Concept and Implementation of Vocational Pedagogy

In TVET Teacher Education

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Abstract

Vocational pedagogy is subject specific pedagogy which in the vocational teacher education curriculum is called special teaching method course. The course content consists of two main parts, first dealing with instructional design and the second one is teaching practice which train student teacher in micro-teaching and mini-lesson.

The concept of vocational pedagogy covers instructional strategy to teach vocational subjects in such a way that students learning experiences exist in work setting environment. This kind of instructional strategy must be school-based and work-based learning. The objectives of vocational pedagogy course are student mastery of pedagogical competencies.

The implementation of vocational pedagogy in vocational education is as a means of creating a learning environment that makes provision for student development of knowledge, manipulative skills, attitudes, and values in simulated and realistic work settings. In order to master the objectives of the course some principles of vocational pedagogy must be applied.

A. Introduction

Professional education in teacher education curricula consists of two main components, first content for the teaching specialty (what to teach) component, and second pedagogical courses (how to teach) component. One part of the pedagogical courses is general and special teaching method courses. The focus of this short article is to discuss the content of the special teaching method course for TVET teacher education as a subject specific pedagogy which is called vocational pedagogy.

Vocational pedagogy to me is a new term, maybe as well as to some others. Nevertheless it has been in my mind for long time that delivering system for vocational subjects should not be the same as teaching for academic subjects. This is because of specific characteristics of vocational subjects and standard outcomes that must be mastered by vocational education students. Vocational subjects consist of manipulative skills and vocational related knowledge which the final objectives of the lessons are the application of those subjects in the world of work. The application of the skills and knowledge learned should be the focus of teaching and learning activities in vocational education.

Vocational education is education for work. In order to reach this aim, instructional strategies used should be directed to all requirements needed in the work place. The students should learn the knowledge, skills, attitudes, and values which are important in doing a certain job in such a way as they apply them in the real work setting. This instructional strategy actually is the implementation of two out of four key principles of the Bandung Declaration on TVET-Teacher
Education, they are first “The expertise in pedagogy of TVET should be linked to the vocational disciplines and to integrative perspectives on school-based and work-based learning”, and second “An improvement in vocational skills for employability and citizenship can only be realized if there is an improvement in the quality, effectiveness and relevance of teaching”. These key principles can be actualized through the execution of vocational pedagogy.

Our intention is how to implement the concept and principles of vocational pedagogy in the special teaching method course, or what kind of learning experiences in the vocational teacher education programs that will contribute to students’ pedagogical and professional competencies. Furthermore, how to integrate the concept and principles of vocational pedagogy into instructional design and implementation of teaching and learning process for vocational subjects?

B. Vocational Pedagogy Concept

Vocational pedagogy is subject specific pedagogy for vocational courses. In the curriculum of TVET teacher education it is called Special Teaching Method course. This course consists of two main parts, first part dealing with instructional design and the second one is teaching practice. The instructional design covers the development of vocational education curriculum which some of the students learning activities are formulate competencies standards and sub competencies, develop syllabuses, develop lesson plans, prepare teaching materials, prepare teaching aids, and design student evaluation. The second part of the course is teaching practice which consists of micro-teaching, and mini-lesson. The purpose of micro-teaching is to train student teacher in eight basic teaching skills, and the mini-lesson one is teaching practice to integrate the basic teaching skills in full teaching. If the students do both teaching practices successfully they will be ready to do student teaching in vocational schools.

The objective of the special teaching method course is preparing student to master pedagogical competencies of a vocational teacher, which are:

1. Develop vocational education curriculum,
2. Develop syllabuses and lesson plans,
3. Prepare and use instructional media/teaching aids,
4. Use ICT effectively,
5. Organize teaching material,
6. Identify students’ characteristics,
7. Apply new instructional paradigm,
8. Evaluate student achievement,
9. Carry out educational research to enhance the quality of the instruction.

The implementation of vocational pedagogy in vocational teacher education programs based on the instructional strategy which will produce vocational teachers that can teach vocational subjects in simulated and realistic work settings. Finch and Crunkilton (1979) explain that “The vocational and technical education learning environment makes provision for student development of knowledge, manipulative skills, attitudes, and values as well as the integration of these areas and
their application to simulated and realistic work settings.” This instructional strategy, by some people, is called “teaching industry”, “teaching factory”, and “teaching business”.

