

COMPETENCY DEVELOPMENT VALIDITY CERTIFICATION IN TEST MODELING AND WEB PROGRAMMING IN VOCATIONAL EDUCATION

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Abstract. The purpose of this study is to assess the product validation of competency test model development and web programming certification in vocational education. The steps of the borg and gall model are used in this study. Experts in the field of learning models, evaluation experts, competency experts, media experts, and linguists evaluated the model validation test. Validation sheets in the form of model books, teaching modules, applications, assessor guidebooks, and participant guidebooks are used to measure the model's validity. The data analysis technique employs Aiken V validation testing to determine whether or not the developed model is declared valid. The development of a competency test model and web programming certification in vocational education that produces products in the form of model books, teaching modules, applications, assessor guidebooks, and participant guidebooks is declared valid based on the validation results.

Key words: model validation, competency test and certification

Introduction

To face the economic climate of the globalization era, one must be able to create a competitive advantage or competitive advantage by improving quality and productivity. As a result, efforts must be made to increase the recognition and equalization of qualifications both at home and abroad in order to recognize the qualifications of Indonesian human resources. Individual competencies will be known and can be compared to the realm of work or field of duty as a result of the recognition of the qualifications of Indonesian human resources. This recognition is carried out through a guideline known as the Indonesian National Qualifications Framework, abbreviated as KKNI.

The KKNI is stated in Presidential Regulation Number 08 of 2012, and it is the implementation of the provisions of Article 5 paragraph 3 and Government Regulation Number 31 of 2006 regarding the National Job Training System (Sislatkernas). To aid in the implementation of the KKNI, the government carries out the mandate of Law Number 13 of 2013 concerning Manpower, the formation of which takes into account Government Regulation Number 23 of 2004 concerning the National Professional Certification Agency, which established the National Professional Certification Agency (BNSP). The BNSP is an independent body accountable to the president, who has the authority as a personal certification authority and is tasked with carrying out professional competency certification

for workers in accordance with Government Regulation Number 23 of 2004 concerning the BNSP in articles 2 paragraph 2 and 3. BNSP, as the implementing authority for professional certification, is in charge of competency and function certification. BNSP carries out the work competency certification process through the technical service function, appoints and grants licenses to Professional Certification Institutions (LSP), and fosters and develops competency certification system tools. LSP is an extension of BNSP tasked with carrying out competency certification for workers in their respective fields; the process of delegating professional certification authority from BNSP to LSP is carried out through an accreditation process; and the process of granting licenses to LSP by BNSP adheres to the ISO 17024 Standard. The Professional Certification Institute (LSP) is an independent organization comprised of stakeholders such as industry, professional associations, company associations, and experts in specific sectors or areas of expertise. According to BNSP guidelines No. 302 of 2005 concerning Guidelines for Issuing Work Competency Certification, LSP is a competency testing and competency certification implementing agency that has been accredited and licensed by the National Professional Certification Agency (BNSP). The license is granted by BNSP through an accreditation process that certifies that the relevant LSP has met the requirements for professional certification activities (Setyowati et al., 2017).

To accomplish this, it is necessary to apply the principle of broad-based education, which includes not only academic but also vocational fields, as well as the provision of learning how to learn as well as learning how to unlearn, not only learning theory but also practicing it to solve problems in daily life. days Agus (2012)

Vocational education is education that prepares a person to work in a wide range of vocational fields. Vocational education is education that is intended to prepare a person for entry into the workforce or to help develop skills related to the world of work, in both formal and non-formal sectors. Vocational education that emphasizes technology and vocational studies must play an active role in assisting in the reduction of unemployment. They require attention so that unemployment rates do not rise further (Sarbiran, 2006). Competencies required in the twenty-first century include: 1) learning and innovation skills, critical thinking and problem solving, communication, collaboration, and creativity. 2) knowledge of information literacy, media literacy, and computer information technology literacy 3) Career and life skills that include being adaptable, taking initiative, being able to interact socially and culturally, being productive, and having accountability, leadership, and responsibility (Trilling and Fadel, 2009). There are various contexts for learning in the twenty-first century in the era of the fourth industrial revolution, but they all have synergies. The vocational learning design of the twenty-first century is geared toward learning outcomes that will enable students to have superior capabilities in the future (Sudira, 2018). In terms of science, technology, and engineering, the era of the Industrial Revolution 4.0 necessitates multiple competencies and knowledge that must be integrated into the elements of vocational education.

