



# IT-Based Entrepreneurship Course Learning Tools for Higher Education Merdeka Belajar Program Validity and Reliability

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

This study aims to produce a learning model instrument for information technology-based entrepreneurship courses in supporting the independent learning program for independent campuses (MBKM) in higher education. This learning model uses a development model adapted from the 4D development model, including defining, designing, developing, and disseminating using Aiken's validity analysis technique and reliability analysis using Cronbach's alpha. Data collection techniques are carried out utilizing interviews, observations, and literature studies; in the process of developing research instruments, this is done by holding a forum group discussion (FGD) with material experts and media experts and asking for input from lecturers teaching entrepreneurship courses. Based on the results of improvements on suggestions from material experts and media experts as well as lecturers teaching courses related to instruments and learning tools for information technology-based entrepreneurship courses in supporting the independent learning

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program for independent campuses (MBKM), then distributing questionnaires to material experts, media experts and lecturers teaching entrepreneurship courses to provide an assessment of the learning device instruments developed to obtain valid and reliable research instruments so that they are suitable for use. The results of testing the level of validity and reliability of the information technology-based entrepreneurship course learning instrument in supporting independent learning programs were obtained: (1). The validity of the Semester Learning Plan (RPS) instrument from material experts obtained an average of 0.780 with a high category, while the reliability level was 0.750 with a high category. (2). The validity of the Model Book instrument from material experts obtained an average of 0.738 with a high category, while the reliability level was 0.750 with a high category. (3). The validity of the Entrepreneurship Book instrument from material experts obtained an average of 0.743 with a high category, while the reliability level was 0.854 with a very high category. The test results of media experts' validity and reliability level of the learning management information system obtained an average of 0.916 with a very high category. In contrast, the reliability level obtained an average of 0.804 with a very high category. Furthermore, the test results of the level of validity and reliability of user response instruments (students) from expert lecturers of entrepreneurship courses obtained an average of 0.827 with a very high category, as well as the level of reliability obtained an average of 0.815 with a very high category, which consists of several aspects, namely (1). Knowledge aspects, (2). Collaborative aspect, (3). Aspects of creativity, (4). Productive aspects, (5). Motivation aspects, and (6). Empathy aspect.

*Keywords: Instrument; entrepreneurship course; learning model; validity; reliability; merdeka belajar; MBKM.*

## 1. INTRODUCTION

Producing independent and creative graduates is not an easy thing; of course, it requires hard work from educational institutions to stimulate students' creativity and independence in the learning process, especially in entrepreneurship courses, with the hope that in the future, they can participate in society in efforts to improve various aspects of society [1]. Government support is needed to develop social entrepreneurial activities, especially in higher education [2]. Higher education is a creator of human resources that can make a positive contribution to the development of the nation's economy in general. College graduates every year are expected not only to make them job seekers but, as far as possible, to create jobs, at least for themselves, so as not to become educated and unemployed. The government has made efforts to include entrepreneurship courses in the college curriculum to foster students' entrepreneurial spirit while running college education. Entrepreneurship education is critical to foster the spirit and entrepreneurial spirit of students in higher education [3]. One of the government's policies on entrepreneurship to date is the existence of key performance indicators (KPIs) for higher education, one of which is that students get off-campus learning experiences. Improving the entrepreneurship learning process in higher education needs to get attention regarding the curriculum that can be

integrated by supporting the implementation of the independent learning independent campus (MBKM) program [4].

In addition, the Ministry of Education, Culture, Research, and Technology has opened the broadest possible opportunity for higher education to implement the MBKM program. The program gives full rights to Indonesian students to gain knowledge and learning experiences outside the study program or off campus [5]. The independent campus learning process manifests student-centered learning by providing opportunities for students to study off campus to develop creativity and independence in seeking and finding knowledge through the realities and dynamics of the field, such as real problems, collaboration, social interaction, and demands for target achievement [5]. One of the universities' efforts in implementing the independent campus learning program is to make optimal curriculum changes. Even students who program independent learning off campus can also take online lectures for other courses.

