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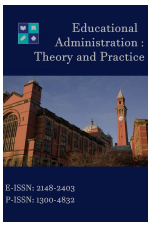

Development and Validity of Teaching Communication Skills Questionnaires for Pre-Service Teachers (TCSQ-PST): A Confirmatory Factor Analysis

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Abstract

The function of teachers' communication abilities in imparting their knowledge to students is crucial. Failure to acquire these skills will lead to the collapse of the classroom learning process. Numerous studies address the need to develop communication skills, but few study how to quantify teaching communication skills to future vocational teachers. This study aims to create a questionnaire and perform a validity and reliability analysis using Confirmatory Factor Analysis (CFA). This study involved 175 students at universities providing teacher education programs in Jakarta, Indonesia. This study reveals that teaching communication skills for candidate vocational teachers can be measured using the Teaching Communication Skills questionnaires for pre-service teachers (TCSQ-PST). The total TCSQ-PST items are 23 items consisting of four conflict management items, four conversation skill items, four comforting items, three persuasion items, four referential skill items, and four narrative skills items. Based on validity and reliability testing, each of the 23 items explaining teaching communication skills to candidate vocational teachers is valid and reliable. This study's findings have significant implications for judging the achievement of teaching communication skills for future teachers.

Keywords: Communication Skill; Teaching Skill; Vocational Teacher; Conversation Skill; Narrative Skill

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Introduction

The success of learning objectives in schools is very dependent on the extent to which the quality of teachers transfers information to students. Many factors describe the qualifications of a good quality teacher and one of the most highlighted is the teacher's communication skills. Communication skills are considered the main ability of teachers to convey and understand learning information to students. Mastery of teaching material alone is not enough to become a professional teacher, teachers must have good communication skills to transfer learning information to students. Many studies have highlighted the importance of communication skills for teachers (Aylor, 2003; Claro et al., 2018; Ozkan et al., 2014; Sirbu & Tonea, 2015; Tutkun, 2015; Ullah et al., 2012; Yusof & Halim, 2014). Another study also states that it is vital for teachers to master communication skills in teaching (Khan et al., 2017; Mahfud et al., 2022; Majid et al., 2010; Suyitno et al., 2019; Zlatić et al., 2014). According to Khan et al. (2017), teacher communication skills play an essential role in developing students' academic success. In addition, another vital point mentions that communication skills are one of the future skills in the 21st century (Trilling & Fadel, 2009). The 21st century is often associated with education and information development (Karadag & Caliskan, 2009). Therefore, it is natural that communication skills are related to the demands of future teacher qualifications.

In Indonesia, teacher candidate preparation programs have been carried out in various universities, especially universities that provide teacher education programs. Students are also involved in the apprenticeship program teaching in schools. This program aims to provide experience and guidance in teaching practice to meet the standards of the teaching profession. In addition, the Indonesian government has also made a policy for the Teacher Professional Education Program as a prerequisite for individuals who will become teachers to be involved and pass the program. This means that the government is serious about preparing professional teacher candidates according to their fields of expertise, including teaching communication skills.

Several previous studies have also highlighted various strategies for developing the communication skills of teacher candidates (Hussain Al-Qahtani, 2019; Malik et al., 2018). Many studies have discussed the importance of communication skills for teachers, but there are still limited studies examining how to measure teaching communication skills for teacher candidates. Measuring tools in the form of questionnaires or other instruments is essential to evaluate future teachers' communication skills, especially vocational teacher candidates. At this point, this study fills the gap regarding the need to develop and test the reliability and validity of the communication skills questionnaire for vocational teacher candidates. Therefore, this study aims to develop and validate a teaching communication skills questionnaire for vocational teacher candidates.

Literature Review

Educators play a significant position in the lives of their students. Communicating well orally, maintaining order in the classroom, teaching methods, and using language effectively are all crucial abilities for educators to have mastered. Knowledge is transferred from one person to another and from one group to another through communication, making it an essential component of the classroom setting in this research (Majid et al., 2010). Teaching and learning activities without contact will certainly not be able to occur (Kenneth, 2007). Therefore, teachers who meet the requirements for effective communication will foster an environment that is beneficial to student learning. Also, people who are skilled communicators may persuade others, and successful communication tactics will lead to achievement (Guerrero & Floyd, 2006).

