

A Study on the ETTMR Model to Motivate Senior High Students' English Learning in Jigang Senior High School in Jinan, China

Juan Li¹, Joseph Boon Zik Hong^{2*}, Jamiah BT Baba³, Meijuan Gai⁴

¹*Faculty of Education, Universiti Teknologi MARA, 42300 Puncak Alam, Selangor, Malaysia*

¹*Shandong Jigang Senior High School, 250100, Shandong Province, CHINA*

²*Faculty of Education, Universiti Teknologi MARA*

³*Faculty of Education, Universiti Teknologi MARA*

⁴*Academy of Language Studies, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia*

⁴*Shandong Yingcai University, 250000, Shandong Province, CHINA*

Abstract:- The research objectives discuss the importance of effective ways to motivate senior high students' English learning in Jigang Senior High School in Jinan, China. Despite the importance of students' active engagement for learning, little is known about how teachers create environments that are supportive of students' positive motivational and learning-related beliefs. Furthermore, most of the studies that have described teacher practices in relation to students' perceptions of their classroom context have focused on elementary and middle school populations; much less is known about creating supportive contexts for high school students. I conceptualized supportive instructional contexts as a learning community, developing an ETTMR Model to promote and sustain students' motivation and learning, based on the literature on classroom motivation. The ETTMR Model includes five elements: (a) teacher enthusiasm, (b) differentiated teaching, (c) real-life tasks, (d) authentic materials, (e) responsibility.

Keywords: English learning, ETTMR model, motivation, Senior high students.

1. Introduction

English is an indispensable part of China's basic education, and its importance cannot be doubted. So far, many researchers at home and abroad have studied the relevant factors that affect learners' language acquisition from different perspectives. Based on previous research, American scholar Krashen (1982) proposed the famous emotional filtering hypothesis in this context. He pointed out that emotional factors such as self-confidence and learning motivation play an important role in learners' language acquisition. Emotional factors have a filtering effect on language input and can accelerate or hinder language acquisition. Some researchers pointed out that learning motivation is an important factor affecting English learning performance (Gardner, 1985). It is true that in the process of English language learning, learning motivation is a non-intellectual factor and has always been regarded as one of the decisive factors affecting learners' English learning performance, because learning motivation, as a personal factor and driving force for learners to participate in learning activities, determines the extent to which learners actively and consciously invest in English learning.

However, the current English learning motivation level of high school students in China are not optimistic. Studies have shown that although there are currently many studies on learning motivation, students' learning enthusiasm has not been effectively stimulated (Liu Mingjuan, Xiao Haiyan, 2009). The main research content of high school students' learning motivation includes its impact on academic performance. Many researchers have pointed out that currently, the English learning motivation level of domestic high school students is weak (Chen Pingping and Liu Honggang, 2007; Li Ling, 2011). At present, most scholars have conducted research on the current situation of learning motivation and learning engagement. However, there are few documents on how to motivate students

English learning in senior high schools, especially from the English teachers' perspective. Hence, this research is particularly important.

2. Literature Review

The studies of learning motivation. Learning motivation stimulated and sustained students' learning behaviors and motivated them to achieve certain academic goals. It was the internal motivation of students to learn, and it was a psychological state that affected students' academic performance (Shi, 2000). Mao (1995) argued that learning motivation is a psychological tendency and attitude. Studies have found that learning motivation is not a single structure, but a complex with a series of dynamic factors, which include the desire to learn, the orientation of interest, and the willingness factor to learn (Sánchez-Bolívar & Martínez-Martínez, 2022; Zheng & Jia, 2017). Studies found that there was a significant positive relationship between learning motivation and academic performance, and the stronger the motivation to learn, the better the academic performance (Liu & Geng, 2005). From the perspective of psychology, there were two main aspects of students' motivation to learn: The first aspect was endogenous motivation, such as intrinsic interest, curiosity, or the need to achieve a goal ; The second aspect was exogenous motivation, which referred to the motivation triggered by external rewards and punishments or the fear of failing exams (Pi, 2004). Fang (2007) categorized learning motivation into two types: intrinsic learning motivation and external learning motivation. According to Maslow's hierarchy of needs, Du (2008) divided learning motivation into material pursuits, fear of loss, group goals, personal achievements, and intellectual progress. Learning motivation is a complex mental process, and researchers have classified learning motivation from different perspectives.

The studies of learning community. To create conditions that favor motivational efforts, teachers will need to establish and maintain classroom as a learning community—a place where students come primarily to learn, and succeed in doing so through collaboration with teachers and their classmates. Teachers also will need to focus curriculum on things that are worth learning and to develop this content in ways that help students to appreciate its significance and application potential.

