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Research Article

DEVELOPMENT AND VALIDATION OF THE ASSESSMENT ON STUDENTS' EXPERIENCES IN FIELD STUDY

Vilma P. Gayrama and Mae V. Ceblano

Department of Teacher Education Biliran Province State University-Biliran Campus

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ABSTRACT

This paper describes the output and processes involved in the development and validation of instrument as a tool for assessing students' experiences in the field study subject consisting of three phases; (1) construct definition and item development, (2) face validity and (3) pilot testing of the instrument. By reviewing related literature and models of experiences of students on their field study, constructs or latent variables were defined operationally as basis for item development. For construct validation, factor analysis was used to assess the internal structure of the instrument and reliability was assessed using Cronbach's *alpha* coefficient as measure of internal consistency of the items. Factor analysis of the students' responses yielded a four – factor solution accounting for 70.38% of the total variance in the responses. Based on initial classification and nature of items, these 4 dimensions of the students' experiences of field study course were identified as follows: (1) orientation, (2) instruction, (3) experience, (4) evaluation. The findings suggest that the final version of the questionnaire can be utilized in attaining the purpose, and the information derived from experiences of students' may be used as a basis for more informed decision concerning field study subject for both basic education and field study teacher.

INTRODUCTION

Providing practical learning experiences in the actual setting is one of the most important elements of practice teaching preparation. These experiences will begin with field study where students are given opportunity to observe, verify and reflect on the actual set up of the learning processes and the environment where it is transpiring. Experiential learning will begin with field observation and gradually intensify until they undertake practice teaching. Ritzelda, *et al*. [2] emphasized that the learning experiences, which are built around mentoring, will start from field observation progressing to participation and students' understanding will deepen through off campus activities.

Conversely, Kolb [1] in his model of experiential learning cycle regards the process of reflecting upon experience as crucial stage because experience without reflections does not lead on learning. Reflective observation and abstract conceptualization stages require the development of learning activities and materials that could back up and complement student's actual learning experience and knowledge retention**.** Thus, the one-unit Experiential Learning Courses (ELC) also known as Field Study (FS) offers learning experiences wherein students could observe, discern and apply the theories and principles of the teaching and learning process along different school setting.

However, despite the many years of implementation in the education curriculum, research on the development of questionnaire to assess students' experiences in the field has received far less empirical attention, hence this study was conducted. It aimed to develop and validate the questionnaire that would assess students' experiences in Field Study.

METHODOLOGY

Establishing Psychometric Properties of the Instrument

The development and validation of an instrument is an arduous process to measure or assess constructs or variables. It requires a careful and thorough action to ensure the reliability and validity of the instrument. Nunnaly *et al*. [3] mentioned that experts in measurement believed that every measurement device should possess certain qualities, and the two most common are reliability and validity. Any kind of assessment must be developed in a way that gives accurate information about the performance of the individual being evaluated. In this study, three phases were involved in the development and validation of questionnaire on the assessment of students' experiences in field study:

Corresponding author:* **Vilma P. Gayrama
TWTC, Dediapada NAU, Narmada, Gujarat, Scientist (H.Sc) KVK, Dediapada

Phase 1 - Construct definition and item development - The constructs were operationally defined with intensive literature review to obtain the descriptions of constructs to be measured. The literary accounts were then developed into an item that defines the chosen constructs.

Phase 2 – Face validity – Face validity of the instrument was done by the experts in the field of constructing research instrumentation, students who went through field observation, subject teachers of the field study and cooperating teachers**.** These experts gave feedback and indicated whether or not they considered items to be relevant with regards to the experiences of students in the field observation. In addition, Participants were also asked to add comments and suggestions for improvements so as to enhance the face validity of the instrument**.** Colton [4] stressed that **p**retesting is a process that allows the instrument developer to check the validity, reliability, and utility of an instrument prior to administering it to the target respondents as it can provide information for revising and improving the instrument and hence, its validity. Indeed, instrument construction is an iterative process as it involves constant revision and refinement in response to feedback.

Phase 3 – Pilot testing the instrument. The instrument were field-tested to the target population employing random sampling of currently enrolled fourth year BSED students at one of the State Universities in Region VIII upon the approval of the College Dean. According to Hogarty *et al*. [5] although sample size is important in factor analysis, there are varying opinions, and several guiding rules of thumb cited in the literature. A set of recommendations also exist providing researchers with guidance regarding how many participants are required for each variable, often termed, the sample to variable ratio, often denoted as *N:p* ratio where N refers to the number of participants and p refers to the number of variables.

Treatment of Data

The data was analysed through factor analysis, a multivariate statistical approach for interpreting self-reporting questionnaires. William *et al*. [6] purported that factor analysis reduces a large number of variables into a smaller set of variables (also referred to as factors) and it establishes underlying dimensions between measured variables and latent constructs, thereby allowing the formation and refinement of theory.

Preliminaries for Factor Analysis. Prior to factor extraction, the Kaiser-Meyer-Olkin (KMO) measure was performed to calculate a measure of sampling adequacy and Bartlett's Tests of Sphericity to check adequacy of interrelations among the variables. According to Hair [7] the KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis and the Bartlett's Test of Sphericity should be significant ($p<.05$) for factor analysis to be suitable. If these assumptions will be met, then the analysis of data can proceed to factor analysis.

