Development and Validation of the Teachers' Role in Conducting Authentic Dialogue Questionnaire

Barbara Shapir, Alina S. Rusu

Development and Validation of the Teachers' Role in Conducting Authentic Dialogue Questionnaire

Barbara Shapir [a*], Alina S. Rusu [a, b]

[a] Doctoral School "Education, Reflection, Development", Babes-Bolyai University, 7 Sindicatelor Street, 400029, Cluj-Napoca, Romania
[b] Faculty of Animal Sciences and Biotechnologies, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Calea Mănăştur 4-5, Cluj-Napoca, Romania

*Corresponding author: *barbieshapir66@gmail.com*

Abstract

Keywords:
teacher's role perception; authentic dialogue; teacher training program.

Teacher's role perception questionnaires exist in different domains. However, none refer to their role perceptions on conducting authentic dialogue in classrooms or with the pre-schoolers. There was a need for this type of questionnaire in order to quantitatively analyze the results before and after a preschool teacher's training program on authentic dialogue. The teacher's role perception on conducting authentic dialogue in the classroom questionnaire (TRPADQ) was based on Wubbels, Creton and Hooymaayer Questionnaire on Teacher Interaction (QTI) as described in Fraser and Walberg (1991). The article details the validation process of the questionnaire. The validation had three stages: a judicial review by early childhood pedagogical advisors and lectures with an expertise in dialogue, an Explanatory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA).

Zusammenfasung

Schlüsselworte:
Wahrnehmung der Rolle von Lehrenden'; athentisches Gespräch'; Lehrerfortbildungsprogramm.

Fragebögen zur Wahrnehmung der Rolle von Lehrenden gibt es in verschiedenen Gebieten. Keiner bezieht sich jedoch auf die Rollenwahrnehmung von Lehrenden beim Führen eines authentischen Gesprächs in Klassenzimmern oder, um genauer zu sein, mit Vorschulkindern. Um Ergebnisse vor und nach einer Fortbildung zum authentischen Gespräch für Vorschullehrende quantitativ analysieren zu können, bedurfte es dieser Art von Fragebogen. Der Fragebogen zur Rollenwahrnehmung von Lehrenden beim Führen eines authentischen Gesprächs is Klassenzimmer (engl. teacher's role perception on conducting authentic dialogue in the classroom questionnaire; TRPADQ) basiert auf Wubbels', Cretons und Hoomayers Fragebogen zur Lehrendeninteraktion (engl. Questionnaire on Teacher Interaction; QTI), wie er bei Fischer (1995) beschrieben wird. Der vorliegende Artikel erläutert den Validierungsprozess des Fragebogens. Dieser Vorgang war unterteilt in drei Stufen: Einer fachlichen Überprüfung durch Referierende für frühkindliche Pädagogik, einer exploratorischen Faktorenanalyse (EFA) und einer konfirmatorischen Faktoranalyse (CFA).

1. Introduction

The manner that teachers perceive the use of dialogue in the classroom has the potential to either support or hinder the way children learn (Mercer, 2019). The classroom culture that dictates who and when each child is given the opportunity to speak might leave little space for effective dialogue (Mercer & Howe, 2013), as is mostly based on how the teacher perceives their role as navigating the children's dialogue or suspending it. Creating an open dialogic space where acknowledging others thoughts while listening, thinking and acting together will achieve higher levels of understanding and new knowledge will be gained (Mercer et al., 2010; Wegerif, 2011).

Przybylska (2011) explains that teachers base their activities and interactions with their students in the classroom according to their past experiences as students themselves. These life experiences can shape the way they perceive their role as teachers and have a direct effect on their professional identity. Thus, studying teacher's role perceptions of classroom dialogue, may lead to the creation and implementation of teaching practices that will promote authentic classroom dialogue. The dialogue is considered authentic because it is child centered and revolves around what interests the child. The teacher is there to listen, to ask open questions that will help the child reflect on their experiences as well as problem solve if necessary. A provision of open space for children to

voice their thoughts and turn classroom talk into an equalitarian dialogic interaction (Pehmer et al., 2015).

Adams (2002) suggests that when teachers provide a nurturing setting that promotes quality relationships based on responsive dialogue, listening capabilities and attentiveness, children tend to develop self-confidence and understand that their words matter to their teacher. They become more active learners and will achieve higher academic success. The relationship between the teacher and the child has been proven to be the most valued component in quality care education for young children (Adams, 2002).

