Development Module of Information Services for Students' Maturity in Career Decision Making

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Abstract: Adolescence is an important period in the development of high school students, where they begin to find their identity and determine their career direction. This process is often accompanied by challenges, such as the lack of accurate and transparent information regarding career choices. This study aims to develop a module service that is valid in content and design, practical, and effective to assist students in making career decision information. This research uses the research and development (R&D) method. The research design model used in this study is the ADDIE (Analysis-Design-Develop-Implement-Evaluate) research and development model. The respondents in this study were 3 expert lecturers for content validation, 2 expert lecturers for display validation, 3 guidance and counseling teachers for practicality testing, and 30 students for effectiveness testing. The results of the study indicate that the developed service module is valid in terms of content and design, and is also practical and effective for the maturity of students' career decision-making information.

Keywords: Adolescents; Career decision making; E- module; Guidance and counselling; Information services

Introduction

Psychologically, high school students enter adolescence. The adolescent period lasts from 13 to 16 years of age, and the end of adolescence from 16 or 17 to 18 years of age (Özdemir et al., 2016; Prasetyo et al., 2024). During adolescence, which is known as a period of social transition, there are changes that may occur in a person's interpersonal, political, economic, and legal social position (Padli et al., 2024; D. Sukma, 2011).There are physical differences between male and female adolescents, namely that male adolescents generally have larger and taller body types. Therefore, careers that require more energy are more suitable for male adolescents (D. Sukma, 2022).

Self-discovery is a crucial process for students in fulfilling their developmental goals. One key task that adolescents need to accomplish is selecting and preparing for a career(Afdal et al., 2019; Hopkins, 2014). Generally, the career decision-making process involves

selecting a career from a range of alternatives, informed by an individual's self-awareness and understanding of various career options (Hariko, 2024).The career decision-making process is often colored by various challenges, including a lack of accurate and relevant information, and uncertainty about available career options(Hopkins, 2014; Susilo, 2016)). Most career decisions are made suddenly and unplanned (Nawaz et al., 2020). This can cause students to feel confused and unsure about their choices

This can be caused by a lack of knowledge about the profession, doubts from adolescents about their abilities, ignorance about careers that match their skills and abilities, pressure such as invitations from friends or coercion from parents, and the majors or study programs they will choose after high school (D'Mello et al., 2014; Selviani et al., 2024). Career problems in adolescents are usually related to the choice of education, which leads to the choice of future jobs, career planning, and decision-making about future careers, as

well as information about existing jobs with the requirements that must be met (D. Sukma, 2022).

Career decision making is a process that not only includes career choices but also involves the process of making commitments in carrying out the actions needed to carry out their career choices .Career planning is seen as an important component of student success in achieving their goals through optimal career planning (Afdal et al., 2019). Decision making has a very important function, because the beginning of all conscious and directed human activities begins with decision making. In career decision making, access to comprehensive career information is essential to help students make informed and wise decisions (Liljenström, 2022).

In line with that, guidance and counseling refers to the provision of services, through various supportive programs and initiatives that are in line with applicable norms, to help students both individually and in groups become independent and develop their maximum potential in the personal, social, learning, and career fields (Hariko, 2024). So that individuals or groups of people can understand themselves in order to achieve optimal development, be independent, and be able to plan the future better in order to live prosperously. To achieve this, both parties, namely counselors and clients, are expected to work together professionally to achieve common goals (Özdemir et al., 2016; Selviani et al., 2023)

Information services are a key component of guidance and counseling, providing students (clients) with access to a range of information—such as educational and career-related data—that can serve as a foundation for informed decision-making and support their overall development. Career information services provide important details, such as information about education and jobs, that can help individuals make informed decisions and consider their options effectively.

The provision of information services at the initial meeting showed a figure of 25% and at the second meeting showed an increase of 80%, students had begun to be able to determine a career according to their abilities. The existence of career information services is expected to create stability in students' career decisions (Gati & Kulcsár, 2021). This is shown by the results of research on high school students in Surabaya, which found that around 45% of students experienced problems in the field of career and work, then this problem was followed up by providing actions in the form of career information services and the results obtained were around 80.15% of students stated that they increasingly knew and understood the direction of their career choices after being given career information services (Prihanto et al., 2021). Likewise with research on students at SMA PGRI Slawi where the provision of

career guidance information services was effective in determining the accuracy of students' career choices (Ernawati et al., 2022).

Based on the results of an interview with one of the guidance and counseling teachers at SMA PERTIWI 1 Padang, it is known that information services regarding career guidance at SMA PERTIWI 1 Padang are still very lacking. Information services provided to students tend not to be in accordance with RPL and the facilities that are available use the lecture method. This causes students to have minimal knowledge about careers. So that many students are still confused about determining the direction of their career choices or deciding on the right career choice for their future.

