The effectiveness of digital module to improve career planning of junior high school students

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Abstract

Career planning is an activity to help students determine future careers, such as high school, jobs and desired positions. The digital module is an alternative that can be used to convey career planning material to students. This study aims to determine the effectiveness of digital modules in improving junior high school students' career planning. This research is an experimental study using a quasi-experimental design method. The career planning instruments was tested for validation using confirmatory factor analysis, resulting in 17 valid items and a reliability of 0.830. The subjects of this study were junior high school students from the seventh-grade level. The result shows that digital modules effectively improve junior high school students' career planning, with an n-gain score of 0.60. The digital module contributes as a novelty in guidance and counselling to deliver career guidance services, besides making it easier for students to learn independently.

Keywords: Career planning, digital module, junior high school students.

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1. Introduction

Having a brilliant career is a dream for many people. The career itself can be defined as the achievement one gets in the career field, as a position, a huge salary and a job as expected (Prescod et al., 2019). Getting a suitable career like that is not as easy as turning the palm. Only few individuals experience a career mismatch achieved with the desired career. The condition is due to a lack of readiness and awareness of the importance of planning from an early age to support individual career achievement. Individual career achievement closely relates to the individual's understanding of himself and what career he wants to achieve (Srivastava, 2019). Careers can be achieved by planning. Early career planning is an alternative to obtaining maximum careers; it minimises the possibility of mistakes made in choosing a career, perceiving confusion in making decisions, job stress, wrong choice of major, wrong choice of job and dissatisfaction with the current job (Ismail et al., 2013). Managing career planning can improve career development, especially leading to job satisfaction (Gysbers & Henderson, 2014). Besides that, career planning is also carried out to design plans by selecting and determining the chosen (Carrico et al., 2019). Career planning requires career information through career exploration. Exploration is an activity to increase self-knowledge and self-awareness to develop one's career (Purwanta, 2012). Lack of information confuses the determination of careers.

Adolescents often feel confused in career planning at this stage of transition from children to adolescents from 11 to 17 years; more precisely, junior high school students are in this phase. It is supposedly related to the theory of career development. In that case, junior high school students (11–18 years) are in the experimental stage of the transition from childhood to adolescence. At this stage, students often experience doubts and are inconsistent in their career choices. Therefore, junior high school students need to get assistance from the guidance and counselling teacher. Guidance and counselling teacher assistance in schools is carried out by providing career information, helping direct students' careers based on their potential, talents, interests and, most importantly, knowing themselves. Guidance and counselling teachers are critical to providing career guidance to students. Career guidance is defined as assisting individuals to achieve an optimal level of self-development (Bhakti, 2017). Thus, they require guidance and counselling teachers to interact more with students. However, the Indonesian Ministry of Education and Culture issued a new curriculum, namely the 2013 Curriculum, to eliminate face-to-face hours. Whereas, indirectly, information services provide benefits for guidance and counselling students and teachers who lack class hours (Supriatna, 2011).

Lack of class hours is a new problem for guidance and counselling teachers in facilitating students seeking career information and carrying out career planning at school. On the contrary, allocating class hours is undoubtedly beneficial for guidance and counselling teachers in carrying out their assignments (Novianto et al., 2013). In implementing guidance and counselling services, teachers must be creative in helping students solve problems, especially in facilitating student career planning at school (Pustika et al., 2019). Creative and innovative guidance and counselling teachers are one of the demands of the 21st century.

In the 21st century, guidance and counselling teachers should be more innovative and creative in developing guidance and counselling service systems, especially in career planning. These include utilising media that can be used without assistance, even though they are constrained by time allocation. Media that can be used independently and following the times is digital-based connected to the Internet (Risqiyain & Purwanta, 2019). Media is also a tool that can help students solve problems, especially learning problems, confusion in determining careers and inconsistency in career choices

(Zakaria, 2018). The condition has relevance to the phenomenon that junior high school students often experience.

A phenomenon often experienced by junior high school students is confusion and inconsistency in career choices. The condition is in line with research conducted by Musfira (2015), who says that some junior high school students experience confusion in determining further studies. Furthermore, even worse, 87% of the Indonesian students have the wrong choice of strategy. Not only that, research conducted also shows that up to 2010 as many as 1.6 million junior high school children in Indonesia did not continue their studies and had become workers.