Ideas about establishing caring and collaborative relationships with students and their families have been advanced by James Comer (1980) in *School Power*, by Nel Noddings (2005) in *The Challenge to Care in Schools*, by Robert Pianta (1999) in *Enhancing Relationships Between Children and Teachers*, by William Purkey and John Novak (1996) in *Inviting School Success*, and by Carl Rogers and H. Jerome Freiberg (1994) in *Freedom to Learn*. These books advocate creating a school environment in which students feel comfortable, valued, and secure. This encourages them to form positive emotional bonds with teachers and peers and a positive attitude toward school, which in turn facilitates their academic motivation and learning. Many emerging ideas about optimal social contexts in classrooms center around the concept of a learning community (Baker, Terry, Bridger, & Winsor, 1997; Watson & Battistich, 2006), which points directly to two key features of optimal classroom environments. First, it emphasizes learning, which implies something more than merely completing tasks or even passing tests. It serves as a reminder that students come to school to acquire important knowledge, skills, values, and dispositions, and that their learning is supposed to be enriching and empowering.

Second, the term emphasizes that this learning will occur within a community—a group of people with social connections and responsibilities toward one another and the group as a whole. The learning will be collaborative as community members encourage support one another's efforts. This social context enables students to feel comfortable asking questions, seeking help, and responding to questions when unsure of the answer. Members share the belief that "We're all learning together," so confusion and mistakes are understood as natural parts of the learning process. The teacher is a learner too, and models this role frequently (Matsumura, Slater, & Crosson, 2008).

Three important agendas for teachers to accomplish in establishing a learning community will set the stage for motivating students: (a) make yourself and your classroom attractive to students, (b) focus their attention on individual and collaborative learning goals and help them to achieve these goals, and (c) teach things that are worth learning, in ways that help students to appreciate their value. The first two of these agendas address the communal aspects of a learning community; the third addresses the learning aspects.

The five elements in the ETTMR Model. (a) teacher enthusiasm, (b) differentiated teaching, (c) real-life tasks, (d) authentic materials, (e) responsibility.

Teacher enthusiasm. Teacher enthusiasm is generally recognized as one of the most essential and desirable qualities and characteristics of effective teachers. The term “enthusiasm” often is used in instruction to connote a motivating, energetic, passionate, and dynamic teaching style. An enthusiastic teacher often spices the class with excitement, enjoyment, and anticipation; engages students to participate; and stimulates them to explore. Thus, teacher enthusiasm sparks the curiosity of students and jump-starts their motivation to learn. Teacher enthusiasm can lead to better teaching evaluations, positive attitudes toward teachers, better student performance, and improved classroom behavior. Some research results indicated teacher enthusiasm had a significant influence on student engagement in the classroom. The more enthusiastic and dynamic teachers were, the more engaged students became, behaviorally, cognitively, and emotionally. This finding makes sense because student engagement is malleable and responsive to teachers’ emotions and teaching styles, and positive emotions likely produce pro-social behaviors.

Differentiated teaching. Differentiation is the educational practice of modifying or adapting instruction, school materials, subject content, class projects, and assessment methods to better meet the needs of diverse learners (Smale-Jacobse AE& Meijer A, 2019). In a differentiated classroom, teachers recognize that all students are different and require varied teaching methods to be successful. From the perspective of the individual student, few can argue that differentiated teaching doesn't have distinct advantages over traditional teaching. The aim of differentiation is to employ a variety of teaching styles to ensure that students can approach learning in different ways but with the same or similar outcomes. Differentiation is meant to stimulate creativity by helping students make stronger connections, understand relationships, and grasp concepts in a more intuitive way (van Geel M & Keuning T, 2018) . Differentiated instruction can be used in any number of subject areas. It may involve: providing auditory learners with audiobooks; providing kinesthetic learners interactive assignment online; providing tactile learners with multi-sensory teaching materials; providing textbooks for visual and word learners.

Similarly, class assignments would be based on how the individual student approaches learning. Some might complete an assignment on paper or in pictures, while others may choose to give an oral report or create a three-dimensional diorama.

Differentiation can also alter how the classroom itself is organized. Students may be broken up into groups based on their approach to learning, or they may be provided with quiet spaces to study alone if they choose.

Real-life tasks. In our technology driven world where people have to be innovative, creative and oriented on problem solving, education plays a huge part, since its purpose is to prepare students for life. But it’s not the same education we used to receiving. In the information age, education has not to just passively pass on knowledge, but create active learners. It has to help them develop explicit skills and give tools that students would know how to apply further, so that they understand why what they’re learning is useful and how it leads to them achieving their goals. To maximize learning experiences, the real world connections need to be incorporated into a lesson plan, namely, the real-life tasks. To put it all in perspective even more, real-life tasks demonstrate the complexity and unpredictability of real issues, they are highly engaging, stimulate critical thinking and get students to think about solutions, rather than just focus on the problems they can and most probably will face. So, afterwards, the learning experience will be optimized and the learners will have the valuable insight to better use the obtained knowledge and have the experience to know how to look for new solutions and opportunities (Katerina Sand, 2019).

