



Evaluating the Skill of Assessing the Learners' Competency of Pedagogical Students

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Abstract: Competency assessment skill is one of the basic teaching skills. Therefore, it is necessary for evaluating competency assessment skills of pedagogical students. The point is not only about how many teaching skills the students have had but also about the delicacy and flexibility between component skills of their general skills. In this article, we study theories of competency assessment skills in order to propose surveys evaluating the skills component of learners. Simultaneously, we are proposing general evaluation criteria for learners' competency assessment skills. The results from these surveys, conclusion and implication will be useful recommendation for lecturers and students to adjust their teaching and learning processes.

Keywords: Competency assessment skills, criteria form, scoring guidelines form.

1. Rationale of the study

From the 1980s there was "a revolution" on assessment in education. Instead of focusing mainly on summative assessment, it focuses more widely on learner performance. Therefore, there are forms of assessment such as formative assessment, authentic assessment and alternative assessment. Competency assessment involves a broad approach to measure learners' knowledge, skill and attitude, which reflect present changes of competency-based educational programs. These evaluation activities focus on necessary abilities for students to succeed in the future and on what

students can do using the learned knowledge. According to Leenpil (2011) [1], competency assessment is to evaluate knowledge, skill and attitude of learners in a meaningful context.

While standardized scale in the competency assessment is based on competency development of learners, so the competency assessment focuses primarily on assessing learners' progress. In addition, students of the same age, learning the same education program but can achieve different levels of competencies. This cannot be done with the assessment of singular unit of knowledge and skills [2].

In the structure of competency evaluation for high school students, the tools usually are used as a system of tasks scaling: from easy to difficult, or from simple to complicated task activities of a field to measure any subject's

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competency development. Tasks for learners should be linked to the context in practice.

Characteristically, there is no conflict between competency evaluation and knowledge and skill evaluation. Competency evaluation is considered to be the higher level of skill development in comparison with knowledge and skill evaluation. Knowledge and skill evaluation is usually applied in a single subject, so it is detailed and specific [3]. At the same time, competency assessment can assess the synthesis of knowledge and skills in many subjects, thereby assessing the overall personality structure of students [3]. In order to evaluate certain abilities, practical opportunities should be given for students to resolve. Then, students must use their knowledge and skills learned at school and self-gathered experiences out of school (from family, community and society) to solve problems.

2. Theories of competency assessment

Nguyen Cong Khanh, Phan Thi Thanh Hoi, etc, suggested many groups of evaluation skills. According to Khanh Nguyen Cong [4], necessary skills to assess learners' competency include (1) developing an assessment plan, (2) selecting and designing assessment tools, (3) piloting and revising assessment tools, (4) assessing, (5) processing and analyzing data, (6) writing reports to explain and evaluate the result. Hoi Phan Thi Thanh [3] suggests a three-phase assessment procedure - (1) preparing the

content for assessment, (2) Conducting the assessment and analyzing the result, (3) making a decision to revise. Corresponding to these phases are the necessary skills to train the pedagogical students in assessing learners. The results of their studies show the focus on specifications and procedures of evaluation. Summarizing the above-mentioned studies, we may group these evaluation skills such as: evaluation activities preparation, testing design, evaluation process, analyzing and interpreting skills, and giving feedbacks. However, the group of evaluation process skill need to be conducted in the real context. Meanwhile, at our university we do not have the suitable conditions to train students on this skill group which is not concluded in the report.

There are some examples of skill structure that we provide to competency assessment skills evaluation in teaching process.

- Skills for preparation of the assessment activities

Preparing for the assessment activities means answering the following questions: What is the purpose of assessment? Who are responsible for conducting the assessment and using the results? What information should be collected? How can the information be collected and processed? What are the data collection tools? What learning activities are conducted to collect data? What is the timing, duration and order of assessment? What are the conditions for assessment? Therefore, the structure of this skills group is presented in Table 1:

Table 1. Structure of the skills for preparation of the assessment activities

Skills component	Description
Assessment planning skills	- Identify the objective of the evaluation - Design evaluation procedures (the content, objects, the information to be collected and processed, time, number and condition assessment) - Identify opportunities for Ss' learning
Determining skill of behavior index to be evaluated	- Write behavior index (through the process of the implementation of skills) - Identify the most important behavior index
Building rubric skills for scientific literacy	- Select and use available scales or integrate multiple scales, or design new scale consistent with the evaluation objective - Design evaluation criteria table

- Skills on designing tests (Table 2)
- Skills on data analyzing, processing and interpreting (Table 3)

This skills group requires the use of data processing methods and identifies the impacts and causes of the phenomenon.

