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## Research Paper

### *Developing and Examining Psychometric Properties of the Teacher-Student Relationship Questionnaire in High-school Students*

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#### *Abstract*

The present study aimed to develop and examine the psychometric indicators of the teacher-student relationship questionnaire in high school students of Hormozgan province. The research method was descriptive correlation type. Also, the statistical population of the research in the content validity section included university professors, school principals, and education experts of the Education Office of Hormozgan. In the construct validity section, the statistical population included all high school male students of Hormozgan province. The research sample in the first part of the research was a panel of experts, of which 100 were selected using the purposeful sampling method. In the second part of the research, 384 students were selected by cluster random sampling method. A researcher-made questionnaire was used to measure the factors affecting the teacher-student relationship. The questionnaire was developed by examining the theoretical literature and using the Delphi method. Eventually, seven factors were identified. These factors include the teachers' affective-emotional ability, perceived freedom in the classroom, support, teachers' communication skills, classroom management ability, and teachers' personality and motivation in class. The questionnaire's validity was confirmed using exploratory and confirmatory factor analysis. Also, its reliability was satisfactory (Cronbach's  $\alpha = 0.89$ ). The results revealed that the developed questionnaire measures the identified factors as the components of the teacher-student relationship and can be used as a useful instrument in measuring this construct among high school students.

**Key Words:** Teacher-Student Relationship Questionnaire; Validity; Reliability; High School Students.

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### **Introduction**

The quality of students' relationship to the educational system, teacher and school is a determining factor in academic achievement and academic self-efficacy (Ma et al., 2018). In educational systems, many people work and students have relationship with them, direct or indirect. But in this, the role of teachers is much more prominent than other people. Students spend most of their time in school with teachers (Lāri et al., 2019). Gage (2009) believes that no other person except the teacher can have a greater impact on what happens in schools. A teacher can turn education into a process with pleasure and success, or an ineffective process.

The teacher is in constant contact with the students from the moment he enters the class until the time allotted for teaching ends. The communication that the teacher establishes with the students is about the taught material and the non-curricular material and the manner and quality of both can affect each other. Therefore, the relationship between a teacher and his students is one of the most effective factors in a learning environment (Skipper & Douglas, 2015). Teacher-student relationships are widely effective on student motivation (Scales et al., 2020), student achievement (Jasmi & Hin, 2014) and student self-efficacy (Hughes & Chen, 2011). Effective teacher-student relationships leads to student involvement in the learning process, which in turn creates

interest in students, maintains this interest, and improves students' academic motivation (Prewett et al., 2019). At a certain age when a child enters kindergarten or primary school and starts a new experience in life, the teachers' perception about the student and the way the student gets to know the teacher and the relationship between the teacher and the student is an important factor in the developing the student's personality and self-concept (Fani & Khalifeh, 2009).

The first goal of a teacher is to establish a favorable, friendly and supportive relationship with students. Such a goal can only be achieved by the interaction between the teacher and the student. Education will have no meaning without effective interaction (Roorda et al., 2011). Teaching and providing the necessary grounds for changes in the construction of knowledge and motivation of students will never be achieved without establishing a favorable relationship (SepahMansour et al., 2016).

Numerous studies indicated that relationship between teacher and student has a positive effect on cognitive and motivational outcomes of students. For instance, Wanders et al. (2020) examined the relation between teachers and students and between students on societal involvement in Dutch secondary schools and indicated that teacher-student relations and student-student relations were positively associated with societal involvement. In another study, Meehan et al. (2003) examined the

association between the quality of teacher–student relationships and children's levels of aggression in a sample of 140 second- and third-grade aggressive children but Data did not support a moderating effect of negative parent–child relationship quality on the association between supportive teacher–student relationships and aggression.

One of the important issues is measuring the structure of the relationship between teacher and student. Studies show that there are many questionnaires to measure the teacher-student relationship. Pianta et al. (2012) in a study entitled 'Conceptualizing, Measuring, and Improving the Capacity of Classroom Interactions' developed a student-teacher relationship scale. This scale has 28 items whose psychometric indicators have been confirmed in Iran and other countries. Also, Ang (2005) developed and validated the 14-item Teacher-Student Relationship Inventory (TSRI) that the validity and reliability of which have been reported satisfactory in Iran and other countries. However, Iran's cultural and educational differences with other countries make it necessary to develop and validate a new teacher-student relationship questionnaire appropriate to Iranian culture. Therefore, considering the role of the teacher-student relationship and its impact on the cognitive and motivational outcomes of high school students and the lack of a standard and native scale to measure the dimensions of the

teacher-student relationship, the present study aimed to develop and validate the teacher-student relationship questionnaire in Iranian high school students. Based on this, the validity and reliability of this questionnaire has been investigated in a sample of high school students in Hormozgan province, Iran.