As a notion, communication spans several academic disciplines. As a result, many components of the literature's definitions are shared by others (Tozoglu & Bayraktar, 2014). One interpretation of the term "communication" can be understood as the process of exchanging thoughts and feelings between two or more people while maintaining the same meaning (Cagdas, 2006). On the other hand, not every exchange of words between two people may be considered communication (Cagdas, 2006). In this study, communication is an important aspect most needed in the educational process (Deveci Şirin & Izgar, 2013). Communication is also often used as the

primary foundation for transferring knowledge and information during the learning process. Therefore, communication skills are an essential prerequisite for understanding teaching and learning with students.

Previous studies stated that communication skills could be described through several indicators such as conflict management, conversation skills, ego support, comforting, persuasion, referential skills, narrative skills, and regulatory skills (Burleson & Samter, 1990). The Communication Functions Questionnaire (CFQ) developed by Burleson and Samter (1990) refers to friendship communication skills. Conflict management is defined as the ability to achieve mutually satisfactory conflict solutions. A person's ability to initiate and carry on a nice conversation is referred to as a conversation skill. People sometimes refer to having the ability to make another person feel good about themselves, their ambitions, and their ideas as providing ego support. The capacity to alleviate the mental or emotional strain experienced by another person is the essence of what it means to be comforting. Persuasion is the ability to change one's attitudes, beliefs, or behavior. Another part is a referential skill, which is the capacity to communicate information concisely and clearly. The definition of narrative competence is the capacity to entertain through storytelling. And finally, regulatory skills are the capacity to assist someone in recognizing their errors and correcting them. However, the CFQ questionnaire was judged not entirely suitable in the teaching context. Thus, an adaptation of the questionnaire is needed to adjust to the context of teaching and learning in schools, namely the interaction of teachers and students.

The CFQ questionnaire classifies the explanatory indicators of communication skills into two categories: skills that focus on managing the feelings of others and skills that focus on managing communication behaviors or actions (Burleson et al., 1992; Burleson & Samter, 1990). Skills that focus on managing other people's feelings consist of comforting, ego-supportive, regulatory, and conflict management skills. Meanwhile, skills that focus on managing communication behaviors or actions include persuasive, narrative, referential, and conversational skills. Other studies also link emotional and communication aspects to describe communication skills. Teacher communication skills are associated with intellectual, emotional, and behavioral competencies (Tutkun, 2015). Based on previous studies, the development of a teaching communication skills questionnaire for prospective vocational teachers includes indicators of conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills. The selection of these indicators is considered suitable for describing teaching communication skills for prospective vocational teachers.

Methodology

This study developed a teaching communication skills questionnaire for prospective vocational teachers. The respondents involved are vocational education students who have been involved in teaching practice programs in schools. The respondents are students at one of the universities that provide teacher education programs in Jakarta. There were 175 students involved 46.9% male and 53.1% female (Table 1). Proportional random sampling is the method employed for this study's sampling strategy. Data collection is done using a self-report via an online Google form. The students were instructed to assess their perception of teaching communication skills when they practised teaching in schools.

Table 1. Background of participants (N-175)

Attribute	Categories	N	%
Gender	Male	82	46.9
	Female	93	53.1
Study program	Electrical engineering education	3	1.7
	Electronic Engineering Education	50	28.6
	Informatics and Computer Engineering Education	15	8.6
	Mechanical engineering education	21	12.0
	Building Engineering Education	19	10.9

Attribute	Categories	N	%
	Culinary Arts Education	12	6.9
	Fashion Education	7	4.0
	Cosmetology Education	14	8.0
	Family Welfare Education	34	19.4

