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Predicting the Quality of Perception Assessment Instruments for Prospective Elementary School Teachers on the Culturally Responsive Teaching Approach

Abstract

This study aims to analyse the validity and reliability of instruments to assess students' perceptions of the lecture approach in the form of Culturally Responsive Teaching (CRT). The quantitative method with a survey research design was carried out using purposive sampling of all sixth-semester students from various cross-cultural and regional areas in Indonesia. The overall total of research subjects was 238. The non-test instrument consisted of 23 items grouped into three components. Content validity was carried out by focus group discussions involving experts in learning strategies, psychology, education, and culture. Construct validity was formed in three components, each with a p-value in the fit category. Moreover, the reliability was calculated using Cronbach's Alpha scoring 0.946 for all items.

Keywords: *validity, reliability, elementary school teacher education students, culturally responsive teaching*

Introduction

Ethnic diversity in a country can optimise its benefits as a meaningful learning resource by incorporating students' culture and cultural identity into the learning environment (Phinney, 2003). The teaching behaviour of teachers is strongly influenced by their attitudes and beliefs about the various dimensions of student diversity (Gay, 2013). In this context, researchers cite the opinion of Gay (2010) when defining culturally responsive teaching (CRT), namely using previous experiences, frames of reference, and ethnically diverse student performance so that learning becomes more relevant and effective. In this regard, culturally responsive educators have the skills to differentiate and develop a culturally sensitive learning environment (Guy, 2009). Therefore, a well-analysed and explored pedagogy based on indigenous values and philosophies has great potential to produce positive educational changes for all students (Lewthwaite et al., 2014). Teacher curricula must provide opportunities for students to consistently integrate their culture during the lecture process (Jackson & Boutte, 2018). Nonetheless, lecturers in tertiary institutions rarely apply this approach in student learning environments.

An understanding of the relationship between culture and student behaviour in class can be used by lecturers in making assessments based on information about good and bad behaviour. However, lecturers do not understand of the relationship between culture and classroom behaviour and are unprepared to engage in CRT practices. (Gay, 2000; Hill, 2009). On the one hand, an understanding of the context of class cultural behaviour has the potential to minimise the occurrence of cultural conflict (Gay, 1981). Meanwhile, on the other hand, this cultural understanding is insufficient to predict whether lecturers apply culturally responsive lecture practices in class. This statement is corroborated by Bandura's theory (1997) that individuals are reluctant to turn knowledge into action if they believe that the chances of achieving success are very small. This reason is one of the important considerations in assessing culturally responsive perceptions of primary teacher education students so that, in turn, the data obtained can be used by lecturers to design appropriate interventions.

The importance of student perceptions in judging the effectiveness of teaching approaches has been found in research results. For example, providing feedback on questions explored through strategically placed opinion polls during lectures can help students pay more attention and be motivated to learn (Meguid & Collins, 2017). Providing opportunities to explore students' abilities further in doing lecture assignments can improve understanding, study habits, technology skills, organisational skills, and communication skills (Croft, et al., 2013). Most student

perceptions are assessed by focusing on the classroom environment and placing less emphasis on specific teaching practices (Nelson, Demers, & Christ, 2014). A review of the literature that has been conducted found a survey that obtained the perceptions of students aged 12-18 about teaching practices with CRT. In this study, Byrd (2016) found that students could identify teaching methods that relate to real life and promote understanding of other cultures, resulting in better academic results. These findings indicate that students can provide useful information for educators in meeting their educational needs.

CRT is useful to defuse the cultural connection between students and their colleges. Therefore, getting input from students about how they view lecturers' lecturing practices is important. The student perspective offers a unique advantage for assessing certain teaching practices (Nelson et al., 2014). Although outside observers can provide objective feedback about teaching practices, student perceptions are critical to implementing and succeeding in a student-centred classroom environment and encourage the implementation of active learning strategies (Lumpkin, et al., 2015). The learning environment created by higher education institutions will influence students' perceptions of the quality of the lecture process (Akareem & Hossain, 2016).

This research aims to analyse the validity and reliability of a series of instruments for student perceptions of the choice of approach to lectures in CRT. These findings will lead to an increased understanding of efforts to incorporate CRT practices in ethnically and linguistically diverse learning environments and support using these instruments by researchers and practitioners.

Research Problems

This article tries to answer the following research problems.