Some principles of vocational pedagogy as an instructional strategy are as follow:

1. The main orientation is the needs of world of work (work-based learning),
2. The most important is the application of pedagogical theories in the school (school-based learning),
3. The application of mastery learning,
4. The application of instructional new paradigm,
5. The application of an instructional approach “learning how to learn”.

C. Instructional Design

1. The objectives of the course
   Special Teaching Method course is a compulsory course to take by students of the Vocational Teachers Training Program in Indonesia. The aim of the course is to prepare student to teach certain courses in their subject area of the vocational education curriculum. The special teaching method is the application of general teaching methods to a specific field of study, for example special teaching method for Building Construction Department. This course consists of two main parts: first, the instructional design for vocational education subjects, and second, teaching practice which is called micro teaching and mini lesson.

   The instructional design for vocational education subjects covers some topics such as instructional analysis, syllabus, lesson plan, skill analysis, job sheet and/or lab sheet and student evaluation. The general objective of this part of the course is “the student will be able to prepare a lesson that he/she is going to teach.” In order to master this objective, the students have to do exercises to practice each topic of the instructional design.

   A brief description of the course content will be presented here. It might be useful to be discussed with my counterpart(s). My interest is to get some new materials and ideas to develop the course both the content and the delivery system. I know that so many new approaches and methods which have to be applied by my students in teaching practice activities, but I am not sure whether I have trained them correctly.

2. Delivery System of the Course

   A phrase says: “A teacher teaches how he/she is taught. "A lecturer who teaches a special teaching method course should aware that he/she becomes a model of a good teacher. He/she should demonstrate best examples of the application of course content while he/she is teaching. So, it is not easy to become a lecturer of this course.

   The special teaching method course should be delivered in a certain way which is started by short explanation of the concepts and principles of the topic being studied follow by some
examples and students exercises. Students have to do a lot of practice, and the lecturer should give feedback of what students have done. So, the delivery system of this course is a kind of a workshop which is done by students.

Innovations in educational technology have produced a lot of new teaching strategies and methods which school teachers should master and use in teaching. Teaching strategies such as student centered instruction, student active learning, learning how to learn, and contextual teaching and learning (CTL), and methods of teaching such as individualized instruction, e-learning/web based learning, cooperative learning, collaborative learning, multi-media instruction, problem-based instruction, case-based instruction, and quantum teaching & quantum learning are necessary to be studied by students of teacher training institutions. It is important for prospective teachers to acquire concepts, principles, and procedures of each of the strategies and/or the methods and use them in teaching practice. How the students can be taught about these knowledge and skills if the lecturer does not master those materials? It is a very big challenge for lecturers of teacher education institutions.

3. Special Teaching Method Course Content

As had been mentioned before, the content of the special teaching method course consists of two main parts; the first part is instructional design and the second one is teaching practice (micro teaching and mini lesson). This short explanation deals only with instructional design. Teaching practice (micro teaching and mini lesson) and also teaching practice in schools will be presented in a separate book.

Instructional design that will be discussed in this course will not be about wide range of instructional theories, but only theories which have direct application in teaching. Therefore each topic covers concept, principle, and procedure which will be used in planning a lesson. The instructional design in this course consists of several topics; they are instructional analysis, syllabus, lesson plan, skill analysis, jobsheet and/or labsheet, and student evaluation. Following each of the topics will be discussed briefly.

1. Instructional Analysis

The first step in doing instructional analysis is formulating general objective(s) of the course. In a competency based curriculum, the general objectives is called main competencies or competency standards, that is what student will be able to do after completing the course. It is called also aim or goal of the course.