The questionnaire was developed and adapted from a previous study conducted by Burleson and Samter (1990). The original questionnaire they developed consisted of eight indicators: conflict management, conversation skills, ego support, comforting, persuasion, referential skills, narrative skills, and regulatory skills. The previous questionnaire highlighted communication skills in the context of friendship. This study developed a communication skills questionnaire in the context of teaching in schools for teachers candidate. So, not all indicators are used because they are not appropriate. The study questionnaire consisted of conflict management, conversation skills, comforting, persuasion, referential, and narrative skills. The draft questionnaire has 23 items, including 4 conflict management items, 4 conversation skill items, 4comforting items, 3 persuasion items, 4 referential skill items, and 4 narrative skills items. This questionnaire uses a Likert scale with five alternative answers: strongly agree=5, agree=4, somewhat agree=3, disagree=2, and strongly disagree=1. Confirmatory factor analysis was used to evaluate the reliability and validity of the Teaching Communication Skills Questionnaires For Pre-Service Teachers (TCSQ-PST). Utilizing SPSS Amos 21 for Windows, a confirmatory factor analysis was conducted. This instrument development study employs the acceptability limit for standard loading factor values or lambda parameter values greater than 0.5 (Ghozali, 2017)

Results

This study develops and tests the validity of a teaching communication skills questionnaire for prospective vocational teachers. The questionnaire was developed concerning previous studies of Burleson and Samter (1990) and adapted to the context of this study. Furthermore, the results of adjusting the indicators of the teaching communication skills questionnaire consisted of conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills. A total of 23 questionnaire items consists of four conflict management items, four conversation skill items, four comforting items, three persuasion items, four referential skill items, and four narrative skills items. The draft questionnaire developed based on the teaching context in vocational schools is distributed to prospective vocational teachers who have participated in teaching practice programs in vocational high schools. Data were collected using self-report via an online Google form.

Furthermore, Confirmatory Factor Analysis CFA) was utilized to check the validity and reliability of the gathered data. Figure 1 displays the results of a CFA analysis of programs that teach communication skills to vocational teacher candidates. Figure 1 shows that the acquisition of model fit criteria still needs improvement to meet the appropriate model criteria. One of the criteria that have not been met is that the Root Mean Square Error of Approximation (RMSEA) value is above (0.08); the model fit criteria are RMSEA (0.08) (Ferdinand, 2002; Phedazur, 1997). Thus, the measurement model of teaching communication skills needs to be modified.

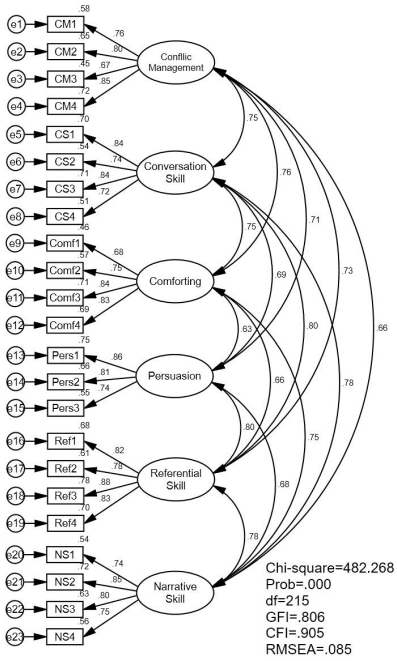

Figure 1. First Running Model

Based on the suggested Modification Indices of Amos 21 for Windows, it is necessary to have a standard error covariance relationship (Figure 2). In running the modified model, the criteria for the fit model are better than the previous model (Figure 2). The results of the measurement of teaching communication skills in the modified model obtained that the criteria for the fit model were good, which included Chi-square (407.913), GFI (0.834), CFI (0.930), and RMSEA (0.073). Although the probability level criteria have not met the fit model, overall, the requirements have met the model fit criteria (Table 2).