Authentic materials. One of the main ideas of using authentic materials in the classroom is to “expose” the learner to as much real language as possible. Even if the classroom is not a “real-life” situation, authentic materials do have a very important place within it. It has been argued that by taking a text out of its original context, it loses its authenticity: “As soon as texts, whatever their original purpose, are brought into classrooms for pedagogic purposes they have, arguably, lost authenticity.” (Wallace 1992:79)

Even if true, the learner is still exposed to real discourse and not the artificial language of course textbooks, which tend not to contain any incidental or improper examples. They also tend to reflect the current teaching trend.

Authentic materials also give the reader the opportunity to gain real information and know what is going on in the world around them. More times than not, they have something to say, be it giving information, a review. They also produce a sense of achievement. Extracting real information from a real text in a new/different language can be extremely motivating, therefore increasing students' motivation for learning by exposing them to 'real' language (Guariento & Morley 2001). They also reflect the changes in language use, (again something that does not occur in textbooks, which become very dated, very quickly) as well as giving the learner the proof that the language is real and not only studied in the classroom: "Authentic texts can be motivating because they are proof that the language is used for real-life purposes by real people." (Nuttall 1996:172)

Responsibility. A number of recent innovations in school discipline appear to be aimed at increasing students' sense of responsibility, but go about it in conflicting ways. For example, some educationalists argue that in order to promote responsibility in children, teachers need to develop clear expectations for student behavior and then judiciously apply a range of rewards and recognitions for good behavior and punishments for misbehavior (Canter & Canter, 1992; Swinson & Melling, 1995; McCaslin & Good, 1992). Others argue that the same aim can only be attained by emphasising less student obedience and teacher coercion, and more use of techniques such as negotiating, discussing, group participation and contracting (for example, Freiberg, 1996; Schneider, 1996; Kohn, 1996; Pearl & Knight, 1998). Whatever argument, students' responsibilities can be cultivated through certain works, such as group work, and when students have their separate roles and responsibilities in cooperation, they are more likely to achieve higher academic performance. For example, in the class, the students can be divided into groups of six, and the top third of students go to each group separately, and shoulder their responsibilities to help those less developed students. Besides, all the students have their own responsibility for their study instead of the teachers and parents force them to go forward.

3. Research Design and Implementation Process

Research design. This study takes students from two sophomore classes of Jigang Senior High School in Shandong Province as the research subjects, with one class as the experimental group (30 students) and the other as the control group (30 students), then conducts pre- and post-questionnaire on their English learning motivation to see if there is any apparent change on their English learning motivation after the researcher conducts the ETTMR Model in the experimental class for 3 months.

Research method. In this study, *Questionnaire on English Learning Motivation for High School Students* was distributed to the subjects before and after the conduction of the ETTMR Model. The researcher collected and sorted the questionnaire results and then conducted statistics and analysis on them to see the effect of the ETTMR Model on the subjects' motivation for learning English.

Research tool. *Questionnaire on English Learning Motivation for High School Students* is compiled by Bao Qin (2005). The questionnaire is divided into five dimensions, namely, learning value, effort level, external needs, learning situation and intrinsic interest. A five-point Likert scale scoring method was used, and all items were scored in a forward direction. In addition, the answer options for each item range from completely disagree, basically disagree, not sure, basically agree to completely agree, corresponding to 1, 2, 3, 4, and 5 points respectively. The specific items corresponding to each dimension are distributed as follows: Learning value: 20, 22, 26, 28; Effort level: 3, 6, 8, 10, 11, 12; External needs: 2, 7, 14, 15, 17, 25, 29, 30; learning situation: 16, 18, 19, 21, 23, 24, 27; intrinsic interest: 1, 4, 5, 9, 13.

Table 1 Distribution of English Learning Motivation Scale

Dimensions	Items
Learning value	4 items: 20, 22, 26, 28
Effort level	6 items: 3, 6, 8, 10, 11, 12
external needs	8 items : 2, 7, 14, 15, 17, 25, 29, 30
learning situations	7 items : 16, 18, 19, 21, 23, 24, 27
intrinsic interest	5 items : 1, 4, 5, 9, 13

Reliability and validity test.

Internal consistency reliability reflects the degree to which each question in the questionnaire is related. Internal consistency reliability is usually measured by Cronbach's α coefficient. Cronbach's α coefficient value is between 0 and 1. The larger the coefficient value, the better the correlation between the questionnaire items, that is, the higher its internal consistency reliability. Generally speaking, an α coefficient greater than 0.8 means excellent internal consistency, a value between 0.7 and 0.8 means good, and an α coefficient between 0.6 and 0.7 means average and acceptable. If it is lower than 0.6, it means that the internal consistency is poor, so consider modifying the questionnaire scale.

Validity analysis generally uses factor analysis method in spss software. Factor analysis refers to using fewer factors to express the relationship between multiple factors, and classifying relatively related and closely related variables into one category, so that these fewer factors can summarize and reflect Most of the information in the original data. First, before factor analysis, the KMO value test and Bartlett's sphere test are mainly used to verify whether each item in this article can be factor analyzed. KMO represents the amount of variance shared between the items designed to measure the latent variable and the items with error sharing. Kaiser (1974) recommends accepting values greater than 0.5. More specifically, values between 0.5 and 0.7 are considered medium values, values between 0.7 and 0.8 are considered good values, values between 0.8 and 0.9 are considered better values, Values above 0.9 are excellent (Hutcheson and Sofranou, 1999). Values greater than 0.7 are a common threshold for confirmatory analysis (Hair et al., 2010).