This can be caused by various factors, ranging from a lack of understanding of their interests and talents, to pressure from the surrounding environment that encourages them to choose a particular career. Therefore, it is important for students to gain a deep understanding of themselves and sufficient information about the various career options available, so that they can make the right decisions and in accordance with their potential and interests. Then, currently SMA PERTIWI 1 Padang has used the independent curriculum, where there are no more science and social studies, only packages (A-I), so students are asked to choose which package suits their interests.

Based on the above problems, the researcher feels it is important to make this problem a scientific research by determining the title "Development of Information Service Modules for Student Career Decision-Making Maturity".

Method

Based on the problems studied and the objectives to be achieved, this type of research is development research. This study employs the Research and Development (R&D) method, which is a type of research focused on creating and improving products. The R&D approach involves a systematic process of developing new products or enhancing existing ones through research, testing, and refinement. In this context, the aim is to generate practical solutions or innovations that can be applied in real-world settings (Sugiyono, 2016).

The research design model used in this study is the ADDIE (Analysis Design Develop Implement Evaluate) research and development model. The ADDIE model was developed by Dick and Carey to design a learning system (Aldoobie, 2015). The ADDIE model is used as a reference in this study because the ADDIE model uses general, systematic basics, and its framework is gradual from one part to another.
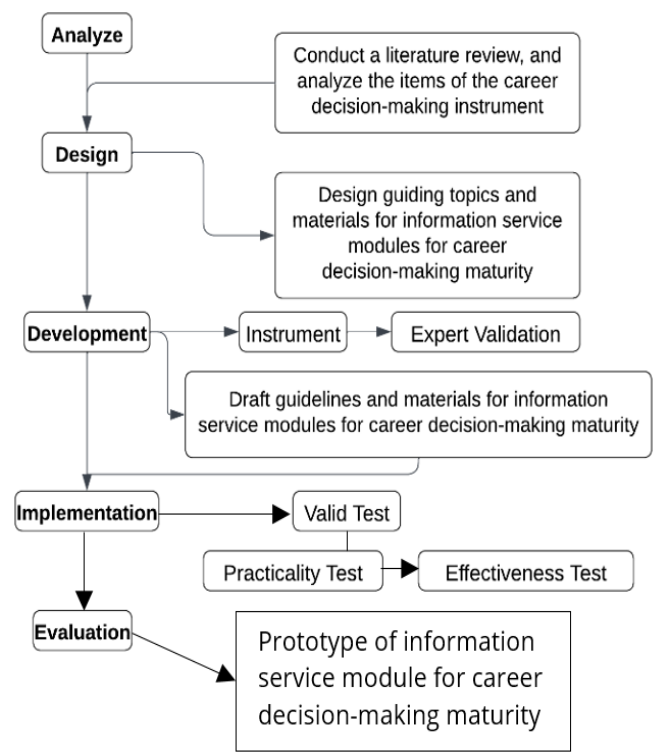
Figure 1. ADDIE research design

The data analysis technique used is descriptive data analysis guided by the percentage formula as follows p = f/n x 100% (Şiar, 2023). Then the data is tested by Kendall's Concordance Coefficient (W). Kendall's Concordance Coefficient Test is intended to determine the alignment of the experts' assessments of the research

products developed. Then testing the improvement of pretest and posttest student career decision making in the Nonparametric Wilcoxon Signed Rank Test effectiveness test with the help of the Statistical Product and Service Solutions (SPSS) version 21 program with a significance value of 0.05.

Result and Discussion

Based on results analysis needs, level taking decision career student grade 10 or Class E at SMA Pertiwi 1 Padang is in the category average with presentation 41% and low as much as 31.1%. This is made into consideration for analyze topics on e- module based on indicators and items on the instrument decision career student.

Table 1. Level of Career Decision Making

Category	Frequency	Percentage (%)
Very High	9	5.1
High	33	18.6
Average	74	41.8
Low	55	31.1
Very Low	6	3.4
Total	177	100

Analyze Stage

Data obtained from tabulation data processing retrieval decision career student made into as Topic or module material that will be developed for maturity taking decision.

Table 2. Basis for Determining Module Topics

Sub Variables	Indicator	Item	Topics
Exploration	Knowing possible career options	I am looking for information about career options after graduating from high school (1)	Determining career choices according to Holland's personality type theory
	Understanding the consequences of career choices	I didn't know the risks of the career choice I made (7)	Types of Jobs and Their Risks
Crystallization	Thoughts on career choices Feelings about career choices	I feel confident with my career choice after getting advice and evaluation from the guidance and counseling teacher (15)	Career Guidance Services at school
Choice	Organize equipment and adjust career choices More confident in career choices	I am taking tutoring courses that suit my future career choices (16)	Choosing the right tutoring for students
Clarification	Reconfirming career choices career choices Selection of other alternatives	I didn't plan on the second alternative choice (28)	Types of Higher Education in Indonesia

Design Stage

At the stage hhis specified sub topic for each topic that has been developed which will used as material or

Contents in module for maturity harvesting decision career student.