The National Professional Certification Agency/BNSP and the National Education Standardization Agency/BSNP developed cooperative vocational competency tests by recruiting prospective workers for vocational graduates who already have the competency certificate. The current competency test system in place is incapable of providing quality assurance to the industry. This means that simply passing a competency test and receiving a

competency certificate does not guarantee that the individual possesses the necessary skills as stated in the certificate. This results in a lack of industry recognition for competency certificate ownership. Furthermore, some assessors are sometimes less firm in making decisions due to fear of not being given an assessment or not being re-involved in competency test activities again if they beat the competency test participants organized by LSP. As a result, assessors do not always adhere to the rules of the tests or tests that are administered, such as eliminating written tests in the belief that a person's intelligence can be directly assessed alongside practical tests. Based on the aforementioned issues, the development of this competency test and expertise certification model is required in order to respond to changes in the industrial world and stakeholder demands that are so rapid that adaptation is required from time to time, so that the implementation of competency tests and expertise certifications is expected to be able to demonstrate participants, in addition to being competitive in the business world as a whole.

Method

The borg and gall development model was used in this study. The competency test and certification model validation are performed during the model development stage to determine whether the model is valid or not. Experts in the field of learning models, vocational education experts, media experts, and linguists are among the research samples. A questionnaire is used as an instrument to assess the model's validity. A model validation test with the Akien V test is used in the data analysis technique.

Results and Discussions

The development of the competency test and certification model in the junior web programming scheme can be seen in the following figure:

