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The Design of Digital Book Content for Assessment and Evaluation Courses by Adopting *Superitem* Concept Based on *Kvisoft Flipbook Maker* in era of Industry 4.0

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Abstract. Functionally, *Assessment and Evaluation* digital book based on *kvisoft flipbook maker* can attract students to read and make them easier to gain knowledge about the concepts of assessment and evaluation courses quickly whenever and wherever they are. Yet sometimes the material content contained in *Assessment and Evaluation* digital book is still not able to direct the mindset of students gradually from the basic level to high level. Therefore, *Assessment and Evaluation* digital book made using the *kvisoft flipbook maker* application, also needs to develop its content by adopting the *superitem* concept, so that it can improve students' thinking through the exploration of their mindset from simple to complex levels. Based on those problems, this research aims to provide an overview of the digital book content design for Assessment and Evaluation courses created with *Kvisoft Flipbook Maker* application by adopting the super item concept. The approach used was the development research with the Borg and Gall development design, which focuses on the stages of designing. The research subjects involved in this research were four experts to conduct an initial trial on the design of digital book content. They are two information technology education experts and two education evaluation experts. Data collection techniques were carried out by distributing questionnaires. The analytical technique used was descriptive statistics, by determining the percentage description. The results of this research indicated that a quality level in the design of digital book material content included in the good category.

1. Introduction

The current 4.0 industrial revolution era, the books have undergone metamorphosis from print to digital form so that it is operationally more practical and can maintain the quality of the book and will not be obsolete over time. That statement following Nurhayati's opinion [1], which stated that digital books are more practical to use and easy to carry anywhere. Awang [2] also believes that digital books are an alternative technology that makes it easy for readers to access and read books anywhere, anytime, and quickly find relevant material without having to read the entire contents of the book. Stoykova [3] also believes that old books can be maintained through the digitization process into digital books.

The presence of digital books can occur because it is inseparable from the advancement of information technology through the features found in digital book maker applications. Although the



book has metamorphosed into a digital form, the fact shows that the use of printed books is still in demand, because printed book content is still packaged in an interesting and straightforward manner so that it can direct the reader's mind from not knowing the information become know. Besides, the problems found in many digital books which are distributed freely via internet do not follow the rules of book writing. The content of the material presented is also incomplete. Based on the results of interviews conducted on students of Informatics Engineering Education, Universitas Pendidikan Ganesha in 2018, those problems also occur in one of the subjects taught in education, namely the Assessment and Evaluation course. In that course, the material content taught by several lecturers who supervise the subject was still limited to sources from printed books and sources from the internet which still packaged in modules or digital books that are free and with incomplete content and do not even follow the rules of book writing.

Importantly, the need to provide digital books for the Assessment and Evaluation subjects in the Department of Informatics Engineering Education, Universitas Pendidikan Ganesha is motivated by its essential function as a course which dominantly explain theoretical concepts of assessment procedures and technical evaluation in the education field. Another importance of digital books is that printed books sometimes make students become bored in learning the lessons because there are no simulations through interactive learning media that can increase students' enthusiasm to learn them. Besides, it also can be used as blended learning material content in helping the learning process. This is consistent with several opinions of previous studies, such as Tsai, Lin and Lin [4]; Divayana, *et al* [5-6]; Dewi, *et al* [7]; and Sugiharni, *et al* [8]; who in principle also explained that a blended learning can run well if digital material content and adequate facilities supported it. Aside from being the content of blended learning material, digital books can also be used as a major component of the implementation of digital libraries. That was following Divayana's statement [9]; Divayana, Adiarta, and Abadi [10-11]; which states that digital collections (one of them was digital books) are needed to be able to hold digital libraries.

Based on the facts, needs and problems found, it is necessary to make innovation to improve digital books by adopting a *superitem* pattern in the presentation of material content, so that the content can be structured from the easiest level to the hardest level. That is following Margayanti's opinion [12], which stated that the super item is very suitable to be applied in measuring the level of students' reasoning abilities from the lowest level to the highest level.