1. Could the developed instrument measure students' perceptions of diverse learning practices?
2. Could the developed instrument measure students' perceptions of learning practices that involve culture?
3. Could the developed instrument measure students' perceptions of relationship-building practices?

Research Focus

This research focuses on developing an instrument to measure student perceptions of culturally responsive learning. The literature review that has been carried out has not found an instrument to measure this in the context of higher education, especially for prospective elementary school teacher students. Previous researchers have developed an instrument to measure CRT in middle school students from the same school district in the United States (Dickson, et al., 2015) using aspects of Diverse Teaching Practices (11 items), Cultural Engagement Practices (7 items), and affirmations language (3 items). Another researcher, Huang (2019), developed this instrument by removing the verbal affirmation aspect and adding one component, namely Relationship-Building Practices. The instrument focuses on students from several colleges: College of Agriculture, College of Science, College of Liberal Arts, School of Agriculture, Fisheries and Human Sciences, and School of Arts and Science. This research adapted items from the instrument developed by Huang (2019). It modified the questions according to the disciplines studied by respondents as prospective elementary school teachers at UNY Elementary School Teacher Education Study Programme so that the statements in the instrument were similar.

Research Methodology

General Research Background

This study used a quantitative approach with numerical data so that it can be analysed quantitatively and descriptively. A survey research design was applied by taking samples from all prospective elementary school teachers who were students in the 6th semester of the UNY Elementary School Teacher Education Study Programme from various cultures and regions in Indonesia.

Research Sample

Quantitative research design with analysis of each instrument component can direct researchers in choosing the right analysis. It is inseparable from the number of samples and the sampling technique used to prove the instrument's feasibility. The selected purposive sampling technique was adjusted to the research needs so that the researcher could provide limitations for grouping samples based on crite-

ria. The criteria considered were prospective elementary school teacher students who had taken educational courses (particularly the five main fields of study in elementary school) in semester two, whose lecture process had facilitated several teaching skills with different ethnicities and cultures that could be measured. Therefore, a sample of 238 elementary school teacher candidates was obtained, which were sixth-semester students at the UNY Elementary School Teacher Education Study Programme. Data collection in the form of questionnaires was carried out online due to the limitations of researchers in reaching various campus units organised by the UNY Elementary School Teacher Education Undergraduate Study Programme. Information regarding the identity and credibility of respondents is confidential.

Instrument and Procedures

The research instrument to show the perceptions of prospective elementary school teachers in the lecture approach is formed from three main components, which contain 23 statement items. The research instrument is packaged as a questionnaire, available online using the Google Form application. The 5-point Likert scale was used in this questionnaire, namely never (1), rarely (2), sometimes (3), often (4), and always (5). The following is a grid of prospective teachers' perception instruments in lectures using the CRT approach.

Table 1. Instrument grid.

Approach components	Items
Diverse Teaching Practices (DTP)	<ol style="list-style-type: none"> 1. Lectures present material that stimulates student learning (cultural scaffolding) 2. Lecturers use various learning sources (text, mass media, internet, personal narratives, etc.) to make it easier for students to master the material 3. Lecturers use the experiences students already have to find new ideas 4. Lecturers find out things that make students interested 5. Lecturers use contextual examples to clarify the discussion topic 6. Lecturers provide timely feedback on student assignments 7. Lecturers encourage collaborative learning between students 8. Lecturers use different types of assessments (e.g., group projects, presentations, etc.) to assess what students have learned

Approach components	Items
Cultural Engagement Practices (CEP)	9. Lecturers realise that the culture on campus is different from the culture in the environment where students live 10. Lecturers are interested in the culture (beliefs in values, community habits, artefacts) of the student's area of origin 11. Lecturers are interested in knowing students' habits/beliefs/local values/family traditions 12. Lecturers encourage all students to learn about other people and the culture that surrounds them 13. The lecturer relates the cultural contribution of the student's area of origin to the topic being studied 14. Lecturers design lessons that show how other cultural groups contextually utilise Social Studies/Civics/Indonesian/Mathematics/Science material in everyday life 15. Lecturers use examples from student culture when teaching
Relationship-building practices (RBP)	16. Lecturers treat all students as important members of the classroom 17. Lecturers create a learning environment in which students feel comfortable to express opinions 18. Lecturers are easy to talk to after the lecture is finished 19. Lecturers help students when they do not understand the material 20. Lecturers care about the initial knowledge that students already have 21. Lecturers pay attention to students' points of view when discussing 22. Lecturers expect students to excel in class 23. Lecturers show high expectations of all students

