



Correlation Analysis Between Praise Strategies of Junior Middle School Mathematics Teachers and Students' Mathematics Learning Motivation

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Abstract. Since the “double reduction” policy was introduced, more and more scholars, teachers, and parents have paid attention to teacher praise and students' learning motivation. To provide a basis for teachers to implement praise strategies in teaching, this paper takes junior middle school mathematics as the starting point, conducts a questionnaire survey among middle school students in the Xiangyang area, and studies the correlation between teachers' praise strategies and learning motivation. IBM SPSS Statistics 26 was used to analyze the results of 176 valid questionnaires, and it was found that (1) teachers' praise strategies were significantly correlated with learning motivation, among which praise strategies had a significant correlation with students' intrinsic motivation, but had a weak correlation with external motivation. (2) Students' evaluation of teachers' praise behavior is not related to students' exogenous learning motivation but is significantly related to students' intrinsic motivation. (3) Students' tendency to teachers' praise behavior is related to both endogenous and exogenous learning motivation. Compared with endogenous motivation, students' tendency to teachers' praise behavior is more strongly related to exogenous learning motivation. For students with endogenous learning motivation, teachers must pay more attention to students' behavior and thoughts to trigger students' intrinsic motivation. For students with exogenous learning motivation, teachers need to pay more attention to the frequency and scene of praise to enhance students' sense of accomplishment and self-efficacy.

Keywords: Praise · Learning motivation · Junior middle school student · Math · Correlation analysis

1 Introduction

Since the introduction of the Double Reduction Policy, an increasing number of parents have been putting their educational focus on their children's campus classes. They wish

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teachers to compliment their children so that students' learning motivation could be stimulated. Meanwhile, teachers vary in opinions on whether there is a strong connection between praise strategies and learning motivation. The result is that different praise strategies are conducted for students. To provide the basis for teachers to implement the praise strategy, improve the teaching effect and respond to parents' concerns, this paper focused on teachers' praise strategies and students' learning motivation. The general review of relevant literature at home and abroad in the past decade can be summarized as follows.

1.1 Learning Motivation

“Motivation” is an old topic in psychology, and the term officially appeared in book titles in the 1930s. In the early studies of motivation, psychologists absorbed some philosophical ideas and produced two essential concepts: will and instinct, which are composed of three parts—cognition, emotion, and motivation. In recent years, researchers have introduced the concept of motivation into the field of education, using it to explain the occurrence and transformation of individual learning behaviors and viewing “learning motivation” as a psychological phenomenon that is inextricably linked to the level of learning efficiency [1].

Learning motivation is a tendency that triggers and sustains students' learning behaviors, which leads to specific academic goals. Motivation for learning can be divided into intrinsic motivation and extrinsic motivation. Intrinsic motivation is raised by the meaning and value of the learning activity itself. For example, students learn diligently because of their curiosity about the learning material or the pleasure brought up by the learning process [2]. Extrinsic motivation is the learning motivation caused by inducements other than the learning activity, such as the intention to get a reward or avoid punishment [3].

Learning motivation has a profound impact on learning behavior, a complex psychological phenomenon related directly to processes of cognition such as perception, memory, and meditation. Learning motivation indirectly influences learning behavior. More precisely, it plays a catalytic role in learning and stimulating behavior. Learning motivation puts learners in a state of activity, arouses their internal need for knowledge, and enables them to focus on and endeavor in the learning process. Moreover, learning motivation renders learners the capability to selectively participate in specific learning activities and work towards their goals, allowing them to maintain their learning state of mind until the process is finished [4].

Many factors influence learning motivation, including education of family, school and society, students' age, and students' personalities. Education of family, community, and school makes a difference in the formation of students' learning motivation, which reflects the objective requirements of society and education in students' minds. In general, school education plays the leading role in developing students' motivation for learning. The vast majority of students care about the attitude of their teachers toward them to a large degree. The age of students also influences learning motivation. Research shows that students' learning motivation evolves with the change in era. As students grow older, the learning motivation that corresponds to students' perception of the world becomes more and more dominant and gradually becomes the most crucial motivation for learning. Students' personalities also have an impact on a basis. The breadth and depth of

students' interests affect the stability and profundity of their motivation to learn. Interest is a cognitive tendency based on the need to know. It is inseparable from reason and is closely related to will and emotion. Once interest is aroused, it leads to focused attention, enhanced memory, pleasant feelings, and active engagement of willpower, thus increasing the effectiveness of the learning activity [5].

