

The New Counseling Alliance Inventory - Counselee Version Based Computer Assisted Testing For Multicultural Counseling



Herdi Herdi, Sunaryo Kartadinata, Agus Taufiq

Abstract: Current studies have consistently found that the excellent performance of counselors and the effectiveness and efficacy of counseling are influenced by counseling alliances that are established between counselor and counselee. For this reason, the existence of a tool accurately measuring counseling alliance between counselor and counselee, especially counselee version is necessary. The purpose of this study is to develop and exam psychometric properties of Counseling Alliance Inventory-Counselee version based computer assisted testing (CAI-Ce CAT). This study used instrument development and standardization procedures. This study's participants of 85 of counsees in Indonesia. Data were collected using questionnaire that is CAI-Ce CAT initial version in the form of Likert five-level scale. Operationally, data analysis was performed by using Rasch Model version 3.75. The results showed that CAI-Ce CAT had satisfying psychometric properties, i.e. item measure, item fit order, DIF, person measure, person fit order, variable maps, rating scale, test reliability, person reliability, and item reliability. Results suggest that the New CAI-Ce CAT can provide efficient and valid assessments of counseling alliance. However, the factor structure still needed to be improved. Further studies are needed to examine the psychometric properties of CAI-Ce CAT in various socio-demography of participants.

Keywords: Computer Assisted Testing, Counseling Alliance, Helping Relationship, Multicultural Counseling, Rasch Model, Working Alliance.

I. INTRODUCTION

Counseling alliance is essential general factors and key variables of each counseling approach [1,2] as well as important and fundamental determinants [3,4,5,6] that direct and influence the success of counseling [7]. Bordin [8,9,10,11,12] defines counseling alliance (working alliance, therapeutic alliance, helping relationship) as “a collaborative

relationship between counselors and counsees that is characterized by emotional attachment, and agreement on the purpose and task of counseling.” Counseling alliance is a conscious and purpose aspect that involves a partnership of counselors and counsees based on an active commitment to specific responsibilities and mutual trust in active involvement enthusiastically in the process.

Two decades of research have consistently shown that counseling alliances are important components and robust key predictors of counseling outcomes [13,14]. The ability of counselors in establishing, developing, and maintaining Counseling alliances in a strong and positive way with the counselee becomes a significant factor that influences positive counselee change [15,16]. A meta-analysis of 295 studies involving 30, 000 counsees show a significant positive relationship in the moderate category with $r = .27$ or $d = .57$ [12] and the size of the impact ranged from .21 to .29 [17,18] between alliances and counseling outcomes that are higher than counseling techniques [17].

Counseling alliances in the first few sessions constitute a “window of opportunity” from counseling processes and outcomes [9]. If the counselee judges that the counseling alliance is well established during the beginning of the sessions (usually the third session), it tends to give a positive impact on counseling outcomes [11,12,15,19,20]. Research shows that positive Counseling alliances formed in the third session can increase 67% of counseling outcomes [21]. Conversely, the counseling process will be disconnected and end prematurely if the counselee judges the alliance badly from the beginning of the counseling session [22,23]. Consequently, counselors must be able to develop, to establish, and to maintain positive alliances from the beginning of the counseling session. In addition, counselors must also be able to explore, to manage, and to improve the interruption of the alliance because it has a positive impact ($ES = .24$) on counseling outcomes [24].

However, up till now, there has been no intensive study to develop standardized instruments to measure the counseling alliance of multicultural counselor in the perspective of counselee. Measuring instruments have tended to be aimed at measuring counseling alliance such as Working Alliance Inventory-Client ([25,26] that develop, studied, adapted, and modified into short form by researchers (such as [27]; [28] [29]. WAI-C-Short Form is a valid, reliable, and widely used version of counseling alliance in research in various fields, populations, and counseling approaches [30,31,32,33,34].

Revised Manuscript Received on November 30, 2019.

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However, the counseling alliance instrument is still in the form of paper and pencil test and its use in online counseling is still limited [35,36]. On the other hand, to date there has been no intensive study to develop standard instruments for measuring and reviewing and developing Counseling Alliance Inventory-Counselor version based Computer Assisted Testing (CAI-Ce CAT) for multicultural counseling. Based on the above, the existence of a standardized measuring instrument to measure the counseling alliance of a multicultural counselor is necessary. The instrument can be a valuable tool in the operationalizing meaning, mapping profiles, and designing programs to develop, to identify, and to test the constructs of ontogenesis and the consequences of counseling alliance for multicultural counseling. Moving on from the existing problems, it is ultimately necessary to develop a standard instrument – CAI-Ce CAT. Assessment experts suggest the importance of developing, using and utilizing CAT in psychological assessments. CAT can have a significant effect on assessments, facilitate information dissemination, facilitate access to information based on assessment results, and interactive assessment results more accurately make the processing, interpretation and presentation of information faster, more efficient, and accurate because it is designed automatically, low cost, safer, interactive, friendly, and personal so that the assessment process becomes more effective [37,38,39].

