

## Developing A Cultural Intelligence Instrument for Guidance and Counseling Teachers

Suciani Latif<sup>1</sup>, Uman Suherman AS<sup>2</sup>, Mamat Supriatna<sup>3</sup>, Ilfiandra<sup>4</sup>

<sup>1</sup>Guidance and Counseling, Universitas Negeri Makassar, Indonesia

Email: [suciani.latif@unm.ac.id](mailto:suciani.latif@unm.ac.id)

<sup>2</sup>Guidance and Counseling, Universitas Pendidikan Indonesia, Indonesia

Email: [umansuherman@yahoo.co.id](mailto:umansuherman@yahoo.co.id)

<sup>3</sup>Guidance and Counseling, Universitas Pendidikan Indonesia, Indonesia

Email: [ma2t.supri@upi.edu](mailto:ma2t.supri@upi.edu)

<sup>4</sup>Guidance and Counseling, Universitas Pendidikan Indonesia, Indonesia

Email: [ilfiandra@upi.edu](mailto:ilfiandra@upi.edu)

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**Abstract.** The study aimed to produce a self-report instrument using a cultural intelligence scale for Guidance and Counseling teachers. It employed Research and Development design adopting the model of Adam and Wieman (2011). Operationally, the development of the instrument was divided into five stages, 1) determining the question format; 2) determining the question construction; 3) determining the guidance of assessment, expert judgment, and revision of the question; 4) expert judgment by the experts of culture and instrument development; and 5) analyzing instrument using the Rasch model. Data analysis showed that in the development of cultural intelligence instrument: 1) the instrument construct was correctly determined, and it could measure one variable of Guidance and Counseling teachers' cultural understanding; 2) there were five items of cultural intelligence instrument categorized as very difficult and five items were in the very easy category; 3) all items of cultural intelligence instrument of Guidance and Counseling teachers were fit, meaning that it functioned normal, could be understood by the Guidance and Counseling teachers, and can measure what it should measure; and 4) The *Cronbach Alpha* was 0,96, indicating that the instrument was in the Very Good category with the *Person Reliability* of 0,92 and *Item Reliability* of 0,99. Therefore, based on the Rasch model analysis, the cultural intelligence instrument of Guidance and Counseling teachers, which was developed, had fulfilled the set standard and Good criteria, and it could be used to collect data about the cultural intelligence of Guidance and Counseling teachers.

**Keywords:** Guidance and Counseling teachers; Instruments; Cultural Intelligence; Counselor

## INTRODUCTION

Broadly speaking, all counseling process is multicultural interaction between counselor and counselee (Erford, 2015). Therefore, a counselor should have enough capability to provide guidance and counseling to counselee with social

and cultural diversities (Sue et al., 2019). Sue and Sue called the ability as multicultural competence. It is supported by Orozco et al. (2014) that multicultural competence has become mainstream that significantly influences counseling theory and practice in the 21<sup>st</sup> century,

so the counselor should be more competent to face diversity.

Gladding (2012) stated that a counselor should be sensitive to clients' backgrounds and special needs. Otherwise, they can misunderstand and make the client frustrated or hurt them.

A study in America showed that around 40% of counselees did not continue to the next counseling session because the counselors did not have cultural sensitivity as one of the multicultural competencies (Bidell, 2012). In a country with diverse cultures, counselors should have multicultural competencies related to the awareness of cultural assumptions, values, and biases of various cultural identities (Ramadhoni & Bulantika, 2020).

Multicultural counseling competencies refer to the awareness, knowledge, and skills needed to perform in front of pluralistic societies effectively. They should be able to communicate, interact and negotiate with counselees from the various background (Sue et al., 2019). Furthermore, Sue et al. (2019) explained that at the social / organizational level, multicultural counseling competence could effectively push the development of new theory, practice, policy, and structure of an organization that is friendlier to all groups. Knowledge usually refers to the understanding of content of various cultures; awareness refers to the counselor's assumption or bias emerging in the counseling relationship; while skills refer to the attitude that involves the counselors. Supriatna (2011) explained that multicultural counseling is related to various counseling relationships which involve members from different ethnical or minority groups; or counseling relationships with involve counselors and clients from the same race or ethnicity but have different cultures due to other variables like genders, sexual orientation, social and economic factors, and age.