Table 2 Reliability and Validity

	Variables	Pre-test	Post-test
Cronbach's Alpha	Learning value	0.88	0.797
	Effort level	0.872	0.91
	external level	0.845	0.903
	learning situations	0.902	0.933
	intrinsic interest	0.744	0.922
KMO(Approx. Chi-Square)	Learning value	0.81(128.633***)	0.739(75.771***)
	Effort level	0.822(185.765***)	0.843(257.228**)
	external level	0.815(188.145***)	0.857(292.239***)
	learning situations	0.841(324.372***)	0.913(330.493***)
	intrinsic interest	0.693(97.094***)	0.855(228.754***)

Note: *** means $p < 0.001$.

It can be seen from table 2:

- 1) Learning value: The pre-test reliability is 0.880 and the post-test reliability is 0.797, indicating that the research variables have high reliability and good stability and consistency; the pre-test KMO is 0.810 and the post-test KMO is 0.739, The chi-square is significant at the 0.001 level, indicating a good relationship between the various items.

- 2) Effort level: pre-test reliability is 0.872, and post-test reliability is 0.910, indicating that the research variables have high reliability, good stability and consistency; pre-test KMO is 0.822, post-test KMO is 0.843, chi-square It is significant at the 0.001 level, indicating that the relationship between each item is good.
- 3) External needs: The pre-test reliability is 0.945 and the post-test reliability is 0.903, indicating that the research variables have high reliability and good stability and consistency; the pre-test KMO is 0.815, the post-test KMO is 0.857, and the chi-square is 0.001 The level is significant, indicating that the relationship between each item is good.
- 4) Learning situations: The pre-test reliability was 0.902 and the post-test reliability was 0.933, indicating that the research variables have high reliability and good stability and consistency; the pre-test KMO was 0.841, the post-test KMO was 0.913, and the chi-square was 0.001 The level is significant, indicating that the relationship between each item is good.
- 5) Intrinsic interest: The pre-test reliability is 0.363 and the post-test reliability is 0.855, indicating that the research variables have high reliability and good stability and consistency; the pre-test KMO is 0.810, the post-test KMO is 0.739, and the chi-square is 0.001 The level is significant, indicating that the relationship between each item is good.

Implementation Process

The researcher distributed a motivation questionnaire online to the 60 students in the two classes of the researcher on March 9, 2024, and explained to the students the purpose, situation and precautions for filling out the questionnaire. There were 60 valid questionnaires returned, with an effective rate of 100%.

Then during the following 3 months, the researcher conducted the ETTMR Model in the experimental class she teaches. After the 3 months, the researcher conducted a post-questionnaire to see the effect of the ETTMR Model on students' English learning motivation in the experimental and control group.

4. Results and Discussion

Descriptive analysis

Table 3 Variable mean

	CG-EG	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Control group	Learning value	60	1.25	5.00	3.521	.857	-.424	-.145
	Effort level	60	1.17	5.00	3.189	.769	-.220	.288
	external needs	60	1.13	4.63	2.914	.840	.013	-.457
	learning situations	60	1.14	4.86	3.279	.891	-.360	-.581
	intrinsic interest	60	1.00	5.00	3.137	.812	-.022	.107
Experimental group	Learning value	60	1.75	5.00	4.004	1.065	-.882	-.536
	Effort level	60	1.17	5.00	3.678	1.077	-.540	-.689
	external needs	60	1.88	5.00	3.444	.738	-.222	-.211
	learning situations	60	1.14	5.00	3.771	1.039	-1.163	1.146
	intrinsic interest	60	2.20	5.00	3.880	.945	-.339	-1.087

It can be seen from the above table that

- 1) Control group, the mean values of the variables Learning value, Effort level, external needs, learning situations, and intrinsic interest are 3.521, 3.189, 2.914, 3.279, and 3.137 respectively. Between 2.914 and

3.521, the distribution comparisons are all the same, and the variable standard deviations are all Between 0.769-0.891, it means that the dispersion of the sample data is small. Klein (1998) believes that when the absolute value of the sample data is less than 3 and the absolute value of kurtosis is less than 10, it can be considered that the observed variables basically conform to the normal distribution. From the above statistics The results show that Skewness is between -0.424~0.013, the absolute value is less than 3, Kurtosis is between -0.581~0.288, and the absolute value of kurtosis is less than 10, which is the reference value proposed by Klein (1998), so it can be considered as the best value for large sample data. The shape basically conforms to the normal distribution and meets the basic requirements of the research hypothesis of this article for analyzing the data.