In that way, researchers are interested in exploring this phenomenon by making direct observations at schools. Researchers make direct observations of student behaviour. After that, the researcher interviewed the guidance and counselling teacher. The initial results were obtained and career planning had not been carried out. It should have constrained the allocation of class hours so that student assistance in planning a career was not adequate. The guidance and counselling teachers realise that they have not optimally implemented services other than not being supported by adequate media to facilitate students in planning careers independently, such as modules or digital manuals. The condition is in line with the achievement of learning objectives at school; an intermediary media is needed to provide thought-stimulating, interactive information to trigger students' interests (Sartono et al., 2022b; Senen et al., 2021). In that way, the digital module is the right choice for supporting the delivery of career planning material.

The digital model is a new breakthrough in helping students to plan their careers. This is because the characteristics of modules that are integrated with digital technology will certainly be more flexible than the conventional modules. In addition, digital technology makes the module more practical to store and carry around everywhere because it can be stored on students' computers, laptops or smartphones. This is the novelty of this study which encourages researchers to analyse it more deeply.

In addition to helping students learn independently, digital modules are more flexible and innovative. Digital modules approach the learning process using information and communication technology, a computer-based interactive module system and android, becoming a guidance and counselling teachers solution (Astuti et al., 2022). Teachers constrained by allocating time to carry out career planning support junior high school students' career planning.

Based on the above-mentioned problems, researchers are interested in researching digital modules' effectiveness to improve junior high school students' career planning using digital modules that have previously been developed and are declared very suitable for use. Researchers wanted to see whether digital modules are effective in improving student career planning. This study aims to determine the effectiveness of digital modules in improving junior high school students' career planning.

2. Methods

2.1. Types of research

This study aims to measure the effectiveness of digital modules to improve career planning for grade VII students. This type of experimental research uses the quasi-experimental method. The determination design is adjusted to the specific criteria studied. The research design used one group

pre-test–post-test, a quasi-experimental design using experimental groups and the control group was not selected randomly.

2.2. Sample and data collection

Research data collection was through interviews with counselling teachers who assessed junior high school students' career planning. Data collection techniques used a Likert-type scale, consisting of 3 indicators and 17 statements. Before being disseminated, the scale was tested for validity and reliability first; Cronbach's alpha score was 0.830. The score is excellent and so the instrument can be disseminated to measure the effectiveness of the digital module to improve junior high school students' career planning. The data collection instrument is adjusted to the career planning aspects to fit the target to be measured, namely junior high school students' career planning.

The subjects of this study were junior high school students from the seventh-grade level. The size of the sample used was 26 students. The implementation of this research included several processes: preparing the letters needed, preparing a research tool in the form of a scale approved by the supervisor and then conducting a digital module trial with students by giving a pre-test.

2.3. Data analysis technique

The method of analysis used in this research is the t-test to test whether the digital module effectively improves the career planning of junior high school students. The career planning instruments was tested for validation using the rotated component matrix in confirmatory factor analysis (Table 1).

Table 1. Rotated component matrix

	Component		
	1	2	3
VAR00002	.353	-.317	.343
VAR00005	.493	-.128	.303
VAR00006	.459	.390	-.448
VAR00007	.879	.217	-.070
VAR00008	.242	.750	.126
VAR00009	.857	.051	-.043
VAR00010	.839	.143	.280
VAR00011	.858	.222	.150
VAR00012	.681	.243	.027
VAR00013	.113	.139	.868
VAR00014	.086	.223	.696
VAR00015	.093	.872	.076
VAR00016	.115	.836	.117
VAR00017	.263	.816	.106
VAR00018	.096	.392	.656
VAR00019	.040	.612	.220
VAR00020	.011	.309	.003

The results analysis showed that 17 item with the value of 0,30 is valid and can be used to measure the factor of career planning skill.

3. Findings and Discussion

3.1. Findings

Career planning is an effort made by a person to identify and make decisions so that career goals can be achieved effectively. Junior high school students, in general, have not been able to make career plans

well; they do not have much information about careers, be it about high school or specialisation in education and work. This is what underlies the need for assisting students in planning their careers (Rosmana et al., 2019). This research is focused on the application of digital modules to improve career planning of junior high school students. Figure 1 shows an example of a digital module page used in this study.