Many self - report instruments have been developed in counseling to assess the counselors' multicultural understanding. Various instruments from various theoretical models of multicultural competence still show differences in their effectiveness in measuring multicultural competence (Constantine & Ladany, 2001). Ridley et al. (2001) stated that cultural competencies are difficult to understand because the relevant constructs are still limited. Therefore, the concepts of cultural competencies and potential are offered to comprehensively inform our understanding of the training and

practice of multicultural counseling (Goh et al., 2015).

Firstly, concepts of cultural intelligence were introduced by Early and Soon Ang in 2003. Initially, the concept emerged and developed in the global business circle. It was then extended to the military, nonprofit organizations, companies, consultants, etc. Cultural intelligence has been essential intelligence since in the 21<sup>st</sup> century (Livermore & Van Dyne, 2015). Globalization has improved the interaction between cultures, which increases the possibilities of cultural misunderstandings, tensions, and conflicts (Ang et al., 2011).

Cultural intelligence refers to the individual's ability to understand, think, and act effectively in situations dealing with cultural diversities (Ang & Van Dyne, 2008). According to Peterson (2004), cultural intelligence is the ability to involve a series of acts implementing skills and qualities to adapt to values and behavior based on the culture of someone whom we are interacting with. Cultural intelligence is correlated with multicultural counseling competence in guidance and counseling. Thus, cultural intelligence can be defined as the counselors' understanding and skill to work with counselees from various cultures (Wahidah et al., 2020).

The instrument developed to measure cultural intelligence is named *Cultural Intelligence Scale* (CQS), consisting of self-report and observer reports (Ang & Van Dyne, 2008). CQS measures four dimensions of cultural intelligence, including metacognitive, cognitive, motivation, and attitude. The study conducted by (2018) to hundreds of overseas students indicated that cultural intelligence significantly influences Indonesian students overseas to adapt more effectively.

Studies about cultural intelligence have been widely carried out in business and management contexts in Asia and Australia regions (Ang et al., 2015). The results show that cultural intelligence is important to allow someone to interact effectively in a multicultural environment. The findings showed that cultural intelligence correlates with interpersonal intelligence (Utami, 2018). In Indonesia, studies about cultural intelligence in the university are still limited. The attention on the development of cultural intelligence in the university is still low, including in the Guidance and Counseling program. The development of multicultural competence in the university for Guidance and

Counseling teacher candidates had not been planned well. Teachers are susceptible to work under cultural bias because of a lack of multicultural competence (Budiman, 2016). In fact, multicultural competence is an important factor in performing effective guidance and counseling (Baruth & Manning, 2016; Hays & Erford, 2018; Ibrahim & Heuer, 2016)(Baruth & Manning, 2016; Hays & Erford, 2018; Ibrahim & Heuer, 2016).

Therefore, we should develop a cultural intelligence instrument for guidance and counseling teachers. The instrument would describe the teachers' personal ability to effectively interact with students from different cultural backgrounds and determine their ability to design and conduct guidance and counseling services sensitive to cultural diversity. The instrument would also be used to design cultural-based education and training programs for Guidance and Counseling teachers.

According to (Wright & Mok, 2004), the concept of objective measurement in social science has five criteria: 1. Linear (has a similar interval); 2. Precisely estimating; 3. Finding unfit (*misfits*) or not general (*outliers*) item(s); 4. Solving missing data; 5. Resulting in replicable measurement (being independent from the investigated parameter(s)).

Those five indicators, so far, could only be fulfilled by the Rasch model. In other words, the quality of measurement in the social science performed using the Rasch model can be similar to the measurement result in Physics (Sumintono, 2014).

The Rasch model was firstly developed by Georg Rasch in the 1960s and was popularized by Benjamin Wright (Sumintono, 2014). The raw data consists of dichotomy data (true and false) that indicate students' ability. It was formulated further by Rasch into a model that correlates between students and the items (Sumintono & Widhiarso, 2015).