The instructional analysis is a process of breaking down the competency standards into smaller competencies which is called specific objectives or basic competencies (sub competencies), and arrange them in a logic and systematic way. The end product of the analysis is an instructional diagram that shows instructional steps toward the attainment of the competency standards. Put the competency standard at the top of the diagram and arrange the basic competencies below the competency standard. The arrangement of the diagram can be in three forms, they are vertical, procedural, or parallel, or combination of the three forms. The vertical form used if arrangement of the basic competencies is from bottom to the top of the diagram. This means that lower basic competencies are prerequisite to upper basic competencies. The procedural form is a form that shows procedures or steps to do something or to learn something. In this case there is no prerequisite step, so a student can learn each step of the lesson without any order that should be followed until he/she masters all steps of the lesson. The parallel forms is used if some of the basic
competencies have the same level, means that more than one basic competency can be acquired at the same step; there is no prerequisite competencies of this kind of the lesson. In general, an instructional analysis diagram is a kind of a combination of the three forms; or at least two forms.

The key element of the instructional analysis is the formulation of the competencies, both competency standards and basic competencies. To do this correctly, someone should understand what a competency is. Many experts in instructional design have expressed the definition of competency. One of the definitions is presented by the JGN Consulting Denver, USA (2002) as follow:

A competency refers to an individual’s demonstrated knowledge, skills or abilities (KSAs) performed to a specific standard. Competencies are observable, behavioural acts that require a combination of KSAs to execute. They are demonstrated in a job context and as such, are influenced by an organization’s culture and work environment. In other words, competencies consist of a combination of knowledge, skills and abilities that are necessary in order to perform a major task or function in the work setting.

There are some key words or meanings which are very important to take into account in formulating a competency; they are:

1. A competency consists of knowledge, skills, and abilities (or affective). In this stage of the lesson, it is necessary to explain to students about some concepts of taxonomy of educational objectives. Educational objectives or learning outcomes consist of cognitive domain (knowledge), affective domain (attitude), and psychomotor domain (skills). Each domain has some levels of learning outcomes. The formulation of an educational objective shows the domain and the level of learning outcomes that will be attained.
2. The competencies have specific standards. The standards must be determined, so the mastery of the competencies can be evaluated based on those standards.
3. Competencies are observable and behavioural acts. Competencies are behavioural verbs used must show an action, such as explain, describe, calculate, demonstrate, compare, analyse, and conclude. The verbs such as understand, know, appreciate, and skilful are not suitable to use to formulate competencies, both for standard and basic competencies. These verbs do not have a clear meaning and attainment of competencies that use these verbs are difficult to be evaluated.

A basic competency has three elements:
1. Behavioural change as a learning outcome, consists of an action word that connotes an observable student behaviour and content being studied.
2. Criteria that is a statement that specifies how well the student must perform the behaviour, and
3. condition that is a statement that describes the conditions under which the behaviour is to be performed.

Examples of a standard competency:
1. Student will be able to make building construction drawing complete with its details.
2. Student will be able to build brick walls as drawings given.

Examples of a basic competency:
1. Student will be able to draw a lay out of a house.
2. Student will be able to demonstrate a brick layer work without any mistakes.
3. Student will be able to describe some wood defects.
4. Student will be able to calculate the amount of cement needed to build a house.

In the instructional analysis, it is not a complete basic competency will be written down, but the behaviour change element only. For example of the basic competencies above, the element that we write down in instructional analysis are “draw a lay out of a house”,

A basic competency has three elements:
“demonstrate a brick layer work”, “describe some wood defects”, and “calculate the amount of cement needed to build a house”.
In this stage of the lesson, the lecturer should expose some examples of the instructional analysis.
2. Syllabus
   A syllabus is an instructional planning of a course which is taken place usually for one semester. Its content is an arrangement of activities, methods, and media used in teaching learning process of the course. A better format of a syllabus is a table (tabulation) format. Each element of the syllabus is written down in a column.
   An example of a syllabus format will be given at the end of this topic.

   A syllabus consists of several elements. In general, the elements of a syllabus are:
   a. the title of the course;
   b. the number and the amount of credit hours of the course;
   c. time allocation as has been determined in the curriculum;
   d. a shot description of the course content;
   e. standard competencies (general objectives) of the course;
   f. a list of basic competencies (specific objectives) of the course;
   g. student learning experiences;
   h. course content (topics and subtopics) of the course;
   i. teaching methods used;
   j. assessment; and
   k. resources.