Table 3. Initial Design of Topics and Sub Topics of E- Module Design

Topics	Sub Topics
Determining career choices according to Holland's personality type theory	Introduction to Holland's Personality Theory
	Characteristics of Theory
	Strengths and Weaknesses of Theory
Types of Jobs and Their Risks	Various Hazards and Risks in the Workplace
	Types of Jobs and Their Risks
	How to Conduct K3 Risk Control
Career Guidance Services at school	Understanding Career Guidance
	The Role of Career Guidance
	Various Forms of Career Guidance
Choosing the right tutoring for students	Understanding Tutoring
	Types of Tutoring
	Purpose of Tutoring
	Criteria for Success of Tutoring
Types of Higher Education in Indonesia	Higher Education in Indonesia
	Types of Higher Education Based on Their Education System
	Types of Higher Education Institutions Based on Their Management

Development Stage

Based on stage design that has been done, then developed product study in the form of service information For maturity taking decision career student with load Topics as has been presented at the stage analysis and and design . Next done purposeful data collection For validate e- module eligibility in a way content and appearance and practicality test by GUIDANCE AND COUNSELING teacher, then effectiveness test by 30 students grade 10 or class E at Pertiwi 1 High School, Padang.

Validation test expert done for validate eligibility content and eligibility appearance from developed products namely e- module service information for maturity taking decision career students.

Table 4. Data Results Validation of Contents by Experts

Aspect	Expert Score			Expert Score	Ideal Score	Percentage (%)	Caption
	A	B	C				
Foreword	4	5	3	12	15	80	VW
List of contents	4	5	4	13	15	86.7	VW
CHAPTER I (11)	40	51	33	124	165	75.2	W
CHAPTER II (11)	40	51	33	124	165	75.2	W
CHAPTER III (11)	40	51	33	124	165	75.2	W
CHAPTER IV (11)	40	51	33	124	165	75.2	W
CHAPTER V (11)	40	51	33	124	165	75.2	W
Total	208	265	213	686	855	77.5	W

Note: W = Worthy

It is known that in a way overall the assessment that given by experts to Module content reaches percentage of 77.5% with category worthy with revision. Then the calculation results significance concordance kendall's, obtained a chi-square value of 17,887 and Assym.Sig of 0.007. This means that the probability ≤ 0.05 or there is no difference in the assessment given by experts on the contents of the product being developed. The results of this calculation also show that there is harmony in the assessment of experts on the contents of the product.

In addition to conducting a validation test of the Module content by experts, researchers also conducted a validation test of the Module display by appointed experts in order to improve the quality of the display to make it more interesting to read and use by students.

Table 5. Data Results Validation of display by Experts

Aspect	Expert Score		Expert Score	Total Score	Percentage (%)	Caption
	A	B				
Cover Design (4)	14	18	32	40	80	VW
Font Type and Size (3)	15	14	29	30	96.7	VW
Colors used (3)	15	15	30	30	100	VW
Blank Space (4)	19	19	38	40	95	VW
Quality Guide (2)	10	10	20	20	100	VW
Total	73	76	149	160	94.34	VW

Note: VW = Very Worthy

It is known that overall the assessment given by experts on the product appearance reached a percentage of 94.34% with a category that is very worthy of revision. Then the result of the calculation of Kendall's concordance significance, obtained a chi-square value of 10.237 and Assym.Sig of 0.037. This means that the probability ≤0.05 or there is no difference in the assessment given by experts regarding the appearance

or design of the product being developed. The result of this calculation also shows that there is harmony in the assessment of experts regarding the appearance or design of the product.

Implementation Stage

At this stage, a practicality test of the information service module was conducted for guidance and counseling teachers at SMA Pertiwi 1 Padang.

Table 6. Practical Test Result Data by GUIDANCE AND COUNSELING Teachers

Aspect	Guidance and Counseling Teacher Score			Expert Score	Ideal Score	%	Caption
	A	B	C				
Planning (4)	15	18	18	51	60	8 5	VG
Implementation (6)	23	28	27	78	90	86.67	VG
Evaluation (3)	13	15	13	42	45	91.11	VG
Amount	51	61	58	170	195	87.18	VG

Note: VG = Very Good

The results of the practicality test showed that the guidance and counseling teacher's assessment of the practicality of the information service module was in the very good category with a percentage of 87.18%. This result means that respondents gave a positive assessment of the information service module for the maturity of students' career decision-making. Based on the results of the Kendall's concordance significance calculation, the Chi-Square value was 6,000 and the Assymp.Sig value was 0.050. This means that the probability value is ≤0.05 or there is no difference in the assessment given by respondents regarding the practicality of the information service module. Supported by previous research The results of this calculation also show that there is alignment in the

assessment of guidance and counseling teachers regarding the practicality of the product (Sukma et al., 2024).

