

13. Prosiding INCOTEPD2017

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Developing assessment instruments of communication skills for vocational school students

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ABSTRACT: This research aims to develop assessment instruments which are feasible for assessing communication skills of vocational school students. The criteria of the instruments feasibility consists of validity, reliability, readability, effectiveness and practicality. The data collection techniques include focus group discussions and questionnaires. Descriptive data analysis technique was employed to reveal the quality of an instrument in terms of its practicality, readability, and effectiveness. Moreover, the content validity was applied using *Aiken V* formula to know the validity of the instruments. In addition, the reliability was tested using *Cronbach's Alpha* coefficient. The assessment instruments for assessing the communication skills which have been developed must accomodate the noble characters such as politeness and tolerance as indicators.

1 INTRODUCTION

The unemployment rate in Indonesia is still quite high. Data from 2015 shows that the open unemployment rate in the country reached 8.49 percent or 9.44 million of the total population, in which high school graduates dominate the number (The Central Bureau of Statistics, 2015). Apart from limited job vacancies, unemployment also exists due to inadequate quality of human resource of educational institutions graduates. There still exists the gap between competence demanded in the workplace and the competence of the workforce.

In reality, Indonesia's educational system has designed vocational schools which serve to equip learners or graduates with comprehensive modules and trainings specifically for employment and the professional world. It has been recognized that the graduates of vocational schools possess two-tiered competences. As Jafar (2011: 3) describes, "the quality of vocational education follows two standards which are in-school success standards and out-of-school success standards". The former assesses the learner's success in fulfilling the curricular demands that have been formulated to meet the requirements of the working world. The latter assesses the learner's performance based on national or international competence standards after they are involved in the real working world.

The competences that need to be owned by graduates include oral and written communication skills. According to a survey by Pennsylvania State University, oral and written communication skills of prospective workers hold a figure of 83.5 percent as the most required skill by the employers (Tubbs and Moss, 2001). However, the reality in Indonesia shows that the right format of the productive field-learning models that contain effective communication skills, designed to develop graduates' communication skills

in the working world, is still questionable.

Communication skills serve as an important competence that determines an individual's performance in an organization. Curtis, Floyd, and Winsor (1988: 66) identify that 70 percent of job scope requires communications in many different ways. Thus, a worker's productivity is determined by their communication skills which include the ability to produce, send, and receive messages both verbally and non-verbally in oral and written communications. Communication skills are related to the character values such as politeness and tolerance. Schein (1997) describes that character is the basis for communication.

On one hand, oral communication is the ability to speak (a speaking ability), such as being able to explain and present ideas clearly to an audience. These capabilities include the ability to adjust to the way a speaker talks, to use the right approach and style, and to understand the importance of non-verbal cues. On the other hand, written communication is the ability to write effectively, such as writing letters, Short Message Service (SMS), and so forth. In oral communication, body language is important as Mulyana (2005: 159) states that "gestures, body movements, posture, head movements, facial expressions, and eye contact are behaviors that imply a potential message." Tubbs dan Moss (2001: 192) described that the quality of communication within an organization deals with the whole performance. Some of the required skills are as follows: (1) an active listener, (2) an effective presenter, (3) a quick thinker, and (4) a win-win negotiator. In addition, Permanasari (2014: 28) claims that communication skills comprise of a person's ability in using media, by which they can benefit from interacting with the media.

Communication skills that become the focus of

this research are the theoretical concepts of communication processes and procedures that involve the skills of being communicators, designing messages, choosing channels, understanding the speakers, understanding the communication procedures and speaking in a socio-cultural setting. In addition, the ability of using social media that has become the main media of communication in the community needs to be considered. Wang, Jung Ki, and Kim (2017: 133) assert, "Mobile technology and social media exert a substantial impact on our society and daily lives". Similarly, Soffer (2013: 49) says that social media and internet have become media which replace the national newspapers." Another opinion is expressed by Manaf, Taibi, and Manan (2017: 15), "Mass media are said to report issues with a certain agenda, set to influence public opinion." Also, Suter and Norwood (2017) stress that communication in living rooms and in public serves as "connection of private familial spheres to larger public discourses and structures; and inherent openness to critique, resistance, and transformation of the status quo."

In this research, the assessment instrument that is considered feasible to reveal information about communication skills is a test. Mardapi (2011: 2) asserts that a test is one of the strategies to estimate the level of a person's ability indirectly i.e. through a person's response to the stimulus or questions. The developed product is an assessment instrument of communication skills for vocational school students that are expected to meet teachers' needs. The implementation of the instrument is expected to be applicable in the school and acceptable by educational stakeholders. In this case, the developed instrument is a practice-based test instrument.