The development of measurement instruments in social science (including counseling, guidance, and psychology) is still dominated by classical test theory (Wibisono, 2016). The discriminatory power (differentiation power) and item difficulty level of this instrument development model depend on the sample, visible score, and pure score, especially the difficulty level of the test, and there is an assumption of equal measurement error of all respondents (Alagumalai et al., 2005). Data types obtained by instruments that ask for opinions or

attitudes (in social science) are nominal and ordinal. Tools that can be used to analyze the data are also limited (Michell, 2002).

A model called Item Response Theory or IRT, one of them is the Rasch analysis model, was developed to overcome the problem. The use of the Rasch model is validating instruments to produce more comprehensive information (Bond et al., 2007). According to Sumintono & Widhiarso (2014), the strength of the Rasch model compared to classical test theory is that it can predict the missing data based on the individual response pattern. Thus, the results of statistic analysis using the Rasch model are more accurate. It can also result in a standard error measurement value that can improve the accuracy of the calculation (Ardiyanti, 2016). Therefore, this study employed the Rasch model in analyzing the data.

The research question was about how cultural intelligence instruments are developed for Guidance and Counseling teachers. The study aimed to produce a cultural intelligence instrument for Guidance and Counseling teachers and counselors. The urgencies of this research are 1) theoretically, it is a new concept in the Guidance and Counseling area, so this study has widened and developed the discussion of the subject that can be used to develop cultural - based professional competence of Guidance and Counseling teachers; 2) practically, the research output can be used to measure the cultural intelligence of not only the Guidance and Counseling teachers, but also students, and counselor candidate currently studying in Teacher Education - Guidance and Counseling program.

## METHOD

It is a development study. Research and development in education are based on industry research and development. In this case, research output is used to plan a new procedure and product that will be systematically trialed in the fields, evaluated, and improved until meeting specific criteria, namely effectiveness and quality or meeting the standard of Gall et al. (2007).

Stages carried out in this research and development followed Gall et al. (2007), namely: 1) preliminary study and gathering initial information, 2) planning, 3) developing first product format, 4) first trial, 5) revising product, 6) field trial, 7) revising or improving product

resulted from a field trial, 8) field implementation test, 9) revising final product, 10) dissemination and implementation. The development of cultural intelligence instruments adopted the development model of Adams and Wieman (2011). Operationally, the development of the instrument underwent five stages, namely: 1) determining the question format; 2) determining the question construction; 3) determining the guidance of assessment, expert judgment, and revision of question; 4) expert judgment by the experts of culture and instrument development; and 5) analyzing instrument using the Rasch model.

Data were analyzed quantitatively and qualitatively. Quantitative analysis was performed using factor analysis. It is a method to find out the correlation between some dimensions which have a complex correlation. Besides that, we performed an SPSS analysis to test the instrument's reliability and an interrater agreement model to measure the instrument's reliability based on expert judgment. The qualitative analysis measures the validity by prioritizing the suggestion / input from expert judgment and the practicality of the instrument based on the input from participants (Guidance and Counseling teachers and students).

## RESULTS AND DISCUSSION

### Results

The Rasch model is one method that can be applied in developing measurement instruments besides classic theory (Afrizal, 2018). Rasch model has some benefits compared to a classical theory, like the possibility to accommodate a probability approach in looking at the attributes of all objects being measured, the ability to solve problems on metric differences between questions, the ability to solve the lost data, and the objectiveness (Sumintono, 2014).

Rasch implemented precise basic principles and a proper data analysis model for a qualitative study, especially for ordinal data analysis, so that it is helpful for research in the social science area (Sumintono, 2021).

Yu Chong (2013) emphasized five important aspects in analyzing data using the Rasch model, namely: 1) calibration and estimation ability of the items; 2) item's characteristic curve in parameter models; 3) information function of the item and instrument; 4) interaction map between item and respondents, and 5) fit / misfit items and respondents.

Based on those points, the instruments in this study were analyzed using the Rasch model. Following is the detail of the standardization of instruments to collect data on Counseling and Guidance teachers' cultural intelligence using the Rasch model.

### Unidimensionality

Unidimensionality analysis aims to identify some attributes or dimensions measured by the instrument. The analysis used Output Table 23 by considering the values of *Raw variance explained by measures* and *Unexplained variance in the 1st to 5th contrast*.