### *Material and Methods*

The current research is applied in terms of purpose and in terms of method is descriptive and correlational. The research was done in two stages, in the first stage, based on the existing questionnaires about the teacher-student relationship and based on the theoretical literature about the teacher-student relationship, the questionnaire items were prepared and given to 100 experts, including teachers, school principals, the expert of the Education office and the university professors and they were asked to express their opinion about the quality and appropriateness of the presented items using the Delphi method. Then, among the presented items, 67 items that had the highest score and discrimination power were kept and the other items were removed. In the second stage of the research, the final version of scale including 67 items were given to 384 high school students and based on the collected data, validity and reliability of the scale was examined. The statistical population of the research in the first stage was experts (university professors, school principals, and education experts of the Education

office), that 100 of whom were selected by purposive sampling. In the second stage, the statistical population consisted of all male high school students in Hormozgan province, according to Morgan's table, 384 of them were selected by cluster random sampling. In terms of ethical considerations, before collecting the data, the informed consent form was completed by all the participants and they were given the necessary information about the voluntary participation in the research.

For data analysis, Cronbach's alpha and split-half reliabilities and exploratory factor analysis were used. Data analysis was done using SPSS software version 22 and AMOS-20 software.

### *Instrument*

A researcher-made questionnaire was used to measure the factors affecting the teacher-student relationship. To develop this questionnaire, first, the effective factors were identified through theoretical literature review and Delphi method. Then, based on the identified factors, questionnaire questions were prepared. The final version of the questionnaire had 67 questions and seven components. Participants should indicate their answer on a five-point Likert response scale from completely disagree (1) to completely agree (5). The validity and reliability of this questionnaire was investigated in the present study.

### **Results**

As mentioned in the methodology section, a questionnaire containing 67 questions and seven components was developed using the theoretical literature review and Delphi technique. The identified factors include the teacher's affective-emotional ability, perceived freedom in the classroom, support, teacher's communication skills, classroom management ability, teacher's personality and motivation in class. In order to measure the validity of the questionnaire, face and content validity based on experts' opinions and structural validity based on exploratory factor analysis were used. The reliability of the questionnaire was measured by Cronbach's alpha and split-half methods. The results of exploratory factor analysis revealed that the calculated value for the KMO test was 0.867, which indicates sampling adequacy for each variable in the model and for the complete model, and the value obtained here is appropriate. Also, the value of Bartlett's Test of Sphericity was obtained as 1768.857 with a degree of freedom of 200, which was significant at the 0.01 level. According to the results of exploratory factor analysis, seven factors had eigenvalues greater than one, which explained 68.58% of the total variance of the scale. Table 1 presents the findings of exploratory factor analysis.

**Table 1. Findings of exploratory factor analysis**

| Factor<br>s | Eigenvalu<br>e | Total Variance<br>Explained | Cumulative Total Variance<br>Explained |
|-------------|----------------|-----------------------------|--|
| 1           | 7.21           | 28.85                       | 28.85                                  |
| 2           | 4.92           | 10.27                       | 39.12                                  |
| 3           | 3.74           | 7.58                        | 46.7                                   |
| 4           | 2.87           | 6.40                        | 53.1                                   |
| 5           | 1.89           | 5.62                        | 58.72                                  |
| 6           | 1.52           | 5.12                        | 63.84                                  |
| 7           | 1.34           | 4.74                        | 68.58                                  |

According to Table 1, exploratory factor analysis has led to the extraction of seven factors. Each factor was named according to the items that had a factor loading greater than 0.30 on each factor. The first factor includes the teacher's empathy, the teacher's cheerfulness, the feeling of intimacy, the feeling of care, emotional giving and humor, which was named as the level of the teacher's affective-emotional ability. The second factor includes seeking dominance, giving autonomy, facilitating, participating in the class, and having authority in the class, which was named as the factor of perceived freedom in the classroom. The third factor includes support, emotional support, educational support and confidentiality, which was named as the support factor. The fourth factor includes the perception of the teacher's behavior, the teacher's

communication skill, the feeling of safety in the relationship with the teacher, the ability to express and the non-verbal communication of the teacher, which was known as the teacher's communication skill. The fifth factor includes learner-centered in the class, organizing the class, having certain regulations in the class, regular teaching, involving students in education and being committed, which was named as the factor of class management ability. The sixth factor includes positive thinking, teacher's openness, teacher's prestige, self-confidence, and being lively and active, which was named as teacher's personality. The seventh factor includes having competence, applying reinforcement, motivating students, guiding students and setting goals for them, which was named as the motivation in the class. The items related to each component are reported in Table 2.

**Table 2. Items related to the components of the questionnaire of factors affecting the teacher-student relationship**

| Components                         | Items |
|------------------------------------|-------|
| Teacher's emotional ability        | 1-7   |
| Perceived freedom in the classroom | 8-14  |
| Support                            | 15-22 |
| Teacher's communication skills     | 23-35 |
| Classroom management ability       | 36-45 |
| Teacher's personality              | 46-57 |

**Reliability of the questionnaire**

In the present study, Cronbach's alpha and split-half coefficients were used to check the internal consistency of the questionnaire.

The results are presented in Table 3. According to Table 3, the total questionnaire and its components have satisfactory reliability.