- 2) Experimental group, the mean values of the variables Learning value, Effort level, external needs, learning situations, and intrinsic interest are 4.004, 3.678, 3.444, 3.771, and 3.880 respectively. Between 3.444 and 4.004, the distributions are all compared with the variable standard deviations. Between 0.738-1.077, it shows that the dispersion of the sample data is small. Klein (1998) believes that when the absolute value of the sample data is less than 3 and the absolute value of kurtosis is less than 10, it can be considered that the observed variables basically conform to the normal distribution. From the above statistics The results show that Skewness is between -1.163~-0.222, the absolute value is less than 3, Kurtosis is between -1.087~1.146, and the absolute value of kurtosis is less than 10, which is the reference value proposed by Klein (1998), so it can be considered as large sample data The shape basically conforms to the normal distribution and meets the basic requirements of the analysis data of the research hypothesis of this article.

Comparative analysis

- 1) Comparison between Control group and Experimental group

Table 4 Group Statistics

	Pre-Post	CG-EG	N	Mean	Std. Deviation	Std. Error Mean
Pre-test	Learning value	Control group	30	3.358	.999	.182
		Experimental group	30	3.558	1.150	.210
	Effort level	Control group	30	3.072	.551	.101
		Experimental group	30	2.900	.904	.165
	external needs	Control group	30	2.858	.829	.151
		Experimental group	30	2.973	.576	.105
	learning situations	Control group	30	3.157	.768	.140
		Experimental group	30	2.990	.902	.165
	intrinsic interest	Control group	30	3.040	.646	.118
		Experimental group	30	3.107	.630	.115
Post-test	Learning value	Control group	30	3.683	.663	.121
		Experimental group	30	4.450	.758	.138
	Effort level	Control group	30	3.306	.933	.170
		Experimental group	30	4.456	.540	.099
	external needs	Control group	30	2.970	.862	.157
		Experimental group	30	3.915	.564	.103
	learning situations	Control group	30	3.400	.997	.182
		Experimental group	30	4.552	.345	.063
	intrinsic interest	Control group	30	3.233	.951	.174
		Experimental group	30	4.653	.430	.078

It can be seen from the table that

(1) Pre-test

1) Learning value

The mean of the Control group is 3.358, and the Std. Deviation is 0.999; the mean of the Experimental group is 3.558, and the Std. Deviation is 1.150;

2) Effort level

The mean of the Control group is 3.072, and the Std. Deviation is 0.551; the mean of the Experimental group is 2.9, and the Std. Deviation is 0.9040;

3) external needs

The mean of the Control group is 2.858, and the Std. Deviation is 0.829; the mean of the Experimental group is 2.973, and the Std. Deviation is 0.5760;

4) learning situations

The mean of the Control group is 3.157, and the Std. Deviation is 0.768; the mean of the Experimental group is 2.99, and the Std. Deviation is 0.9020;

5) intrinsic interest

The mean of the Control group is 3.04, and the Std. Deviation is 0.646; the mean of the Experimental group is 3.107, and the Std. Deviation is 0.630;

(2) Post-test

1) Learning value

The mean of the Control group is 3.683, and the Std. Deviation is 0.663; the mean of the Experimental group is 4.45, and the Std. Deviation is 0.7580;

2) Effort level

The mean of the Control group is 3.306, and the Std. Deviation is 0.933; the mean of the Experimental group is 4.456, and the Std. Deviation is 0.540;

3) external needs

The mean of the Control group is 2.97, and the Std. Deviation is 0.862; the mean of the Experimental group is 3.915, and the Std. Deviation is 0.5640;

4) learning situations

The mean of the Control group is 3.4, and the Std. Deviation is 0.997; the mean of the Experimental group is 4.552, and the Std. Deviation is 0.3450;

5) intrinsic interest

The mean of the Control group is 3.233, and the Std. Deviation is 0.951; the mean of the Experimental group is 4.653, and the Std. Deviation is 0.430;

Table 5 Independent Samples Test

Pre-Post			Levene's Test for Equality of Variances		t-test for Equality of Means			
			F	Sig.	t	df	Sig. (2- tailed)	Mean Difference
Pre-test	Learning value	Equal variances assumed	2.417	.125	-.719	58	.475	-.200
		Equal variances not assumed			-.719	56.896	.475	-.200
	Effort level	Equal variances assumed	5.049	.028	.888	58	.378	.172
		Equal variances not assumed			.888	47.931	.379	.172
	external needs	Equal variances assumed	3.704	.059	-.627	58	.533	-.116
		Equal variances not assumed						

It can be seen from the table that

1) Learning value

2) Effort level

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between the Control group and the Experimental group is 0.888, and the significance is 0.172, which is greater than 0.05. There is no difference in the mean comparison of the Effort level between the Control group and the Experimental group.

3) External needs

The significance of the variance of external needs in the comparative analysis between Control group and Experimental group is 0.059, which is greater than 0.05, indicating that there is no difference in the variance of external needs between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances assumed' the result of. From the results of the t test, we know that the t value of the comparison of the mean values of external needs between the Control group and the Experimental group is -0.627, and the significance is 0.533, which is greater than 0.05. There is no difference in the mean comparison of external needs between the Control group and the Experimental group. .