Rasch analysis model used *Principal Component Analysis* (main component analysis) from the residual to measure the degree to which the diversity that the instrument measures what it is supposed to measure (Misbach & Sumintono, 2014).

Measurement unidimensionality can be proven when the *Raw variance explained by measures*  $\geq 20\%$  (Note: 20-40% means Medium, 40-60% means Good, and above 60% means Very Good) and the *Unexplained variance in 1st to 5th contrast of residuals*  $< 15\%$ .

The results of data analysis show that the *Raw variance explained by measures* was 47,2%. Thus, it was included in the Good category. While the *Unexplained variances in 1st to 5th contrast of residuals* were 5,3%, 3,4%, 3,0%, 2,6%, and 2,3% respectively. All of them were lower than 15%. It shows that the independence level of the instrument's item was in a Good category (Wibisono, 2016). Therefore, the instrument's construct can accurately measure one of the cultural intelligence variables of Guidance and Counseling teachers.

### Difficulty Levels of Items

The item's difficulty level can be seen in the Table of Item Measures. The table shows that the SD score is 0.53. Suppose it is combined with the average logit value. In that case, the items are categorized into the levels of Very Difficult (higher + 1 SD), Difficult (0,0 logit + 1 SD), Easy (0,0 logit - 1 SD), and Very Easy (lower than -1 SD). Thus, the score limit of Very Difficult level is  $> 0,53$ , of Difficult is between 0,00 and 0,53, of Easy is from - 0,53 to 0,00, and of Very Easy is  $< - 0,53$ .

Based on the logit score of each item in Table 13, Measure column, from the most difficult to the easiest, there are five items categorized as Very Difficult, which are P33, K18, P43, P26, and P32. In the Difficult category,

there are ten items they are P31, P29, M3, V23, P28, K13, P30, K14, K17, and V24. In the Easy category, there are 14 items they are K16, K15, M5, M8, P27, M2, V25, K11, M6, M7, K12, V22, V19, and M9. While In the Very Easy category, there are five items they are V20, V21, M1, K10, and M4.

**The Fitness Level of Items**

To see the fitness between point and model (item fit), which explains whether the item functions normally in measurement so that the teachers do not misconcept the item, we can see the Table of Item Fit Order (Columns OUTFIT mean acquire (MNSQ), OUTFIT Z - standard (ZSTD), and point measure correlation (PT MEASURE CORR).

The criteria to evaluate the fitness of an item (item fit) or the unfitness of the item (outlier or misfit) according to Booner et al. (2014) are: (1) The OUTFIT MNSQ score should be higher than 0.5 and lower than 1.5. The closer it is to 1, the better it is; (2) The OUTFIT ZSTD value is bigger than -2,0 and lower than +2,0. The closer it is too), the better it is. However, some experts said that ZSTD is also affected by the number of samples. If the sample N>500, the ZSTD value will always be above 3, so the use of ZSTD is not recommended. Thus, in developing the instrument, we needed 659 samples (respondents) so that ZSTD does not need to be used; (3) The PT MEASURE CORR value is bigger than 0.4 and lower than 0.85.

An item is considered fit if it fulfills at least one of those three criteria.

There were three misfit items based on the first criteria (M6, M3, and P26). While based on the third criteria, all items got the PT MEASURE CORR values between 0.50 and 0.70; thus, all were considered fit. The lowest score was obtained by item M6, while the highest was obtained by item K15. Referring to Booner et al. (Sumintono 2014), all items of the cultural intelligence of Guidance and Counseling teachers were considered fit, meaning that it functions normally and can be well understood by the teachers. It can measure cultural intelligence well.

**Instrument Reliability**

Reliability is the steady power (sturdiness) of a test consisting of a set of questions. When the test is administered to the same objects several times within short intervals, the results will be the same or not much different (Nuswowati et al., 2010). For example, a set of tests given to

students today should obtain a similar result when it is given on the next day if there is no learning activity between the two tests, or the students should still remember the material tested in the test on the next day (Sumintono & Widhiarso, 2015).