Data Analysis

Research data was analysed using software applications called SPSS for Windows series 26 and Lisrel 8.80. The analysis only focuses on descriptive statistics, strengthened by qualitative explanations. Content validity was measured using focus group discussions involving experts in learning strategies, psychology, elementary school, and culture. Experts are selected because of their knowledge and experience relevant to the research topic. Experts provide constructive feedback and comments on instrument statements that are less clear in their sentences, less specific in their cultural scope, and too broad in scope. An example of a comment can be seen from the following statement: Lecturers are interested in student culture. Furthermore, experts suggest that the scope of culture needs to be clarified. Therefore, the editors revised this statement to read: Lecturer (interested in culture

(beliefs in values, community habits, artefacts)) from the student's area of origin. Another example of the statement "The lecturer explains all the material in various ways to help students learn" was changed to "Lecturer presents material that stimulates student learning (cultural scaffolding)." Construct validity was carried out using CFA using SPSS for Windows series 26 and Lisrel 8.80. Instrument reliability testing used SPSS for Windows series 26.

Results and Discussion

Construct Validity

Exploratory factor analysis and confirmatory factor analysis were carried out to gather information on the formation of learning approaches for elementary school teacher candidates.

Table 2. Exploratory factor analysis.

Component	Total Variance Explained		
	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	10.687	46.464	46.464
2	1.737	7.554	54.018
3	1.317	5.728	59.746

Table 2 shows one of the results of the EFA analysis, which can show information about the number of components formed in the component arrangement based on theoretical studies. The three components formed from the CRT approach are indicated by the formation of three Initial Eigenvalues above 1.00, even though the percentage of each component does not have the same contribution. In the first component, 46.46% could show their contribution to forming the CRT component, while the second component was only 7.55% and the third component was 5.72%. Thus, the total contribution of the three components is 59.74%, of which 42.26% is influenced by other components not defined in the construct that has been prepared. In addition to the total variance table for the three components, to

find out the components formed, you can also obtain scree plot results that have significant spikes on the graph, as shown in Figure 1.

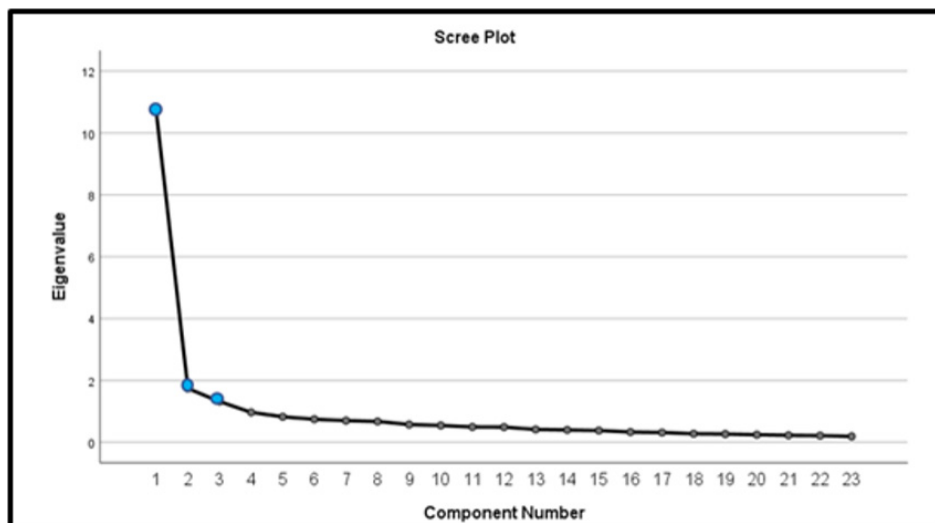


Figure 1. Result of component formation.

Items that show the significant contribution of each component are compiled after the components formed are known. Rotated Component Matrix in Table 3 results from the processed exchange of coefficients developed for each item. It is what can categorise which components are included in a forming component. The components formed as the first component are items 16 to 23, which in theoretical construction are RBP components. The second component is items 9 to 15, which are theoretically included in the CEP component. The third component is items 1 to 8, included in the DTP component theory construct. The three components are appropriate and formed the same way as the theoretical construct. It demonstrates that the theoretical construct was appropriately developed and can be accounted for when measuring student perceptions of CRT. As for checking the quality of the instruments and constructs formed, checking through CFA needs to be done.

