

THE DEVELOPMENT MODEL OF ACCOUNTING MODULE FOR ACCOUNTING TECHNICIAN BASED ON INDONESIA NATIONAL COMPETENCE WORKING STANDARD (SKKNI) THROUGH THE IMPLEMENTATION OF DESIGN THEORY

Hastuti

Accounting Department of Politeknik Negeri Bandung, Indonesia

myhastuti73@gmail.com

Ira Novianty 

Accounting Department of Politeknik Negeri Bandung, Indonesia

iranovianty95@yahoo.com

Abstract

The gaps in the quality of human resources that are produced by institutions graduates of formal or informal education with the needs' of business, result in low labor force that is truly competent and ready to work and recognized quality. With the competence standard, the human resources that have not yet reached the standard should improve its ability to meet the set standards. The recognition of the human resources quality is carried out through competency certification tests as a form of the competence recognition of particular field by exerting a certificate of competency. It requires tools that can improve achievement of certification competence in the form of theory and practice training modules according to user needs. To achieve the goal of national working competence standardization in Indonesia, the government has established a National Working Competence standardization system, known as Standar Kompetensi Kerja Nasional Indonesia (SKKNI). This study tries to design a module that refers to SKKNI by implementing design theory. The steps of research has been done to ensure that the module of theory and practice which have been prepared in accordance with community needs and fulfill the standards of a good module preparation.

Keywords: *Design theory, Module, Development Research, Competency Test, Certification, SKKNI*

INTRODUCTION

Module is a teaching material which is structured and developed systematically to achieve a certain learning outcomes. The modules development should be prepared well to follow the criteria to be achieved. Module can be used for the certification exam simulation which is needed to achieve the basic competencies as it is expected as in the field of accounting technicians. Designing modules that correspond to user needs is not easy. It needs exploration of stakeholders to fit.

Design theory is considered able to design something that fits the needs of users and it is able to be applied to the field of management (van Aken, 2005), management accounting (Kesanen et al, 1993), accounting information systems (David et al, 2000), art (Owen, 1997) and education (Savelson et al, 2003, Kelly 2003). The accounting module development is limited to the clusters of financial statements preparation which consists of five units of competence, namely 1) Implementing Professional Practices in Work; 2) Implementing Health and Safety Practices at Work; 3) Processing Journal Entry; 4) Processing Ledger; and 5) Preparing Financial Statements.

LITERATURE STUDY

Design Theory

Walls, Wildmeyer and El Sawy (1992) proposed that *design theory* is based on the theory of Kernel. Mark, et al., (2002) gave the basics of guidelines for practitioners and researchers. It is also said by Hevner, March, Park and Ram (2004) considered that design theory has the potential for policy application design. March and Smith (1995) and Hevner et al. (2004) also explained that *design* is the research that is an activity and produces a product.

Walls et al. (1992) explains that *design theory* provides guidance on "how to design" and goal oriented. Gregor, Shirley & David Jones (2007) explains that *design theory* can also be applied to management (van Aken, 2004, 2005), management accounting (Kasanen et al., 1993), accounting information systems (David et al., 2000), art (Owen, 1997), and education (Savelson et al., 2003; Kelly, 2003). Schön (1983) also confirms that design theory can be implemented on research which is related to knowledge development for the "*reflection-in-action*."

Gregor (2006) explains that *design theory* can be seen in five perspectives, namely (1) *theory for analyzing*, (2) *theory for explaining*, (3) *theory for predicting*, (4) *theory for explaining and predicting*, and (5) *theory for design and action*. The theory for design and action focused on "*how to do something* (how to do something)." That applied in both product of technology and

management, including in the output of a prototype, systems, policies, models, methods, appropriate technology, blueprint.