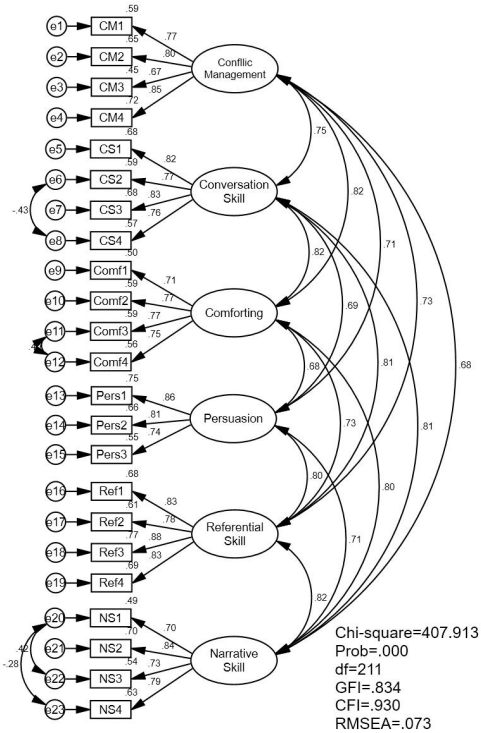

Figure 2. Modified Model of Teaching Communication Skills Measurement

Table 2. The Goodness of Fit Index of the Teaching Communication Skills Questionnaire

The goodness of Fit Measure	Index Value	Cut off-value	Note
df	211		
Chi-square of estimate model	407.913	< 2 df	Model fit
Probability level	0.0001	> 0.05	The model does not fit
Cmin/df	1.933	≤ 5	Model fit
Goodness of Index (GFI)	0.834	GFI ≥ 0.9 = good fit; 0.8 ≤ GFI < 0.9 = marginal fit	Marginal fit
Adjusted Goodness of Index (AGFI)	0.883	AGFI ≥ 0.9 = good fit; 0.8 ≤ AGFI < 0.9 = marginal fit	Marginal fit
RMSEA	0.073	≤ 0.08	Model fit
RMR	0.031	< 0.05	Model fit
Tucker-Lewis Index (TLI)	0.916	TLI ≥ 0.9 = good fit; 0.8 ≤ TLI < 0.9 = marginal fit	Model fit
Comparative Fit Index (CFI)	0.930	CFI ≥ 0.9 = good fit; 0.8 ≤ CFI < 0.9 = marginal fit	Model fit
Normo Fit Index (NFI)	0.866	NFI ≥ 0.9 = good fit; 0.8 ≤ NFI < 0.9 = marginal fit	Marginal fit

The next step is to test the questionnaire for measuring teaching communication skills for prospective vocational teachers. A validation test is carried out. The item validation test on the CFA can be seen in acquiring the loading factor value. The standard loading factor value (λ) shows that all items on each indicator have a loading factor above 0.5 (Table 3). The loading factor value of each item ranges from (0.670) to (0.880), and the p-value is very small, which is below 0.001 (***). Each item of the questionnaire is declared valid to measure the teaching communication skills of prospective vocational teachers.

Table 3. Value of Standardized Loading Factor on Teaching Communication Skills Measurement Model

Indicator	Item Code	Statement Items	Estimate	P-value
Conflict management	CM1	I can manage conflicts that occur between students in class.	0.765	***
	CM2	I resolve conflicts between students in a way that won't hurt or embarrass each other.	0.804	***
	CM3	I don't get emotional when I face conflicts between students in class.	0.67	***
	CM4	I deal with conflicts between students in class calmly.	0.85	***
Conversation skill	CS1	I can easily start a conversation with students.	0.836	***
	CS2	I can start a conversation with almost anyone in any situation.	0.737	***
	CS3	I feel like I can make the conversation seem fun in class.	0.839	***
	CS4	I can convey learning materials well to students.	0.717	***
Comforting	Comf1	I can handle my emotions when I feel upset or depressed about something.	0.678	***
	Comf2	My presence in class makes students feel	0.756	***