Reliability Evidences. Reliability estimation is vital when developing an instrument/questionnaire. Reliability ensures that any instrument used for measuring gives the same result every time the instrument is used. One of the approaches to estimating the reliability of the developed instrument supported by Hair [8] is through internal consistency measure using Cronbach's alpha coefficient as a measure of reliability. The widely held rule of thumb is that an alpha of .70 or higher suggests good reliability.

Furthermore, in order to validate the items of the constructs in the variables, Confirmatory Factor Analysis (CFA) was used as a method of extraction and Varimax with Kaiser Normalization in order to find meaningful pattern from the set of items. According to Williams [6], CFA is an approach to test a proposed theory or model regarding the number of factors, and which factor theories or models best fit. In this case, the four identified construct variables are orientation, instruction, experience, and evaluation. Construct validity was conducted in SPSS version 23.

RESULTS AND DISCUSSION

Presentation, Analysis and Interpretation of Results

Initial factor analysis assumption of the 30 questions was subjected to test Kaiser-Meyer-Olkin and Bartlett's test of sphericity. The preliminary analysis showed that (KMO) measure of sampling the adequacy coefficient was .798, Bartlett's test of sphericity was significant ($\chi^2 = 877.815$, $p = .001$). Cronbach's alpha coefficient resulted a reliability coefficient of 0.932. These results show that sample size can proceed to factor analysis. Test of correlation was also conducted wherein an item of coefficient below 0.30 were removed, thus 25 items remained in the questionnaire. Tabachnick [8] recommended inspecting the correlation matrix (often termed Factorability of *R*) for correlation coefficients over 0.30. Hair *et al*. [9] categorised these loadings using another rule of thumb as ±0.30=minimal, ±0.40=important, and ±.50=practically significant.

For construct validity of the four factors, confirmatory factor analysis using rotated component matrix with varimax rotation method was used. Factor loadings with an absolute value higher than 0.45 were confirmed significant and factor loadings less than 0.45 were not included in counting the number of times. Thus 14 items remained in the two-factor extraction, which accounted for a total variance of 70.38% and a reliability coefficient of 0.902 (90.2%).

The first factor accounted for 44.77% of the total variance which labelled as orientation. This factor composed of five items, wherein "The teacher allows the FS students familiarize their responsibilities in the field school." had the highest factor loading (0.831). The second factor accounted for 10.25% of the total variance of the questionnaire which composed of three items wherein "The grading standards or grade descriptors of the university were clearly presented by the teacher" had the highest factor loading (0.831) and named as instruction. The third factor consists of four items with a total variance of the questionnaire of 8.38%. The statement "The teacher always give feedback on the output of the FS students" had the highest factor loading (0.823) which labelled as experience. While the fourth factor composed of 6.97% of the total variance of the questionnaire and named as evaluation. This factor consists of two items in which the statement "The teacher evaluates the student's portfolio" had the highest factor loading (0.811) and categorized as evaluation. Details of the result are shown Table 1**.**

Table 1 Rotated Component Matrix of Questionnaire

	Statement	Component			
		F1	F2	F3	F4
1.	The teacher Presents the course syllabus**.**	0.530			
2.	The teacher allows the FS students familiarize their responsibilities in the field school.	0.831			
3.	The teacher uses instructional materials in teaching.	0.615			
4.	The teacher provides guidance and counseling to foster his/her students learning.	0.615			
5.	The teacher develops a pleasant relationship with peers, administrators and FS students.	0.626			
6.	The grading standards or grade descriptors of the university were clearly presented by the teacher		0.831		
7.	The FS teacher shows command of content knowledge of the subje				
8.	ct.		0.818		
9.	The teacher employs diversified modes of teaching strategies to enhance students' learning		0.684		
10.	The teacher organizes the schedule in Fielding the FS students to their practicum site.			0.664	
11.	The teacher regularly monitors the attendance in the field work.			0.801	
12.	The teacher always gives feedback on the output of the FS students.			0.823	
13.	The evaluation criteria were clearly defined.			0.589	
14.	The teacher evaluates the student's portfolio				0.811
15.	The teacher introduced the FS student to his/her pupils.				0.800

CONCLUSION

The development of a valid and reliable instrument to assess students' experiences in field study has undergone a rigorous process of revision based on the content area experts' feedback and suggestions and the result of pilot testing. From the initial 30 items, the final form developed consisted of 14 items. The result shows that within the acceptable range of validity and reliability, the final version of this questionnaire can be utilized in attaining the purpose of developing it. Likewise, the clear description of the response category as well as the elimination of some undesirable items reduces the length of the questionnaire, making it more manageable to administer. Furthermore, the result of factor analysis which enables the identification of a more comprehensive factor naming would be helpful enough to future users.

Recommendations

Having drawn the final version of the questionnaire, it is recommended that results of this study be re-examined to establish its consistency or possible improvement in validity and reliability when sample respondents will be stratified by type of school either public or private. With this, possible application of other methods aside from factor analysis can be facilitated. One may also try running the data using exploratory factor analysis to verify the relevance of factors formed from this method to the factors formed from this result.

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