In most countries, teachers are not specifically trained in dialogic skills, such as free talk on target knowledge in their pre-service training programs (Howe & Abedin, 2013). Therefore, they tend to continue to manage their classrooms in a traditional fashion, as they learned themselves, a manner that does not always promote the potential of full learning and understanding of the topic that children deserve (Lyle, 2008). The concept of dialogic pedagogy as described by Peled-Elhanan and Blum-Kulka (1997) is not usually incorporated into preservice or in service training. Dialogic pedagogy is generally defined as the teachers' ability to suspend their control over the discourse and knowledge. This allows the students to understand that the teacher is not in control of the questions and answers and does know everything about the topic at hand. This forms a more equalitarian function of the dialogue

Questionnaires that assess teacher's role perception with regard to a child's academic success was found, such as the Questionnaire on Teacher Interaction- QTI (Brekelmans et al., 1990; Wubbels, Brekelmans et al., 1991; Wubbels et al., 1992; Den Brok et al., 2002) however it was not sufficient to understand a teacher's perception of their role on conducting dialogue, or specifically authentic dialogue in a classroom. Therefore, it was essential for a new questionnaire to be developed in order to make an attempt to answer the research questions. Questionnaires enable the researchers to gather a great deal of data in a reliable and relatively simple manner. It is a true necessity to achieve accuracy and provide consistency in the different categories as well as between the indicators in the same category. In other words, the researcher must provide through statistical analysis, validity and reliability. To our knowledge, no research was found in the literature on instruments used to assess educational practices that promote

dialogical processes in a preschool setting, an environment where the teacher's role is of utter importance in supporting dialogical interaction.

Through an extensive literature review, several validated questionnaires of teacher's role perceptions were found. They mostly examined academic and content-based approaches for measuring successful outcomes for students' education (Levy & Wubbels, 2005), teachers' perceptions regarding their own personal and professional development (Fisher et al., 1995; Pena-Lopez, 2009; Wubbles et al., 1991), as well as the way they view the teacher's role in advancing children at all levels of development (Black & William, 1998). What was lacking was teachers' perceptions of their role on conducting authentic dialogue in a classroom, therefore, there was a need to create and validate a new questionnaire.

2. Theoretical foundation

Authentic learning is brought about through the display of **authentic classroom dialogue**, the creation of an open dialogic space (Wegerif, 2007), in which diverse perspectives are desired and not inhibited. This space allows for exploration and produces new knowledge at any given time; thus, the learning process will continue as long as the participants are taking interest (Boyd & Rubin, 2006). Multiple voices are promoted in the pursuit of understanding and exposing personal stories enabling new questions to be formed and new meanings to be constructed. This form of dialogue occurs when both participants are actively listening, responding to each other's needs and being open with each other about their thoughts and feelings. Almeida (2011) claims that teachers that assist their students in asking questions enable them to incorporate their new knowledge together with their prior knowledge.

Grobgeld et al., (2016) describe role perception as the way an individual understands what is expected of them in a certain organization. Hence, it is clear that it is a subjective view of what other's define as to the workers duties. Most people have prior perceptions of their role and this may lead to conflict if there are different perceptions of the role and tasks that must be achieved.

Teachers in different societies and culture often have very different perceptions of what their roles are. Most will agree that assisting children to adapt to their surroundings always plays a key role (Day et al., 2006). In addition, they were expected to teach topics,

discipline children, have full authority of what goes on "behind closed doors" in the classroom. Even though the pedagogy of teaching has undergone many changes over the years, most of the time, teachers' perceptions of their roles did not change so much (Wallen and Tormey, 2019). Therefore, it is imperative for teachers to understand their own role perceptions when entering a classroom in order to provide quality teacher-child interactions and realize that their roles have changed and a more equalitarian approach is needed. Today, children's social and emotional abilities are taken into consideration when they are given an individual or group task.

3. Research methodology

The present research aims to provide a validated instrument to examine teacher's perception of their role on conducting authentic dialogue in the classroom. The research question was whether the Teachers Role Perception in Conducting Authentic Dialogue Questionnaire (TRPADQ) withstand structure validity.