The purpose of this study is to develop and to test psychometric properties of measuring the wisdom of prospective multicultural counselors. This developed measuring instrument uses different constructs and theories from existing instruments, analyzed by using the Item Response Theory (IRT) with Rasch Model. It is innovative since no previous studies that have ever developed it. The novelty of this research is the acquisition of a standard instrument of counseling alliance based on the latest theory, namely the Integrative Framework that the counseling alliance consists of four dimensions: bond, tasks, goals, and views [43,10] and based on CAT. The research questions asked are: First, how is the feasibility of the item/item fit (item measure, item fit order, DIF) CAI-Ce CAT instrument? Second, how is the person fit (person measure, person fit order) of the CAI-Ce CAT instrument? Third, how is the instrument quality (unidimensionality, factor structure, rating scale) CAI-Ce CAT instrument? Fourth, how are the reliability (item reliability, person reliability, and test reliability) of the CAI-Ce CAT instrument?

II. METHOD

A. Research Design

This study uses the procedure of development and standardization of instruments [40]. This method was chosen because it was intended to develop and to test the psychometric properties of the New Counseling Alliance Inventory-Counselor version based Computer Assisted Testing (CAI-Ce CAT) for multicultural counseling.

B. Participants

Research participants for field trials totaling 85 counsees who had attended counseling sessions. This is based on expert opinion that the minimum number of participants of

30-50 people is appropriate / sufficient for pilot studies to produce stable estimation results on a ± 1 logit scale [41,42].

C. Measure

The initial version of CAI-Ce CAT was used to collect data on the counseling alliance of multicultural counsees. CAI-Ce CAT consists of 24 items that are used to measure four dimensions of counseling alliance, namely bonds, tasks, goals, and views. Each dimension consists of 6 items. CAI-Ce CAT is a 5-level Likert scale, ranging from 1 = very not appropriate up to 5 = very appropriate. The test results using Rasch Model v. 3.73 shows that 14 from 24 items are fit because they meet the criteria for Infit Mnsq, Outfit Mnsq, and Pt-M Corr, the universality with the Principle Component Analysis (PCA) is 34.7%, and the Cronbach's Alpha coefficient for test reliability is good (.80), participant reliability is considered quite good (.76), and items reliability is considered excellent (.96) [41].

D. Research Procedures

The research procedure to develop the standard instrument of CAI-Ce CAT is as follows. The first to the third stage is the review of literature, operationalizing the measuring construct, identifying indicators, compiling items, and setting the response format. The CAI-Ce CAT is developed based on the construct of the counseling alliance theories, namely *Pantheoretical Theory* [8] dan *Integrated Framework* [43,10]. In this initial stage, 24 items were prepared. The item distribution in the initial and the final development stages is presented in Table 1. The response pattern uses a five-level Likert Scale, starting from 1 = very in appropriate to 5 = very appropriate.

The fourth stage is the analysis of contents and pilot testing, revision, and administering items. At this stage, three experts were involved in the fields of psychometrics and education evaluation, educational psychology, and guidance and counseling. Experts provided an assessment and input on the suitability of items and indicators, the suitability of items with response patterns, and grammar. The fifth stage was a trial. Data collection was carried out by goggle form. The researcher asked for willingness and submitted a guarantee of confidentiality of data to the participants before completing the CAI-Ce CAT. The participants were asked to fill the instrument in accordance with the instructions. After the data was collected and verified, it appeared that 85 complete data can be obtained for further analysis. The final stage tested psychometric properties and finalizes items. Various tests to obtain evidence of the validity and reliability of CAI-Ce CAT instruments were carried out at this stage.

E. Research Procedures

The data analysis techniques included various tests of item fit (item measure, item fit order, and differential item functioning [DIF]), person's ability (person measure, person fit order, person maps), analysis of instrument quality (unidimensionality and rating scale), and reliability (test reliability, person reliability, item reliability). The test used the Item Response Theory (IRT) approach, namely the Rasch Model with Winsteps 3.73.

