Development and Validation of Teacher Emotional Support Scale for the Virtual Classroom

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ABSTRACT

The immediate shift from face-to-face classes to virtual learning because of the COVID 19 pandemic brought about challenges not only in delivering classroom instruction but also in establishing emotionally supportive environment which greatly affects students' well-being and achievement. Most resources that have been provided for teachers are focused on using techniques to successfully deliver online lessons and manage assessments. Hence, this paper aimed to develop and validate a scale to serve as guide for teachers in creating an emotionally supportive virtual classroom. This cross-sectional study was intended to identify the components of teacher emotional support as perceived by the students. The results of the confirmatory factor analysis demonstrated the existence of three dimensions of teacher emotional support in the developed scale namely, positive climate, teacher's sensitivity, and regard to student's perspective. Reliability results further support the consistency of the scale to determine the extent of teacher's emotional support in the virtual classroom. Thus, the developed scale was considered a valid tool in measuring the emotional support received by the students from their teacher. Further studies are suggest to involve a more distributed sample and include the interaction of teacher emotional support to other factors of students' well-being to test the convergent and discriminant validity of the scale.

Keywords: teacher emotional support, virtual classroom, confirmatory factor analysis

1. INTRODUCTION

Teacher emotional support includes showing of compassion, responding to students' needs and respecting their ideas. Research results suggest that teacher emotional support is associated with many factors that promote students' well-being and achievement. Jensen et al. (2019) found that there is an association between perceived teacher emotional support and ready self-concept. Lei et al. (2018) provided a strong evidence that links teacher support to academic emotions of students. Pakarinen et al. (2019) emphasized that being responsive and sensitive to students' needs promote prosocial behaviors. Romano et al. (2020) found that teacher emotional support significantly decreases school burnout. Additionally, teacher emotional support also increases students' motivation and engagement (Ruzek, et al., 2016), utility value and achievement (Han et al., 2019). Sakiz (2017) found that teacher emotional support is positively correlated to enjoyment, self-efficacy, and behavioral engagement and significantly reduces academic anxiety and hopelessness.

The impact of COVID 19 has led to the transition from the physical classroom to the virtual classroom. Virtual Learning is the use of computer and technology in the delivery of instruction (Meru International School, 2020). Terada (2020) identified several limitations of a virtual classroom. First, there is no eye contact within the class to communicate students' personal emotions. Next, teachers cannot move around to monitor a student work and give the needed help. Also, if there is a network or video lag, students lack the courage to ask the teacher to pause the discussion. Apparently, there is a reduced personal collaboration between student and teacher (Meru International School, 2020) which is needed in establishing supportive classrooms.

As the COVID-19 pandemic remains, there is a need to continue creating beneficial resources to sustain student learning and well-being. While knowledge in educational online tools in delivering instructions is important, it is also vital that teachers continue to establish a supportive environment. At present, no study was found that examines the scope to which teachers support their students emotionally in virtual classrooms. Thus, this study aimed to develop and validate a teacher's emotional scale that will serve as reference for teachers in establishing an emotionally supportive virtual classroom.

The perceived teacher's emotional support describes the extent of teacher's compassionate behavior in encouraging students' progress and creating personal relationship with them (Reyes, et. al, 2012). The following research questions were answered by the study:

1. What are the components of teacher-emotional support scale for virtual classrooms as perceived by the students?
2. What was the extent of validation of the proposed scale for teacher-emotional support for virtual classrooms?

2. LITERATURE REVIEW

It is evident from the literature that teacher emotional support lessens the stress and anxiety of students. The need for the abrupt change on medium of instruction should encourage teachers to take a closer look at how to respond to the anxiety and stress that learners are experiencing during this pandemic (Haynes, 2020). The resources given for teachers have concentrated mostly using technology to record and deliver lectures, facilitate discussions, and administer exams. The knowledge in technology is important but there should be more work to do to strengthen the student-teacher relationship. Imad (2020) emphasized the importance of establishing emotional connections with students these especial times of uncertainties.