Research participants

The questionnaire was administered to a sample group who was comprised of 217 all-female students, whose ages ranged between 22 and 40. 100 of the students worked as kindergarten managers (46.1%), 23 of the students worked as complementary kindergarten teachers (10.6%) and 94 of the students have not begun working in kindergartens. 82 of the students were single (37.8%), 97 were married (44.7%), 25 were in a relationship (11.5%) and 13 were divorced (6.0%). Almost half of the students had children (114 students, 52.5%).

Data collection

This study was carried out using data collected online from November 2021- January 2022. The sampling was based on a convenience one, with an easy access to the participants, all were preservice teachers in Early Educational Departments in Colleges in Israel. The participants completed the online version of the questionnaire with a six-digit identity number and returned them within a seven-day period. Participation was volunteer and based on an informal consent regarding the personal data protection and other ethical aspects regarding the study.

Instrument

The instrument was developed by the researcher, aiming to examine the preservice teacher's perception

regarding their ability to conduct authentic dialogue in the classroom. It is based on Wubbels, Creton and Hooymaayer *Questionnaire on Teacher Interaction* (QTI) as described in Fraser and Walberg (1991). The *Teachers Role Perception of Authentic Dialogue Questionnaire* (TRPADQ) consists of 21 items, which are divided into two dimensions: The importance a preschool teacher sees in classroom dialogue (Questions 1-2, 4-5, 7, 9, 12, 14,16-17, 19) and the ability to promote dialogue in a classroom setting (Questions 3, 6, 8, 10-11, 13, 15, 18, 20, 21). Questions 2, 9, 11, 20, 21 are reversed scores. An example of a question is: "*I manage to conduct personal dialogue with each and every child in order to get to know what interests them*" (Table 1). A 4-point Likert scale was used giving the participants an opportunity to find the response that most closely is associated with their beliefs due to the flexibility of the answers within the options. It appeared as the following; 1- "*Strongly Agree*" to 4 - "*Disagree"*.

4. Findings

The validation process consisted of the following stages: at first, three judges were chosen to review the existing research literature regarding authentic dialogic interactions and pedagogy, as well as to examine the TRPADQ. Next, Exploratory Factor Analysis *(*EFA) was conducted using the Varimax rotation in order to construct orthogonal factors, as a sample size of 217 is considered large enough for EFA when there are no missing values (McNeish, 2017). Finally, Confirmatory Factor Analysis *(*CFA) was conducted for the five-factor model utilizing several goodness of fit indices.

With regard to the judicial review, all of the judges had professional experience working with preschoolers and were acting pedagogical advisors and lecturers specializing in authentic dialogue. Drafts of the TRPADQ were sent to the judges in order to examine it. They looked for relevance, appropriateness and significance. Four indicators were dropped as they were found to be unclear and misleading and amendments were made based on their feedback. The final questionnaire consisted of 21 indicators divided into two dimensions: the importance a preschool teacher sees in classroom dialogue and the ability to promote dialogue in a classroom setting. Answers were reported on a 4-point Likert scale (from 1- "*Strongly Agree*" to 4 - "*Disagree")*.

4.1. Exploratory factor analysis (EFA)

EFA analysis using Varimax rotation was conducted on the remaining 21 items which the judges unanimously agreed that measure the teachers' perception of their role in conducting authentic dialogue. The indicators and factor loadings for the TRPADQ are presented in Table 1.

Table 1. Items and factor loadings for the TRPADQ (21 items).