The practice-based test is an assessment that requires a response in the form of skills to perform an activity or behavior in accordance with the required competence. Practice-based tests are also called action tests intended to reveal students' motoric skills. Motoric domains are the domains that deal with the ability and skill or the ability to act after a person receives a particular learning experience. Meanwhile, psychomotor is related to the achievement of learning through skill as a result of the knowledge achievement. Psychomotor learning results are a continuation of cognitive learning outcomes and affective learning outcomes (tendency to behave or act). Labibah Lala (2016) says, "The learner's competence in the psychomotor domain involves the ability to perform an action. The assessment of skill competence is an assessment conducted by the teachers to measure the level of student's achievement in skill competencies covering aspects of imitation, manipulation, precision, articulation, and naturalization."

2 RESEARCH METHODS

This research expects to test assessment instruments of communication skills for students in vocational schools. The instrument adopts Mardapi's (2005) development model which include 10 steps: (1) formulating constructs, (2) formulating indicators, (3) making instrument blueprints, (4) determining standards or parameters; (5) writing instrument items, (6) performing validation process, (7) revising, (8) testing, (9) performing validity test, and (10) having produced feasible instruments.

The instrument feasibility criteria consists of three aspects, namely: (1) feasibility in terms of readability, effectiveness, and practicality; (2) validity; and (3) reliability. Readability, effectiveness and practicality are some criteria to determine whether or not the instruments are eligible to be used. The instruments were tested by 20 teachers who are the members of MGMP (*Musyawarah Guru Mata Pelajaran*) or Teacher Networks in a provincial level of Yogyakarta. The data analysis is to reveal the quality of the instrument viewed from the aspects of readability, practicality, and effectiveness performed using descriptive analysis techniques based on the assessment of the 20 MGMP teachers. The data analysis to determine the feasibility of the instrument viewed from the aspect of readability, practicality, and effectiveness is based on the mean score > 3.4 - 4.2 of the maximal score of 5 on the eligible classification, referring to the quantitative data conversion to the qualitative data on a scale of 5 using the rule which is a modification of the rule developed by Al-Rashid (1994: 27-29).

The validity test of instrument items uses a content validity based on the assessment of eight experts and analyzed with Aiken V formula, with validity index criteria $V_{\text{count}} > V_{\text{table}} = 0.75$. The Aiken V index is used to prove the validity of the content based on the expert panel's assessment of each instrument item, to the extent that it represents the constructs and indicators which are measured through the test instrument. The formula for Aiken's Index V is as follows.

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

Note :

V: Validity index

S: The score set by each rater is reduced to the lowest score of the desired score

c: The number of categories that can be selected by raters

n: The number of raters

Meanwhile, the reliability test aims at determining the suitability between the assessment results made by two assessors (raters), using the criteria of Cronbach's Alpha coefficient of at least 0.7.

3 RESEARCH FINDINGS AND DISCUSSIONS

3.1 Research findings

The data presented in this paper is the results of descriptive analysis on feasibility of the instruments as well as the results of the validity and reliability test.

3.1.1 *The Feasibility of instruments viewed from the aspect of readability, effectiveness, and practicality*

The feasibility test of the practice-based test instruments of communication skills in this research was achieved by sending the developed instruments along with the assessment questionnaires to the respondents consisting of 20 teachers. Then, they were asked to provide an assessment regarding the quality of the instrument as well as provide suggestions and opinions. The assessment on instrument readability is addressed by the aspects of instrument guidance clarity, the clarity of communication skills indicators, language used, and grammar. The assessment utilizes a multi-level scale score with maximum score of 5. The assessment of the language aspects consists of: 1) the use of standard Indonesian language, and 2) the formulation of communicative statements. The writing assessment includes the assessment of: 1) letter form, 2) letter size, and 3) punctuation.

The assessment of the instrument practicality is on the aspects of: (a) practicality in the sense that the instrument is easy to be carried out in the tests; (b) practicality in terms of ease to perform a work review after performing tests; (c) practicality in the sense that the instrument is easy to be used because the instruments are equipped with instructions. The assessment of the instrument effectiveness is on the aspects of: (a) the effectiveness of components which are developed with the theory of communication skills; (b) the effectiveness of the instrument indicators in measuring communication skills; (c) the effectiveness of the test items substance; and (d) the conformity between test items and learning materials.