Table 3. Factor loading matrix rotation results.

	Rotated Component Matrixa		
	Component		
	1	2	3
Item_1	.241	.205	.783
Item_2	.052	.347	.672
Item_3	.197	.330	.729
Item_4	.247	.394	.512
Item_5	.378	.164	.602
Item_6	.291	.332	.525
Item_7	.482	.165	.526
Item_8	.456	.038	.518
Item_9	.314	.542	.258
Item_10	.204	.801	.232
Item_11	.188	.789	.214
Item_12	.225	.755	.253
Item_13	.262	.779	.175
Item_14	.327	.579	.326
Item_15	.314	.745	.208
Item_16	.770	.248	.138
Item_17	.723	.227	.191
Item_18	.606	.269	.350
Item_19	.667	.263	.339
Item_20	.660	.236	.384
Item_21	.663	.304	.323
Item_22	.606	.171	.172
Item_23	.684	.308	.073

The output of the confirmatory factor analysis showed that the DTP component could demonstrate construct feasibility. It is shown by the p-value of 0.1367, where the p-value is between 0.05 to 1.00. It can also be seen from the RMSEA results 0.038, where the RMSEA value is <0.80. The DTP component has an appropriate and feasible construct based on these two. Another thing that can be used as a basis in looking at the instrument's feasibility on the DTP component is the loading factor that is formed > 0.50, which can be said to be valid. Details of the

analysis results obtained for the items contained in the DTP component can be seen in Figure 2.

Confirmatory Analysis

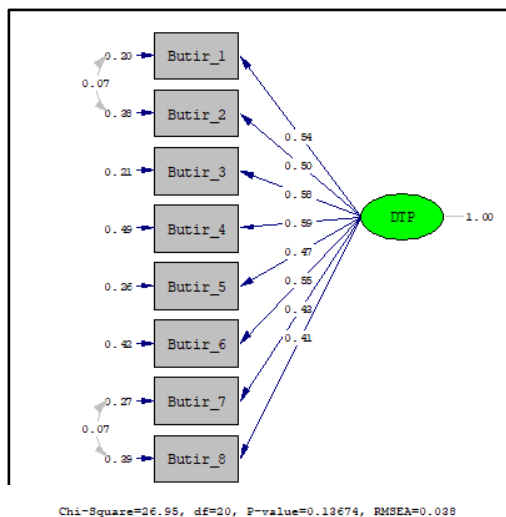
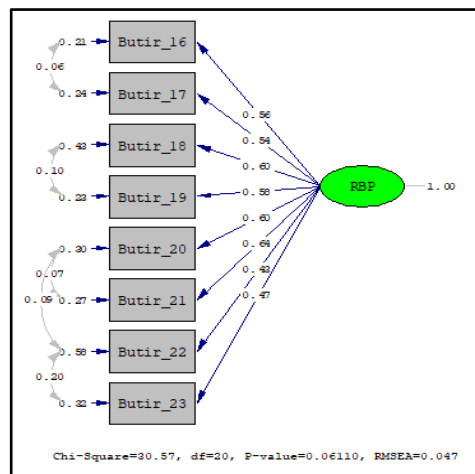


Figure 2. Construct validation results on DTP components.

The output results show that the DTP Assessment instrument can demonstrate constructive feasibility. It is indicated by a p-value of 0.1367, where the p-value is between 0.05 and 1.00. In addition, it can also be seen through the RMSEA results of 0.038, where the RMSEA value < 0.80. The DTP component has an appropriate and feasible construct based on these two. Another thing that can be used to assess the instrument’s suitability for the DTP component is the factor loading of >0.50, which can be said to be valid. The following are details of the analysis results obtained for the items contained in the instrument, especially the DTP component.

Table 4. Results of factor loading of DTP components.