One of the MBKM programs includes entrepreneurship programs, as evidenced by the fact that since 1997, Higher Education has facilitated entrepreneurship development programs in universities that offer various activities, namely Business Work Lectures (KKU), Entrepreneurship Lectures (KWU), Entrepreneurship Internships (MKU), Business

Consultation and Job Placement (KBPK), and New Entrepreneur Incubators (INWUB) [6]. Since 2009, Higher Education has funded students interested in becoming job creators through the student entrepreneurship program (PMW). These policies are implemented as much as possible to improve the quality of higher education graduates who have the ability, expertise, and attitude of responsibility, build teamwork, and develop independence and business through creative activities in the field of science they are pursuing. It is in line with Government Regulation No. 17 of 2010 that one of the objectives of higher education is to form people who are critical, creative, innovative, independent, confident, and entrepreneurial.

One of the courses that can provide opportunities for students to gain learning experience outside the campus is the entrepreneurship course, by providing accurate business practices directly to the community / SMEs to foster their spirit, enthusiasm, creativity, and productivity in processing goods/services as business activities. In addition, it can provide opportunities for students to learn off-campus to manage independent businesses as one of the efforts to support the implementation of the MBKM program. Entrepreneurship is the ability to be able to make and create new opportunities in business and manage the materials and human resources needed to take advantage of them and make the right decisions so that success is obtained (Daryanto, 2012): 4 in [1]. Entrepreneurship education has been widely introduced in various educational institutions in almost all disciplines and worldwide [7,8]. Almost all universities require entrepreneurship courses, including Akba Makassar University of Technology (Unitama). Unitama is a private university in Indonesia used as a research object for developing an information technology-based entrepreneurship course development model in supporting the MBKM program in higher education. The Indonesian government has issued an independent learning program policy since 2020; one of the programs is to provide opportunities for students to study off-campus to get to know and understand the community's social life. Based on the previous description, the researcher connects the independent learning program with one of the relevant courses to carry out learning activities outside the campus with the aim that students are more productive, collaborative, creative, and empathetic towards social life in the community in providing assistance to small and medium business actors

or starting independent businesses outside the campus so that lecture activities in the classroom no longer dominate learning activities in entrepreneurship courses. Learning management information systems can assist students in reporting online off-campus entrepreneurial practice activities [9]. Various challenges in the world of education, especially in entrepreneurship learning, such as lack of support, time, and resources in educational institutions, the difficulty of lecturers in providing assessments, and the absence of answers to important questions about learning while doing what [8]. Efforts to improve the quality of the process and results of learning activities in educational institutions are logical demands of the development of science and technology today [10].

## **2. METHODS**

The development method in this study uses the research and development method of research and development (R & D). Research and development is one of the research methods that can be used to produce specific products and to test the products' success [11]. This research develops an information technology-based entrepreneurship course learning model in supporting independent learning programs, where students are allowed to carry out business activities outside the campus, both independent businesses and mentoring businesses to small and medium business actors in the community equipped with optimal learning tools including learning management information systems in supporting learning activities outside the campus. The development model used in this research is the 4D development model (define, design, develop and disseminate).

### **2.1 Data Source**

The data sources in this study are material experts, media experts, lecturers, and students. Based on the results of preliminary observations on the object of research, the learning process of entrepreneurship courses is still dominated by the provision of theory rather than practical activities. Therefore, a learning model is needed for entrepreneurship courses that can provide students choices in conducting business practice activities, namely independent student businesses or assisting business activities to be small and medium business actors in the community to foster the entrepreneurial spirit, collaborative, creativity, and empathy of students

with business practices outside the campus to support the MBKM program.