Gregor, Shirley & David Jones, (2007) adopted anatomical of *design theory* from Codd (1970, 1982), namely (1) *purpose and scope*, (2) *Principles of form and function*, (3) *Artifact mutability*, (4) *testable Propositions*, (5) *Justificatory knowledge*, and (6) *Principles of implementation*. Furthermore Gregor, Shirley & David Jones (2007) states that there are eight components of design theory, namely: (1) *purpose and scope*, (2) *constructs*, (3) *principles of form and function*, (4) *artifact mutability*, (5) *testable propositions*, (6) *justificatory knowledge (kernel theories)*, (7) *principles of implementation*, and (8) *an expository instantiation*. Codd (1970, 1982) provides guidance on the anatomy of *design theory*, and can be adopted in designing accounting information systems, ie:

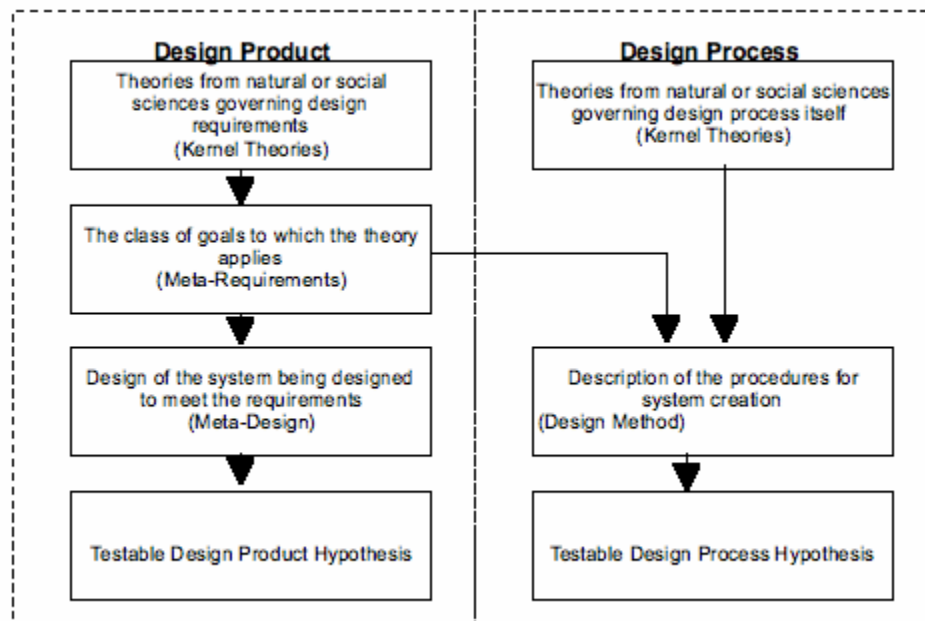
Table 1. Anatomy of Design Theory

Anatomy of Design Theory	Description
<i>Purpose and scope (the causa finalis)</i>	The system that is built includes which scope and what purpose for is.
<i>Constructs (the causa materialis)</i>	The reflection in representation of entity expectations which coincides with its vision and mission
<i>Principle of form and Function</i>	"blueprint" or architectural which describes the product, method or model.
<i>Artifact mutability</i>	Noting the possibility of a change in the system
<i>Testable propositions</i>	Statements that reflect the true theory
<i>Justificatory knowledge</i>	Science that underlies
<i>Principles of implementation (the causa efficiens)</i>	Description of the process for products implementation or methods in a specific context
<i>Expository instantiation</i>	Equipment to implement a product or method for the purpose of testing process

Source: Gregor, Shirley & David Jones (2007)

Bourgeois and Horan (2007) explains that, there are two aspects in *design theory* namely: (1) *the design product (what are we designing?)* and (2) *the design process (how do we design it?)*. The relation between these two aspects is described as follows:

Figure 1. The relation between design product and design process



Source: Bourgeis dan Horan (2007)