1.2 Research on Teachers' Praise Behaviour

In the process of education, praise is considered to be an effective means of education. Kanouse put forward that "praise refers to the positive evaluation given by one to the achievements, performance or character of others" [6]. Later scholars widely accepted this view, and much research was conducted. Henderlong and Lepper believe that praise is "the positive evaluation of others' achievements, output, personality, quality and other aspects by the cheerleader according to unified and effective standards" [7]. Through reading and sorting out relevant literature, the research on teacher's praise behavior mainly focuses on the following aspects: (1) The research on the status quo of teacher's praise behavior primarily focuses on the younger age group, and the research on the middle school stage is less. The answer to studies concentrating on younger age groups can be found in psychologist Erickson's theory of personality development. He believes that the psychological effect of primary school students aged 6–12 years is relatively fragile, in the sense of diligence and inferiority stage. In the school education of primary school, children for safety consciousness is not strong, and self-protection ability is weak; when faced with demands and challenges from school, family, or companions, they strive to maintain a balanced psychological will make them feel pressure increases, encounter difficulties and setbacks will lead to its inferiority complex, and its process to overcome inferiority complex experience earned its a complicated feeling. Teachers play an important role in positively constructing their self-concept during this period. Implementing specific praise behavior can be influential in guiding and providing more effective feedback. (2) Research on effective praise. Li Zhenyun's "Implementing effective praise and stimulating students' intrinsic motivation for learning" discusses that praise and learning motivation is restricted by many factors from the psychological perspective and suggests that teachers and educators should be careful to implement praise [8]. Lin-lin fan "on the implementation of an effective strategy of praise from the perspectives of education psychology praise and the dialectical relationship between learning, emphasizes the promotional effects of effective praise for learning, and grasp the good praise from the reliability and validity, density, Angle, synchronization, degrees and rich praise form five aspects, analysis of the correct implementation effective recognition strategy [9]. Xu Jinhai and Yuan Cong also mentioned the principle of the unification of critical education and effective praise in an Analysis of Ideological Education Law in Education Management. Praise is an effective way of education and management for positive guidance. Effective praise is helpful to improve the self-confidence of the managed objects so that they can better understand themselves and develop themselves. Educational managers should be able to actively use the guiding principle of effective praise in the process of ideological education, truly understand and understand the object, be good at discovering its advantages and advantages, stimulate its development in critical education, encourage its progress in praise and encouragement, and realize

the organic combination of critical education and effective praise [10]. (3) Research on teachers' praise behavior in specific situations. Wang Chunyan's Research on Praise Speech Evaluation Behaviour in Primary School Chinese Class [11], Mou Jinjiang and Yan Lingjun's Observation and Analysis of Teachers' Specific Praise Behaviour in High School English Class [12], etc., all analyzed and studied teachers' praise behavior in class. There are also research and analysis based on A region and A primary school, such as Gao Xin's "Study on Classroom Praise Behaviour of Primary School Chinese Teachers -- Taking Jinan XX Primary School as an Example" [13], Lu Lili's "Study on Praise Behaviour of Preschool Teachers -- Taking Wuhan A Garden as an example" [14] and so on. These are analyzed and studied using questionnaires, interviews, and surveys under specific circumstances. To sum up, there are still shortcomings and deficiencies in the research on teachers' praise behavior. According to the current research, the research of teacher's praise behavior is more theoretical analysis, such as psychological research, educational psychology research, etc., but less practical research. Based on the complexity and progress of education, this paper will discuss the relationship between teachers' praise behavior and students' learning motivation from the perspective of educational practice to provide more examples and references for teachers' teaching activities.

The general view of studies about teachers' praise and students' learning motivation brings some discoveries: 1. Teachers' appropriate praise strategies can bring out students' interest in learning to some degree so that their learning motivation can also be promoted; 2. Although the effect of teachers' praise on students' learning motivation has been referred to in some studies about the latter, few of them conducted deep research about the relationship between the two; 3. Domestically, there is still a vacancy in research about praise strategies of junior high school math teachers and students' learning motivation. Most of the investigations are about kindergarten or senior high school teachers. Hence, this paper concentrates on math classes in junior high school, assuming a solid connection between praise strategies of junior high school math teachers and students' learning motivation in math, and the questionnaire to demonstrate it.