Figure 1. Example of a digital module cover

Figure 1 shows an example of a digital module cover used for the purposes of improving the career planning of junior high school students. The figure shows a module that is set in a digital model that can be opened on computers, laptops and smartphones. In addition to the examples shown in Figure 1, Figure 2 shows an example of one of the contents of the digital module used.

Figure 2. An example of one of the contents of the module material

Figure 2 shows a sample of the content discussed in the digital career planning module for junior high school students. Twenty-six students carried out the pre-test and post-test in this product testing. This

trial aims to determine the effectiveness of digital module products for junior high school students' career planning. Therefore, the tests carried out in this trial were carried out using the pre-experimental design method. The pre-experimental design is an experimental design that is carried out by comparing the results of career planning before using the digital module. The initial stage is that students are given pre-test treatment to determine the initial ability of students' career planning before using the digital module. From the pre-test results, the average value obtained was 51.7.

Furthermore, students are given treatment using the student module given a post-test, aiming to determine the effectiveness of the digital module product. From the results of the post-test, an average of 81 results was obtained. Based on the scores, the mean score for career planning in junior high school students was in the good category. There is the acquisition of pre-test and post-test scores in the implementation of product trials. It is presented in the form of data in the pre-test and post-test results (Table 2).

Table 2. The-pretest and post-test results

No	Pre-test	Post-test	Gain (d) (Post-test-pre-test)	Gain (d) (Post-test-pre-test)^2
1	50	90	40	1600
2	65	88	23	529
3	54	85	31	961
4	61	79	18	324
5	69	83	14	196
6	72	86	14	196
7	55	87	32	1024
8	78	82	4	16
9	45	82	37	1369
10	61	85	24	576
11	56	90	34	1156
12	67	75	8	64
13	45	75	30	900
14	56	72	16	256
15	50	89	39	1521
16	67	89	22	484
17	51	77	26	676
18	60	82	22	484
19	56	88	32	1024
20	49	89	40	1600
21	67	99	32	1024
22	66	77	11	121
23	52	89	37	1369
24	56	85	29	841
25	59	73	14	196
26	45	92	47	2209
∑	1456	2100	644	20716

Based on the presentation in Table 2, it can be seen that the pre-test–post-test results in the field trials have increased. The n-gain score obtained by high classification amounted to 9 students, medium classification amounted to 15 students and low classification to 2 students. Pre-test and post-test assessments are also helpful for analysing the digital modules' effectiveness to improve students' career planning. The results of the average calculation use a gain score of 0.600 and an n-gain percentage of 60.03. The categorisation of the analysis results using the gain score and n-gain percentage is included in the medium category and is immensely useful. The result shows that the use of digital modules effectively improves the career planning of junior high school students. Figure 3 shows the pre-test–post-test results of the digital module trial. Based on the students' achievement score diagram, it is clear that there is an increase in student career planning after using the digital module. The graphic images of the pre-test and post-test results show a significant increase from after to before the treatment was given, e.g., the blue line shows the pre-test. On the contrary, the orange line shows that the post-test scores represent an increase.
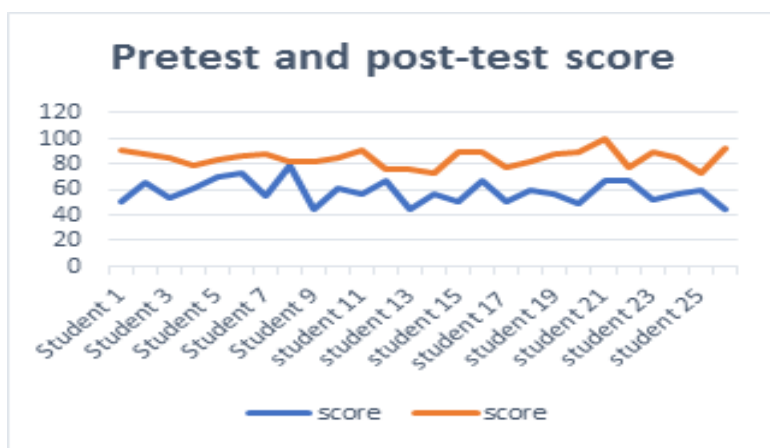

Figure 3. Graph of the pre-test-post-test results

Figure 3 shows the results of the study based on pre-test and post-test data. Based on the presentation, it can be explained that basically there is a positive trend in students' response scores after using the digital module. This shows effective results in accordance with previous expectations. Therefore, it can be concluded that the use of digital models meets the criteria of effectiveness. Digital modules can be recommended to be applied continuously in the field for the purposes of career planning of junior high school students.