   A number of principles need to be mentioned in developing a syllabus. These principles will be applied also in developing a lesson plan. The principles are:
   1. Standard and basic competencies should be the same as have been formulated in the instructional analysis. The standard and basic competencies become the focal point of the instructional design; all parts of the design must be relevance with those competencies.
   2. Student learning experiences should:
      a. apply a “student centred instruction” strategy;
      b. apply a “student active learning” strategy;
      c. be relevant to the basic objective that will be mastered; and
      d. consist of student activities that shown the attainment of the basic objective.
   3. Use variety methods of teaching which is relevant to the teaching strategy applied. Some considerations in choosing a method of teaching are:
      a. appropriate to attain the basic objective of the lesson;
      b. amount of students to be taught (large or small);
      c. the teaching material its self.
   4. The objective of the assessment in the syllabus is to get feedback of the teaching and learning process done and to see how far the basic competency has been achieved. So, types and methods of the assessment should meet this objective.
   5. Use variety of resources such as books, curriculum manuals, materials from internet, samples from work place, articles, handouts, est.

Example of a Syllabus Format

Name of the course           : Building Materials
Course # and Credit hours: FT0075/ 2.
Course Description           : The topics that will be studied in this course are
cement, aggregates, brick & concrete block, wood, steel, and roof materials.

Time allocation : 100 minutes/week (16 weeks)
Standard Competency : The student will be able to choose good materials for building construction.

<table>
<thead>
<tr>
<th>No</th>
<th>Basic Competencies</th>
<th>Learning Experiences</th>
<th>Methods of Teaching</th>
<th>Course Content</th>
<th>Assessment</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Student will be able to determine a good quality of cement</td>
<td>Discuss characteristics of good cement</td>
<td>Discussion</td>
<td>Characteristics of cement</td>
<td>Oral Questioning</td>
<td>Husna (1998), pp 25-40</td>
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3. Lesson Plan

A lesson plan is a plan which will be used by a teacher in delivering a lesson. It is a teacher’s detailed description of the course of instruction for an individual lesson. Teachers prepare plans that contain the organization and delivery system of the course to be taught. The plans guide the teacher to do an effective teaching.

A lesson plan is developed from the existing syllabus. Some of the elements of a lesson plan are the same as the elements of a syllabus. The elements of a lesson plan are as follow:

a. the title of the course;
b. the number and the amount of credit hours of the course;
c. time allocation of this lesson;
d. standard competencies (general objectives) of the course;
e. basic competencies (specific objectives) of the lesson;
f. course content (topic and subtopics) of the lesson;
g. teaching methods used;
h. instructional media used;
i. instructional activities;
j. time management;
k. assessment; and
l. resources.

The elements of a lesson plan which have the same headings with the elements of the syllabus will have the same content. The formulation of standard and basic competencies in the lesson plan should be exactly the same with the standard and basic competencies in the syllabus. Otherwise it will influence the content of the other elements of the lesson plan.

The most important to be explained here is the instructional activities element. This element must be consistent with basic competencies to be achieved, student learning experiences, methods of teaching, and the assessment to be employed. Once a strategy and method of instruction has been chosen, the instructional activities of the lesson plans should be the procedures or steps in using the strategy and method that a teacher will follow in a teaching and learning process.
The instructional activities consist of three parts. The first part is “opening”. This part covers four activities, they are (a) focus attention and enhance learning motivation of the students, (b) activate prior knowledge (apperceptions), (c) express the basic objective(s), and (d) state short outline of the lesson. This “opening” takes place about 5 to 10 minutes.

The second part of the instructional activities is the development of the lesson (main part of the lesson). In this part, the teaching and learning procedures or steps should be stated in details. So, teachers who will use the lesson plan clearly understand what to do.

As has been mention before that the lecturers of teacher training institutions should demonstrate variety of teaching methods while they are teaching. They should give examples of the application of new approaches such as ‘problem solving approach’, ‘case-based learning approach’, and ‘contextual teaching and learning approach’. The applications of these approaches and methods should be clearly stated in the development part of the lesson plan.

The third part of the instructional activities is “closing”. Closing part of the lesson consists of assessment and conclusion. It is useful to have feedback from the students through brief evaluation of their achievement. The main objective of the assessment is to know how far the students can master the basic competencies of the course. The methods of the assessment used can be an oral questioning, a quiz, or a short essay test. Finally, at the end of the instructional activities, the lecturer gives a brief conclusion of the lesson.

References