2 Method

2.1 Subject

The subjects are all in Xiangyang, Hubei Province, and their math scores are mainly in the top 30% of the class. The student's ages range from 11 to 16. There are 109 boys and 67 girls. There are 16 students in seventh grade, 82 in eighth grade, and 78 in ninth grade.

2.2 Measurement

Junior High School Mathematics Teacher Praise Scale

Editing the junior middle school mathematics teachers praise scale for a total of 17 items, including 1–11 titled measuring student evaluation of junior middle school mathematics teacher's praise, 12–17 to measure the students of junior middle school mathematics teacher praise behavior tendency of emotion, questionnaire using Five-point Likert scale,

said very accord with 1, 5 meet, the higher the score said praise, the higher propensity to students. The Cronbach's α coefficient of this questionnaire is 0.918. The Cronbach's α coefficient of students' recognition of junior middle school mathematics teachers is 0.913. The Cronbach's α coefficient of students' affective tendency toward the praised behavior of junior middle school mathematics teachers is 0.809.

Junior High School Mathematics Learning Motivation Scale

In terms of the junior middle school mathematics learning motivation scale, the junior middle school mathematics learning motivation Scale compiled by Xiufeng Mo is used to measure the junior middle school students' mathematics learning motivation from endogenous learning motivation and exogenous learning motivation [15]. The scale uses a 5-point scoring method: one means "very inconsistent," and five means "very consistent." Excluding the lie detector questions 5 and 13, there are 12 questions in total. Questions 1, 3, 4, 8, 11, 14 measure endogenous motivation, and questions 2, 6, 7, 9, 10, 12 measure exogenous motivation. The higher the total score, the stronger the students' learning motivation. The Cronbach's α coefficient of this questionnaire is 0.72. The Cronbach's α coefficient of endogenous motivation is 0.926; The Cronbach's α coefficient of exogenous motivation is 0.626.

2.3 The Data Collection

The questionnaires were recorded in SO JUMP and sent one-to-one to the parents' mobile phones of 200 students in the form of links (with words required for students to fill in to prevent parents from incorrectly filling in). Students from different schools were invited to distribute and fill in among students. A total of 225 questionnaires were collected. Those who completed the questionnaire within 100 s and scored 4–5 on the polygraph test were regarded as invalid questionnaires. There were 49 invalid and 176 valid questionnaires, accounting for 78.2%.

3 Results

3.1 Correlation Analysis Between Praise Strategy and Learning Motivation

An overview of the correlation between the praise of junior middle school mathematics teachers and students' mathematics learning motivation. Through correlation analysis of the total score of praise and the total score of learning motivation, the Pearson correlation coefficient between them, $R = 0.577$, $P < 0.001$, shows a moderate correlation. This indicates that the praise strategies of junior middle school mathematics teachers positively correlate with students' mathematics learning motivation. The more reasonable the praise strategies teachers used, the stronger the students' internal and external motivation will be (Table 1).

Praise Strategies and Endogenous and Exogenous Motivation

The correlation coefficient of praise on endogenous motivation $R = 0.539$, $P < 0.001$, moderate correlation, but the correlation coefficient of praise on exogenous motivation

Table 1. Correlation matrix of main variables [owner-draw]

Styles	Learning motivation	Intrinsic motivation	Exogenous motivation
Praise	.577***	.539***	.265***
The evaluation of teachers' praise behavior	.491***	.541***	.127***
The tendency of teachers praise behavior	.536***	.357***	.418***

$p < .05$; ** $p < .01$; *** $p < .001$.

$R = 0.265$, $P < 0.001$, weak correlation. It means there is a difference between the praise strategy and the internal and external learning motivation. The praise strategy correlates more significantly with the endogenous motivation of learning. The correlation is stronger than the external motivation. This shows that teachers' praise can better stimulate students' inner motivation for learning but is relatively weak in stimulating students' external motivation for learning.