Items	Factors				
	1	2	3	4	5
A preschool teacher has the ability to encourage dialogue between children, which will promote their learning	.87				
A preschool teacher's role is to conduct personal dialogue with each child in order to better understand his world	.83				
I am capable of using dialogue skills to promote an optimal classroom environment	.78				
When children share personal experiences, they learn about each other	.78				
Teaching practices that promote dialogue between children develop their social skills	.76				
Cultivating emotional dialogue is essential for a child's mental well being	.74				
A preschool teacher needs to talk to children about things that they are interested in learning	.73				
I manage to conduct personal dialogue with each and every child in order to get to know what interests him		.88			
I manage to teach children to solve problems on their own through respectful dialogue with others		.82			
I allow each child the opportunity to express himself in group activities and am able to navigate between the speakers		.79			
I promote emotional dialogue in my classroom and am aware of the emotional state of each child		.76			
Frontal instruction by the preschool teacher is more effective than collaborative learning			.85		
A preschool teacher should make sure the classroom is quiet and minimize classroom chatter during a guided activity			.78		
I cannot pay attention to children's remarks while teaching a lesson			.75		
I do not allow free dialogue between the children in circle time because it affects their ability to concentrate on the subject matter			.75		
I find it difficult to conduct free open dialogue with children for fear of not knowing how to respond to behavioral problems				.90	
I find it difficult to allow children to choose their own learning methods for fear of losing my classroom authority				.89	
I am incapable of allowing children to converse amongst themselves during a lesson out of concern for not being able to regain classroom control				.85	
There must be equal speaking time between the preschool teacher and the child when conversing					.90
Promoting children's developmental needs by way of dialogue is at the heart of my teaching methods					.84
Conducting dialogue with children about their families is important to me					.78
Eigenvalue	8.87	2.49	1.87	1.63	1.38
R^2	23.916	38.760	52.619	65.331	77.315
ΔR^2	23.916	14.843	13.860	12.711	11.984
Internal consistency – Cronbach's Alpha	.93	.90	.85	.89	.93

As can be seen in Table 1, the results of the EFA analysis indicated that the five orthogonal factors of the TRPADQ measure explained a total variance of 77.31%, with each factor explaining at least 11.9% of the additional variance. The 21 items were divided into five factors as follows:

1. ***Impact on child's dialogue:*** e.g., "When children share personal experiences, they learn about each other" or "Teaching practices that promote dialogue between children develops their social skills".

2. ***Kindergarten teacher's ability to promote dialogue***: e.g., "I manage to conduct personal dialogue with each and every child in order to get to know what interests them" or "I manage to teach children to solve problems on their own through respectful dialogue with others".

3. ***Dialogue barriers***: e.g., "Frontal instruction by the preschool teacher is more effective than collaborative learning" or "A preschool teacher should make sure the classroom is quiet and minimize classroom chatter during a guided activity".

4. ***Fear of losing control***: "I find it difficult to conduct free open dialogue with children for fear of not knowing how to respond to behavioral problems" or "I am incapable of allowing children to converse amongst themselves during a lesson out of concern for not being able to regain classroom control".

5. ***Importance a teacher gives to use of dialogue as a teaching method***: e.g., "Promoting children's developmental needs by way of dialogue is at the heart of my teaching methods" or "Conducting dialogue with children about their families is important to me".

Moreover, it should be noted that all indicators in all five factors have factor loadings higher than .70, which is considered as very high loading for the factor (Akpa et al., 2015).

4.2. Correlation analysis

After conducting the EFA analyses, Pearson correlations were conducted to further establish structure validity of the TRPADQ. The correlation analyses results provided support for the structure validity of the TRPADQ. Table 2 presents the Pearson correlation coefficients of the five aspects of the teachers' role perception in conducting authentic dialogue.

Table 2. Pearson correlation coefficients of the five factors of the TRPADQ.

Five factors of the TRPADQ instrument	1	2	3	4	5
Impact on child's dialogue	1	.56***	.44***	.38***	.46***
Kindergarten teacher's ability to promote dialogue		1	.36***	.31***	.31***
Dialogue barriers			1	.46***	.33***
Fear of losing control				1	.40***
Importance a teacher gives to use of dialogue as a teaching method					1

**p < .001

As it can be seen in Table 2, the correlation analyses results provided support for the structure validity of the TRPADQ. All correlations positively correlated, and their coefficients ranged from .31 to .56.

4.3. Confirmatory Factor Analysis

CFA is one component of Structural Equation Modeling (SEM) that examines the hypothesized theoretical measurement model's fit to the data. CFA analysis using AMOS23 was conducted for the five factors of the TRPADQ measure in order to examine their structure validity within the specific sample. The CFA analysis was conducted despite the modest sample size in order to examine whether the percentage of the explained variance that was found in the EFA analysis (77.31%) is satisfactory and will yield an adequate fit to data indices.

In the current study, the five-factor models were examined utilizing several goodness of fit indices:

Comparative Fit Index (CFI), chi-square (χ^2), χ^2/df ratio (CMIN), Incremental Fit Index (IFI) score and Root Mean Square of Error of Approximation (RMSEA). Hu and Bentler (1999) and Hair et al. (2006) defined a very good fit as a relatively small chi-square ratio χ^2/df ≤ 3, CFI and IFI ≥ .95 and RMSEA ≤ .06. An adequate fit to data is defined as CFI and IFI greater than .90 and RMSEA lower than .08.