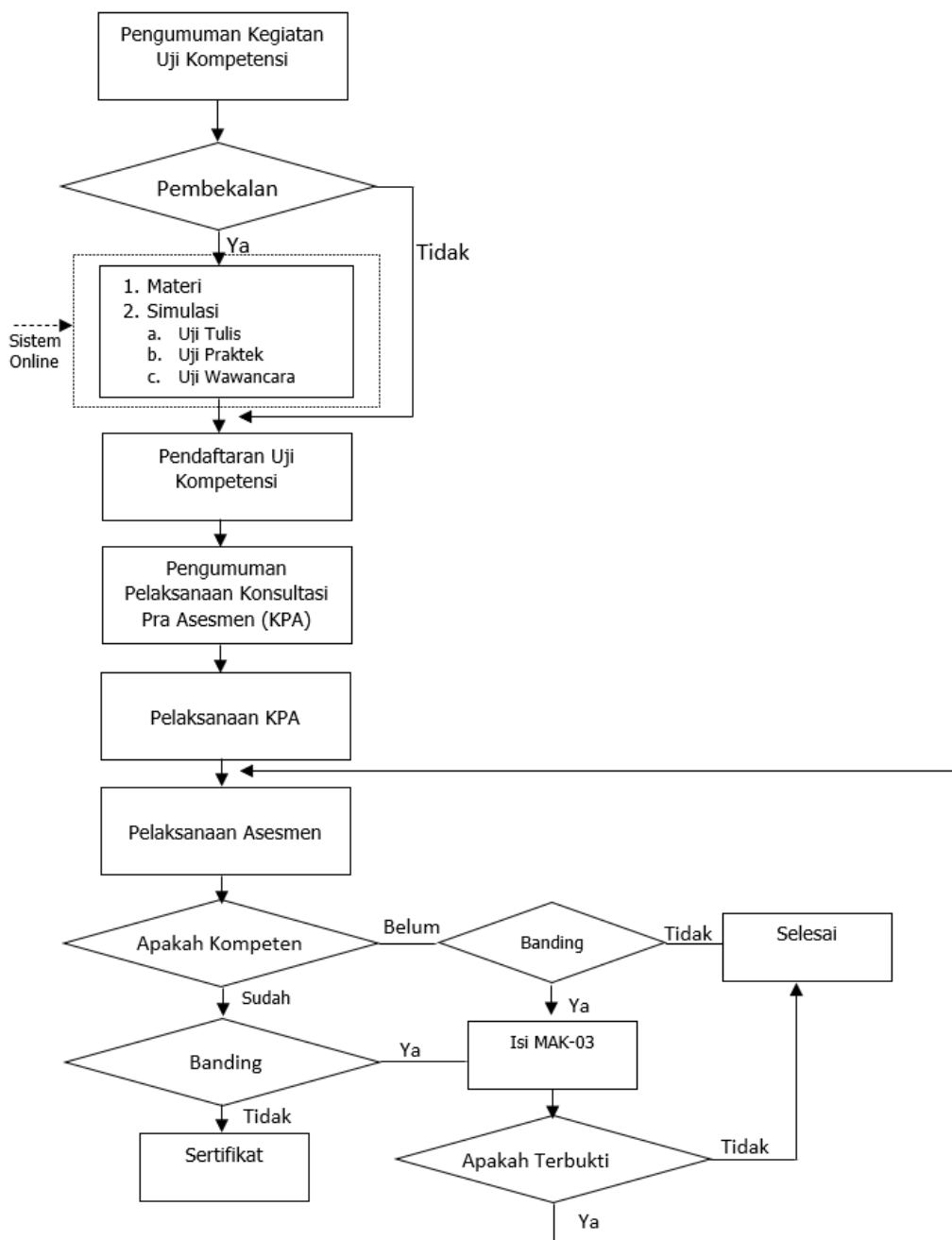


Figure 1. The Competency Test Model and Junior web programming certification

The development of this model is focused on development at the debriefing stage, which is optional in the sense that it is not required but is recommended, where the implementation is carried out online using an information system with a previously prepared website address, namely www.solutiontest.web.id. This system provides several benefits to competency test participants, including: 1) online access to competency test materials; and 2) repeated simulations of written tests, observation tests (practice), and interview tests. This system's development is expected to give birth to a strong sense of self-confidence in competency test participants during the actual competency test. Following the development of the product competency test, certification model, and Information System Design, the results of the

development will be measured; in this research, the feasibility of development is carried out through a Group Discussion Forum (FGD) of expert opinions and testing of expert opinions.

1. Product Validity Analysis

a. Model Book Validity

For the validity of the test model book development and web development certification in vocational education, the results obtained can be seen in the following figure:



Figure 2. Model Book

The summary of the average results of the validator assessment results on the validity of the Test Model Development Model Book and Web Programming Certification in Vocational Education is as follows:

Table 1 Results of Model Book Validity Analysis

No.	Rating Indicator	V score	Aiken	Interpretation
1	Book Format	0,90		Valid
2	Book Contents	0,84		Valid
3	Language	0,85		Valid
4	Graphics	0,85		Valid
5	Support System	0,84		Valid

The validators' results of the Model Book for the Development of Competency Test Models and Certification of Web Programming in Vocational Education validity test are as follows: (a) the book format has an average score of 0.90 with a valid category; (b) the book contents have an average score of 0.84 with a valid category; and (c) language has an average score of 0.85 with a valid category. As a result, the Validator's evaluation of the Competency

Test and Certification Model Book on web programming in training education is deemed valid.

b. Module Book Validity

For the validity of the test module book development and web development certification in vocational education, the results obtained can be seen in the following figure:

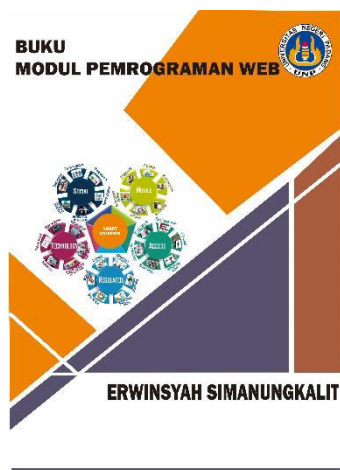


Figure 3. Module Book

The summary of the average results of the validator's assessment on the validity of the Web Programming Module Book is as follows:

Table 2 Results of Module Book Validity Analysis

No.	Rating Indicator	V score	Aiken	Interpretation
1	Book Format	0,88		Valid
2	Book Contents	0,86		Valid
3	Language	0,83		Valid
4	Graphics	0,84		Valid
5	Support System	0,79		Valid

The validators' results of the validity test on the Module Book Development of competency test models and certification of Web Programming in Vocational Education are as follows: (a) the book format has an average score of 0.88 in the valid category; (b) the book contents have an average score of 0.86 in the valid category; (c) language has an average score of 0.83 in the valid category; (d) G

c. Assessor Application Handbook Validity

For the validity of the development of the assessor application guidebook, the results obtained can be seen in the following figure:

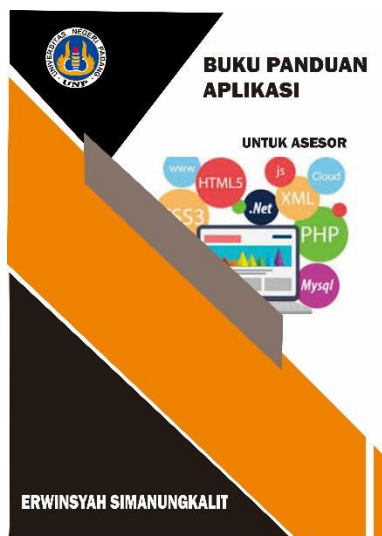


Figure 4. Application Guidebook for Assessors

The summary of the average results of the validator's assessment on the validity of the Application Guidebook for Assessors is as follows:

Table 3 Results of Validity Analysis of Application Guidebooks for Assessors

No.	Rating Indicator	V score	Aiken	Interpretation
1	Book Format	0,86		Valid
2	Book Contents	0,83		Valid
3	Language	0,85		Valid
4	Graphics	0,83		Valid
5	Support System	0,76		Valid

The validators' results of the Model Book for the Development of Competency Test Models and Certification of Web Programming in Vocational Education validity test are as follows: (a) the book format has an average score of 0.86 with a valid category; (b) the book contents have an average score of 0.83 with a valid category; and (c) language has an average score of 0.85 with a valid category.

d. Participant Application Guidebook Validity

For the validity of the development of participant application guidebooks, the results obtained can be seen in the following figure:

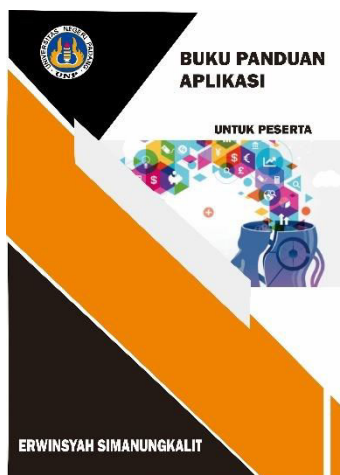


Figure 5. Application Guidebook for Participants

The summary of the average results of the validator's assessment on the validity of the Application Guidebook for Participants is as follows:

Table 4 Results of the Validity Analysis of the Application Guidebook

No.	Rating Indicator	V Aiken score	Interpretation
1	Book Format	0,83	Valid
2	Book Contents	0,87	Valid
3	Language	0,84	Valid
4	Graphics	0,82	Valid
5	Support System	0,81	Valid

The validity test of the Application Guidebook for Participants from the validator yielded the following results: (a) the book format has an average score of 0.83 with a valid category; (b) the book contents has an average score of 0.87 with a valid category; (c) language has an average score of 0.82 with a valid category; (d) graphics has an average score of 0.84 with a valid category; and (e) the S

e. Application Validation

For the validity of the application development, the results obtained can be seen in the following figure:

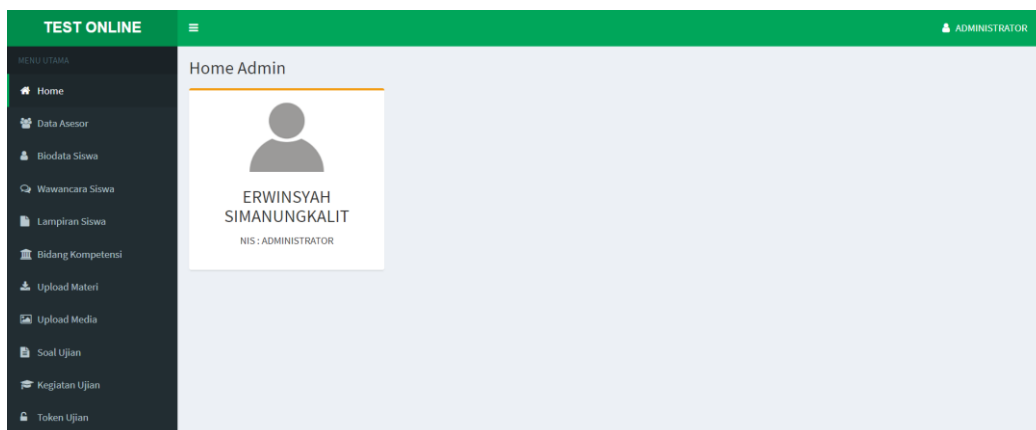


Figure 6. Application of the Competency Test Model

The summary of the average results of the validator assessment results in the application is as follows:

Table 5. Application Validity Analysis Results

No.	Rating Indicator	V Aiken score	Interpretation
1	Website Component Aspects	0,88	Valid
2	Display Aspect	0,89	Valid
3	Multimedia Aspect	0,93	Valid
4	Language Aspect	0,84	Valid

According to Table 5, the validity test on the application used by the validator yielded the following results: 1) Website Component Aspect has an average score of 0.88 with a valid category, 2) Display Aspect has an average score of 0.89 with a valid category, and 3) Multimedia Aspect has an average score of 0.93 with a valid category. And 4) Language Aspect, with a score of 0.84 on average.

It is possible to describe the five products produced in the form of a graph below.

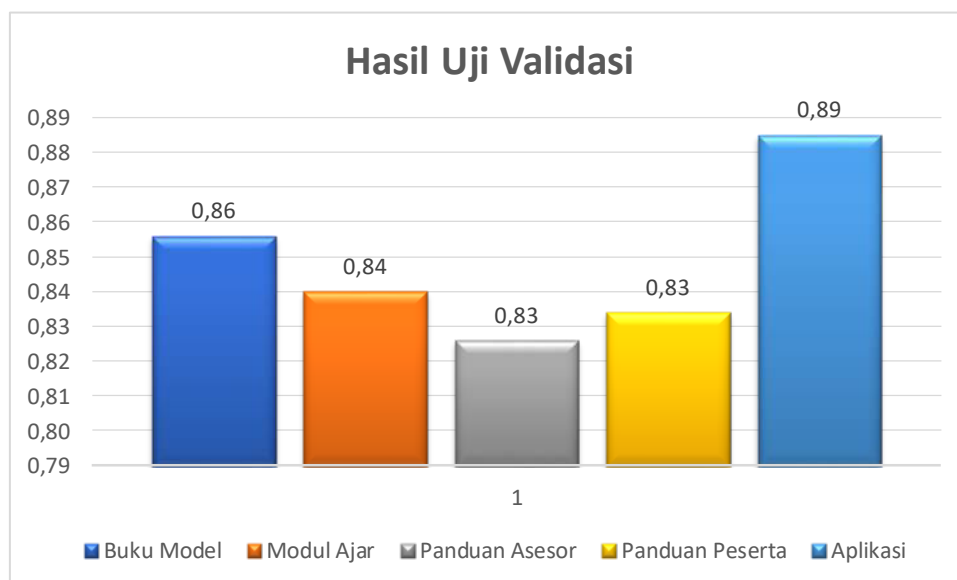


Figure 1. Graph of Product Validation Results

Conclusions

Based on the study's findings, it is possible to conclude that the results of product validation of competency test model development and web programming certification in vocational education, which are stated to include model books, teaching modules, applications, assessor and participant guidebooks, are valid.

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