Test the effectiveness of information service materials to high school students consisting of one class/class with 30 students. The class selected to conduct the test of the effectiveness of this information service material is XE.6. This effectiveness test activity was carried out by providing 1 material in the information service module. However, before being given information services, students first filled out the career decision-making instrument (pretest). After the implementation of the effectiveness test of the information service module, students were given the career decision-making instrument again (posttest).

Table 7. Results Career Decision Making Instrument Pretest and Posttest

Category	Interval	Pretest		Posttest	
		f	Percentage (%)	f	Percentage (%)
Very high	≥120	0	0.0	4	13.3
High	97-119	5	16.7	14	46.7
Avergae	74-96	8	26.7	11	36.7
Low	51-73	13	43.3	1	3.3
Very Low	≤50	4	13.3	0	0.0
Amount		30	100	30	100

Before being given information services using the information service module, the level of maturity of students' career decision-making was in the Low category with a percentage achievement of 43.3%. However, after being given information services using the information service module, there was an increase in the maturity of students' career decision-making to the high category of 46.7%. The results of the questionnaire distribution prove that there was an increase in the maturity of students' career decision-making before and after being given information services using the information service module.

Researchers conducted a difference test analysis (t-test) which was carried out using the Nonparametric Wilcoxon Signed Rank Test difference test formula. The results of test the negative rank is 0^a, this means that there is no decrease in the maturity of students' career decision-making before being given information services using the information service module. Furthermore, the positive rank value is 30 b, this means that the maturity of students' career decision-making increases after being given information services using the information service module. Then the ties value is 0°, meaning that no students have the same information

service module between the pretest and posttest (Febrianti & Sarajar, 2024; Widianita et al., 2024).

In the significance test, it is known that Asymp.Sig has a value of 0.000 which is greater/less than 0.05. So it can be concluded that there is a significant change in the maturity of student decision making before and after being given information services using the information service module.

Evaluation Stage

At this stage, the product that has passed the feasibility test to experts and the practicality test to teachers and effectiveness to students is evaluated based on the findings from the results of previous trials to produce an initial prototype of the product. The evaluation stage is a stage that aims to assess the overall product being developed (Jiao, 2021; Qu, 2021). The evaluation results indicate that the revisions to the research product have successfully met the requirements identified through development planning and needs analysis. As a result, the researcher concludes that the product has been empirically tested and is now ready for use.

The results of the module development show its effectiveness in improving students' understanding of the career decision-making process. This module plays an important role in helping students recognize their potential, such as interests, talents, and personality, which is the basis for making mature career decisions. In addition, the systematic information about various career options in this module helps students explore and understand various professions more deeply (Zhang, 2021). The pilot test of the module showed a significant increase in students in terms of confidence to make career choices. Ability to analyze options based on personal strengths and weaknesses. Understanding of the relevance of educational pathways to career goals.

In line with previous research, this module requires active involvement of the teacher as a facilitator. Teachers need to provide guidance to students in using the module effectively. This research also emphasizes the importance of teacher training to maximize the benefits of the module (Liljenström, 2022; Sari et al., 2023).

The strength of this module is its practical approach through career decision-making simulation exercises that are relevant to real situations (Fogg et al., 2020).. However, the study also found that some students needed additional assistance to understand some of the more complex concepts in the module (Cloutier et al., 2020).

This module has the potential to be widely implemented in schools, particularly at the upper secondary level. However, training for teachers is needed to maximize its use. In addition, adaptation of the module according to the local context and individual needs of students is also very important. Recommendations for future research are to explore the effectiveness of this module in the long term and to integrate it with digital technology

Conclusion

Based on the research results, the module of information services designed to enhance the maturity of students' career decision-making is deemed both feasible and effective. The content of the module falls within the "worthy" category, while its design is categorized as "very worthy," indicating that it is suitable for implementation and can be used independently by students to support their career decision-making maturity. Additionally, the module has been evaluated for practicality and is considered "very good," meaning it is user-friendly and provides significant benefits to students, serving as an effective medium for independent learning and fostering a better understanding of career decision-making.

The module has also proven effective in achieving its intended purpose of enhancing students' career decision-making maturity. It meets the established criteria for effectiveness, confirming that it can help students improve their decision-making capabilities. Overall, the development of the module has met the objectives set forth in the needs analysis and development plans, demonstrating that the product has undergone rigorous testing and is now ready for practical use, based on the positive results from the trials. This suggests that the module is a reliable and valuable tool for students in the process of career decision-making.

Conflicts of Interest
The authors declare no conflict of interest.

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