The results of the CFA supported the five-factor model as an adequate fit index (CMIN = 2.199, CFI = .94, IFI = .94, RMSEA = .08). After adding correlations between measurement errors among five pairs of items, each belonging to the same factor, a very good fit index was found (CMIN = 1.80, CFI = .96, IFI = .96, RMSEA = .06) (see Figure 1).

4.4. Psychometric Analysis

In addition, the internal consistency of Cronbach's alpha for all items of the questionnaire was high α = .89. Finally, we calculated the Mean, SD, Range and the internal consistency of Cronbach's alpha for each of the five factors of the questionnaire (see Table 3).

Figure 1. CFA of the 21 items of the TRPADQ
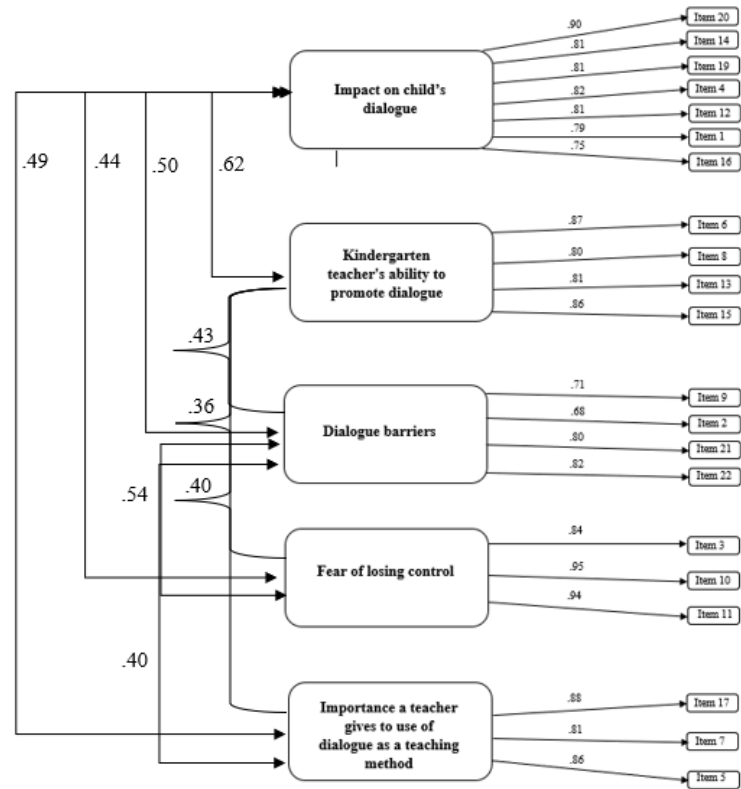
CMIN = 1.80, CFI = .96, IFI = .96, RMSEA = .06

Table 3. Mean, SD, Range and internal consistency of the TRPADQ ($N = 80$).

TRPADQ questionnaire scales	1.M	2. SD	3. Range	4. α
TRPADQ – Total score	5.3.21	6.0.50	7.1.76-4.00	8.89
Impact on child's dialogue	9.3.48	10.0.64	11.1.86-4.00	12.93
Kindergarten teacher's ability to promote dialogue	13.2.95	14.0.72	15.1.00-4.00	16.88
Dialogue barriers	17.2.85	18.0.88	19.1.00-4.00	20.82
Fear of losing control	21.3.42	22.0.85	23.1.00-4.00	24.75
Importance a teacher gives to use of dialogue as a teaching method	25.3.19	26.0.71	27.1.00-4.00	28.91

As it can be seen in Table 3, the internal consistency of Cronbach's alpha for each of the five factors of the questionnaire was considered high with α above 0.75, indicating that there is acceptable internal consistency, meaning that there is a large amount of agreement amongst the factors.

5. Discussion and conclusions

Teachers' role perception when entering a classroom can have an enormous effect on their interactions with their students. As Mainhard et al. (2018) found, the personal relationships between teachers and children lay the groundwork for their emotional and social development. Due to the fact that preschool teachers' interactions with children are based on providing authentic dialogue opportunities for them to grow both emotionally and cognitively, Smart and Marshall (2013) conceded that the type of questions teachers ask are based on the way they view classroom dialogue. In addition, Molinari and Mameli (2013) focused on the open space the teacher provides for dialogue, without setting time limits on who will talk, when they will talk and what they will talk about. Teachers' perceptions of their role in classroom dialogue, such as the types of questions they ask and the provision of open spaces, are just some of authentic

dialogue characteristics that must be examined in order for quality interactions to occur.