Based on the procedure of quantitative to qualitative data conversion as presented in Table 1, the mean score of the eligibility of communication skill assessment instrument is = 3.95 from the maximum of 5. It is in the mean score range > 3.4 - 4.2 which is included in the classification of feasible or requires a minor revision. Thus, it can be concluded that based on the validity assessment of 20 respondents, communication skills assessment instruments developed in this study viewed from the aspects of readability, effectiveness, and practicality, are classified as feasible to use.

3.1.2 *The validity and reliability of instruments*

The validity test of the assessment instruments was carried out by performing the content validity through expert agreements. In this study, researchers technically asked the communication experts in the Vocational High School of Office Administration Expertise Program as a validator to assess each item of the instrument. Instrument items are categorized as having content validity if they can measure specific objectives that are relevant to the content related. Thus, the validators are asked to validate the instruments by comparing the contents of the test instruments with the teaching materials that have been taught.

The data of content validity assessment results for eight items of practical communication skills were obtained from eight experts as raters or validators. The test results of the instrument were analyzed using the Aiken formula. The practice test instrument items of communication skills are categorized valid if the experts believe that the instruments could measure the achieved capabilities defined in the validated items. The content validity test using Aiken formula refers to the index of validity, obtained by using Aiken's formula. Employing eight raters and a rating scale of 1 to 5, the instrument item is categorized as valid if Aiken V's validity index is greater than $V_{table} = 0.75$.

Table 1. The feasibility of the instrument viewed from the aspect of readability, effectiveness, and practicality

No.	Aspects of Assessment	Mean score
1	Instruments readability	3.91
2	Instruments effectiveness	3.90
3	Instruments practicality	4.06
Mean of the total score		3.95

Table 2. The results of instrument items validity test

ITEMS	V	V _{table}	Note
1	0.81	0.75	Valid
2	0.94	0.75	Valid
3	0.81	0.75	Valid
4	0.75	0.75	Valid
5	0.94	0.75	Valid
6	0.81	0.75	Valid
7	0.72	0.75	Not Valid
8	0.75	0.75	Valid

The results of the analysis show that there is only one item of instrument out of 8 that is not valid, because it only has an Aiken's validity index value (V count $0.72 < V$ table 0.75), so that the instrument item is dropped. The eight items of the instrument include: item 1, telephone handling; item 2, presentation; item 3, interview; item 4, lobbying and negotiation; item 5, managing the meeting; item 6, communicating via mail; item 7, interpersonal communication; and item 8, searching for information on the internet.

The instrument reliability test was performed by looking at the score suitability between rater 1 and rater 2 using Cronbach's Alpha coefficient >0.7 . In this research, the assessment instrument was tried out to assess the communication skills of 32 students. In this practice test, there were two teachers acting as raters. The test results show that the coefficient value indicates $\alpha = 0.848$. With regard to this, the instruments developed in this study are classified as reliable.

3.2 DISCUSSIONS

In this research, eight instruments were developed to assess communication skills. They consist of : (1) telephone handling, (2) presentations, (3) interviews, (4) lobbying and negotiation, (5) managing meetings, (6) communicating via mail (written communication), (7) interpersonal communication, and (8) searching for information on the internet. One important step in the development of instruments is the development of components or indicators. An indicator is anything that clearly and consistently explains the definition. Shavelson (2001: 7) says that designing indicators can be carried out through the following steps: conceptualizing potential indicator, refining poor indicator, and designing alternative indicators.

The elaboration of indicators are designed to provide accurate information about the various conditions and provide information on how the evaluated components produce a whole effect. Chamidi (2005: 14) states that in the simplest sense, the indicator is a symptom that address a particular issue or condition. To assess the effectiveness of an assessment instrument, it is necessary to review the