## **2.2 Data Collection Technique**

Data collection techniques were carried out through interviews and literature studies. In data research, several techniques are carried out. This study's data collection technique used a questionnaire consisting of a list of statements relevant to the research theme. This research is focused on testing the validity and reliability of learning device instruments in developing learning models for information technology-based entrepreneurship courses in supporting independent learning programs in Indonesia. Instruments were distributed to material experts, media experts, and lecturers teaching entrepreneurship courses to measure the validity and reliability of the developed entrepreneurship course learning tools. The questionnaire instrument in model testing is a list of statements to test the quality of the information technology-based entrepreneurship course learning model using a device to support the implementation of the learning process of off-campus student business activities. The population of this study was students from Akba Makassar University of Technology (Unitama) who programmed entrepreneurship courses in semester 5 (five) by taking 1 class of 25 students as research samples.

## **2.3 Data Type**

The data obtained is used as a reference to determine the quality and feasibility of the entrepreneurship course learning model. The type of data used is qualitative data in the form of criticism, suggestions, input, and responses related to the learning model and also quantitative data in the form of numbers obtained from the results of filling out questionnaires/questionnaires by validators (material experts and media experts), lecturers and students who are then used as qualitative data so that it can be used as a reference to determine the quality of validity, level of reliability and feasibility of the entrepreneurship course learning model in supporting the independent learning program of the independent campus.

## **2.4 Data Analysis Technique**

Research instruments are tools used to collect data or measure objects of a research variable. [12]. In this study, researchers used data

analysis techniques through qualitative descriptive analysis and quantitative analysis.

Data analysis in qualitative research is carried out before entering the field and after completion. Qualitative descriptive analysis was used to process data from interviews and data from a questionnaire of criticism and suggestions by experts. This data analysis technique is used by grouping information from qualitative data in the form of responses, criticisms, and suggestions for improvement in the questionnaire. Data analysis is used as a reference to improve or revise the product development of entrepreneurship course learning models.

Qualitative data analysis is carried out interactively. Activities in data analysis, namely data collection, data reduction, data display, and conclusion drawing/verification. The steps in the data analysis technique are as follows:

### **2.4.1 Data collection**

Data were obtained during the research in the form of researchers' field notes when making observations, especially about the use of learning management system media to facilitate off-campus student entrepreneurship in learning process activities and other activities, both supporting factors, obstacles, and difficulties during the learning process. Researchers took data during the use of learning models by lecturers and students.

### **2.4.2 Data reduction**

They are reducing or summarizing, selecting essential things, looking for themes and patterns, and discarding unnecessary ones with the aim that the reduced data will provide a clear picture and make it easier for researchers to collect further data.

### **2.4.3 Display data (data presentation)**

Data is presented in the form of brief descriptions or presented in the form of tables and descriptive explanations. It makes it easier to understand what is happening and plan further activities. Researchers present qualitative descriptive data from the questionnaire results.

### **2.4.4 Conclusion drawing/ verification**

At this stage, the researcher concludes the data obtained. Conclusions in qualitative research are

answers to problem formulations or are new findings that have not previously existed. The conclusion is in the form of data about developing a learning model for information technology-based entrepreneurship courses in supporting the independent learning program of the independent campus.

#### 2.4.5 Quantitative data analysis

Quantitative analysis is used to analyze data collected from questionnaire answers from material experts, media experts, and lecturers teaching entrepreneurship courses related to a list of statements relevant to the research. Data from the questionnaire will be analyzed to get an overview of the learning model developed. There are two quantitative analyses, namely the validity and reliability tests. Several learning model tools for entrepreneurship courses will be tested for validity and reliability based on answer data from material experts, media experts, and lecturers teaching the course whether the list of statements is appropriate/relevant to the product research to be produced. The instruments of the learning device are (1). Semester Learning Plan (RPS), (2). Entrepreneurship book, (3). Model Book, and (4). Learning Management Information System for entrepreneurship courses.