Table 2. Structure of skills in designing tests

Skills component	Description
Test matrix development	- Draw matrix details (form of exam, test form and needed awareness levels) - Determination of the proportion corresponding to the content and level of Ss' awareness
Competency assessment questions building	- Determination of content, target of competency assessment suitable to assessed objects - Compiling leading information segments and the focus of assessment - Based on the target verb to determine the extent necessary to achieve - Question assessment levels should be achieved and code answers - Check the value of targeted questions to edit
Test finalizing	- Prospect the difficulty of the questions in the test - Evaluate the quality of test and improve

Table 3. Structure of skills on data analyzing, processing and interpreting

Skills component	Description
Using the method of information processing	- Use qualitative information criteria table - Using mathematical formulas or quantitative processing software to evaluate the quantitative information
Data interpretation	- From the obtained data, give the assessment results of the Ss - Identify the impacts and causes of results - Interpretation of the Ss' level of development

- Skills on giving feedback include publishing results and making decisions for next steps.

Table 4. Structure on giving feedback skills

Skills component	Description
Transfer assessment results information to related objects	- Identify the purpose and time of reporting - Interpretation of report content - Presentation of report language
Use the evaluation results to adjust the teaching process	- Planning of pedagogical intervention of the teacher - Guiding Ss how to plan to improve their achievement - Make recommendations for parents

As shown in four tables above, competency assessment consists of many component skills which are logically related. In fact, these skills have not been paid enough attention at our university when it comes to teacher education. We focus more on training them how to design questions and answers. It can be said that this system of skills allows lecturers to identify the shortcomings in the training process.

3. Developing a set of criteria of skills component for competency assessment skills

There are now some popular models in the world for the development of thinking, abilities, capabilities that have been developed and are being applied. These include Bloom's Taxonomy (6 level: remember, understand, apply, analyze, evaluate, create), Dreyfus's five-stage modeling (Novice, advanced beginner, competent, proficient, expert), Biggs

and Collis's learning outcomes model or SOLO (In the SOLO model, a student's learning outcome may be understanding at any one of five levels of complexity: no idea, one idea, loose ideas, connected ideas, extended ideas),

etc. In these scales, Dreyfus's scales (table 5) are commonly used for skill assessments. In this study, we based on the Dreyfus scale to evaluate scoring guides.

Table 5. Dreyfus's Model of Skill Acquisition

Level	Description
1. Novice	Have insufficient knowledge, access to tasks mechanically and need supervision to complete them.
2. Advanced beginner	Have an understanding of tasks, tend to view action as a series of steps, can accomplish simple tasks unattended.
3. Competent	Have a good understanding of tasks and background, analyse actions not holistically, can accomplish tasks independently with an acceptable standard, although there may be a lack of screening.
4. Proficient	Have a thorough understanding, analyse the actions holistically, can often achieve high standards.
5. Expert	Have a deep understanding, solve common problems intuitively, can outstrip existing explanations, easily reach excellence.

Building a scale of competency assessment skills, we use a four-level development path because students are unable to achieve the 5th level (expert) in Dreyfus Model. In each level of the scale, we determine the proficiency upon the achievement level of skills component.

The scoring guide should show the score obtained for the skill and the criteria for the division of the levels. Scores of skills are calculated by the average of the behavioral indicators (weight dependent) [5].

A form of scoring guidelines is presented in Table 6, in which level 1: 0-2.5 points, level 2: 2.6-5 points, level 3: 5.1-7.5 points, level 4: 7.6-10 points. It is important to note that the interpretation of each level is applied in this research only.

Based on the expert method and the correlation coefficient analysis in the corresponding behavioral and affective behavior surveys, we have developed sets of criteria as follows.

Table 6. Scale of skill development in scoring guidelines form

Level (point/10)	Indicator
Novice (0 - 2,5 points)	Do not perform any steps or perform them incorrectly
2. Advanced beginner (2,6 – 5 points)	Perform steps under teacher's detailed instructions
Competent (5,1 – 7,5 points)	Perform steps more skillfully and more correctly without detailed instructions, but still make minor mistakes.
4. Proficient (7,6 - 10 points)	Combine steps harmoniously under different circumstances.