Model development

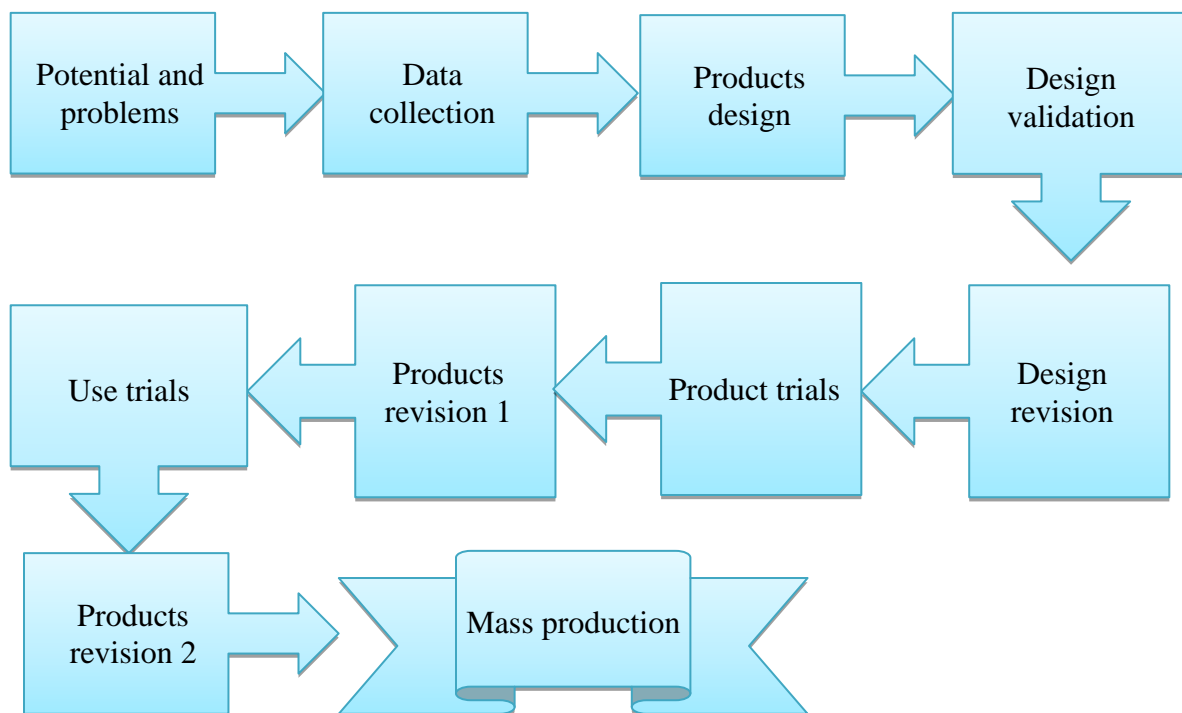
Model is something that represents there is thinking patterns. A model usually describes the whole concept which is related to each other. In other words, the model can also be seen as an effort and to concretize a theoretical as well as an analogy and representation of the variables which are contained in the theory. Meanwhile, according to Robins, *“A model is an abstraction of reality; a simplified representation of some real-world phenomenon.”* The purpose of the definition, model is a representation of some phenomena that exist in the real world. Definition of models is also expressed by Miarso that model is a representation of a process in the form of graphics and/or narrative, by showing the main elements and structure. In this case, it is possible that interpretation of narrative model is in graphic form, or vice versa. So from these definitions it can be concluded that model is a mindset process and the components which is contained therein, which are represented in graphic form and/or narrative.

In the design of learning systems, models usually describe the steps or procedures that need to be taken to create learning activities that are effective, efficient, and attractive. So a model in the learning development is a systematic process in the design, construction, use, management and evaluation of learning systems. Based on an understanding of the learning development, it would require at least five criteria that must be met in the learning model, namely: 1) having a purpose; 2) compatibility with the objectives; 3) systematically; 4) having

evaluation activities; and 5) nice. Therefore, the learning system can be likened to a production process that consists of the input-process-output, which is integrated with each other.

A model development becomes a necessity for the system/product which is influenced by the environment and technology advances. Sugiyono (2009) describes the model development as an integral part of *research and development*, which includes product validation and revision. The following is the scheme:

Figure 2. The measures of research and development



Source: Sugiyono, (2009)

Development Research

Research development is the study that aims to produce and develop a product prototype, design, learning materials, media, learning strategies, educational evaluation tools, etc. Research is to solve practical problems in education, problems in the classroom, which are faced by lecturers/teachers in learning. Research is not to test the theory, to test hypothesis, but to test and to refine the product (Soenarto, 2008).