It was imperative to create a concise, simple, coherent questionnaire attended for early childhood teachers as they have very different roles than school teachers; their teaching is based on dialogue, games and small group activities. There was a need for a specialized questionnaire that is preschool oriented. This does not mean that it cannot be used for teachers as well, to investigate their role perception of authentic dialogue.

This paper attempted to describe the validation process a researcher must follow when creating a questionnaire. Taherdoost (2016) explains that the true definition for validity is to make sure that the data that was collected, can provide important information in the topic that is being researched. The process that a researcher undergoes when attempting to validate an original questionnaire created for the purpose of a study is a rigorous task. It must meet the goal that the researchers have set for themselves, no matter what the participants responses will be.

It is important to state the limitation of the validation process of this questionnaire. No external validation was conducted in order to examine the appropriateness and relevancy for other populations other than kindergarten teachers.

Authors note:

Barbara Shapir is currently a PhD student of the Doctoral School "Education, Reflection, Development", Babe; -Bolyai University, Romania. She is working as the Head of General First Year Studies in Kaye College in Israel, as well as a Lecturer, Pedagogical advisor and practical fieldwork coordinator in the Early Childhood Department. Her professional and research interests are: Preservice Teachers Training Programs, Authentic Dialogue, Social Emotional Learning and Teacher's Role Perceptions.

Alina S. Rusu (biologist and psychologist) is currently a Professor at the Faculty of Animal Science and Biotechnologies, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania. She is also PhD coordinator affiliated to the Doctoral School "Education, Reflection, Development" (domain: Sciences of Education). Her professional and research interests are: humane education, interdisciplinary curriculum development, applied values of human-animal interactions and the multidimensional study of community-oriented volunteering.

References

Adams, S. (2002). Eager to Learn: educating our pre-schoolers, Barbara T. Bowman, M. Suzanne Donovan & M. Susan Burns (Eds.). *Early Years – Stroke on Trent 22(2)*, 175-175.

Akpa, O. M., Elijah, A. B., & Baiyewu, O. (2015). The adolescents' psychosocial functioning inventory (APFI): Scale development and initial validation using exploratory and confirmatory factor analysis. *African Journal for the Psychological Study of Social Issues, 18* (1), 1–21.

Almeida, A.P. (2011). Can I ask a question? The importance of classroom questioning. *Procedia: Social and Behavioural Sciences, 31*, 634-638.

Black, P., & William, D. (1998). Assessment and classroom learning. *Assessment in Education: principles, policy & practice*, 5(1), 7-74. DOI: 10.1080/0969595980050102

Boyd, M. & Rubin, D. (2006). How contingent questioning promotes extended student talk: a function of display questions. *Journal of Literacy Research, 38*(2), 141-169.

Brekelmans, M., Wubbels, T., & Créton, H. (1990). A study of student perceptions of physics teacher behaviour. *Journal of research in science teaching, 27*(4),   335-350. https://doi.org/10.1002/tea.3660270405

Day, C., Kington, A., Stobart, G., & Sammons, P. (2006). The personal and professional selves of teachers: Stable and unstable identities. *British educational research journal, 32*(4),   601-616. https://doi.org/10.1080/01411920600775316

Den Brok, P., Brekelmans, M. Levy, J. and Wubbels, T. (2002) Diagnosing and improving the quality of teachers' interpersonal behaviour, *International Journal of Educational Management, 16* (4) pp. 176-184. ttps://doi.org/10.1108/09513540210432155

Fisher, D., Fraser, B., & Cresswell, J. (1995). Using the questionnaire on teacher interaction in the professional development of teachers. *Australian Journal of Teacher Education, 20*(1),   8-18. http://dx.doi.org/10.14221/ajte.1995v20n1.2

Grobgeld, E., Teichman-Weinberg, A., Wasserman, E., & Barchilon Ben-Av, M. (2016). Role Perception among Faculty Members at Teacher Education Colleges. *Australian Journal of Teacher Education, 41*(5). http://dx.doi.org/10.14221/ajte.2016v41n5.6

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis.* Pearson Prentice Hall.