Learning Motivation and Students' Evaluation and Emotional Tendency of Praise

The correlation coefficient between learning motivation and praise evaluation is $R = 0.491$, $P < 0.001$, and the correlation coefficient between affective tendency to praise is $R = 0.536$, $P < 0.001$. Although there are slight differences, they are all between 0.4 and 0.6, showing a moderate correlation. This shows that from the perspective of students' overall learning motivation, the evaluation of teachers' praise behavior and the tendency of teachers' praise behavior are significantly correlated with learning motivation. When teachers praise students, they will positively impact students' learning motivation.

3.2 Categories of Praise Strategies and Learning Motivation

The correlation coefficient between teacher praise and endogenous learning motivation ($R = 0.541$, $P < 0.001$) is moderate. The correlation coefficient ($R = 0.127$, $P = 0.093 > 0.05$) between the evaluation of teachers' praise and exogenous learning motivation is not correlated.

The correlation coefficient between affective tendency to praise teachers and endogenous learning motivation is weak ($R = 0.357$, $P < 0.001$). The correlation coefficient between affective tendency to praise teachers and exogenous learning motivation ($R = 0.418$, $P < 0.001$) is moderate.

4 Discussion

There is a significant correlation between middle school mathematics teachers' praise strategies and students' learning motivation ($R = 0.577$, $P < 0.001$). The organic combination of different aspects such as the frequency, manner, and content of praise can form

different praise strategies. Teachers' proper use of praise strategies can stimulate students' learning motivation to a certain extent, which also explains why parents, teachers, and scholars attach great importance to praise.

However, the mechanism between praise and learning motivation differs from people's understanding. The study found that praise is more strongly related to students' endogenous learning motivation than exogenous learning motivation. Kanouse believed that "praise refers to a person's positive evaluation of others' achievements, performance or character." The behavior of praise itself is more attention to students' existing performance, is the affirmation and recognition of what students have done in the past, strengthens students' recognition of their thoughts, behavior, and learning motivation, and then praises more intrinsic learning motivation. Exogenous motivation focuses on external objective stimuli, such as getting good grades and winning scholarships, which is different from the subjectivity of praise. This may be the weak correlation between praise and exogenous learning motivation.

The praise strategy needs to consider the students' emotional tendency towards teacher praise. There is a significant correlation between students' tendency to praise teachers and their learning motivation, which exists not only in students' endogenous learning motivation but also in their exogenous learning motivation. There are two ways to understand the students' tendency toward teachers' praise behavior. One is that students who like teachers' praise from the heart want to show themselves in front of other students, their teachers, and the people around them and get attention and recognition (intrinsic motivation). For such students, the teacher should pay more attention to their behaviors, thoughts, etc., triggering their intrinsic motivation. The other way is that students take praise as an external goal in their learning process (exogenous motivation). For such students, teachers need to pay more attention to the frequency and scene of praise to enhance students' sense of accomplishment and self-efficacy.

As for the compilation of the praise scale, it needs further research. Given that this research is a questionnaire survey of students, the praise question is divided into two factors: students' evaluation of the praised behavior of junior middle school mathematics teachers and students' tendency toward the praised behavior of mathematics teaching teachers. In evaluating students' praise behavior of junior middle school mathematics teachers, the frequency, occasion, content, and form of teachers' praise are studied. The tendency of students to praise the behavior of mathematics teachers mainly focuses on students' subjective willingness to accept praise. Unlike previous studies that divided praise into effective and ineffective praise, praise attributed to ability, and praise attributed to effort, this paper divides praise strategies into two perspectives, which to some extent, lacks comprehensiveness [16]. In future research, we hope that scholars can do more research in preparing praise-related questionnaires and develop a standardized scale with high reliability and validity.

In addition, more research is needed on how students respond to praise. As the main body in teaching, students' response to teachers' praise plays an essential role in teaching. On the one hand, studying students' feedback can understand students' absorption of knowledge and their emotional tendency towards teachers. On the other hand, these studies can better understand and master students' situations, according to which teachers can formulate higher teaching methods and praise strategies.

5 Conclusion

There was a significant correlation between teachers' praise strategies and learning motivation. Specifically, praise strategies significantly correlated with students' intrinsic motivation. Students' evaluation of teachers' praise behavior was significantly related to students' intrinsic motivation. Students' tendency to teachers' praise behavior was related to both endogenous and exogenous learning motivation. Compared with endogenous motivation, students' tendency to teachers' praise behavior was more strongly related to exogenous learning motivation. Overall, this study highlights the importance of teacher praise on students' motivation to learn.

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