Methods of research and development are the research methods which are used to produce a particular product, and to test the product effectiveness. To produce certain products,

it is used research as the needs analysis and to test the effectiveness of these products in order to function in large society, it is necessary to test the product effectiveness.

Development research of science education is a type of research that aims to develop an educational product and/or science learning as well as to validate the effectiveness, efficiency, and/or appeal of products that are produced. Sample products: science teacher teaching materials, science learning methods, science learning methods, printed science learning packages, science learning packages in CD (Soekardjo, 2008).

A. Objective of Development Research

- 1) Producing a product draft that is used to improve the quality of learning it is done through expert-test.
- 2) Testing the effectiveness of the product as a validation function, it is performed through limited trial, on the target in which the product will be used for learning.
- 3) Testing the efficiency, the attractiveness and the amenity of products, in field trials, at a wider target where the product will be used for learning

B. The Major Characteristics of Development Research

According to Borg and Gall, there are four major characteristics in research and development, namely:

- 1) *Studying research findings pertinent to the product to be develop* that conducting studies or initial research to look for research findings which is related to the products that will be developed.
- 2) *Developing the product base on this findings* that developing products based on the research findings.
- 3) *Field testing in the setting where it will be used eventually* that being done field test in the settings or actual situations where the product will be used.
- 4) *Revising it to correct the deficiencies found in the field-testing stage yakni* that being done revision to correct the weaknesses which was found in the phases of field test.

C. Characteristics of Development Research

According Santyasa (2009), development research in order to improve the quality of learning has the following characteristics

- 1) The problem to be solved is the real problem which is related to an innovative effort or technology application in learning as a professional responsibility and commitment to the acquisition of quality learning

- 2) Development of models, approaches and teaching methods and learning media that support the effectiveness of student competency achievement.
- 3) The procedure of product development, validation is done through expert tests and field trials as well as limited that needs to be done so that the resulting product is useful for improving the quality of learning. Process of development, validation, and the field trials should be described clearly, so that it can be accounted for academically.
- 4) The development process of models, approaches, modules, and learning media need to be documented in neatly and reported systematically in accordance with the rules of writing that reflects originality.

D. The Steps of Development Research

The steps of research and development according to Sugiyono (2009) are:

1. Potential and Problems

Research can start from any potential or problems. Potential is everything when it is harnessed it will have added value. Problem deviation is between what it is expected from with what happened. Problem could be addressed through the development of research by examining so that it can be found on a model, or a pattern or effective integrated management system that can be used to resolve the issue.

2. Gathering information

Once the potential and problems can be addressed in factual and up to date, then we need to collect a variety of information that can be used as the material for product planning, something that is expected to resolve the issue.

3. Products Design

In the field of education, research and development to produce the products that are expected to increase the productivity of education that is the graduates who are high quality and relevant to the needs. Educational products are specific curriculum for certain educational purposes, teaching methods, educational media, textbooks, modules, educational personnel competency, evaluation systems and others.

4. Design Validation

Design validation is a process of activities to assess whether the product's design is good or effective rationally. It is said is rational, because the validation is still an assessment based on the rational thinking, it is not the facts on realm yet. Design validation can be conducted by presenting several specialists or experts who are experienced to assess the new designed product.

5. Design Improvement

Once the product design is validated through discussions with the experts and other experts, it will be known the weaknesses. They are corrected by changing the design

6. Product Trial

In the field of education, product design should be directly tested, after being validated and revision. Early phase trial is done by simulating the use of new products. After being simulated, it can be tested on a limited group. The testing can be done with the aim to obtain information whether the new product is effective and efficient, or in this case it provides better results when it is compared with other products. For that testing can be done with an experiment by comparing the effectiveness of the new products with the old ones

7. Products Revision

If in testing the product the result is unsatisfactory it may be revised again and after being revised it needs to be tested again.

8. Use Trial

After trials to the product are successful then the next product is applied in the larger scope. In the implementation, the new product must remain in the value of deficiencies or obstacles that arise in order for further improvements.

