Content Validity Analysis of Ethnoscience-based Interview Worksheets in Bukit Ajimut for Medicinal Plants Pharmacognosy Learning

Rinto*, N Hayati, Wiyanto, S Ridho
Post Graduate Program State Universitas Negeri Semarang, Indonesia
*Corresponding author: rintogreat@gmail.com

Abstract. This research is aimed to provide Interview worksheets for Vocational School of Pharmacy Students which have content validity with ethnoscience content so students experience directly how to gain information about medicinal plants used locally as inherited knowledge. Interview worksheets are a form of learning media that can support 21st century skill inside students. Interview worksheets have to be developed with various interview techniques and need a content validity test in order to be used to reach learning goals. The validity of interview worksheets through content validity must be conducted by experts in science learning field. This content validity is done quantitatively by experts by using Aiken’s V. This scoring of interview questions is employed to 26 interview questions with the minimum score is 1 and the maximum score is 5 by 9 validators whose expertise in science learning. Score V gained by using Aiken formula from each question compared to Aiken’s content validity table with significance level 5% to decide point validity. Data analysis of interview questions show 15 valid questions of 26 in designed worksheet instruments. The result of Alpha Cronbach’s reliability test is 0.99 which means that the reliability level is very strong.

1. Introduction
Interview is used as a data collection technique, to find problems of research, to find out things from respondents deeper [1]. This data collection technique by using structured and unstructured interview can be conducted face-to-face or by telephone [2]. This research employed structured interview, because the researchers have known precisely about what information to be gained, provided research instruments in the form of written questions with provided alternative answers. In this interview every respondent is given same questions [3]. Helping tools that can be used in interview are tape recorder, pictures and so on [4].

State that scientific approach suggested in education in Indonesia nowadays is ethnoscience-based approach, that is authentic knowledge in the forms of languages, customs, and cultures, and moral [5]. The implementation of science teaching and learning with ethnoscience approach requires teachers’ ability to combine local authentic knowledge and scientific knowledge [6]. Learning that is focused on socio-scientific issues needs to be developed to encourage students to understand and apply their knowledge, attitude, and decision making skills in dealing with current issues in their community [7].

Ethnoscience-based learning for students provides better knowledge of science process skills [8]. Ethnoscience-based learning conducted by the researchers raises society’s local knowledge in Bukit Ajimut, Waled Asem Village Waled Sub-district Cirebon Regency. Bukit Ajimut has several plants used as traditional medicines by people around Bukit Ajimut. From Pre-observation result, it can be obtained that there are more or less 100 species of medicinal plants in Bukit Ajimut. Vocational School of
Pharmacy Students often take some plants in Bukit Ajimut for practical materials of Pharmacognosy subject.

The use of plants by people around Bukit Ajimut for traditional medication and learning processes encourage the researchers to develop A Guide of Ethnoscience-based Worksheets in Bukit Ajimut to support Pharmacognosy learning in using medicinal plants. The aim of this research is to provide Interview Worksheets for Vocational School of Pharmacy students which have content validity with ethnoscience content so students have direct experience in gaining information about medicinal plants used locally as inherited knowledge. Interview worksheets are a form of learning media that can support 21st century skill inside students. Interview worksheets have to be developed with various interview techniques and need content validity test in order to be used to reach learning goals.

2. Methods
This research is a preliminary research to determine the design of interview worksheets that suitable for students’ learning in Vocational Schools of Pharmacy. Interview worksheets are designed by using questionnaires adjusted for data contents, which hopefully can be obtained by students after conducting interviews by using interview worksheets [9]. The validity of interview worksheets through content validity must be conducted by experts in science learning field.

This content validity is done quantitatively by experts by using content validity method for questionnaires and Aiken’s V formula for the calculation [10]. This scoring of interview questions is employed to 26 interview questions with the minimum score is 1 (one) and the maximum score is 5 (five) by 9 (nine) validators whose expertise in science learning. Score V gained by using Aiken formula from each question compared to Aiken’s content validity table with significance level 5% to decide question validity [11].