There are three dimensions of teacher's emotional support that were identified in Classroom Assessment Scoring Systems (CLASS) Hamre and Pianta (2007). First is the positive classroom climate. For example, the positive classroom climate dimension includes observable behavioral indicators. It includes teacher affective communications with students, the extent to which students appreciate time with one another, their enthusiasm in learning and the mutual respect among students and teachers. The next dimension is teacher sensitivity. It refers to the teacher's interest in answering students' inquiries and responding to their needs for appropriate level of support, thus creating an effective learning environment. The last dimension is teacher's regard to student's perspective, which refers to providing opportunities so students can openly talk and share their points of view.

Several researchers have applied the CLASS (Classroom Assessment Scoring System) framework (Hamre & Pianta, 2007) to evaluate the extent to which teachers support their students emotionally in the classroom. Khany and Ghasemi (2018) developed and validated a teachers' emotional support scale in EFL classrooms which considers the dimensions enumerated in CLASS. On the other hand, the teacher emotional support scale which was developed by Schenke et. al (2015) was based on the perception of students from the emotional support they received from their teachers. Romano, et al. (2020) later translated this scale for Italian high school students. Even if the CLASS framework can be applied in classroom contexts to different levels and content areas (Pianta &

Hamre, 2009), these developed scales for teacher emotional support utilized the face-to face interaction between students and teachers. Thus, this paper addressed the need of reference for teachers in instituting an emotionally supportive virtual classroom.

3. RESEARCH METHODOLOGY

A cross-sectional study design was used to describe the student's perceived behavior of teachers. These behaviors are determined to support students' development and establish emotional connection with their teachers. Item development for the teacher emotional support scale was mainly based on the three dimensions presented in the Hamre and Pianta's (2007) CLASS conceptual framework.

Approval was secured from the institution's Ethical Research Board prior to the conduct of the study. The researchers sent the questionnaires through Google Form to the participants' email addresses. Proper instruction and guidelines for filling out the research instrument were explained, as well as the purpose of the research. The participants were informed of the confidentiality of the information gathered. A consent form was given to the participants, stating that participation is not mandatory and that they have the right to withdraw. Honesty in answering the questions was also emphasized to ensure accurate results. Data were retrieved through the recorded responses in Google Forms.

Participants of the study were students in a faith-based institution enrolled in the virtual learning instruction from August to December 2020. Fifty students agreed to participate in the pilot study. Purposive-convenience sampling was used to include the 298 respondents who agreed to answer the revised and proposed scale.

Since the measure was according to the students' perspective, the teacher emotional scale developed by Schenke et. al (2015) was modified to suit the virtual classroom. The original scale was composed of 21 items. There were seven statements for each of the three dimensions of teacher emotional support namely, positive climate, teacher sensitivity and regard for students' perspective. The proposed scale was reviewed and validated by group of professors who hold Ph.D. degree and are experts in the fields of psychology, guidance and counseling, education, and research. The questionnaire was then revised to integrate their comments and inputs. As a result of the pilot study, several items were deleted to increase the coefficient of reliability to a good level. The items that were deleted were "My teachers allow making fun of other students", "My teachers get upset when we request for further explanations", "My teachers do not convey personal interest in students", and "My teachers are firm when it comes to meeting schedules". Thus, the revised questionnaire that was distributed to gather responses for the factor analysis consisted of seventeen statements. This was a Likert Scale which was rated by the students as "Always True", "Often True", "Sometimes True", Rarely True" and "Never True".