Latent Variable	Observed Variable	Factor Loading	Information (> 0.50)
<i>DTP</i>	Item_1	0.54	Valid
	Item_2	0.50	Valid
	Item_3	0.58	Valid
	Item_4	0.59	Valid
	Item_5	0.57	Valid
	Item_6	0.55	Valid
	Item_7	0.53	Valid
	Item_8	0.51	Valid

**Figure 3.** Construct validity of CEP components.

The output result of 0.061 on the p-value and RMSEA of 0.047 indicates that the CEP instrument is appropriate for constructs prepared based on theory. Based on both, it leads to the preparation of appropriate and appropriate constructs, so it can also be said that the CEP assessment instrument can measure according to what is measured. It is the main basis for looking in more detail regarding the extent to which instrument items can assess student perceptions through obtaining factor loadings. The factor loading criteria formed are at least greater than 0.50 to be valid. The following are details of the analysis results obtained for the items in the CEP instrument.

Table 5. Results of factor loading of CEP components.

Latent Variable	Observed Variable	Factor Loading	Information (> 0.50)
CEP	Item_9	0.52	Valid
	Item_10	0.74	Valid
	Item_11	0.77	Valid
	Item_12	0.74	Valid
	Item_13	0.76	Valid
	Item_14	0.61	Valid
	Item_15	0.72	Valid

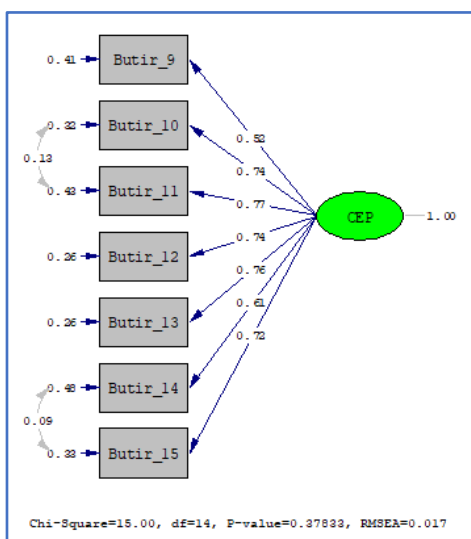


Figure 4. Construct validation results on RBP components.

The RBP assessment instrument has the results of feasibility analysis, shown through a p-value of 0.279, which is at 0.05 to 1.00, and the RMSEA value is less than 0.80, or the result is 0.017. It can be used to determine the feasibility of the RBP instrument, which can measure what is measured. Therefore, part of one of the RBP components can be said to have an appropriate and feasible construct. In addition, it is important to detect further related to grain quality through factor loading, which can be formed less than 0.50, so the results can be valid.

Table 6. Results of factor loading of relationship-building practice components.

Latent Variable	Observed Variable	Factor Loading	Information (> 0.50)
<i>RBP</i>	Item_16	0.56	Valid
	Item_17	0.54	Valid
	Item_18	0.60	Valid
	Item_19	0.58	Valid
	Item_20	0.60	Valid
	Item_21	0.64	Valid
	Item_22	0.53	Valid
	Item_23	0.57	Valid

Reliability

Table 7. The results of the instrument reliability analysis.

Scale	Cronbach's Alpha
Diverse Teaching Practices	0.865
Cultural Engagement Practices	0.907
Relationship-Building Practices	0.897
Whole	0.946

Based on the results of the analysis that has been carried out, the respective reliability in measuring student perceptions of each component has been fulfilled. It is indicated by the three components having a reliability coefficient of Cronbach's Alpha, which is above the range of 0.850, so it can be concluded that the instrument used to measure student perceptions has high reliability for each component. In addition, the reliability measured for all components was also obtained above 0.850, so it can be concluded that the instrument as a whole is very reliable.

The analysis results provide preliminary evidence for the questionnaire as a potentially useful instrument. It is important to note that the questionnaire consists of 23 items measuring three components of CRT. The DTP component contains eight items, CEP seven items, and RBP eight items. Future research is recommended to add more items to these components. The Cronbach's Alpha result for all instruments is 0.946, which indicates that the responses to all the items produced are consistent.

Conclusions

The students in this study were not chosen randomly but by purposive sampling. They are sixth-semester UNY Elementary School Teacher Education students who have completed all theoretical lectures and have taken courses in five areas of elementary school studies. In addition, the sample comes from only one university that organises an elementary school teacher curriculum. Thus, in general, the findings of this study have a limited scope.

The results of this research indicate that the CRT instrument has the potential to be a useful instrument in assessing how students perceive the teaching approaches implemented by lecturers. Because it is still in the early stages of development, further research needs to be done to test the feasibility of this finding. Future research should include larger samples of students with diverse ethnic backgrounds to increase the reliability and generalisability of findings. In addition, other researchers should continue to examine whether sensitivity to lecturers' teaching approaches that integrate culture is important for all students, or only for prospective elementary school teachers.