Some research and community service results motivated this research, including research conducted by Suyasa and Divayana [13] on the development of digital books of assessment and evaluation based on *kvisoft flipbook maker*, has similarities with this study in the use of *kvisoft flipbook maker* application in making digital books for assessment and evaluation course. The constraints found in the research conducted by Suyasa and Divayana were lack of content of the Assessment and Evaluation material that was packaged in a row from the lowest to the highest level. Other research conducted by Kholifah about e-book development with flipbook maker software for learning Financial Accounting courses on STEKOM Semarang [14], has similarities with this research regarding the research products produced in the form of digital books made using the *kvisoft flipbook maker* application. The difference lies in the use of digital books produced, where digital books formed from the results of this study are used as teaching materials to support the learning process in the Assessment and Evaluation subjects, while digital books formed from the results of research conducted by Kholifah are used as teaching materials to support the learning process in the Financial Accounting course. The weaknesses which are found in research conducted by Kholifah are the lack of a detailed explanation at the defining stage, especially about several things, such as front-end analysis, student analysis, task analysis, concept analysis, and formulation of learning objectives.

The results of the community service outcomes that underlie this study include: community service carried out by Divayana, *et al* [15] about the empowerment of digital learning materials using *open office sun micro system* application for high school teachers in the Ubud district. The similarity of the results with the results study is in the case of digital formatted teaching materials produced. The difference is in the tools used to make digital teaching materials, where in this study using *kvisoft flipbook maker* software, while one of the software used by Divayana, *et al* was *open office sun micro system*. The obstacle found by Divayana, *et al* is digital teaching materials they produce are not

equipped with multimedia facilities. Another outcomes that underlie this research comes from Suyasa, Divayana, and Adiarta [16] regarding the empowerment of open source technology in the manufacture of digital modules for lecturers in the STIKES Buleleng. The similarity of the results with this research was in term of the product focus that was digital format teaching materials which are used to support the learning process. The difference lies in the form of teaching materials produced. This study produced teaching materials in the form of digital books while Suyasa, Divayana and Adiarta produced teaching materials in the form of digital modules. The obstacles found in the implementation of their community service was digital teaching materials that they produce have not been able to be operated interactively.

Based on the problems, innovation, and background from the research results and community service, so the problems statement of this research are: 1) How is the design of digital book content that is used to the Assessment and Evaluation courses by adopting the *superitem* concept based on *kvisoft flipbook maker*?; 2) How are the responses of the evaluator to the design of digital book content those are used in the Assessment and Evaluation courses by adopting the *superitem* concept based on *kvisoft flipbook maker*? Based on the background and problems statement that has been explained, the researcher was interested in conducting research about the design of digital book for Assessment and Evaluation Courses that were made using the *kvisoft flipbook maker* application with material content packaged using the *superitem* concept, thus can produce the interesting digital books and contain good quality content.

2. Method

This research approach was a research development using the Borg & Gall model [17], which focuses on the design stage. The design created was a digital book content design for Assessment and Evaluation courses that were made by using the *kvisoft flipbook maker* application by adopting the *superitem* concept. The Experts involved in conducting initial trials of digital book content design, including two informatics education experts and two evaluation experts. Research data collection was carried out by distributing questionnaires to experts/evaluators. The number of instrument items used to measure the evaluator's response to digital book content designs were 15 items. The technique used to analyze data that has been collected using quantitative descriptive techniques was using descriptive percentage formula [18] which can be seen in the following formula.

$$\text{Percentage} = \frac{\sum(\text{Answer} * \text{Weight of Each Answer Choice})}{n * \text{Highest Weight}} * 100\% \quad (1)$$

Notes: \sum = Total and n = Total number of questionnaires item

The results of the descriptive percentage calculation were converted into the categorization of effectiveness to facilitate the interpretation process. Therefore, the calculation results were converted into the categorization of effectiveness based on the eleven scale reference assessment as shown in Table 1.

Table 1. The Eleven Scale Reference Assessment

Effectiveness Level	Effectiveness Category
95-100	Excellent
85-94	Good
75-84	Advanced
65-74	Intermediate
55-64	Enough
45-54	Elementary
35-44	Less
25-34	Very Less
15-24	Bad
5-14	Very Bad
0-4	Poor

3. Results and Discussion

The design of digital book content for the Assessment and Evaluation courses was based on the standard steps of book creating. That steps begin with the preparation of content based on the syllabus, and specifically was composed of low to the highest difficulty levels. The content of material was compiled by adopting the *superitem* concept that completely can be seen in Table 2.

Table 2. The Content Composition of Assessment and Evaluation Material Adopting the *Superitem* Concept

No.	Material	Difficulty Levels
1	Basic concepts of test, measurement, assessment, and evaluation	Low
2	Types of tests, non-tests, assessments, and evaluations	Low
3	The creating of instruments	Medium
4	Validity and Reliability of Instruments	Medium
5	Measurement uses classical test theory	Medium
6	Measurement uses modern test theory	High
7	Analysis of Assessment and Evaluation Results	High

After the content of the material was arranged following the level of its difficulty, then the production of e-books was done in the .pdf format. After the e-book was finished, it was uploaded to the *kvisoft flipbook maker* application and inserted multimedia to increase the interactivity of digital books. The e-book file upload process into the *kvisoft flipbook maker* application, multimedia insertion, and finally got a digital book in .swf format and was ready to be used. It can be visualized in Figure 1.