Analysis of the scale consisted of three main assessments. First, item analysis was performed to analyze the descriptive properties. Particularly, the mean and standard deviation, skewness as well as kurtosis for each item were taken into consideration. If the item has an extreme mean and with almost zero standard deviation followed by skewness and kurtosis higher than |2|, it was no longer considered for further analysis (George & Mallery, 2001). Second, the three-factor model was

assessed by using Analysis of Moment Structures (AMOS 24) to confirm presence of the three dimensions. An improved model was also tested for comparison to follow the suggestion of maximum likelihood factor analysis. Particularly, the measures of Comparative Fit Index (CFI), Root Mean Square Error Approximation (RMSEA) and Goodness of Fit Index (GFI), were used to evaluate the models. Third, Cronbach's alpha coefficient using the Statistical Product and Service Solutions (SPSS 23) was used to test the internal consistency reliability of the scale. George and Mallery (2001) also presented the subsequent intervals for the interpretation: $\alpha > 0.9$ = Excellent, $\alpha > 0.8$ = Good, $\alpha > 0.7$ = Acceptable, $\alpha > 0.6$ = Questionable, $\alpha > 0.5$ = Poor, and $\alpha < 0.5$ = Unacceptable. An improved three-factor model was also tested for comparison following the suggestion of results from maximum likelihood factor analysis. The researcher sought the approval of the University's Ethical Review Board in conducting the study. Each participant was provided with a copy of the informed consent form.

4.ANALYSIS AND RESULTS

This study sought to develop a quantitative measure of teacher emotional support for a virtual classroom. The components of the teacher emotional support were identified by validating if the dimensions presented by Hamre and Pianta's (2007) CLASS conceptual framework and Shenke et. al (2015) were evident in the proposed scale.

Descriptive Statistics
Table 1 revealed the results of the item analysis. The mean ranged from 3.59 and 4.60. The standard deviation resulted to values 0.63 to 1.05. No items were deleted because the means were not extreme, the standard deviations were not close to zero, and the skewness and kurtosis were not more than |2|.

Table 1
Item descriptive statistics of the teacher emotional support scale for the virtual classroom
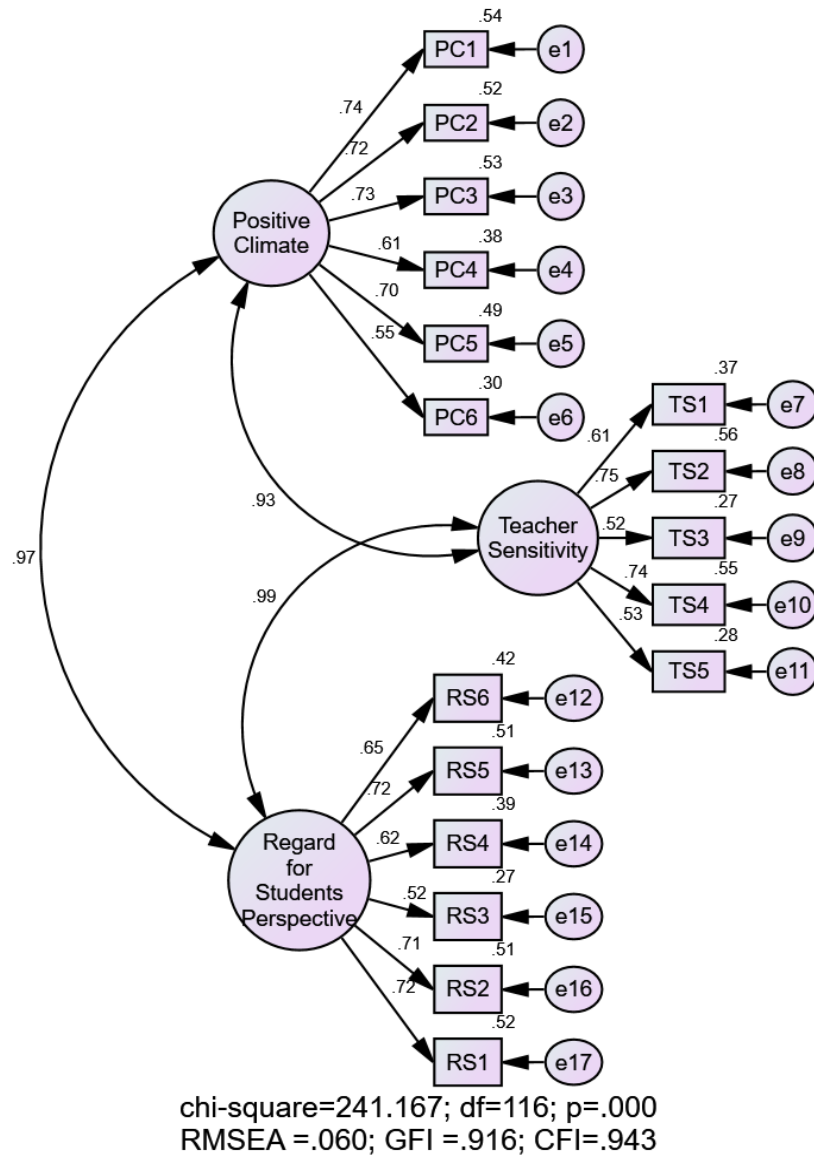
Item	Mean	Std. Deviation	Skewness	Kurtosis
Positive Climate				
My teachers treat everyone in class fairly.	4.24	0.86	-1.10	1.07
My teachers respect all students.	4.49	0.75	-1.52	2.18
My teachers make us feel comfortable during online discussions.	4.08	0.86	-0.70	0.20
My teachers remind students to respect each other.	4.16	1.00	-1.11	0.65
My teachers show enthusiasm when meeting online.	4.27	0.80	-0.89	0.38
My teachers speak with a calm voice during online discussions.	4.60	0.63	-1.59	2.40
Teachers' Sensitivity				
My teachers are available when needed.	3.77	0.87	-0.43	0.17
My teachers care about students' current situation.	4.16	0.88	-0.86	0.31