3.1. Assessment criteria of assessment planning skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- Identify assessment objectives (2 points)

+ L1. Can't identify assessment objectives or identify assessment objectives incorrectly

+ L2. Indicate assessment objectives, but not sufficiently or too general or inaccurately

+ L3. Identify assessment objectives, but sometimes inaccurately or unclearly

+ L4. Identify assessment objectives fully and clearly

- Establish assessment procedures (Time, duration, content, subjects, methods of

assessment, information to be collected and processed) (5 points)

+ L1. Can't list all assessment procedures and some procedures are not fully identified

+ L2. Can list necessary procedures in S assessment including timing, time allowance, content, subjects, methods of assessment, information to be collected and processed; but can't order jobs to be done correctly, or mention inconsistent procedures, or mention consistent but incorrect procedures.

+ L3. Can establish assessment procedures that follow S assessment procedures, the procedures are consistent. There are still some minor mistakes or the procedures are not fully mentioned.

+ L4. Establish assessment procedures in assessing S clearly and consistently

- *Identify learning opportunities for students (3 points)*

+ L1. Can't design learning activities that match assessment objectives

+ L2. Can design learning activities, but not logically

+ L3. Can design necessary learning activities for students under teachers' instructions

+ L4. Can design necessary learning activities for students without teachers' instructions

In this form, establishing assessment procedures is considered the most important skill. That is the reason why this skill accounts for the highest point. However, students often fail to fulfill a large number of requirements in this area, most of them gain level 2.

3.2. Assessment criteria of identifying behavioral index of assessed competency skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Know how to construct behavioral index (6 points):*

+ L1. Can't construct behavioral indexes or construct behavioral indexes incorrectly

+ L2. Construct behavioral indexes using unclear language

+ L3. Construct required behavioral indexes, but need teachers' suggestions

+ L4. Construct behavioral indexes correctly for all skills/ competency without teachers' suggestions

- *Focus on most important behavioral indexes (4 points)*

+ L1. Behavioral indexes are not subdivided at different levels of importance

+ L2. Behavioral indexes are not subdivided at different levels of importance under T's instructions, but not fully and clearly

+ L3. Behavioral indexes are not subdivided at different levels of importance more clearly and correctly without T's constructions, but not fully and clearly. However, there are still some missing behaviors

+ L4. All behavioral indexes of different skills/competency are mentioned and subdivided at different levels of importance

3.3. Assessment criteria of competency assessment rubric building skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Use either a built-in scale or combine different scales, or develop a new scale (5 points)*

+ L1. Can list a number of scales, but can use them

+ L2. Use either a built-in scale or combine different scales, but can't develop a new scale or use scales ineffectively

+ L3. Use scales more correctly without detailed instructions, but not effectively

+ L4. Can use all scales, analyze the strengths and weaknesses of the scales to develop a new scale for all assessed skills

- *Develop skill assessment rubric (5 points)*

+ L1. Can't develop skill assessment rubric, or develop skill assessment rubric with some missing criteria

+ L2. Develop skill assessment rubric under T's instructions, but the criteria are not clear

and consistent among different levels, language used is not clear.

+ L3. Develop clear skill assessment rubric without detailed instructions, but there are still some missing criteria

+ L4. Develop clear skill assessment rubric for all assessed skills

3.4. Assessment criteria of test matrix developing skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Develop detailed test matrix (5 points)*

+ L1. Can't mention necessary components in a test matrix

+ L2. Can develop a test matrix with components, but can't identify test contents and levels

+ L3. Can develop a test matrix with components, identify test contents and levels, but incorrectly

+ L4. Develop detailed test matrix with contents and levels for all assessed contents

- *Assign proportion of the content and students' performance (5 points)*

+ L1. Can't assign proportion of the content and students' performance

+ L2. Can set out rules to assign proportion of the content and students' performance, but apply the rules inconsistently

+ L3. Can set out rules to assign proportion of the content and students' performance under teacher's instructions

+ L4. Can set out rules to assign proportion of the content and students' performance skillfully

3.5. Assessment criteria of competency assessment question building skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Determine assessment contents and objectives suitable to the assessed subject (1 point)*

+ L1. Can determine contents and objectives as in competency structure

+ L2. Can determine contents and objectives as in competency structure, but they are not suitable for assessed subject

+ L3. Can determine suitable contents and objectives as in competency structure for assessed subject under teachers' instructions

+ L4. Determine suitable assessed contents and objectives according to competency structure for assessed subject without T's instructions

- *Compile introductory information basing on focused contents and objectives to be assessed (3 points)*

+ L1. Can't compile suitable introductory information

+ L2. Can find introductory information, but can't compile introductory information suitable for assessed objectives and contents

+ L3. Compile introductory information suitable for assessed objectives and contents under teachers' instructions

+ L4. Compile introductory information suitable for assessed objectives and contents without T's instructions

- *Determine the achievement level of the competency basing on the verbs in the objectives (2 points)*