9. Product Revision

Product revision is done when in use on a broader institutional there are deficiencies and disadvantages. In use trial, the product manufacturer should always evaluate how the product performance is. Evaluation is conducted to determine the weaknesses that exist so that it can be used for the improvement and creation of other new products.

10. Bulk Product Creation

When the resulting product has been effective in some testing, the product can be applied to other educational institutions.

RESEARCH MODEL & APPROACH

This study uses a case study, with qualitative data which are directly collected without intermediaries (primary data) to the stakeholders. The initial phase of this research is the model development. This phase was conducted by reviewing the theory and practice modules that have been developed to be refined. The data collection for this review by conducting a structured interview to collect data which is related to competency test material in accordance with Indonesia National Work Competence Standard (SKKNI) and receiving feedback (review) on the module. In addition, it is done through literature review to update the material and adjust with scientific developments and the related regulations.

RESULTS AND DISCUSSION

Implementation of *Design Theory*

The approach of *design theory* has been widely used as the basis for the module arrangement. It is highly relevant to the concept of *design theory* in which the module preparation is adapted to the users' expectations who will utilize the modules to be produced. The module preparation is normative and perspective therefore *design theory* approach is used.

This is in line with the opinion of Mark et al (2002), Walls et al (1992). Still according to Walls et al (1992) that *design theory* provides guidance on "how to design" and goal oriented. The Scope of implementation is becoming increasingly widespread among the field of management (van Aken, 2005), management accounting (Kesanen et al, 1993), accounting information systems (David et al, 2000), art (Owen, 1997) and education (Savelson et al, 2003. Kelly 2003).

Strengthened by Bourgeois dan Horan (2007) that there were two aspects in *design theory* namely: (1) *the design product (what are we designing)* and (2) *the design process (how do we design it)*. On the basis of this concept, the implementation are:

1. *The design product*, this study makes the module model that will support the achievement of the competencies certification from LSP-TA based on SKKNI. So that the modules which are designed follow all the related regulations by still concerning the wishes of the user. The module which is designed consists of 5 units of competence, namely:
 - 1) Applying Professional Practices in Work
 - 2) Implementing Practices of Health and Work Safety in the Workplace
 - 3) Processing Journal Entry
 - 4) Processing Ledger
 - 5) Preparing Financial Statements
2. *The design process*, the process of preparing the product (module) is done by arranging the modules in accordance with the regulations which are related to the material and module design that is ideal in accordance with the rules of module preparation.

In a certification scheme for Accounting Technician level, there are packets of Indonesia National Work Competence Standards (SKKNI) field of Accounting Technicians, which is basically split into two groups of competencies, which consists of general competence and core competence. Specifically regarding the accounting technician basic competencies that must be followed by trial participants (or the manager clusters of accounting cycle, the two competencies groups are separated as follows:

1. General Competence
 - a. Applying the principles of professional practice in work
 - b. Applying the practices of health and work safety in the workplace
2. Core Competence
 - a. Processing journal entries
 - b. Processing ledger
 - c. Preparing Financial Statements

The module which is compiled includes the following things:

- a. Applying the principles of professional practice in work

In this module it is presented the materials which are related to 1) the identification of broad sectors and industry responsibility, 2) applying the guidelines, procedures and rules, 3) managing information, 4) planning the work completion by considering the limitations of time and resources, and 5) designing and managing personal competence. Professional practices are associated with the accounting profession in the business environment, so professionalism which is presented is derived from the standards and norms of someone who worked in accounting field. At the trial phase participants were given a 10 theory questions which is related to this competence. This number follows the pattern of the tests which is conducted by LSP-TA to the participants of accounting technician competency test.

- b. Applying the practices of health and work safety in the workplace

In this module it is presented the material which relates to 1) following work procedures to identify the hazards and risk control, 2) contributed to participate in the regulation of health and work safety management, 3) applying the practices of health and work safety. The core regulation that is related to this topic is Act No. 1 in 1970 on Work Safety. The control of risks and K3practices are simulated with the working world which is related to the field of accounting. At the trial phase participants were given a 10 theory questions which is related to this competence. This number follows the tests pattern which is conducted by LSP-TA to the participants of accounting technician competency test.