Howes, C., and Abedin, M. (2013). Classroom Dialogue: A systematic review across four decades of research. *Cambridge Journal of Education 43*, 325–356. https://doi.org/10.1080/0305764X.2013.786024

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural Equation Modeling: *A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Levy, J., & Wubbels, T. (2005). *Do you know what you look like? Interpersonal relationships in education.* Routledge.

Lyle, S. (2008). Dialogic teaching: discussing theoretical contexts and reviewing evidence from classroom practice. *Language Education, 22*, 222-240.

Mainhard, T., Oudman, S., Hornstra, L., Bosker, R.J., & Goetz, T. (2018). Student emotions in class: The relative importance of teachers and their interpersonal relations with students. *Learning and Instruction, 53*, 109-119, https://doi.org/10.1016/j.learninstruc.2017.07.011

Mercer, N. (2019). *Language and the joint creation of knowledge: The selected works of Neil Mercer.* Routledge: London.

Mercer, N., & Howe, C. (2012). Explaining the dialogic processes of teaching and learning: The value and potential of sociocultural theory. *Learning, culture and social interaction, 1*(1), 12-21. doi: 10.1016/j.lcsi.2012.03.001

Mercer, N., Warwick, P., Kershner, R., and Staarman, J. K. (2010). Can the interactive whiteboard help to provide "dialogic space" for children's collaborative activity? *Language & Education, 24*, 367–384. https://doi.org/10.1080/09500781003642460

McNeish, D. (2017). "Exploratory Factor Analysis with Small Samples and Missing Data." *Journal of Personality Assessment. 99*(6), 637–652.

Molinari, L., & Mameli, C. (2013). Process quality of classroom discourse: Pupil participation and learning opportunities. *International Journal of Educational Research*, *62*, 249-258. https://doi.org/10.1016/j.ijer.2013.05.003

Pehmer, A. K., Gröschner, A., & Seidel, T. (2015). How teacher professional development regarding classroom dialogue affects students' higher-order learning. *Teaching and Teacher Education, 47*, 108-119. http://dx.doi.org/10.1016/j.tate.2014.12.007

Peled-Elhanan, N. & Blum Kulka, S. (1997) Dialogicity in classroom discourse (Translated). *Language studies 27*, Lewinsky College Press.

Peña-López, I. (2009). *Creating effective teaching and learning environments: First results from TALIS Technical Report.* Paris: OECD. http://www.oecd.org/dataoecd/17/51/43023606.pdf

Przybylska Irena. (2011). Teachers' role perception. *The New Educational Review 26*, (4). 85-95.

Shapir, B and Rusu, A.S. (2012). Zoom In & Zoom Out! Authentic Dialogue in Remote Teaching. European Proceedings of Educational Science. 9th International Conference Education, Reflection, Development. Romania: European Publisher. DOI: 10.15405/epes.22032.62

Smart, J. B., & Marshall, J. C. (2013). Interactions between classroom discourse, teacher questioning, and student cognitive engagement in middle school science. *Journal of Science Teacher Education*, *24*(2), 249-267. https://doi.org/10.1007/s10972-012-9297-9

Taherdoost, H. (2016) Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research. *International Journal of Academic Research in Management Helvetic Editions, 5.*

Wallen, M., & Tormey, R. (2019). Developing teacher agency through dialogue. *Teaching and Teacher Education, 82*, 129-139. https://doi.org/10.1016/j.tate.2019.03.014

Wegerif, R. (2007). *Dialogic Education and Technology: Expanding the Space of Learning*. New York: Springer.

Wegerif, R. (2011). Towards a dialogic theory of how children learn to think. *Thinking skills and creativity, 6*(3), 179-190. https://doi.org/10.1016/j.tsc.2011.08.002

Wubbels, T., Creton, H., & Hooymayers, H. (1992). Review of research on teacher communication styles with use of the Leary model. *The Journal of Classroom Interaction*, 1-11.

Wubbels, T., Brekelmans, M., & Hooymayers, H. (1991). Interpersonal teacher behaviour in the classroom. In B. J. Fraser & H. J. Walberg (Eds.), *Educational environments: Evaluation, antecedents and consequences* (pp. 141-160). Oxford, England: Pergamon Press.