#### 2.4.6 Validity test

Validity is a measure that shows an instrument's level of validity or validity. An instrument that is valid or valid has high validity. Otherwise, a less valid instrument means it has low validity. The development of this entrepreneurship course learning model conducts a validity test to test the feasibility of the learning model developed and whether the learning model can be used as one of the appropriate learning models or not in order to determine the level of truth and accuracy of the use of the learning model. Answers from a questionnaire using a Likert scale by four material experts (content) and two media experts, and three lecturers teaching entrepreneurship courses with categories of choices as in Table 1.

After the material experts and media experts, as well as lecturers teaching entrepreneurship courses, filled in the instrument validation sheet related to the learning tools developed, the researchers analyzed the instrument's validity with Aiken's v formula. [13] as follows:

$$V = \frac{\sum s}{n(c-1)}$$

Description:

- V = Rater agreement index
- s = The score applied by each rater minus the lowest score in the category
- n = Number of raters
- c = Number of categories that the rater can choose (Highest score)
- r = An assessor gives the number
- lo = Lowest validity score
- s = r-lo

Furthermore, to determine the validation assessment criteria from experts (professional judgment) of each entrepreneurship course in learning model instrument. According to Guilford's classification, the instrument will be used in this study if it has a high validity coefficient, as in Table 2.

#### 2.4.7 Reliability test

Instrument reliability testing refers to the trustworthiness or consistency of the measurement results, which means how high the accuracy of the measurement is (Azwar, 2012). In this study, researchers used Cronbach's alpha which has a formula:

$$r_{ac} = \left( \frac{k}{k-1} \right) \left[ 1 - \frac{\sum \alpha b^2}{\alpha t^2} \right]$$

Description:

- r<sub>ac</sub> = Cronbach's alpha reliability coefficient
- k = Number of statement/question items
- ab<sup>2</sup> = Total variance per item/item statement
- at<sup>2</sup> = Total Variance

**Table 1. Likert scale scoring categories**

Score	Description
1	Inappropriate/Inappropriate/Incomplete/Not Good
2	Less precise / less appropriate / less complete / less good
3	Correct / Appropriate / Good
4	Very precise / very appropriate / very complete / very good

**Table 2. Likert scale scoring categories**

No.	Correlation value	Criteria
1	0.80 – 1.00	Very High
2	0.60 – 0.79	High
3	0.40 – 0.59	Medium
4	0.20 – 0.39	Low
5	0.00 – 0.19	Very Low

Source: Candiasa, 2010 in Sudarsana et al., [14]

To determine the reliability assessment criteria of each instrument item of the entrepreneurship course learning model. The standard that will be used to determine the scale's reliability level uses the standard from Guilford (1956), as in Table 2.

### 3. RESULTS AND DISCUSSION

#### 3.1 Validity Test

Validity is an index that shows that the measuring instrument measures what it wants to measure. Material experts have provided suggestions for developing learning tools for entrepreneurship courses, and researchers have made improvements related to these suggestions. Likewise, with the data from the results of instrument validation answers from material experts, media experts, and lecturers teaching entrepreneurship courses. The answer data has been analyzed to know whether the instrument is relevant to the research. The results of the analysis of the validity of the instrument for learning tools for information technology-based entrepreneurship courses in supporting the independent learning program for independent campuses (MBKM) are as follows:

##### 3.1.1 Semester Learning Plan (SSP) instrument

Researchers have improved the suggestions of material experts consisting of 4 (four) experts. Furthermore, researchers analyzed the data on the answers given by the four material experts with the score of the answer options using a Likert scale with a scale of 1-4 with categories if 1: not suitable, 2: less suitable, 3: suitable, and 4: very suitable. The results of the instrumented assessment of the four experts related to the RPS that the researchers have developed can be concluded that the RPS can be feasible to be tested with minor revisions—the results of the material expert assessment on the RPS instrument using the Aikens'V formula. Aiken, in 1985, formulated the Aiken's V formula to

calculate the content-validity coefficient based on the assessment of a panel of experts of n people on an item in terms of the extent to which the item represents the measured construct. The results of the data analysis of the answers from the four experts related to the RPS are in Table 3.