3.2. Discussion

The digital module is developed based on previous needs analysis. The development of this digital module is carried out in five stages, developed by Chang (2006) and Dick et al. (2015), namely analysing, designing, developing, implementing and evaluating. Developing this digital module uses several applications, namely Flip PDF Professional, Adobe Flash, Camtasia 9, CorelDraw x7, Unity Programme and Microsoft Word. The published results of this product are digital module files with .exe and .apk formats where users no longer need to install a reader application to open the digital module. In line with Herwin et al.'s (2021) study, the components of this digital module consist of various kinds of media in which text and images and video content and interactive quizzes allow users to carry out various activities and get feedback from the programme. So, students are actively involved in the learning

process using this digital module. The digital module content is designed to be interactive using integrated multimedia components, which increase students' interest and tendency towards learning.

In addition, the digital module makes it easier for students to learn abstractly (Sartono et al., 2022a), not necessarily face-to-face (Ramadhan & Suyatna, 2014). The interface and design of this digital module are developed based on the multimedia principles proposed by Tania and Susilowibowo (2017), namely using multimedia principles, coherence principles, signalling principles, redundancy principles, the principle of the proximity of space and time, the principle of segmenting and the principle of modality. These principles are arranged to produce effective and efficient products in learning to make it easier for users to achieve their learning goals. In that way, students' career planning can be improved slowly.

Adaptation to a career is something that must be done by a person in supporting his success in completing his tasks (Rasyidi et al., 2021). This is important to prepare individuals for the challenges of the world of work and a variety of work situations (Ebenehi et al., 2016; Nadya & Farozin, 2021). Therefore, career planning for a person must be carried out optimally so that their future can be achieved according to their interests and expectations. Through counselling intervention, students are expected to achieve an ideal career (Chudari et al., 2020).

The integration of technology in the educational process is very important in the midst of today's developments (Herwin et al., 2022). The use of digital modules will improve the quality of education (Septiani & Astuti, 2020). In this case, students learn to use new types of procedures in digital technology in learning systems, especially career guidance services. In line with this, Veronica et al. (2020) state that guidance and counselling teachers or counsellors need to increase their potential in utilising guidance and counselling services technology. Web 2.0 technology is a platform where students can interact, share, create etc. Through technology-based platforms, the guidance and counselling teachers can provide virtual services such as career analysis, counselling services, interactive materials on career planning and other techniques. Several similar researches found the following research results related to careers and digital media. Mobile learning as a digital media tool can improve career planning in high school students (Astuti et al., 2020). Furthermore, the individual planning service model can improve high school students' career readiness (Astuti et al., 2019). Life skills-based career guidance services can positively affect students' career planning (Anggela & Astuti, 2020).

This relevant research review corroborates the findings of this study. Digital modules can help students access career planning whenever and wherever they are without time and space limitations. Providing career information services through digital modules can increase career planning to be more effective and efficient.

4. Conclusion

The digital module used in this research effectively supports learning activities based on the measurement of junior high school students' career planning. The results of the pre-test–post-test show an increase in career planning for junior high school students; an n-gain score of 0.60 is obtained, which is included in the medium category, and an n-gain percentage of 60.03 is obtained. Based on the categorisation of the analysis results using the gain score and n-gain percentage, it is included in the medium category and is quite effective. The result shows that the use of digital modules is quite effective in improving the career planning of junior high school students.

The findings of this study have proven that digital modules have been effective for improving the career planning of junior high school students. Therefore, it can be recommended that digital modules

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can be an alternative solution for junior high school students in planning their careers. In addition, digital modules are also recommended to be applied continuously for the effectiveness of junior high school students' career planning.

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