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## An Empirical Study on English Learning Motivation among Chinese Senior High School Students

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**Abstract:** Motivation research in foreign language learning is booming, and self-determination theory (SDT) has attracted wide attention. This study used mixed methods with 410 Chinese senior high school students as participants. The study aimed to answer the following three main questions: (1) What are the levels of Chinese senior high school students' English learning motivation (ELM)? (2) Do the students' ELM levels differ by gender? (3) What are the influencing factors of the students' ELM? The following conclusions were drawn from the data analysis. First, the participants had a median level of ELM. Second, their ELM was more inclined towards self-determination. Third, girls' levels of intrinsic regulation and identified regulation were significantly higher than those of boys. Fourth, anxiety and negative peer influence were two factors that contributed to a decline in the students' ELM. Cooperative learning and teacher support could improve students' intrinsic learning motivation. The satisfaction of these three basic psychological needs promoted the internalization of external motivation. Based on the above findings, we offer the three following insights: it is crucial to maintain students' autonomous ELM level; it is imperative to create a relaxed and positive classroom atmosphere; and teachers should try to meet students' basic psychological needs.

**Keywords:** Chinese senior high school students, gender, influencing factors, self-determination theory.

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### Introduction

English is among the leading international languages and is the most widely used language globally. Therefore, English learning is critical to student development. However, many English foreign language (EFL) practitioners in China feel depressed that the demands of English learning are high, while the results are low, making the inputs and outputs disproportional (W. Chen, 2013). Learning motivation, as an internal motivator of learners' behaviour, can encourage learners to undertake language learning activities to meet their desires and needs, which plays a pivotal role in the success or failure of language learning. Several studies have shown that English learning motivation (ELM) is positively correlated to academic performance (e.g., Guay & Bureau, 2018; Khodadady & Khajavy, 2013; Zhu, 2014).

In the Chinese context, Ministry of Education of the People's Republic of China (2022, p. 49) mentioned that "Teachers should fully realize that students are the subject of language learning activities". Learning motivation is an essential factor affecting students' autonomous English learning ability. As an internal motivator of learners' behaviour, learning motivation can encourage students to undertake language learning activities to meet their desires and needs, which plays a pivotal role in the success or failure of their language learning.

Gardner and Lambert (1972) proposed the dichotomy of motivation: integrated and instrumental. However, second language (L2) motivation is far more complex than we think; over time, many scholars have questioned the validity of this division (e.g., Dörnyei, 2005; Ryan & Deci, 2002). Self-determination theory (SDT; Ryan & Deci, 2002) is among the most influential approaches used to understand human motivation (Dörnyei, 2005). As a theoretical framework for examining autonomy explicitly, and one which is being used increasingly to study human motivation, SDT (Ryan & Deci, 2002) is an essential approach in motivational psychology and has been applied successfully in the field of second/foreign language acquisition (e.g., Y. Ardasheva et al., 2012; Guay & Bureau, 2018; Vallerand et al., 1992; Wang, 2014; Zhu & Sun, 2012).

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Since Ryan and Deci (2002) proposed SDT, most domestic and foreign studies have taken college students as research subjects. To enrich the theory, the present study focused on senior high school students as participants. It is also very important to allow teachers to better understand Chinese senior high school students' levels of ELM. Some pedagogical suggestions can be provided to help increase students' autonomous ELM. SDT advocates that the higher the degrees of self-determination and motivation, the better the measurable results (Ryan & Deci, 2002). In this way, students' effective learning can be ensured, which can significantly impact their healthy growth and overall development.

To explore effective means of improving Chinese senior high school students' English learning, this study aimed to assess students' ELM levels and the influencing factors of ELM and ascertain whether there is a gender difference associated with ELM levels among Chinese senior high school students. Some useful suggestions based on the results of the study will be put forward. Moreover, as researchers have mainly adopted quantitative methods to explore students' motivation levels in English learning based on SDT (e.g., Y.-L. E. Chen & Kraklow, 2015; Y. Tanaka & Kutsuki, 2018; Wang, 2014; Zhu, 2014; Zhu & Sun, 2012), this study employed a mixed-methods approach to delve deeper into this subject.

### Literature Review

This section will review the literature on English learning motivation from four aspects: defining ELM, levels of ELM, gender differences in ELM and factors of ELM.

#### *Defining English Learning Motivation*

Since Gardner and Lambert (1972) began studying L2 learning motivation in the 1970s, considerable research has been conducted on ELM (e.g., Dörnyei, 2005; Ryan & Deci, 2002). Gardner and Lambert distinguished between instrumental and integrative motivation from a socio-psychological perspective. Instrumental motivation means that studying a language is directed at fulfilling the utilitarian value of language achievement, such as getting a scholarship. However, integrative motivation means that the purpose of learning a language is to understand and integrate into the target culture; for example, the learner communicates with members of the target linguistic-cultural group due to his or her will and interest.

Dörnyei (2005) proposed the Second Language Motivational Self System (L2MSS), drawing on the psychological concepts of "possible selves" and "future self guides". This theory provides new ideas to explain L2 learners' learning motivation in the context of globalization. L2MSS consists of three dimensions: ideal L2 self (ILS), ought-to L2 self (OLS) and L2 learning experience (LLE). The ILS is the ideal self-image that the learner would like to have. This image is expressed in L2 learning, meaning that the learner can proficiently communicate and use the L2. The OLS is the learner's belief that he or she should attain certain characteristics, such as the responsibility and obligation to learn L2 well to avoid possible adverse outcomes. The LLE is the contextual motivation associated with specific learning situations or previous learning experiences.