- c. Processing entry journal

Processing entry journal is an early stage in the preparation of company financial statements. At this stage, the modules provide initial information in the form of general description of the company's business as the object, the company's general policies, accounting policies, chart of accounts, accounting systems as well as the beginning balance of accounts in the financial statements.

Company financial transactions are presented in the form of documents collection that is the evidence of any transactions that have taken place in the company. It is not with narrative approach. This is consistent with the competence approach and real circumstances in the business world. It is different with some accounting textbooks which still present a financial transaction with narrative approach. In this module it is presented the transactions that have been recorded on the document:

- Evidence of cash disbursements
- Evidence of cash receipts
- Sales Invoice
- Purchase Invoice
- Evidence of memorial

Then participants were asked to record all the transactions in the special journal entry form that consists of:

- 1) Journal of cash receipts
- 2) Journal of sales
- 3) Journal of cash disbursements
- 4) Journal of purchase
- 5) Journal of general/memorial
- 6) Journal of petty cash

The composition of this module is in accordance with competency units which are required by SKKNI which include 1) examining source documents and supporting documents, 2) recording original documents in the journal, 3) archiving original documents and supporting documents.

In the module trial phase for this unit consists of practice module that contains the points above and the theoretical questions in processing relevant journal entries with to the performance criteria which is required by SKKNI for accounting technician level. In the trial phase participants are given a 10 theory question in multiple choices which is related to this competence. This number follows the tests pattern that is conducted by LSP-TA to the participants of accounting technician competency test.

d. Processing ledger

Processing ledger is the stage which participants are asked to transfer the notes (*posting*) that exists in journal to general ledger and appropriate subsidiary ledgers. At this stage, participants are given the source document in the form of special journal and general journal that has contained company financial transactions recording. The working papers to be prepared are:

- 1) The accounts ledger
- 2) The payables ledger
- 3) The inventory ledger
- 4) The general ledger
- 5) The trial balance

Processing ledger that is compiled in accordance with the requested competence units includes: 1) preparing general ledger management 2) recording a total number of journals to ledger and 3) compiling a list of account balances in ledger.

In the module trial phase for this unit consists of practice module that contains the points above and questions of the theory in processing relevant ledger with the performance criteria which is demanded by SKKNI for accounting technician level. In the trial phase participants are given a 10 theory question in multiple choices which is related to this competence.

e. Preparing financial statements

Preparing financial statements is the final stage of accounting cycle. Lab module for this competency unit is started with making adjusting entries (*adjusting journal entries*) and draw up a work sheet (*worksheet*). Furthermore, the financial statements preparation consists of:

- 1) The statements of income (*income statement*),
- 2) The statement of changes in capital (*capital statement*),
- 3) The statements of financial position (*balance sheet*), and
- 4) The statements of cash flows (*Cash flows statement*).

After completing the financial statements, proceeded to the preparation of the closing entries (*closing entries*) and ended with preparing the trial balance after closing (*post closing trial balance*).

Lab module has been prepared in accordance with units of competency which are required by SKKNI includes: 1) Recording journal adjustment, 2) Presenting the report, 3) Recording closing gentries and 4) Posting adjusting and closing entries to general ledger.

CONCLUSION

The modules design and development by implementing *Design theory* is in accordance with the user's needs for *design theory* provides guidance on "how to design" and goal oriented. This study proves the suitability of phase on *design theory*, namely *the design product* and *the design process* according to Bourgeis and Horan (2007) and its implementation in the field of education according to Savelson et al (2003), Kelly (2003). The implementation of *design theory* in this module creation has been adapted by Indonesia National Working Competence Standards with attention to every performance criteria which is set by Indonesia National

Working Competence Standards for accounting technician level with the aim to achieve the goal of national working competence standardization in accordance with the expectations of Indonesian government.

For further research, it is advisable to develop other modules by using a different approach which refers to Indonesia National Working Competence Standards that can produce a wide range of modules in the field of accounting that can be used to test competence in Indonesia to obtain national certification.

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