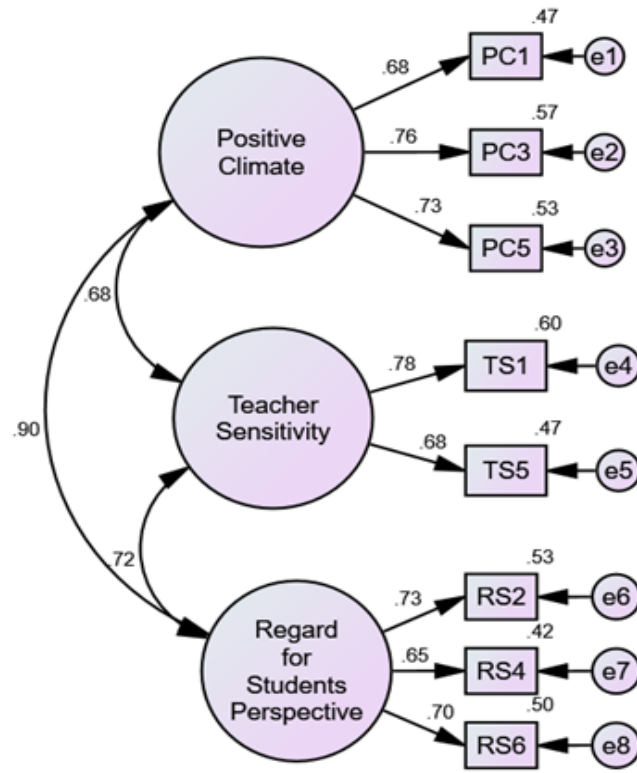|				
My teachers take time to completely answer question during online discussions.	4.27	0.89	-1.13	0.74
My teachers can recognize students who need help.	3.59	1.05	-0.28	-0.64
My teachers respond to inquiries via personal messages.	4.07	0.88	-0.75	0.19
Regard for Students' Perspective				
My teachers recognize my individuality.	3.84	0.95	-0.50	-0.33
My teachers understand my special needs.	3.76	0.97	-0.52	-0.10
My teachers allow submission of requirements in different forms.	3.93	0.93	-0.64	0.05
My teachers encourage students to share ideas with one another.	4.22	0.85	-0.87	0.19
My teachers recognize freedom in class.	4.09	0.88	-0.86	0.58
My teachers allow discussions about students' interests.	3.74	0.94	-0.44	-0.31