Indicator	Item Code	Statement Items	Estimate	P-value
		entertained.		
	Comf3	I can comfort students when I feel sad or upset.	0.842	***
	Comf4	I can make students feel better when I'm upset about something.	0.827	***
Persuasion	Pers1	I can convince students to do things they wouldn't normally do.	0.864	***
	Pers2	I can encourage students to do what they want.	0.811	***
	Pers3	I can make students do anything in class.	0.743	***
Referential skill	Ref1	I can express ideas clearly and concisely.	0.825	***
	Ref2	I have no trouble explaining things well.	0.779	***
	Ref3	I can provide students with an understanding of what I understand.	0.88	***
	Ref4	I can explain things like instructions, so it's straightforward to follow.	0.834	***
Narrative skill	NS1	I can make many students laugh just because I'm good at telling jokes or stories in class.	0.705	***
	NS2	I can connect teaching materials with exciting stories.	0.837	***
	NS3	I can tell entertaining jokes or exciting stories in a learning context.	0.739	***
	NS4	I make the students enthusiastic about listening to my conveying teaching material.	0.788	***

Furthermore, the model for measuring teaching communication skills for prospective vocational teachers was tested for reliability. This study examines the reliability of the teaching communication skills measurement model using the construct reliability reference value in SEM. This test examines the consistency and dependability of data from a questionnaire or measuring model. The upper limit for construct reliability value acceptance criteria is > 0.70. As Amos lacks an output to identify the significance of the build dependability value, it is determined using the following formula (Netemeyer et al., 2003).

$$\text{Construct Reliability} = \frac{(\sum \text{Std. loading})^2}{(\sum \text{Std. loading})^2 + \sum \varepsilon_j}$$

Based on the calculation of construct reliability in SEM, construct reliability values are obtained, as shown in Table 4. The construct reliability values for each indicator of conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills are above 0.7 (0.914, 0.912, 0.907, 0.913, 0.944, and 0.907 respectively). The referential skill indicator has the highest construct reliability score (0.944). Referential skills describe the teaching communication skills of prospective vocational teachers. Meanwhile, the indicators with the lowest construct reliability scores are comforting and narrative skills with a value of (0.907). This study also uses the reference value of Average Variance Extracted (AVE) to ensure the model's reliability for measuring teaching communication skills for prospective vocational teachers. The results of the AVE calculation in (Table 4) show the AVE score on each indicator has met the minimum standard, which is above 0.50. Thus, the teaching communication skills of prospective vocational teachers can be explained or measured using indicators of conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills.

Table 4. Reliability of Teaching Communication Skills Measurement Model

Indicator	Construct Reliability	AVE
Conflict management	0.914	0.727
Conversation skill	0.912	0.721
Comforting	0.907	0.709
Persuasion	0.913	0.779
Referential skill	0.944	0.809
Narrative skill	0.907	0.711

Discussion

The communication ability of vocational teachers to convey knowledge and vocational skills plays an essential role in achieving the success of learning objectives. Teachers who are experts in their vocational fields are meaningless if they have not been able to transfer their insights to students. There are a limited number of studies that study how to measure teaching communication abilities for future vocational instructors, despite the fact that a large number of studies emphasize the need of developing communication skills for teachers. Using Confirmatory Factor Analysis, this study attempts to construct a questionnaire and assess its validity and reliability (CFA). This investigation is supported by Amos 21 software.

The findings of this study indicate that the measurement of teaching communication skills for prospective vocational teachers can use the reference indicators of conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills. The Teaching Communication Skills questionnaires for pre-service teachers (TCSQ-PST) in this study were developed using the previous study's questionnaire approach, namely the Communication Functions Questionnaire (CFQ) (Burleson & Samter, 1990). However, CFQ cannot be used in teacher teaching, so it needs to be developed according to the context of classroom teaching. The results of developing indicators for this study do not fully use the CFQ reference; several indicators are not used, namely ego support and regulatory skills. These two indicators are judged not to be in the context of teacher teaching in the classroom. The number of TCSQ-PST items developed was 23, consisting of 4 conflict management items, four conversation skill items, four comforting items, three persuasion items, four referential skill items, and four narrative skills items.