After analyzing the instrument validity test data based on the answers from the expert, it is continued by analyzing the RPS instrument reliability test data on the information technology-based entrepreneurship course learning model in supporting independent campus learning in higher education. The results of the analysis of the reliability test of the Semester Learning Plan (RPS) using Cronbach's alpha formula as in the Table 4.

From the results of the RPS instrument validity test based on material experts, a correlation value of 0.780 was obtained with a high level of validity and a high level of reliability with a correlation value of 0.750.

##### 3.1.2 Model book instrument

The entrepreneurship course learning book is one of the learning model tools. The entrepreneurship book has been used by researchers in implementing the entrepreneurship course learning model on the object of research, namely, 5th-semester students at the Akba Makassar University of Technology. Before the book is used, improvements have been made related to the material content, cover, and writing style suggested by the expert when assessing the book. Material experts consist of 4 (four people) and have provided input so that the book can be implemented in the field—the results of the validity analysis of the model book instrument are as in Table 5.

After analyzing the instrument's validity test based on the expert's answers, it is continued by testing the reliability of the model book instrument as one of the supporting devices in implementing the learning model for information technology-based entrepreneurship courses in supporting independent campus learning in higher education. The results of the book of instrument reliability test analysis using Cronbach's alpha formula are shown in Table 6.

From the results of the validity test of the model book instrument based on material experts, a correlation value of 0.738 was obtained with a

high level of validity and high level of reliability with a correlation value of 0.750.

### 3.1.3 Entrepreneurship book instrument

The entrepreneurship course book has been used by researchers at the implementation stage after revision/improvement. Before the book is

used, improvements have been made related to the material content, cover, and writing style suggested by the expert when assessing the book. Material experts consist of 4 (four people) and have provided input so that the book can be implemented in the field. The results of the validity analysis of the model book instrument are shown in Table 7.

**Table 3. Material expert RPS validity analysis results**

Indicator	Total questionnaire	Material expert				Correlation value	Validity
		I	II	III	IV		
RPS Format	8	3.00	3.00	3.38	3.88	0.771	High
Content of RPS	3	2.67	3.00	3.00	3.67	0.694	High
Language Usage	2	3.50	3.00	4.00	4.00	0.875	Very High
Average		3.06	3.00	3.46	3.85	0.780	High

(Source: Research Data, Processed 2022)

**Table 4. Results of material expert RPS reliability analysis**

Indicator	Total questionnaire	Material Expert				Correlation value	Validity
		I	II	III	IV		
RPS Format	8	3.00	3.00	3.38	3.88	0.831	High
Content of RPS	3	2.67	3.00	3.00	3.67	0.632	High
Language Usage	2	3.50	3.00	4.00	4.00	0.727	Very High
Average		3.06	3.00	3.46	3.85	0.750	Tinggi

(Source: Research Data, Processed 2022)

**Table 5. Model book validity analysis results**

Indicator	Total questionnaire	Material expert				Correlation value	Validity
		I	II	III	IV		
Cover	2	3.00	3.00	3.00	4.00	0.750	High
Presentation	4	2.75	3.25	3.25	3.50	0.729	High
Graphic	6	2.33	3.67	3.67	2.83	0.708	High
Language	2	3.50	2.50	3.50	3.50	0.750	High
Reference	2	3.50	2.50	3.50	3.50	0.750	High
Average		3.017	2.983	3.383	3.467	0.738	High

(Source: Research Data, Processed 2022)

**Table 6. Reliability analysis results of model book**

Indicator	Total questionnaire	Material expert				Correlation value	Validity
		I	II	III	IV		
Cover	2	3.00	3.00	3.00	4.00	0.750	High
Presentation	4	2.75	3.00	3.25	4.00	0.750	High
Graphic	6	2.67	3.17	3.67	3.50	0.750	High
Language	2	3.00	3.00	3.00	4.00	0.750	High
Reference	2	3.50	2.50	3.50	3.50	0.750	High
Average		2.98	2.98	3.28	3.80	0.750	High

(Source: Research Data, Processed 2022)

After analyzing the validity of the instrument based on the answers from the expert, it is continued by testing the reliability of the entrepreneurship book instrument as one of the supporting tools in implementing the information technology-based entrepreneurship course learning model in supporting independent campus learning in higher education. The results of the reliability test analysis of the book instrument using Cronbach's alpha formula are shown in Table 8.