In general, the *Cronbach alpha* value gives important information about the reliability of the test. Still, it does not specifically show if there is any problem related to the person or items. The Rasch model can give information (person reliability and item reliability) (Chan et al., 2014). We obtained the information on the reliability from the Summary Statistic table 1.

**Table 1.** Instrument Reliability

	Mean	SD	Reliability	Cronbach Alpha
Person	3,58	1,78	0,89	0,95
Item	0,00	0,99	0,89	

*Person measure* = 0,42 logit shows that the average score obtained by all participants indicates the cultural intelligence of Guidance and Counseling teachers. A person's average score, which is higher than the average item score (0.00 logit), means that, in general, the participants have higher skills than the difficulty level of instrument items.

The *Cronbach Alpha* score, which represents the interaction between person and items, is 0.95, categorized as Very Good. Furthermore, the Person Reliability score of 0.89 indicates the consistency of respondents' answers is in the Very Good category. While the *Item Reliability* score of 0,89 indicates that the quality of the instrument's items is at the Excellent level.

Based on the Item table, the average INFIT MNSQ and OUTFIT MNSQ values are 1.01 and 1.07, respectively. As previously mentioned, the closer it is to 1, the better it is. Thus, those average scores are nearly ideal.

Meanwhile, the average person's score for INFIT ZSTD and OUTFIT ZSTD is similar, - 0.20. While the item values of INFIT ZSTD and OUTFIT ZSTD are 0.00 and 0.80, respectively. The ideal ZSTD score is 0. The closer it is to 0, the better it is. Thus, the qualities of a person and items are Good.

## CONCLUSIONS NAD SUGGESTION

Based on the Rasch analysis mode, it can be concluded that the instrument has met the criteria, and it can be used to discover the cultural intelligence of the Guidance and Counseling teachers. Below is the detail: (1) Data analysis shows that *Raw variance explained by measures* is 47,2% (Good category) while the *Unexplained variance in 1st to 5th contrast of residuals* are 5,3%, 3,4%, 3,0%, 2,6%, and 2,3%, respectively, and all of them are below 15%. Thus, the instrument construct can correctly measure one of the variables of Guidance and Counseling teachers' cultural intelligence; (2) Based on the logit score of each item in the Measure column, there are five items categorized as Very Difficult, which are P33, K18, P43, P26, and P32. In the Difficult category, there are ten items they are P31, P29, M3, V23, P28, K13, P30, K14, K17, and V24. In the Easy category, there are 14 items they are K16, K15, M5, M8, P27, M2, V25, K11, M6, M7, K12, V22, V19, and M9. While In the Very Easy category, there are five items they are V20, V21, M1, K10, and M4; (3) Based on the data of Item Fit Order in the *OUTFIT mean acquire* (MNSQ), *OUTFIT Z - standard* (ZSTD), and *point measure correlation* (PT MEASURE CORR) columns, all items of the cultural intelligence of Guidance and Counseling teachers were considered fit meaning that it functions normally and can be well understood by the teachers, and it can measure the culture intelligence well; (4) The alpha Cronbach reliability shows the coefficient of 0,95, meaning that the scale is in the Very Good category. The person's reliability score is in the Very Good category, 0.89. It means that respondents gave consistent answers in each instrument item. The item reliability coefficient shows a value of 0.89, meaning that the instrument has very good items. The *Cronbach Alpha* value, which represents the interaction between person and items, is in the Excellent category. Furthermore, Person Reliability and Item Reliability values are in a Good category. All teachers involved as participants in this study were appropriate data sources.

Based on the conclusion, the study develops cultural intelligence instrument for Guidance and Counseling teachers as below: (1) Theoretically, the research findings have widened the knowledge of guidance and counseling (at school, especially in the Guidance Program) and multicultural counseling. The findings should be

referred to by studies in intelligence counseling and multicultural counseling in Indonesia; (2) Practically, the research findings can be used as the basis or reference for Guidance and Counseling teachers in Indonesia in planning, implementing, evaluating, and developing multicultural guidance and counseling service; (3) Based on the analysis and interpretation of the research findings, further researchers should develop the cultural intelligence instrument by clustering the research population based on the education level and cultural and regional background to gather more specific data.

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