58 male students and 40 female.

The instrument which used is students’ impression questionnaire. This questionnaire is adapted from Jimoh, Shittu & Kola [5], Firman & Rusyati [8]. There are 23 statements with four option response which are strongly disagree, disagree, agree and strongly agree. This item scale is translated from English to Bahasa Indonesia. The instrument was given to students who have already used SVT. Students’ impression value was measured in order to know whether SVT give negative or positive impression to students. The value of students’ impression can be measured by multiply the total response score by the value of response and devide it by the total number of respondent. The value of strongly agree, agree, disagree and strongly disagree respectively are 5,4,2,1. Students’ impression value can be interpreted by Table 1

| Value | Interpretation          |
|-------|-------------------------|
| < 3.00| Negative Impression     |
| > 3.00| Positive Impression     |
3. Result and Discussion

The objective of this study is to investigate the impression of 8th grade students toward SVT. The result of students’ impression values are presented in Table 2.

| Aspect      | Value (1-5) | Interpretation     |
|-------------|-------------|--------------------|
| Experience  | 4.03        | Positive impression|
| Technical   | 4.00        | Positive impression|
| Preference  | 3.77        | Positive impression|
| Media       | 3.86        | Positive impression|

Table 2 present students’ impression of each aspect in the value of 1-5. The table shows that the value of the five aspects is higher than 3. Based on Suherman if the value of the statements is higher than 3, it means that the statements are positive [9]. It can be inferred that all the aspects have already impressed students positively. This result also have been expressed in the studies of Jimoh, Shittu, & Kola, the result show that students agreed with positive items, whereas they showed little agreement with the negative ones [5].

3.1. Experience Aspect

The result of this research shows that the aspects which most agreed by the students or respondents is experience aspects with the value of 4.03. The details statements and students’ response are presented in Table 3.

| Aspect        | Statements                                      | Strongly Agree (%) | Agree (%) | Disagree (%) | Strongly Disagree (%) |
|---------------|-------------------------------------------------|--------------------|-----------|--------------|-----------------------|
| Experience    | The SVT was a positive experience for me.        | 52.04              | 47.96     | 0            | 0                     |
|               | The SVT was not confusing for me.                | 8.16               | 67.35     | 22.45        | 2.04                  |
|               | I think the SVT exam was not tedious.            | 20.42              | 74.49     | 5.10         | 0                     |
|               | I believe that SVT ensured justice and equity.   | 8.16               | 83.68     | 6.12         | 2.04                  |
|               | The SVT did not make me feel threatened compared to the paper-based test. | 17.35 | 75.51 | 4.08 | 2.04 |
|               | I think the SVT was efficient.                   | 17.35              | 79.59     | 3.06         | 0                     |
| Total Percentage |                                                | 20.58              | 71.43     | 6.80         | 1.2                   |

The percentage in experience aspect shows each options response which are 20.58% strongly agree and 71.43% agree shows that students get positive experience from SVT. Experience aspects consist of 6 statements stress on how students feel when experiencing SVT. Based on the result, students or participants experience positive things from SVT. This result also has been expressed in the studies of Jimoh, Shittu, & Kola [7]. It also stated in the research of Chunstra that the CBT testing mode has significantly increased testing motivation of the participant [10]. While in other research there have been different impression from respondent after using computer-based test. Previous research showed that more people anticipated problems with the computer assisted assessment than actually had them. Their research also showed that despite fewer students being confident about CBT before completing the assessment more students stated a preference for CBT afterward [11].

3.2. Technical Aspect

In the implementation of SVT there are several processes which is different with paper-based test because the use of computer. These processes may lead into technical obstacles. Leeson identifies two
factors that can lead difficulties in the implementation of CBA [6]. Those factors originating from “users” and “technology used”. The size and resolution of monitors, writing character and its length the way the problem is presented, and having the option of review or not are the technology originated factors. From this statement, the technical obstacle is one factor that is really important factor for the rise of difficulties for the implementation of computer-based test.

In this research technical obstacles data were gained by questionnaire of students’ impression. There are seven statements that indicate the technical obstacle. Table 4 presents the percentage of each statements. The result show that 26.4% strongly agree to the statements, 62.1% agree while it is only 9% disagree and 1.3% strongly disagree to the statements. These percentage shows that students do not have significance problem in implementing SVT.

**Table 4. The Result of Technical Aspect Questionnaire**

| Aspect        | Statements                                                                 | Strongly Agree (%) | Agree (%) | Disagree (%) | Strongly Disagree (%) |
|---------------|-----------------------------------------------------------------------------|--------------------|-----------|--------------|-----------------------|
| Technical     | I think that SVT was undertaken in conducive environment for student testing. | 23.47              | 70.41     | 6.12         | 0                     |
|               | I prefer receiving my test results automatically utilizing the SVT system.  | 12.25              | 61.23     | 21.43        | 5.1                   |
|               | I don’t have any problem when I access the SVT.                             | 28.57              | 57.14     | 13.27        | 1.02                  |
|               | I can easily input my identity on SVT.                                     | 37.76              | 57.14     | 1.02         | 1.02                  |
|               | I don’t have any problem to edit my answer on SVT.                         | 28.57              | 56.12     | 9.18         | 1.02                  |
|               | I can easily submit my answer on SVT.                                      | 28.57              | 65.31     | 6.12         | 0                     |
|               | I don’t have any problem with the use of SVT.                              | 25.51              | 67.35     | 6.12         | 1.02                  |
| **Total Percentage** |                                                                             | **26.38**          | **53.93** | **9.03**     | **1.24**              |