4) Learning situations

The variance significance of the comparative analysis of learning situations between Control group and Experimental group is 0.855, which is greater than 0.05, indicating that there is no difference in the variance of learning situations between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances assumed' the result of. From the results of the t test, we know that the t value of the comparison of the mean values of learning situations between the Control group and the Experimental group is 0.755, and the significance is 0.441, which is greater than 0.05. There is no difference in the mean comparison of the learning situations between the Control group and the Experimental group.

5) Intrinsic interest

The variance significance of the comparative analysis of learning situations between Control group and Experimental group is 0.794, which is greater than 0.05, indicating that there is no difference in the variance of learning situations between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances assumed' the result of. From the results of the t test, we know that the t value of the comparison of the mean values of intrinsic interest between the Control group and the Experimental group is -.405, and the significance is 0.687, which is greater than 0.05. There is no mean comparison of intrinsic interest between the Control group and the Experimental group. difference.

(2)Post-test

1) Learning value

The variance significance of the comparative analysis of the Learning value between the Control group and the Experimental group is 0.976, which is greater than 0.05, indicating that there is no difference in the variance of the Learning value between the Control group and the Experimental group, indicating that the results of the t test need to see 'Equal variances assumed' the result of. From the results of the t test, we know that the t value of the comparison of the mean values of the Learning value between the Control group and the Experimental group is -4.169, and the significance is 0.000, which is less than 0.05. The comparison of the mean values of the Learning value between the Control group and the Experimental group is significant. difference.

2) Effort level

The variance significance of Effort level in the comparative analysis between Control group and Experimental group is 0.030, which is less than 0.05, indicating that there is a difference in the variance of Effort level between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances not assumed' the result of. From the results of the t test, we know that the t value of the Effort level comparison of the mean values between the Control group and the Experimental group is -5.840, and the significance is 0.000, which is less than 0.05. The Learning value is significant in the mean comparison between the Control group and the Experimental group. difference.

3) External needs

The significance of the variance of external needs in the comparative analysis between Control group and Experimental group is 0.041, which is greater than 0.05, indicating that there is no difference in the variance of external needs between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances not assumed' 'the result of. From the results of the t test, we know that the t value of the comparison of the mean values of external needs between the Control group and the Experimental group is -5.029, and the significance is 0.000, which is less than 0.05. The comparison of the mean values of the Learning value between the Control group and the Experimental group is significant. difference.

4) Learning situations

The variance significance of the comparative analysis of learning situations between Control group and Experimental group is 0.000, which is less than 0.05, indicating that there is no difference in the variance of learning situations between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances not assumed' 'the result of. From the results of the t test, we know that the t value of the comparison of the mean values of the learning situations between the Control group and the Experimental group is -5.979, and the significance is 0.000, which is less than 0.05. The comparison of the mean values of the Learning situations between the Control group and the Experimental group is significant. difference.

5) Intrinsic interest

The variance significance of the comparative analysis of learning situations between Control group and Experimental group is 0.001, which is less than 0.05, indicating that there is a difference in the variance of learning situations between Control group and Experimental group, indicating that the results of the t test need to see 'Equal variances not assumed' 'the result of. From the results of the t test, we know that the t value of intrinsic interest in the mean comparison analysis between Control group and Experimental group is -7.451, and the significance is 0.000, which is less than 0.05. The learning value is significant in the mean comparison between Control group and Experimental group. difference.

2) Comparison between Pre-test and Post-test

Table 6 Group Statistics

CG-EG		Pre-Post	N	Mean	Std. Deviation	Std. Error Mean
Control group	Learning value	Pre-test	30	3.358	.999	.182
		Post-test	30	3.683	.663	.121
	Effort level	Pre-test	30	3.072	.551	.101
		Post-test	30	3.306	.933	.170
	external needs	Pre-test	30	2.858	.829	.151
		Post-test	30	2.970	.862	.157
	learning situations	Pre-test	30	3.157	.768	.140
		Post-test	30	3.400	.997	.182
	intrinsic interest	Pre-test	30	3.040	.646	.118
		Post-test	30	3.233	.951	.174
Experimental group	Learning value	Pre-test	30	3.558	1.150	.210
		Post-test	30	4.450	.758	.138
	Effort level	Pre-test	30	2.900	.904	.165
		Post-test	30	4.456	.540	.099
	external needs	Pre-test	30	2.973	.576	.105
		Post-test	30	3.915	.564	.103
	learning situations	Pre-test	30	2.990	.902	.165

	Post-test	30	4.552	.345	.063
intrinsic interest	Pre-test	30	3.107	.630	.115
	Post-test	30	4.653	.430	.078

It can be seen from the table that

(1)Control group

1) Learning value

The mean of Pre-test is 3.358, Std. Deviation is 0.999; the mean of Post-test is 3.683, Std. Deviation0.6630;

2) Effort level

The mean of Pre-test is 3.072, Std. Deviation is 0.551; the mean of Post-test is 3.306, Std. Deviation0.9330;