Next step to be done to make the questionnaire used in this research reliable as a data collector, the questionnaire needs a reliability test. Generally, reliability means that a reliable thing or a reliable situation. In a statistical analysis of a research, a reliability test functions to find out the consistence level of a questionnaire used by the researchers, so the questionnaire is reliable to measure research variables even if the research is conducted many times with the same questionnaire. The type of reliability test used in this research is Alpha Cronbach’s reliability test by using application Anates V4 [12].

3. Results and Discussion
Content validity is defined as “the degree to which items in an instrument reflect the content universe to which the instrument will be generalized” [13]. It is highly recommended to apply content validity while the new instrument is developed. In general, content validity involves evaluation of a new survey or interview instrument in order to ensure that it includes all the items that are essential and eliminates undesirable items to a particular construct domain [13]. The judgemental approach to establish content validity involves literature reviews and then follow-ups with the evaluation by expert judges or panels.

A quantitative approach may allow researchers to send content validity questionnaires to experts working at different locations, whereby distance is not a limitation.

The design of Interview Worksheets is made by adjusting for the learning objectives of Pharmacognosy, age level of students and also ethnoscience of medicinal plants in Bukit Ajimut. state that empirical studies have repeatedly shown that low response rates are often due to participants being unable to read or follow the questions or statements in questionnaire [14].

Interview is an appropriate approach because the interviewers can interact directly with the respondents and reduce the respondents’ low response and misperception. Interview for Vocational school students is also a part of practice for Pharmacognosy subject that encourages students to dig knowledge about medicinal plants straightly from the users as local inherited knowledge. These Interview Worksheets are designed by using indicators of knowledge, usage, and how to process the medicinal plants as a part of ethnoscience. Those three indicators result 26 interview questions

The use of ethnoscience or indigenous science indicate a growing recognition that there are other ways of knowing the world aside the European scientific way of knowing, formerly considered as universal
This designed Interview Worksheets employ ethnoscience approach to develop Vocational schools of Pharmacy students’ recognition towards knowledge by observing surrounding environment. The content validity of these worksheets is tested by using Aiken’s V formula with 5 scoring levels, the minimum score is 1 (one) and the maximum score is 5 (five). The interview content of these worksheets are assessed by 9 (nine) expert judges of science learning. Score V gained is compared to Aiken’s table with significance level 5%. Questions in the Worksheets are valid if score Vcount ≥ Vtable (5,9,0.05) = 0.72. Data analysis of interview questions shows 15 questions valid of 26 in designed worksheets instruments. Valid interview questions generally are questions containing understandable questions. Interview questions contents can be seen in table 1.

Table 1. valid questions based on the contents

| No | Questions |
|----|-----------|
| 1  | Have you ever used herbal plants to cure diseases or disease symptoms? |
| 2  | Have you ever taken manufactured medicines? (If yes, please mention) |
| 3  | Can you mention kinds of plants used for curing diseases? (Local names / general names) |
| 4  | How do you get the knowledge of curing diseases traditionally by taking or using herbal plants? |
| 5  | What diseases do you usually experience? |
| 6  | What are the causes of the diseases? |
| 7  | What do you do if traditional medicines that is by taking or consuming herbal plants have not relieved the diseases/ the disease symptoms? |
| 8  | What are parts of herbal plants that can be used as traditional medicines for children’s diseases? (Mention!) |
| 9  | Are there any non-plant ingredients added to traditional medicines? (mention if any) |
| 10 | How do you use or take the herbal potion for curing the diseases? |
| 11 | How do you get herbal plants? (are they cultivated/are they bought in the market/ are they wild plants?) |
|    | If they are cultivated: |
|    | a. Where do you cultivate the plants? |
|    | b. What are the purposes of the cultivation? |
| 12 | Are there any certain conditions to process or concoct the herbal medicines? |
| 13 | What are the advantages of traditional medication such as taking herbal plants? |
| 14 | What are the disadvantages of traditional medication such as taking herbal plants? |
| 15 | Are there any philosophical values from each herbal plant used for traditional medication? |