While in the research of Jimoh, Shittu, & Kola, most of the respondent doesn’t have any problem in using CBT. The detail percentage are 33.3% of respondents indicated they had encountered none of the problems listed followed by 25% of respondents who said they had problems with submitting their answers. 14.6% encountered difficulty with logging on to their portal, while 12.5% had issues with editing their answers [5]. It is supported by the research of Chin which stated that half of the students reported that they have no problems during the computerized test [12].

Eventhough the questionnaire result indicate there are no significance problem occured, based on researcher observation there is technical obstacle occur in the implementation of SVT. The obstacle caused by the lack of school facilities. The school does not have headset for every computer in the lab. It makes the students hard to play the video when implementing SVT. Actually the implementation of computer-based test such as SVT need to be followed by the expanded of school facilities. In the implementation of computer-based test in University of Ilorin, the university expand the facilities such as computer, place to conduct the test, and electricity supply [1].

3.3. Preference Aspect

The result of this research also shows that the aspects which least agreed by the students or respondents is preference aspects with the value of 3.77. Even the preference is the least impressed aspect, but still it gives the positive impression to students. Preference aspects consist of 2 statements stress on whether students prefer to use SVT (computer-based test) or paper-based test. Table 5 present the percentage of each statements
Table 5. The Result of Preference Aspect Questionnaire

| Aspect | Statements                                      | Strongly Agree (%) | Agree (%) | Disagree (%) | Strongly Disagree (%) |
|--------|------------------------------------------------|--------------------|-----------|--------------|-----------------------|
| Preference | In my opinion the SVT was better than paper-based test. | 15.31              | 65.31     | 18.37        | 1.02                  |
|        | I prefer SVT compared with paper-based test.          | 19.39              | 61.22     | 16.33        | 3.06                  |
|        | Total Percentage                                     | 17.35              | 63.26     | 17.35        | 2.04                  |

Percentage in preference aspect which are 17.35% strongly agree and 63.62% agree shows that students prefer to use SVT (computer-based test) rather than paper-based test. Although preference aspect is the least agreed aspect over the five aspects, the value of preference aspect is still higher than 3.00. It means that this aspect has a positive impression or students prefer to use CBT rather than PBT. The journal from Sanni & Mohammad supports the result of this study. It stated that majority of candidates were found to prefer CBT than the conventional way of writing examination [13]. Additionally, in the research of Jimoh, Shittu & Kola also found that students prefer to use CBT than PBT [5].

3.4. Media Aspect

Aspect of media is the important aspect to be measured since the test is computer-based test. Mazzeo and Harvey found that tests that graphical display issues such as the size of the computer screen, font, size, and resolution of graphics were found to affect examinee performance [14]. In this study media aspect consist of 8 statements which stress on color, size, font, description and position of text, figures, videos, graph, tables and navigation button. Table 6 present the percentage of each statement of media aspect.

Table 6. The Result of Media Aspect Questionnaire

| Aspect | Statements                                      | Strongly Agree (%) | Agree (%) | Disagree (%) | Strongly Disagree (%) |
|--------|------------------------------------------------|--------------------|-----------|--------------|-----------------------|
| Media | I think there was conformity between text color and background. | 11.22              | 71.43     | 9.18         | 1.02                  |
|       | The composition of text (size, font and color) is clear so I can read it easily. | 26.53              | 64.28     | 11.22        | 0                     |
|       | I think the quality of pictures in position, size and color was good. | 15.30              | 72.45     | 13.26        | 1.02                  |
|       | I think the quality of video in position, size and color was good. | 11.22              | 54.08     | 33.67        | 1.02                  |
|       | I can easily understand the description in video because it is clear. | 9.18               | 59.18     | 29.59        | 2.04                  |
|       | I think the quality of table in position, size and color was good. | 13.26              | 80.61     | 17.35        | 0                     |
|       | I think the quality of graph in position, size and color was good. | 15.30              | 76.53     | 5.10         | 3.06                  |
|       | I think the position, navigation and button were consistent and it has the same color and function for every screen. | 20.41              | 76.53     | 2.04         | 1.02                  |
|       | Total Percentage | 15.30              | 69.38     | 14.02        | 1.02                  |

The result of this study shows that the percentage of media aspect which are 15.30% strongly agree and 69.38% agree shows that the media of SVT is already good in term of media. Examinee performance will not affected because the media is already good.
4. Conclusion
In general, SVT give rise a positive impression to 8th grade students. All of the four aspect which are experience, technical, preference and media acquire high value (>3) or positively impressed the students. Experience aspect obtain the highest value while preference obtain the smallest value. Students’ impression shows that students mostly have a good experience after finishing their test using SVT. Students did not face technical problem when using SVT. Students prefer to use SVT (computer-based test) rather than Paper-based test as the type of their test. Students agree that the media presented in SVT is already good.

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