3) External needs

The mean of Pre-test is 2.858, Std. Deviation is 0.829; the mean of Post-test is 2.97, Std. Deviation0.8620;

4) Learning situations

The mean of Pre-test is 3.157, Std. Deviation is 0.768; the mean of Post-test is 3.4, Std. Deviation0.9970;

5) Intrinsic interest

The mean of Pre-test is 3.04, Std. Deviation is 0.646; the mean of Post-test is 3.233, Std. Deviation0.9510;

(2)Experimental group

1) Learning value

The mean of Pre-test is 3.558, Std. Deviation is 1.15; the mean of Post-test is 4.45, Std. Deviation0.7580;

2) Effort level

The mean of Pre-test is 2.9, Std. Deviation is 0.904; the mean of Post-test is 4.456, Std. Deviation0.540;

3) External needs

The mean of Pre-test is 2.973, Std. Deviation is 0.576; the mean of Post-test is 3.915, Std. Deviation0.5640;

4) Learning situations

The mean of Pre-test is 2.99, Std. Deviation is 0.902; the mean of Post-test is 4.552, Std. Deviation0.3450;

1) The mean of intrinsic interest Pre-test is 3.107, Std. Deviation is 0.63; the mean of Post-test is 4.653, Std. Deviation0.430;

Table 7 Independent Samples Test

CG-EG			Levene's Test for Equality of Variances		t-test for Equality of Means			
			F	Sig.	t	df	Sig. (2- tailed)	Mean Difference
Control group	Learning value	Equal variances assumed	3.390	.071	-1.484	58	.143	-.325
		Equal variances not assumed			-1.484	50.380	.144	-.325
	Effort level	Equal variances assumed	4.385	.041	-1.186	58	.241	-.235

CG-EG		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	
external needs	Equal variances not assumed			-1.186	47.035	.242	-.235	
	Equal variances assumed	.044	.835	-.513	58	.610	-.112	
	Equal variances not assumed			-.513	57.915	.610	-.112	
	Equal variances assumed	3.203	.079	-1.054	58	.296	-.242	
	Equal variances not assumed			-1.054	54.436	.296	-.242	
	Equal variances assumed	3.506	.066	-.921	58	.361	-.193	
intrinsic interest	Equal variances not assumed			-.921	51.066	.362	-.193	
Experimental group	Learning value	Equal variances assumed	11.912	.001	-3.546	58	.001	-.892
		Equal variances not assumed			-3.546	50.215	.001	-.892
	Effort level	Equal variances assumed	5.667	.021	-8.092	58	.000	-1.556
		Equal variances not assumed			-8.092	47.332	.000	-1.556
	external needs	Equal variances assumed	.017	.896	-6.401	58	.000	-.942
		Equal variances not assumed			-6.401	57.975	.000	-.942
	learning situations	Equal variances assumed	7.579	.008	-8.861	58	.000	-1.562
		Equal variances not assumed			-8.861	37.333	.000	-1.562
	intrinsic interest	Equal variances assumed	1.903	.173	-11.113	58	.000	-1.547
		Equal variances not assumed			-11.113	51.196	.000	-1.547

It can be seen from the table that

(1)Pre-test

1) Learning value

The variance significance of the comparative analysis of Learning value between Pre-test and Post-test is 0.071, which is greater than 0.05, indicating that there is no difference in the variance of Learning value between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances assumed'. From the results

of the t test, we know that the t value of the mean comparison analysis of the Learning value between Pre-test and Post-test is -1.484, and the significance is 0.143, which is greater than 0.05. The Learning value is between Pre-test and Post-test. There was no difference in mean comparison.

2) Effort level

The variance significance of the comparative analysis of Effort level between Pre-test and Post-test is 0.041, which is less than 0.05, indicating that there is a difference in the variance of Effort level between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances not assumed'. From the results of the t test, we know that the t value of the mean comparison analysis of Effort level between Pre-test and Post-test is -1.186, and the significance is 0.241, which is greater than 0.05. Effort level is between Pre-test and Post-test. There was no difference in mean comparison.

3) External needs

The variance significance of the comparative analysis of external needs between Pre-test and Post-test is 0.835, which is greater than 0.05, indicating that there is no difference in the variance of external needs between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances assumed'. From the results of the t test, we know that the t value of the mean comparative analysis of external needs between Pre-test and Post-test is -0.513, and the significance is 0.533, which is greater than 0.05. External needs is between Pre-test and Post-test. There was no difference in mean comparison.

4) Learning situations

The variance significance of the comparative analysis of learning situations between Pre-test and Post-test is 0.079, which is greater than 0.05, indicating that there is no difference in the variance of learning situations between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances assumed'. From the results of the t test, we know that the t value of the mean comparison analysis of learning situations between Pre-test and Post-test is -1.054, and the significance is 0.296, which is greater than 0.05. Learning situations are between Pre-test and Post-test. There was no difference in mean comparison.