III. RESULTS AND DISCUSSION

A. The Item Fit

The first question about the description of the item fit of the CAI-Ce CAT item was analyzed from the criteria of item measure, item fit order, and DIF by using the Rasch Model. The item measure is used to measure the difficulty level of items. The test results show the S₅ item with + 2.09 logit shows the item that is most difficult to be approved by the participant, while the item S₂ with the value -1.04 logit is the easiest item to approve.

Item fit order is used to test item whether it is fit or misfit. The results of the study found that 15 from 24 items are fit. This decision is based on the criterion that item is said to be fit if the Infit and Outfit values of Mnsq are in the range of acceptable values (.5 MNSQ <1.5), Outfit Zstd (-2 <Zstd <+2), Pt-MCorr (.4 < pt-MCorr .85) [53; 54; 55; 56]. The misfit items are S₅, S₆, S₁₁, S₁₂, S₁₇, S₁₈, S₂₂, S₂₃, dan S₂₄.

DIF is used to detect item bias in certain participant categories. The detected items are known to be based on a probability value of less than 5% (.05) [41; 42; 53; 54; 55; 56]. The test results show one items that are biased towards particular sex, namely S₅ (.0454). But, no items are biased towards a certain frequencies of counseling experiences.

Based on the three criteria, 14 from 24 items are fit. For the sake of balancing items on each dimension of CAI-Ce CAT, 12 items are selected. The final CAI-Ce CAT items are S₁, S₂, S₃, S₄, S₅, S₆, S₇, S₈, S₉, S₁₀, S₁₁, S₁₂, S₁₃, S₁₄, S₁₅, S₁₆, S₁₇, S₁₈, S₁₉, S₂₀, S₂₁, S₂₂, S₂₃, and S₂₄. Items S₁₃ and S₂₁ are not selected even though they are fit since other items already represent them.

B. Person's Ability

The second question about the description of respondents' ability level evidence was analyzed by the criteria of person measure, person fit order, and item person maps by using the Rasch Model. The person measure test results show the respondent number 82 with +2.76 logit tend to have high counseling alliance because the answers mostly very appropriate and appropriate while respondents number 75 with a value of -.91 logit tend to have low counseling alliance since the answers rarely and never. The person fit order is used to test respondents who are fit and misfit. The criteria used are the same as analysis of order fit items. Based on these criteria, 27 of 85 respondents were misfit.

C. Instrument Quality

Unidimensionality. This aspect was measured by the Rasch Model with residual principle component analysis (PCA) of measuring the uniformity of the instrument to determine the measurement [41; 42; 55]. The measurement results display a raw variance of 34.7% and 17.9% variances that cannot be explained by the instrument. This means that the minimum unidimensionality requirements of 20% is fulfilled, but variance that cannot be explained by the instrument ≤ 15% is not fulfilled [41; 42; 53; 54; 55; 56].

Rating Scale. This is a test to verify the ranking options used in the WAI-T-SF instrument that may confuse participants [41; 42; 53; 54; 55; 56]. The results of the Rasch Model analysis reveal that the average observation value starts from logit logit -3.27 for the choice of score 1 (very in appropriate), logit -1.62 for the choice of score 2 (in appropriate), logit -.08 for the choice of score 3 (neutral/moderate appropriate) , logit +1.60 for choice of score 4 (appropriate), and logit +3.91 for choice of score 5

(very appropriate). Similar results are also displayed by Andrich Threshold, which tested the accuracy of the politomical value. This value shows the movement from NONE to negative (-2.54, -.43) and continues to lead to positive (.22, 2.75) in sequence. To be exact, the choice of ranking scale used is valid and appropriate for participants.

Reliability. Table 2 Summary of Statistics shows person measure = +.76 logit. A higher average value of logit .0 indicates the tendency of participants to answer more important in each item. Cronbach's Alpha value for measuring test reliability is the interaction between person and item as a whole shows .80, which is good. Meanwhile, the value of person reliability is .76 and item reliability .93. Therefore, it can be concluded that the consistency of participant answers is quite good and a set of tests including excellent [42; 55]. Infit and Outfit Mnsqs display similar results for person and item. The average values are sequentially 1.04 and 1.01 and .99 and 1.01, which are close to the ideal value of 1.00. Likewise, Infit and Zstd Outfit shows the average value of the person and items of -.1 and -.2 and -.1 and -.1, which means good because it is close to .0.