required criteria of effectiveness. Some criteria of assessment instrument effectiveness presented by Kandak & Egen may be considered for adoption in assessing the effectiveness of the assessment instrument. Kandak & Egen (in Kaluge, 2004: 76) says that, "effective instrument in the real assessment must be valid, systematic, and practical." Mardapi (2006: 16) explains that the instrument developments may take a few steps. The first step is formulating variables based on synthesis of theories. The second step is determining construct, dimensions and indicator variables that have been explicitly stated in the formulation of variable constructs. The next step is making the instrument blueprints in the form of a specification table, which contains dimensions, indicators, item numbers and number of items for each dimension and indicator. It is followed by determining the standards or parameters within a continuum span, ranging from one pole to another opposite pole (from low to high, from negative to positive). The next step is writing instrument items which may take the form of statements or questions concerning the characteristics or circumstances, attitudes or perceptions. The sixth step is performing validation processes, both theoretical and empirical validations. Theoretical validation is obtained through an expert judgement in examining how far the dimension provides the exact description of the construct, how far the indicator becomes the exact description of the dimension, and how far the precise instrument blue prints can measure the indicator. The seventh step is performing a field trial which is part of the empirical validation process. The validity test may use either the internal criterion of the total score of the instrument as the criterion or the external criterion. If the content of the items is considered valid or feasible, the instruments become the final instruments which are used to measure the research variables.

The assessment instruments developed in this research are the instruments which are used to assess the students communication skills of Administrative Skills Competence in Vocational High Schools. One of the reasons of developing this assessment instrument is the increasing demand of communication skills in the working world. Tubbs and Moss (2001: 168) present the survey results that the most required skills by companies hiring fresh graduates are spoken and written communication skills. As pointed out by Kamaruzzaman (2016) in his research findings, speaking skills are indeed deemed important in the working world apart from physical, material, and mental preparation. In addition, Blizard (2012: 314) stresses four key skills in effective communication which include "understanding communication from another's perspective, listening, emotional intelligence, and conflict management."

The business world and industry require that communication skills are improved through learning to meet the demands of the working world. In order to obtain useful information as a consideration of improving communication skills, the development of a communication skills assessment instrument is viewed as a strategic effort. The availability of instrument kits will motivate school principals and teachers to assess students' communication skills, and in return, information on communication skills achievement can be used as a consideration in improving the quality of learning.

Preliminary studies taken to develop the instrument are performing theoretical and field studies in the form of observations and interviews on empirical conditions in the field. The information obtained from the preliminary study is used as the materials for developing the initial draft of the instrument development which include: (1) formulating the constructs, (2) formulating the indicators, (3) making the instrument blueprints. This is relevant to the instrument development proposed by Mardapi (2006: 16) covering 10 steps: (1) formulating constructs, (2) formulating indicators, (3) making instrument blueprints, (4) determining the standards or parameters (5) writing instrument items, (6) performing validation process, (7) revising, (8) testing, (9) conducting a validity test, and (10) having produced an eligible instrument.

The assessment instrument of the students' communication skills at Vocational High Schools developed in this research is a fairly simple assessment instrument, but it could gather sufficient information. Therefore, it becomes one of the alternatives that can be used by school principals or teachers to conduct an assessment on the quality of communication skills. This assessment instrument has been tested in which the results indicate that the instrument offers clarity of the manual usage, is quite practical and is effective.

The results of descriptive analysis on the feasibility of the instrument viewed from the aspect of readability has achieved the mean score of 3.91, the effectiveness aspect is 3.90, and the practicality aspects is 4.06. The mean of the total score is 3.95 from the maximum score of 5, included in the mean score range > 3.4 - 4.2 belonging to the classification of feasible. This indicates that the feasibility level of the communication skills assessment instrument is in a good category. Thus, the validation through the process of examination performed by the teacher has led to the formulation of instrument items which are fitted with the indicators. Mardapi (2005, 15-20) says that the validation process, both theoretical and empirical validation, is an important step. Theoretical validation is obtained through an expert judgement to examine how far the dimension provides the exact

description of the construct, how far the indicator becomes the exact description of the dimension, and how far the precise instrument blueprints can measure the indicator.

The indicator system is designed to provide accurate information on various conditions and information on how the components being assessed may produce the whole effects. This concept is in line with Shavelson's (2001: 7) opinion stating that designing an indicator can be performed through the following steps: (1) conceptualizing potential indicators, (2) refining poor indicators, (3) designing alternative indicators of system options, and (4) evaluating the options and begin developing or refining an individual indicator.

The results of the quantitative test, which are analyzed using the items validity test employing the Aiken formula and inter-rater reliability test utilizing Cronbach's Alpha coefficient criterion, indicate that the instrument items being developed are valid items and the instruments are reliable. Validity is the supporting evidence and theory to the interpretation of test instruments assessment results which are in accordance with test objectives (Mardapi, 2011: 39). The type of validity used in this research is a content validity, which is estimated by testing on the feasibility or relevance of content through rational analysis performed by the competent panel (Azwar, 2016: 42). Meanwhile Satyadi and Kartowagiran (2014: 295) add that another purpose of the validity test is to examine the extent to which the content of instrument represents the aspects that are considered to be the conceptual framework of the materials being tested. In this research, the assessment instruments are in the form of a communication practical test validated by teachers and evaluation experts. Referring to the opinion of Allen & Yen (1979: 98), although the assessment is based on individual subjective judgment, some people who are competent in the field being measured are involved. Hence, the results can be accounted for.