The DTP component needs additional items to capture the underlying dimensions better. The CRT instrument provides a unique contribution to the development of literature by trying to assess the components underlying student perceptions of the teaching approaches implemented by lecturers. Even though it has become policy that monitoring, and evaluation given by students to the teaching process carried out by lecturers is important for the academic and professional development of lecturers, there is still little research in Indonesia that focuses on this.

References:

- Akareem, H. S., & Hossain, S. S. (2016). Determinants of education quality: What makes students' perception different? *Open Review of Educational Research*, 3:(1), 52–67., DOI: 10.1080/23265507.2016.1155167
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman.
- Byrd, C. M. (2016). Does culturally relevant teaching work? An examination from student perspectives. *SAGE Open*, 6(3), 215824401666074. DOI:10.1177/2158244016660744
- Croft, T., Duah, F., & Loch, B. (2013). "I'm worried about the correctness": undergraduate students as producers of screencasts of mathematical explanations for their peers – lecturer and student perceptions. *International Journal of Mathematical Education in Science and Technology*, 44(7), 1045–1055. DOI:10.1080/0020739x.2013.823252
- Dickson, G. L., Chun, H., & Fernandez, I. T. (2015). The development and initial validation

- of the student measure of Culturally Responsive Teaching. *Assessment for Effective Intervention*, 1534508415604879. DOI:10.1177/1534508415604879
- Gay, G. (1981). Interaction in culturally pluralistic classrooms. In J. Banks (Ed.), *Education in the 80s: Multiethnic education* (pp. 42-53). National Education Association.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research, and practice*. Teachers College Press.
- Gay, G. (2010). *Culturally responsive teaching: Theory, research, and practice* (2nd ed.). Teachers College Press.
- Gay, G. (2013). Teaching To and Through Cultural Diversity. *Curriculum Inquiry*, 43(1), 48–70. DOI:10.1111/curi.12002
- Guy, T. (2009). Culturally relevant curriculum development for teachers of adults: The importance of identity, positionality, and classroom dynamics. In V. C. X. Wang (Ed.), *Curriculum Development for Adult Learners in the Global Community*, 9-38, Krieger, U.S.A.
- Hill, K. D. (2009). A historical analysis of desegregation and racism in a racially polarized region: Implications for the historical construct, a diversity problem, and transforming teacher education toward culturally relevant pedagogy. *Urban Education*, 44, 106-139. DOI:10.1177/0042085907311841
- Huang, Y. (2019). Undergraduate students' perceptions of culturally responsive teaching and their sense of belonging and academic self-efficacy in higher education. *Doctoral dissertation*. The Purdue University Graduate School.
- Jackson, T. O., & Boutte, G. S. (2018). Exploring culturally relevant/ responsive pedagogy as praxis in teacher education, *The New Educator*, 14(2), 87-90, DOI: 10.1080/1547688X.2018.1426320
- Lewthwaite, B.E., Owen, T., Doiron, A., Renaud, R. & McMillan, B. (2014). Culturally responsive teaching in Yukon First Nations settings: what does it look like and what is its influence? *Canadian Journal of Educational Administration and Policy*, 155, 1-34.
- Lumpkin, A., Achen, R., & Dodd, R. (2015). Focusing teaching on students: examining student perceptions of learning strategies, *Quest*, 67(4), 352-366, DOI: 10.1080/00336297.2015.1082143
- Meguid, E. A., & Collins, M. (2017). Students' perceptions of lecturing approaches: traditional versus interactive teaching, *Advances in Medical Education and Practice*, 229-241, DOI: 10.2147/AMEPS131851
- Nelson, P. M., Demers, J. A., & Christ, T. J. (2014). The Responsive Environmental Assessment for Classroom Teaching (REACT): The dimensionality of student perceptions of the instructional environment. *School Psychology Quarterly*, 29, 182–197. DOI:10.1037/spq0000049
- Phinney. (2003). Ethnic identity and acculturation. In K. Chun, P. B. Organista, & G. Marin (Eds.), *Acculturation: Advances in Theory, Measurement and Applied Theory*, 63-81, American Psychological Association, U.S.A.

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