From the results of the validity test of the entrepreneurship book instrument based on material experts, a correlation value of 0.743 was obtained with a high level of validity and a very high level of reliability with a correlation value of 0.854.

### 3.1.4 Learning management information system instrument

The rapid development of the use of computers in education and changes in the delivery of web-based materials, this has led to an interest in educational actors to use non-traditional learning methods in the design and delivery of materials

[15]. The entrepreneurship course learning management information system was developed to facilitate students in conducting off-campus learning activities and can also be used by lecturers teaching entrepreneurship courses for online-based learning management.

Based on the test data analysis results on the learning management system carried out by media experts in Table 10, the results were obtained with a correlation value of 0.916 with a very high validity category.

Based on the test data analysis on the learning management system by the media expert in Table 10, the results obtained a correlation value of 0.804 with a very high-reliability category.

### 3.1.5 User response instrument for information technology-based entrepreneurship course learning model in supporting MBKM program

The results of validating the student perception instrument of the entrepreneurship course learning model in supporting the independent learning independent campus (MBKM) program are as in Table 11.

**Table 7. Entrepreneurship book validity analysis results**

Indicator	Number of Items	Material expert				Correlation Value	Validity
		I	II	III	IV		
Cover	3	3.33	3.00	3.00	4.00	0.778	High
Destination	3	3.33	3.00	3.00	4.00	0.778	High
Material	3	3.33	2.67	3.00	4.00	0.750	High
Graphics	6	2.33	3.67	3.67	2.83	0.708	High
Presentation	4	2.75	3.25	3.25	3.50	0.729	High
Language	2	3.50	2.50	3.50	3.50	0.750	High
Evaluation Tool	4	2.50	3.50	3.25	3.25	0.708	High
Reference	2	3.50	2.50	3.50	3.50	0.750	High
Average		3.073	3.010	3.271	3.573	0.743	High

(Source: Research Data, Processed 2022)

**Table 8. Reliability analysis result of entrepreneurship book**

Indicator	Number of items	Material expert				Correlation value	Validity
		I	II	III	IV		
Cover	3	3.33	3.00	3.00	4.00	0.973	Very High
Destination	3	3.33	3.00	3.00	4.00	0.875	Very High
Material	3	3.33	2.67	3.00	4.00	0.857	Very High
Graphics	6	2.33	3.67	3.67	2.83	0.719	High
Presentation	4	2.75	3.25	3.25	3.50	0.912	Very High
Language	2	3.50	2.50	3.50	3.50	0.934	Very High
Evaluation Tool	4	2.50	3.50	3.25	3.25	0.667	High
Reference	2	3.50	2.50	3.50	3.50	0.891	Very High
Rata-Rata		3.07	3.01	3.27	3.57	0.854	Very High

(Source: Research Data, Processed 2022)



**Table 9. Results of media validity analysis of learning management information system for entrepreneurship course**

Indicator	Number of items	Media expert		Correlation value	Validity
		I	II		
User interface quality	9	3.33	3.78	0.932	Very High
Usability quality	12	3.00	3.33	0.875	Very High
Information quality and service interaction quality	3	3.00	4.00	0.974	Very High
Usability and learning	11	3.00	3.64	0.883	Very High
Average		3.083	3.687	0.916	Very High

(Source: Research Data, Processed 2022)

**Table 10. Reliability analysis results of learning management information**

Indicator	Number of items	Media expert		Correlation value	Validity
		I	II		
User interface quality	9	2.78	3.33	0.720	High
Usability quality	11	3.00	3.33	0.886	Very High
Information quality and service interaction quality	3	3.00	4.00	0.892	Very High
Usability and learning	12	3.00	5.73	0.718	High
Rata-Rata		2.94	4.10	0.804	Very High