5) Intrinsic interest

The variance significance of the comparative analysis of learning situations between Pre-test and Post-test is 0.066, which is greater than 0.05, indicating that there is no difference in the variance of learning situations between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances assumed'. From the results of the t test, we know that the t value of the mean comparison analysis of intrinsic interest between Pre-test and Post-test is -.921, and the significance is 0.361, which is greater than 0.05. Intrinsic interest is between Pre-test and Post-test. There is no difference between mean comparisons.

(2) Post-test

1) Learning value

The variance significance of the comparative analysis of Learning value between Pre-test and Post-test is 0.001, which is less than 0.05, indicating that there is a difference in the variance of Learning value between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances not assumed'. From the results of the t test, we know that the t value of the mean comparison analysis of the Learning value between Pre-test and Post-test is -3.546, the significance is 0.001, less than 0.05, and the Learning value is between Pre-test and Post-test. There is a significant difference in the mean comparison.

2) Effort level

The variance significance of the comparative analysis of Effort level between Pre-test and Post-test is 0.021, which is less than 0.05, indicating that there is a difference in the variance of Effort level between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances not assumed'. From the results of the t test, we know that the t value of the Effort level mean comparison analysis between Pre-test and Post-test is -8.092,

the significance is 0.000, less than 0.05, and the Learning value is between Pre-test and Post-test. There is a significant difference in the mean comparison.

3) External needs

The variance significance of the comparative analysis of external needs between Pre-test and Post-test is 0.896, which is greater than 0.05, indicating that there is no difference in the variance of external needs between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances assumed'. From the results of the t test, we know that the t value of the mean comparison analysis of external needs between Pre-test and Post-test is -6.401, the significance is 0.000, less than 0.05, and the Learning value is between Pre-test and Post-test. There is a significant difference in the mean comparison.

4) Learning situations

The variance significance of the comparative analysis of learning situations between Pre-test and Post-test is 0.008, which is less than 0.05, indicating that there is no difference in the variance of learning situations between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances not assumed'. From the results of the t test, we know that the t value of the mean comparative analysis of learning situations between Pre-test and Post-test is -8.861, the significance is 0.000, less than 0.05, and the Learning value is between Pre-test and Post-test. There is a significant difference in the mean comparison.

5) Intrinsic interest

The variance significance of the comparative analysis of learning situations between Pre-test and Post-test is 0.173, which is greater than 0.05, indicating that there is no difference in the variance of learning situations between Pre-test and Post-test, indicating that the results of the t test need to be seen Equal variances assumed'. From the results of the t test, we know that the t value of the mean comparison analysis of intrinsic interest between Pre-test and Post-test is -11.113, the significance is 0.000, less than 0.05, and the Learning value is between Pre-test and Post-test. There is a significant difference in the mean comparison.

5. Conclusion

From the above analysis, it is apparent that the ETTMR Model advances the learning motivation of the experimental group. Teachers and students need to focus on establishing a learning community where students come to school to acquire important knowledge, skills, values, and dispositions, and that their learning is supposed to be enriching and empowering. The learning will be collaborative as community members encourage and support one another's efforts. This social context enables students to feel comfortable asking questions, seeking help, and responding to questions when unsure of the answer. Members share the belief that "We're all learning together," so confusion and mistakes are understood as natural parts of the learning process and their learning motivation will definitely increase.

6. Management Implications, Suggestions, and Future Study

Students should stimulate their motivation for independent learning, enhance their motivation for learning, and cultivate the ability to learn independently in learning. Students should actively participate in class activities, expand their thinking, and trigger students thinking about personal learning goals and future career development, to determine the correct learning goals and enhance learning motivation. Most students were overwhelmed in the senior high school and were faced with many choices in a more liberal atmosphere. Lingering because of fear of unknown territory, or blindly choosing multiple directions due to novelty, resulting in missed good development opportunities. These phenomena were all due to a lack of thinking about self and the future, and there would be no strong motivation to learn without clear goals. At the same time, in the classroom, teachers should innovate teaching methods, mobilize students' interest in learning, and cultivate students' initiative. Learning tasks should be challenging, increase students' behavioral and emotional engagement, and pay attention to students' mastery of knowledge. A student's commitment to the classroom depends not only on personal interests but also on the teacher's teaching methods and attitudes. Only when teachers value their work and strive to break through the traditional boring teaching methods can they inject vitality into the classroom and ignite students' enthusiasm for

learning. Then whether in or out of class, students can increase their engagement in learning. Teachers could use checks and questions to motivate students to do a good job of pre-lesson and after-class consolidation. In addition, schools should actively carry out themed lectures to cultivate students' correct learning attitude. Keynote lectures could bring new knowledge to students, and could also provide some direction for confused students. Schools should enrich the library's collection of books so that students can make full use of the school's learning resources and update books promptly. At the same time, it actively held activities to enrich the forms of activities, created a learning platform for students, and created a good learning atmosphere. Before students enter society, schools should serve as a platform to explore themselves and show themselves and should play an important role, provide rich resources, and cultivate outstanding talents for society and the country.

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