The results of this study are relevant with previous findings about reliability of similar assessment tool that measure counseling alliance, i.e. Working Alliance Inventory-Client Short Form (WAI-C SF) can provide efficient, valid, and reliable assessments of counseling alliance in individual counseling within the context of epidemiological surveys. Our results relatively same from previous studies reported Cronbach's alpha and test-retest ranging from .80 - .88, i.e. α = .88 in Japanese [34], .847 in Hong Kong [44], but differ in Brazilian with α = .5 [45]. The WAI-C SF could be administered quickly, minimized administration burden, and focused on the higher order construct of counseling alliance ([27; 28; 29; 30].

Table- 1: Statistic Summary

	Output	Results
Item	Item reliability	.96
	Separation index	4.66
	Separation strata (H)	6.28
	Higher logit value	+2.09 logit (S ₅)
	Lower logit value	-1.04 logit (S ₂)
Person	Person reliability	.76
	Separation index	1.79
	Separation strata (H)	2.72
	Higher logit value	+2.76 logit (82)
	Lower logit value	-.91 logit (75)
Instrument	Cronbach's alpha	.80
	Raw variance explained by measures	34.7
	Unexplained variance in 1 st contrast	17.9
	Unexepcted variance in 2 nd contrast	6.2
	Unexepcted variance in 3 rd contrast	4.7
	Unexepcted variance in 4 th contrast	4.4
	Unexepcted variance in 5 th contrast	3.8



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IV. CONCLUSION

This research has produced a measure of the counseling alliance of multicultural counseling with satisfying psychometric properties. The New CAI-Ce CAT is proven to reveal one and four dimensions of the counseling alliance for multicultural counseling. It instrument has satisfied psychometric properties based on the criteria of item measure, order fit items, DIF, unidimensionality, person measure, order person fit, rating scale, test reliability, person reliability, and item reliability. The brief version of the New CAI-Ce-SF consisted 12 items, to measure total score, and/or bond, tasks, goals, and views dimensions of counseling alliance. Four items represent each dimension. The study also expose that the structure of the factors are still needed to be improved. Further studies are needed to adapt and to test instruments with confirmatory factor analysis in broader participants, both counselor's candidates, counselors, counselees, and observers with regard to their socio-demographic proportions.

ACKNOWLEDGMENT

We sincere appreciation is conveyed to all research participants and those who helped to publish this article.

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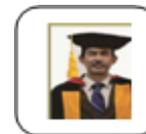
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Sunaryo Kartaditana is professor education in the field of guidance and counseling. He is work at Department of Educational Psychology and Guidance, Faculty of Educational Sciences, Universitas Pendidikan Indonesia, Bandung, Indonesia. Now, he serves as ambassador of the Republic Indonesia to the Republic of Uzbekistan and Kyrgyztan. He is known to be active in fighting for the conditions of education and guidance and counseling in Indonesia. This was evidenced through his involvement in leading the origination of the education profession, including: (1) Chancellor of the University of Indonesian Education (2005-2015 period), (2) Chair of the Indonesian Education Bachelor Association (ISPI), (3) Chair of the Executive Board of the Association of Educators Indonesian Education (ALPTKI), (4) President of the Indonesian Society for Special Needs Education; (5) Vice President of Consortium of Asia Pacific Education Universities (CAPEU); (7) General Chairperson of the Indonesian Guidance and Counseling Association (ABKIN, 2001-2009). Books and chapters that have been made, including: Theory of Guidance and Counseling (2007), Professional Counselors in the National Education System (2007), Revealing Guidance and Counseling (2011), Hygiene of Educational Culture (2012), and Peace Pedagogic (2019). He iss research and publications about pedagogy, peace education, counselor education and supervision.



Agus Taufiq is Associate Professor in the field of Guidance and Counseling. He is work at Department of Educational Psychology and Guidance, Faculty of Educational Sciences, Universitas Pendidikan Indonesia, Bandung, Indonesia. Now, he serves as Dean of the Faculty of Educational Sciences at Universitas Pendidikan Indonesia. He is Textbooks that have been made, namely: (1) Innovative Counseling, (2) Supervision of Guidance and Counseling, (3) Group Guidance and Counseling, (4) Group Psychology, (5) Group Dynamics, (6) Pedagogical Basis, and (7) Educational Issues. In a professional organization, he is a large administrator of the Indonesian Guidance and Counseling Association. He is research works and publications about group guidance and counseling, wisdom, multicultural counseling, teacher education and supervision, and counselor education and supervision.