(Source: Research Data, Processed 2022)

**Table 11. Results of validity analysis of student response instruments to the learning model**

Indicator	Number of items	Course content			Correlation value	Validity
		I	II	III		
Knowledge	17	3.53	3.24	2.65	0.801	Very High
Collaborative	15	3.60	2.93	3.60	0.892	Very High
Creativity	7	2.71	3.29	3.57	0.821	Very High
Productive	7	2.43	3.43	3.14	0.750	High
Motivation	11	2.45	3.36	3.27	0.761	High
Empathy	4	3.00	3.50	4.00	0.938	Very High
Average		2.95	3.29	3.37	0.827	Very High

(Source: Research Data, Processed 2022)

**Table 12. Results of reliability analysis of student response instruments to the learning model**

Indicator	Number of items	Course content			Correlation value	Reliability
		I	II	III		
Knowledge	17	3.53	3.24	2.65	0.820	Very High
Collaborative	15	3.60	2.93	3.60	0.814	Very High
Creativity	7	2.71	3.29	3.57	0.708	High
Productive	7	2.43	3.43	3.14	0.838	Very High
Motivation	11	2.45	3.36	3.27	0.822	Very High
Empathy	4	3.00	3.50	4.00	0.889	Very High
Average		3.09	3.82	3.54	0.815	Sangat Tinggi

(Source: Research Data, Processed 2022)

Based on Table 12, the results of testing the student response instrument to the learning model by media experts obtained a correlation value of 0.827 with a very high validity category. The results of the reliability data analysis obtained a correlation value of 0.815 with a very high category, as in Table 12.

#### 4. CONCLUSION

Based on the research results on developing learning model instruments for information technology-based entrepreneurship courses, each learning tool instrument is suitable because it has a good and reliable correlation level. The

results of testing the level of validity and reliability of the information technology-based entrepreneurship course learning instrument in supporting independent learning programs are obtained: (1). The validity of the Semester Learning Plan (RPS) instrument from material experts obtained an average of 0.780 with a high category, while the reliability level was 0.750 with a high category. (2). The validity of the Model Book instrument from material experts obtained an average of 0.738 with a high category, while the reliability level was 0.750 with a high category. (3). The validity of the Entrepreneurship Book instrument from material experts obtained an average of 0.743 with a high category, while the reliability level was 0.854 with a very high category. The test results of media experts' validity and reliability level of the learning management information system obtained an average of 0.916 with a very high category. In contrast, the reliability level obtained an average of 0.804 with a very high category. Furthermore, the test results of the validity and reliability of user response instruments (students) from expert lecturers of entrepreneurship courses obtained an average of 0.827 with a very high category consisting of several aspects, namely (1). The knowledge aspect obtained a correlation average of 0.801 with a high validity category (2). The collaborative aspect obtained a correlation average of 0.892 with a very high validity category (3). The creativity aspect obtained a correlation average of 0.821 with a high validity category (4). The productive aspect obtained a correlation average 0.750 with a high validity category (5). The motivation aspect obtained a correlation average 0.761 with a validity category and (6). The empathy aspect obtained a mean correlation of 0.938 with a very high validity category. Likewise, the reliability level obtained an average of 0.815 with a very high category consisting of several aspects, namely (1). The knowledge aspect obtained an average correlation of 0.820 with a very high-reliability category (2). The collaborative aspect obtained an average correlation of 0.814 with a very high-reliability category (3). The creativity aspect obtained a mean correlation of 0.708 with a high-reliability category (4). The productive aspect obtained a correlation average of 0.838 with a very high-reliability category (5). The motivation aspect obtained a mean correlation of 0.822 with the reliability category and (6). The empathy aspect obtained a mean correlation of 0.889 with a very high-reliability category.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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