Confirmatory Factor Analysis

In conformity with the conceptual framework, the three-factor model for teacher emotional support, qualified for an acceptable fit adequacy: CFI = 0.943 (Bagozzi & Ye, 1988) , GFI = 0.916 (Hoyle, 1995) , RMSEA = 0.060 (Browne & Cudeck, 1992). Figure 1 showed the high standardized estimated of factor loadings. The values ranged from 0.52 to 0.73 and *t values* were significant. Additionally, showed that positive climate is significantly related to teacher's sensitivity (r = .0.93, p < .01) as well as to regard for students' perspective (r = .0.97, p < .01). It can also be seen that teacher sensitivity and regard for adolescent perspective (r = 0.99, p < .01) were positively and significantly related. However, it should be noted that the p-value of the three-factor model of all the items yield a significant value of p = 0.000. This implies that there could be overlapping of items in the three dimensions. A maximum likelihood was performed to identify communalities. This leads to a suggested three-factor model which is shown in Figure 2.

Figure 1
Confirmatory factor analysis results of the proposed model

chi-square=241.167; df=116; p=.000
RMSEA =.060; GFI =.916; CFI=.943

The improved model in Figure 2 reached the criteria of a good fit adequacy: CFI = 0.994, GFI = 0.982, RMSEA = 0.030. In addition, standardized estimated of factor loadings were increased with values ranging from 0.65 to 0.68. There was still a positive and significant correlation of positive climate to teacher sensitivity (r = 0.68, p<.01), as well as to regard for student's perspective (r = 0.90, p<.01), further, teacher sensitivity and regard for students' perspective were also significantly related(r = 0.72, p<.01). More importantly, the p-value of the suggested model is p = 0.205 which means that remaining items in the three factors are exclusive for each dimension.

Figure 2
Confirmatory factor analysis of the improved model

chi-square=21.492; df=17; p=.205
RMSEA =.030; GFI =.982; CFI=.994

Reliability

With the aid of SPSS, Cronbach's alpha was used to test the internal consistency of the proposed model. Results shown in Table 2. indicated an acceptable to good internal consistency for each dimension. Positive climate has a good interpretation ($\alpha = 0.827$), teacher sensitivity has an acceptable interpretation ($\alpha = 0.769$), while regard for adolescent perspective has a good interpretation ($\alpha = 0.820$).

Table 2
Reliability results

Subscales	Cronbach's Alpha	Interpretation
Positive climate	0.827	Good
Teacher sensitivity	0.769	Acceptable
Regard for students' perspective	0.820	Good

5. DISCUSSIONS, LIMITATIONS, AND FUTURE DIRECTION

The results implied that the developed teacher emotional support scale is considered a reliable and valid tool to determine the level of emotional support received by the students in a virtual classroom. It clearly revealed the three hypothesized components (Hamre & Pianta, 2007) of emotional support namely, positive classroom climate, teacher's sensitivity, and regard for student's perspective. The extent of the validation of the scale is good enough to serve as reference for teachers in creating an emotionally supportive virtual classroom. Specifically, the developed scale is effective in comprehending students' perception of the emotional support they received from their teachers. This could determine the level of their teacher's ability in creating a positive virtual classroom climate and how they respond to the student's needs despite the distance. The scale will serve as a valid tool for teachers to explore more on how they can enhance student-teacher relationship by considering students' point of view.

This study is conducted only in one institution during the first semester of academic year 2020 – 2021. Thus, further studies are suggested to involve students from a more distributed sample. It is also recommended to include factors such as school engagement, school burnout and academic anxiety to determine convergent and discriminant validity. Future studies can also be conducted to explore the relationships of teacher emotional support to other variables to alleviate possible adverse effects of these pandemic to the well-being of the students and to serve as reference for administrators in providing proper training to teachers in the delivery of needed emotional support.

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