**Table 3. Reliability coefficients of the teacher-student relationships questionnaire and its subscales**

| Scale                              | Cronbach's alpha | Split-half |
|------------------------------------|------------------|------------|
| Teacher's emotional ability        | 0.74             | 0.70       |
| Perceived freedom in the classroom | 0.74             | 0.71       |
| Support                            | 0.70             | 0.72       |
| Teacher's communication skills     | 0.72             | 0.71       |
| Classroom management ability       | 0.71             | 0.70       |
| Teacher's personality              | 0.70             | 0.70       |
| Motivation in Class                | 0.74             | 0.71       |
| Total scale                        | 0.76             | 0.72       |

**Discussion**

The results of the present study showed that, based on the experts' point of view, components such as affective-emotional ability, perceived freedom in the classroom, teacher's communication skill, support, classroom management ability, teacher's personality and classroom motivation play an important role in the formation of effective student-teacher relationship. Exploratory factor analysis confirmed the components of the questionnaire. The findings of the present research are somewhat consistent with previous researches. For example, Momeni et al. (2017) in the qualitative study of supportive characteristics identified nine properties of competence in human relations, appropriate personality characteristics, appropriate monitoring and evaluation, teaching skills, ability in class

management, job commitment, guidance and counseling, scientific ability and helping students as the characteristics of a supportive teacher.

In another study, Durksen et al. (2017) revealed four key indicators within teacher-student interactions deemed important for motivation and engagement in mathematics—confidence, climate, contact, and connection.

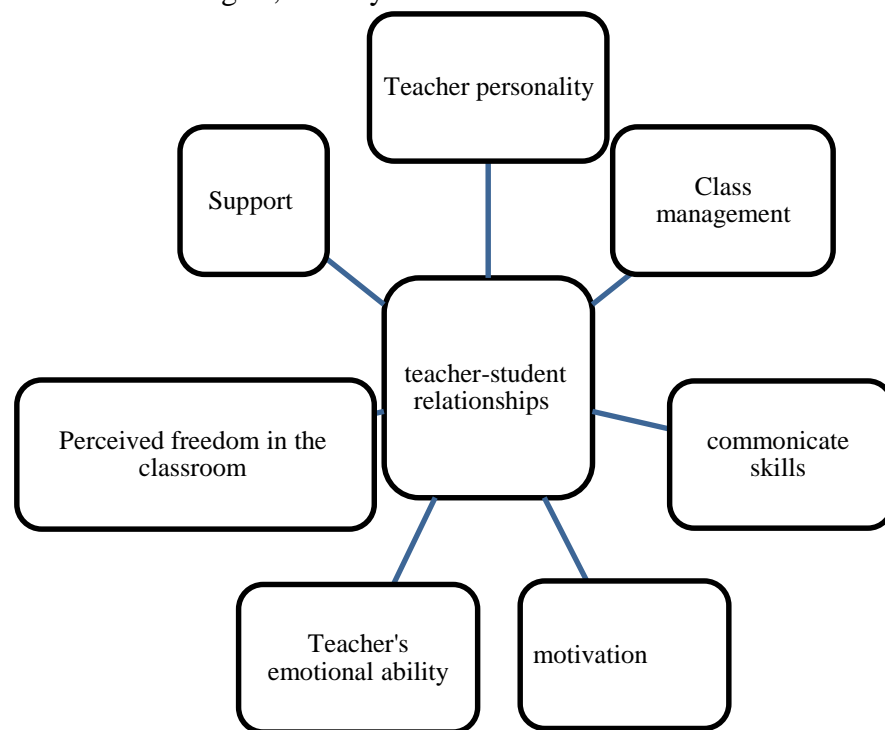
Also, the theme of teacher support and care has been confirmed in many researches. This concept is based on Bowlby's attachment theory (Bowlby, 1979) and refers to the teacher's role in providing emotional support to the student. Pianta et al. (2012) see intimacy as a sign of security in the teacher-student relationship.

Class management, in contrast to the lack of class structure, is considered as one of the factors affecting the relationship between

teacher and student. The way the teacher acts is effective in creating this structure; As the teacher's support of the class structure in the theory of self-determination (Deci & Ryan, 2008) has been mentioned as one of the three effective dimensions in the teacher-student relationship. The teacher can provide the appropriate structure for this communication environment by providing clear and coordinated strategies, and by

being available to answer student questions (Roorda et al., 2011).

In fact, students should believe that success and progress in class depends on events under control. In general, based on the results of the current research, a set of teacher's actions and characteristics that are important from the student's point of view to communicate with are shown in Figure 1.



**Fig. 1. Effective factors in teacher-student relationship**

In general, the present study indicated that the teacher-student relationship questionnaire has appropriate validity and reliability to be implemented on Iranian students. It is suggested to use this questionnaire in future studies to measure the teacher-student relationship in correlation studies or intervention researches. The

current research has some limitations. The limitation of the research sample to the high school students of Hormozgan province and the use of self-report questionnaires and the possibility of bias in the participants' answers are the most important limitations that should be taken into account in the generalization of the findings.

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