+ L1. Can't determine learners' degree of achievement of the competency

+ L2. Can determine learners' degree of achievement of the competency, but make many mistakes

+ L3. Can determine learners' degree of achievement of the competency under T's instructions

+ L4. Can determine learners' degree of achievement of the competency without T's instructions

- *Compile questions to assess the achievement level of the competency and encode responses (3 points)*

+ L1. Compile questions and encode responses, or do them incorrectly

+ L2. Compile questions, but the questions are sometimes unsuitable for the degree of the assessed competency

+ L3. Compile suitable questions, but the encoded responses can't cover all learners' answering ability

+ L4. Compile suitable questions and encode responses that cover all learners' answering ability

- *Check the question value basing on the objectives for editing (1 point)*

+ L1. Can't check the question value

+ L2. Check the question value basing on the initial objectives, but make many mistakes

+ L3. Check the question value basing on the initial objectives, but need T's suggestions

+ L4. Be skillful in checking the question value and editing questions

Competency assessment questions building is the most critical and challenging skill in assessing competency. Therefore, behaviors are described with specific steps.

3.6. Assessment criteria of test piloting and test completing skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Identify the difficulty level of test items (5 points)*

+ L1. Can't identify the difficulty level of test items

+ L2. Know the formula to identify the difficulty level of test items, but make many mistakes

+ L3. Identify the difficulty level of test items accurately with both math formulas and support software, but make some minor mistakes when calculating or importing-exporting data in the software

+ L4. Identify the difficulty level of test items accurately, skillfully with both math formulas and support software in all the assessment content

- *Evaluate test quality and improve tests (5 points)*

+ L1. Can't evaluate test quality

+ L2. Be able to evaluate test quality under teacher's instruction, but frequently base on subjective viewpoints

+ L3. Evaluate test quality more accurately without teacher's instruction, but sometimes base on subjective viewpoints

+ L4. Evaluate test quality accurately in different conditions and circumstances based on statistics

3.7. Assessment criteria of data processing skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Use assessment criteria chart (5 points)*

+ L1. Can't use the assessment criteria chart properly, or use it but can't identify criteria

+ L2. Be able to use the assessment criteria chart under teacher's instruction, but frequently make mistakes between criteria description and students' behavior

+ L3. Be able to use the assessment criteria chart, but still make minor mistakes

+ L4. Use the assessment criteria chart skillfully, combine assessment criteria charts to make general evaluation

- *Use software to analyse qualitative data (5 points)*

+ L1. Can't use assessment software

+ L2. Be able to import data, read data output result in the software under teacher's instruction, but still make many mistakes

+ L3. Import and export data skillfully in assessment activities, but sometimes make mistakes

+ L4. Use the software skillfully and flexibly in all assessment cases

3.8. Assessment criteria of data analyzing skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Make statistics-based evaluation (4 points)*

+ L1. Collect data but can't interpret students' test result

+ L2. Be able to interpret students' test result under teacher's instruction, but with little accuracy

- + L3. Interpret students' test result, but sometimes inaccurately
- + L4. Interpret students' test result accurately and skillfully
- *Identify factors and causes of evaluation result (3 points)*
 - + L1. Can't identify factors and causes of evaluation result (from students, teachers, family)
 - + L2. Be able to identify some factors and causes under teacher's instruction but still make many mistakes
 - + L3. Identify some factors and causes but inadequately or without absolute accuracy
 - + L4. Quickly identify some factors and causes in all cases
- *Explain students' development level (3 points)*
 - + L1. Can't explain students' development
 - + L2. Under teacher's instruction, be able to explain students' development mechanically, with many mistakes
 - + L3. Explain students' development more accurately, but sometimes make mistakes
 - + L4. Quickly make theory-based explanation on students' development in all assessment activities

This is a new skill for students. Most of them fail to complete this phase, if possible, they can achieve level 1 only. Therefore, this table is meaningful for students to develop their competency assessment skill.