The results of the validity test show a loading factor value above 0.5. Although at the beginning of running the model, the criteria for a good fit model have not been obtained. Furthermore, this study modifies the model to meet the model fit criteria. Some items may have similar meanings, but this can still be tolerated because these items are still in the same indicator. These results can be a recommendation for further research to develop covariance-connected items on the standard error in the measurement model. In addition, this study also tested the reliability of each indicator on the CSQ-PST. The value of construct reliability and Average Variance Extracted (AVE) shows a good value; that is, it meets the minimum value of the criteria. Using the reference to the results of the CFA analysis, it can be concluded that the teaching communication skills of prospective vocational teachers can be explained by indicators of conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills. Of course, the findings of this study strengthen the previous research conducted by Burleson and Samter (1990).

The findings of this study also encourage universities that develop teacher preparation programs to use the reference of this study in developing teacher education curricula. The development of the teacher education curriculum can at least include strengthening aspects of conflict management skills, conversation skills, comforting, persuasion, referential skills, and narrative skills. For example, in the element of conflict management, prospective vocational teachers must be able to manage conflicts that occur in the classroom, both those caused by

students and other parties. In previous studies, conflict management was also associated with communication skills (Ang, 2002). In the aspect of conversation skills, prospective vocational teachers must also be able to build pleasant communication with students, especially in the context of classroom teaching. This ability will encourage the creation of a friendly learning atmosphere. Baer and Weinstein (2013) have also discussed the importance of improving oncology nurses' communication skills for difficult conversations. Another study also stated that American students value four of the six communication skills more than Chinese students: conversational, informative, listening, and narrative skills (Kim et al., 2018).

In addition, teachers also need to manage their emotions when teaching in class; this aspect is known as comforting. Emotions or personal problems should not interfere with creating a conducive learning atmosphere. This study is also relevant to a previous study conducted by Kim, Feng, Wang, and Jang (2018), which linked communication skills with comforting aspects. Another aspect that needs to be strengthened in teacher education programs is strengthening persuasion skills. These skills support teachers in instilling the values of behavior change in students. Another aspect is referential skills; of course, a teacher must be an expert in his scientific field. Teachers must also be able to transfer their knowledge, attitudes, and skills to students clearly and concisely. And lastly, narrative skills, which means that vocational teachers need to equip themselves with entertaining skills related to student learning materials. Narrative skills are essential for communication skills that need to be mastered (Kim et al., 2018).

In principle, TCSQ-PST classifies indicators of teaching communication skills into skills related to managing other people's feelings and skills that focus on managing communication behaviors or actions. Skills associated with managing other people's feelings consist of conflict management skills and comfort. Meanwhile, skills related to behavioral management and communication actions are persuasive, narrative, referential, and conversational skills. This grouping of indicators supports previous studies that divide communication skills into emotional and communication aspects (Burleson et al., 1992; Burleson & Samter, 1990). This study has crucial implications for developing future teachers with strong communication skills for aspiring vocational teachers and providers of vocational teacher education. In addition, the results of this study can be utilized as a guide for evaluating the communication abilities of prospective teachers participating in school-based teaching practice programs.

Conclusion

Teaching communication skills for prospective vocational teachers can be measured using the Teaching Communication Skills questionnaires for pre-service teachers (TCSQ-PST) that have been developed in this study. TCSQ-PST consists of six indicators: conflict management, conversation skills, comforting, persuasion, referential skills, and narrative skills. The total TCSQ-PST items are 23 items consisting of 4 conflict management items, four conversation skill items, four comforting items, three persuasion items, four referential skill items, and four narrative skills items. Based on validity and reliability testing, all of the items (23 items) are valid and reliable in explaining teaching communication skills for prospective vocational teachers. The results of this study provide important implications in evaluating the achievement of teaching communication skills for future teachers. This study has limitations: some items have high covariance values between variables. That is, some of these items indicate the possibility that the meaning of the statement is similar. Therefore, this study also recommends the need for improved research on items that have a covariant relationship in this study so that each item has meaning independence and does not have the same meaning as other items.

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