The reliability test results indicate that the instrument of communication skills assessment developed in this research reaches the coefficient of $\alpha = 0.848$. Thus, it is concluded that this instrument is reliable. This level of reliability suggests that instruments can be trusted as a means for assessing communication skills. The coefficient used is the consistency between assessors (Mardapi, 2011: 86). In this study, two raters are employed which are intended to avoid the possibility of subjectivity and bias. As Gwet (2012: 8) stresses, "being in agreement with ourselves does not suggest that we will be in agreement with others." In addition, Azwar (2016: 88) argues that in order to minimize the effect of subjective judgment, the rating procedure is better performed by at least two people.

The research findings show that there is one out of eight instrument items which is invalid. The item is instrument number 7 that measures interpersonal communication skills. This finding indicates that the instrument item number 7 is not feasible and requires major revisions. Suranto Aw (2011: 12) describes interpersonal communication as a communication which has a great effect in influencing other people. This is because the people involved in the communication process usually meet directly and do not use media devices in delivering the message in which spatial distance does not really occur between them (face-to-face). Since they face each other, each can immediately know the response given, and reduce the level of dishonesty when the communication occurs. Hardjana (2003) argues that interpersonal communication will be more effective if the message is received and understood as intended by the sender of the message, and the message is followed up by a voluntary action of the recipient of the message, which can lead to improvement of the quality of interpersonal relationships.

The characteristics of communication skills instruments developed in this study differ from other assessment instrument models in several manners. Firstly, the communication skill assessment instruments are used as a data gathering tool in conducting communication skills practice-based tests implemented at the end of the semester as well as in competency tests in schools. Secondly, this assessment instrument consists of 7 components or 7 items of communication skills practice-based tests, namely (a) telephone handling, (b) presentations, (c) interviews, (d) lobbying and negotiation, (e) managing meetings, (f) communicating via mail (written communication), (g) interpersonal communication, and (h) searching for information on the internet. With regard to this, the users of the instruments can apply these seven components, or choose certain components that are deemed to have a higher priority. Lastly, this assessment instrument can be used to assess Vocational Practice-based Test both for grade X and XI, and XII and for semester final exam in Vocational High Schools offering Office Administration Expertise Programs.

Despite that, this research has a few limitations. First, the seven components of the communication skills assessment instrument developed in this study do not cover other potential communication skill components such as the ones used in different contexts of the environment and conditions. Second, the assessment instrument developed in this research was tested only using two teachers as raters. Therefore, the assessment process does not involve independent raters from outside of the school (independent appraisal). Since it only relies on the assessment of the internal party (internal appraisal), it

is possible to reduce the level of objectivity in assessment results. To reduce this limitation, a crosscheck of the assessment results should be carried out between sources such as assessors and teachers.

4 CONCLUSIONS AND SUGGESTIONS

Based on the research findings and the discussions described above, this paper offers a few concluding points. Firstly, the components of the communication skills in this research consist of a) telephone handling, (b) presentations, (c) interviews, (d) lobbying and negotiation, (e) managing meetings, (f) communicating via mail (written communication), (g) interpersonal communication, and (h) searching information from the internet. Secondly, the results of the test show that all developed instruments meet the validity and reliability requirements. The validity coefficient of Aiken V shows >0.75 and the reliability coefficient is $\alpha = 0.848 > 0.7$. Thus, the instruments are feasible to be used by teachers to assess the communication skills of students taking Office Administration programs in Vocational High Schools. Lastly, the test results of readability, practicality, and effectiveness of the instruments indicate that the instrument of communication skills assessment is included in the category of good or feasible to be used.

This research also offers a few suggestions for future studies. First, the developed product needs to be disseminated and implemented to assess students' communication skills. Assessments should be performed right after the learning activities are completed (e.g. at the end of the semester), in order to obtain actual and accurate information of the assessed communication skills. Second, to improve the efficiency of the application of the assessment instruments, an assessor (rater) needs to compile data entry in Microsoft Office Excel. This will help to ease the data entry and analysis, as well as in making recommendations for assessment results.

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