3.9. Assessment criteria of disseminating assessment result to relevant stakeholders skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Purpose and timing of report (3 points)*
 - + L1. Don't understand the purpose and timing of report
 - + L2. Under teacher's instruction, be able to indicate the purpose and timing of report, but mechanically and make many mistakes
 - + L3. Identify the purpose and timing of report skillfully, but sometimes make mistakes
 - + L4. Quickly indicate the purpose and identify suitable timing of report

- *Report content (4 points)*
 - + L1. Can't identify report content
 - + L2. Be able to identify report content, but don't know the report outline
 - + L3. Be able to write report, but not really adequately, precisely and concisely
 - + L4. Quickly present report content which is suitable to its purpose and timing
- *Report language (3 points)*
 - + L1. Report language is difficult to understand, not explicit, accurate
 - + L2. Under teacher's instruction, report is more reader-friendly and easier to understand, but still wordy and not accurate
 - + L3. Report is reader-friendly and easy to understand, concise but still sometimes wordy and ambiguous
 - + L4. Report is written academically, precisely and explicitly

It is a common belief among students that they just need to inform test results to the learners. That is why students often get level 1 or 2 for this skill. Therefore, this rubric is essential in their assessment and self-assessment, helping students to realize their weaknesses so that they can improve later.

3.10. Assessment criteria of using assessment result to improve instruction skill

Evaluation of this skill is based on behaviors (with component scores) and the description is as follows.

- *Teacher intervention planning (4 points)*
 - + L1. Don't know what to do after evaluating students
 - + L2. Under teacher's instruction, be able to make some pedagogical intervention for student's competency development after assessment, but incomplete and inaccurate
 - + L3. Suggest follow-up actions for teachers in the teaching process for student's competency development. These actions are often meaningful and necessary for the teaching process, but sometimes they are also inaccurate or unnecessary
 - + L4. Quickly set up pedagogical intervention plans that are accurate and

necessary for student's competency development

- *Instructs students to make a plan to improve their performance (3 points)*

+ L1. Can't instruct students to make a plan to improve their performance

+ L2. Be able to instruct students to improve their academic performance but it is not thorough, not specific or inaccurate, making students not achieve their goals.

+ L3. Instruct students make a plan to improve their performance in a clear, explicit, easy-to-implement manner, but sometimes inaccurate

+ L4. Always instruct students make a plan to improve their performance in a clear, explicit, easy-to-implement manner

- *Make recommendations for students' parents (3 points)*

+ L1. Can't make recommendations for students' parents

+ L2. Be able to make recommendations for students' parents, but they are too general, ineffective or mechanical, inaccurate

+ L3. Make accurate and flexible recommendations for students' parents, but sometimes make minor mistakes

+ L4. Make accurate and effective recommendations for students' parents

4. Design a scale to assess competency assessment skill

By expert methods, and based on the difficulty of component skills and the level of proficiency of synthetic skills, we have experimented with surveying and modifying these levels. The results are as follows.

Table 7. Assessment form of achievement level of learner competency assessment skills

Skills	Assessment contents	Points
Develop an assessment plan	- Identify clear and accurate assessment objectives - Design clear and consistent procedures in the assessment process - Identify the learning opportunities of the students after the assessment	0,5
Identify behavioral index of the competency to be assessed	Identify important behavioral index and describe behavioral index of each competency in a clear, accurate manner	0,5
Develop assessment rubric	Develop a clear, accurate assessment rubric skillfully	1
Develop test matrix	Develop detailed test matrix which fits evaluation objectives	2
Develop competency assessment questions	Test items can assess students' competency and fit the evaluation objective, content and methods	3
Test pilot and test completion	Pilot tests and evaluate test quality to improve tests	2
Apply data processing methods	Use assessment tools skillfully (criteria form, support software)	0,5
Interpret collected data	Interpret data clearly and accurately	1
Disseminate assessment result to relevant stakeholders	Disseminate assessment result at the right time, provide clear, accurate information	0,5
Use assessment result to improve instruction	Use assessment result to make a clear, accurate, feasible plan for teachers and students	1

Table 7 helps lecturers to determine the score for students' skill of assessing the learner's competency. Table 6 helps lecturers to identify students' achievement level of this skill. As a result, they could figure out students' weaknesses that need more work in order to enhance students' skills.

The assessment forms in part 3 can be used to train pedagogical students in assessment skills. These forms help to clarify which skills students lack and at which level they gain. When students understand component skills, "Assessment form of achievement level of learner competency assessment skills" (Table 7)

is used to assess them. This would help the process of identifying strengths and weaknesses of students in component skills and their ability to integrate them.

5. Conclusion

This research synthesizes the theories of competency assessments and the structure of competency assessment skills. Thereby, a tool kit of 10 scoring guidelines of assessment component skills is introduced. Pedagogical lecturers can use them as a base for developing training content and assessing the progress of these skills for students. In addition, pedagogical students themselves may also use these guidelines as criteria for developing self-study plans to develop competence assessment skills.

Through the experiment process, and then based on the results for editing, we have built a scale for evaluating the skill of learner competency assessment. This will be a tool for pedagogical lecturers to use in their teaching process in order to train and evaluate students more favorably.

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