Invalid questions generally have questions which are ambiguous in limiting answers. Interview questions contents can be seen in table 2. Those questions are considered unnecessary to be asked to respondents. The result of Alpha Cronbach’s reliability test is 0.99 while score range of Alpha Cronbach’s >0.08, from the result it can be seen that the reliability level is very strong [16]. Those question patterns of invalid questions can be revised in order to be easily understood and used so the respondents can catch the meaning of questions clearly. One question also can be split into several questions to make them easy to be answered by the respondents.
Table 2. Invalid questions based on the contents

| No | Questions |
|----|-----------|
| 1  | Mention types of plants used for medication frequently? |
| 2  | What kind of illnesses that can be cured traditionally by consuming medicinal plants? |
| 3  | Since when have you used the plants as traditional medicines? |
| 4  | Why do you prefer to choose traditional medication than modern medication? |
| 5  | Do you process the plants to be used as traditional medicines by yourself? if yes, mention the name of the potion |
| 6  | What is the name of plant potion used as medicine? |
| 7  | How to process the potion? |
| 8  | Is there any specific time suggested to make the potion? |
| 9  | Is there any prayers or ‘mantra’ in curing the illness? |
| 10 | Is there any effects in using each of the plants? |
| 11 | Is there any person asking you about how to cure illnesses by using the potions made of medicinal plants? |

4. Conclusion

This research is aimed to provide Interview worksheets for Vocational School of Pharmacy Students which have content validity with ethnoscience content so students experience directly how to gain information about medicinal plants used locally as inherited knowledge. Interview worksheets have to be developed with various interview techniques and need a content validity test in order to be used to reach learning goals. This content validity is done quantitatively by experts by using Aiken’s V. This scoring of interview questions is employed to 26 interview questions with the minimum score is 1 and the maximum score is 5 by 9 validators whose expertise in science learning. Data analysis of interview questions show 15 valid questions of 26 in designed worksheet instruments. The result of Alpha Cronbach’s reliability test is 0.99 which means that the reliability level is very strong.

References

[1] King N and Horrocks C 2010 Interviews in Qualitative Research. Thousand Oaks (CA: Sage Publications)
[2] Bolders A 2012 Conduct. res. interview, J. Med. Imaging Radiat. Sci. 43 66
[3] Kell H J, Martin-Raugh M P, Carney L M, Ingl P A, Chen L, and Feng G 2017 ETS Res. Rep. 1 1
[4] Jamshed S 2014 J. Basic Clin. Pharm. 5 87
[5] Sudamin S, Selia E and Taufiq M 2018 J. Phys.: Conf. 983 012170
[6] Ugwuanyi E C 2015 Effects of an ethno-science based instructional model on students’ academic achievement and interest in the senior secondary school biology. Unpublished master thesis: University of Nigeria Nsukka
[7] Jho H, Yoon H G and Kim M 2014 Sci.Educ. 23 1131
[8] Ibe E 2017 J. Multidisciplinary Adv. Stud. 1 35
[9] Levashina J, Hartwell C J, Morgeson F P, Campion M A 2013 Pers. Psychol. 672 41
[10] Hendryadi 2014 Content Validity Teorionline Personal Paper, 01(01), 1–5.
[11] Retnawati H 2016 Res. Eval. Educ. 2 155
[12] Douglas G and Bonett T A W 2014 J. Marriage Fam. 1 1
[13] Taherdoost H 2016 Int. J. Acad. Res. Manag. (IJARM) 5 28
[14] Petra M Boynt. Trisha Greenhalgh 2004 BMJ 328 1312
[15] Fasasi R A 2017 Int. J. Sci. Educ.: 39 548
[16] Taber K S 2018 Res. Sci. Educ. 48 1273