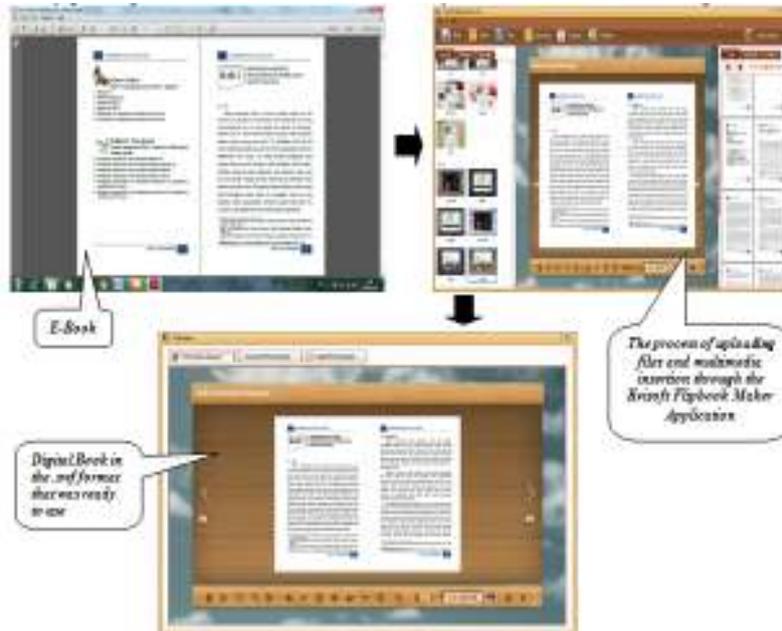


Figure 1. The process of Created the Assessment and Evaluation Digital Book Using *kvisoft flipbook maker*

The steps that were taken to obtain an overview of the effectiveness of digital book content design, were necessary to be conducted with an initial trial of the design carried out by four experts or evaluators, where the results were showed completely in Table 3. Experts/Evaluators involved, such as two Doctor with qualified in the field of informatics engineering education and two Doctor with qualified in the field of educational evaluation.

Table 3. The Initial Trial Results that Performed by Evaluators toward the Design of Digital Book Content

Evaluator	Item-															Σ	Effectiveness Percentage (%)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Evaluator-1	5	4	5	5	4	4	4	5	4	5	5	4	4	4	5	67	89.33
Evaluator-2	4	5	5	4	5	5	4	4	4	5	4	5	4	5	5	68	90.67
Evaluator-3	5	4	4	5	5	4	4	4	4	4	4	4	4	5	4	64	85.33
Evaluator-4	5	4	4	4	4	4	5	4	5	5	4	4	5	4	5	66	88.00
Average																	88.33

Based on the results shown in Table 3 above and when compared with the 11 scale reference assessment shown earlier in table 1, it can be explained that the average effectiveness percentage of the description of digital book content design is in a good category. That's occurred because the score of 88.33% lies in the range of levels effectiveness of 85-94% so that in general the design does not need to be revised again and the design can be followed up to be produced and tested on a wider scale.

The results of this research answer the problem found in previous research related to unpreparedness in showing content material of the Assessment and Evaluation courses with the level of difficulty that was packaged sequentially from the lowest to highest levels, as well as the unpreparedness multimedia used to indicate the interactivity level of the digital book. Besides the positive impact shown from this research results, in this research also found obstacles regarding the limitations of reference sources that are used as a reference in making the content, especially in the discussion of material topics classified as high difficulty levels.

4. Conclusions

Generally, the design of digital book content for this Assessment and Evaluation course has been able to show structured content from the lowest to the highest difficulty level by adopting the *superitem* concept. Digital book content created using the *kvisoft flipbook maker* application is also equipped with multimedia facilities, so digital book packaging becomes more interesting and interactive. Specifically, to overcome the obstacles found in this research, the solution that can be done is to look for primary and secondary reference sources on the topic about assessment and evaluation material from the basic concept to its application concept that can be done through various sources both in writing through documentation studies as well as verbally through interviews with experts in the field of educational evaluation.

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