American psychologists Ryan and Deci (2002) proposed SDT to study human motivation from a humanistic perspective. Five mini theories have been outlined under the SDT framework: Basic Psychological Needs Theory (BPNT; Ryan & Deci, 2002), Organismic Integration Theory (OIT; Ryan & Deci, 2002), Goal Contents Theory (GCT; Kasser & Ryan, 1993), Cognitive Evaluation Theory (CET; Deci, 1975) and Causality Orientation Theory (COT; Deci, 1975). In Figure 1, we can see that according to the OIT (Ryan & Deci, 2002), motivation is a continuum from amotivation and extrinsic motivation to intrinsic motivation, depending on the degree of self-determination, and extrinsic motivation can be separated into four different forms with internalization: external regulation, introjected regulation, identified regulation and integrated regulation. As for intrinsic regulation, Ryan and Deci (2002) posited that "At the right end of the continuum is intrinsic motivation, which we have already discussed as the state of doing an activity out of interest and inherent satisfaction. It is the prototype of autonomous or self-determined behavior" (p. 17). In terms of identified regulation, Ryan and Deci defined it as follows:

Regulation through identification is a more self-determined form of extrinsic motivation, for it involves a conscious valuing of a behavioral goal or regulation, an acceptance of the behavior as personally important. When a person identifies with an action or the value it expresses, they, at least at a conscious level, are personally endorsing it, and thus identifications are accompanied by a high degree of perceived autonomy. (p. 17)

Ryan and Deci defined introjected regulation as follows:

Introjected regulation involves an external regulation having been internalized but not, in a much deeper sense, truly accepted as one's own. It is a type of extrinsic motivation that, having been partially internalized, is within the person but is not considered part of the integrated self. Introjected-based behaviors are performed to avoid guilt and shame or to attain ego enhancements and feelings of worth. (p. 17)

Finally, Ryan and Deci defined external regulation as follows:

External regulation is the least autonomous form of extrinsic motivation and includes the classic instance of being motivated to obtain rewards or avoid punishments. More generally, external regulation is in evidence

when one's reason for doing behavior is to satisfy an external demand or socially constructed contingency. (p. 17)

Applying these four types of motivation as defined by Ryan and Deci (2002) to a foreign language learning environment, we have learners' motivations for learning English when they engage in activities related to English learning.

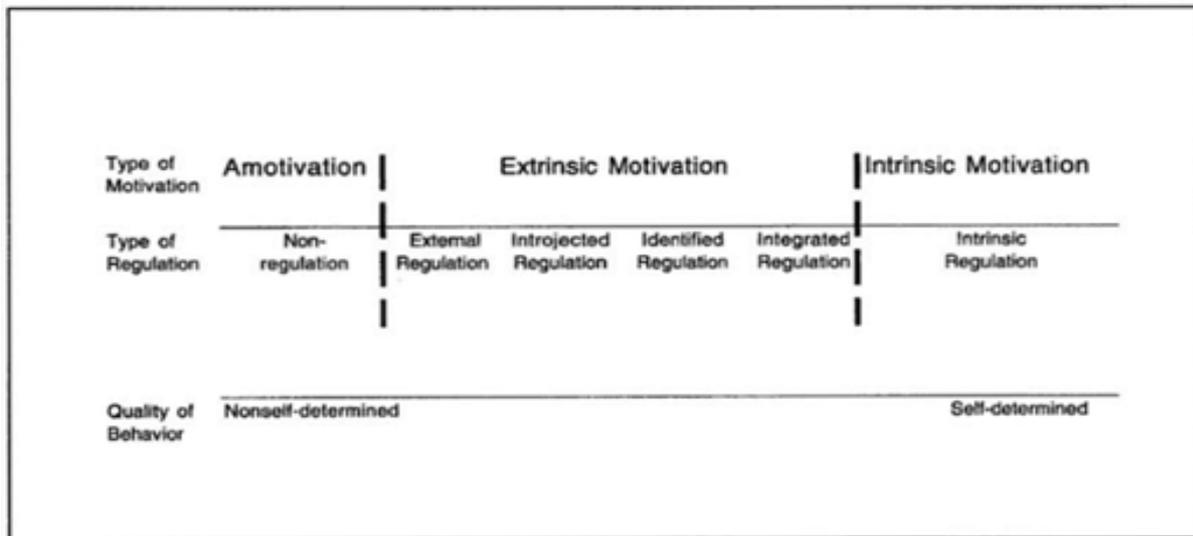


Figure 1. The Self-Determination Continuum, with Types of Motivation and Types of Regulation (Ryan & Deci, 2002, p. 16)

#### Levels of English Learning Motivation

In the literature, these four types of motivation have been extensively investigated to determine students' levels of ELM based on SDT (e.g., Y.-L. E. Chen & Kraklow, 2015; Ngo et al., 2017; Y. Tanaka & Kutsuki, 2018; Wang, 2014; Zhu & Sun, 2012). Y. Tanaka and Kutsuki (2018) conducted a study on the ELM of 112 elementary school students in an international school in Japan. The results revealed that self-determined orientation motivation (i.e., intrinsic motivation and identified regulation) constituted the most significant motivational component for learning English. Y.-L. E. Chen and Kraklow (2015) compared the ELM levels of college students in Taiwan who participated in EMI (English as the medium of instruction) courses and those who did not. They found that the students who participated in this course had a greater degree of intrinsic motivation than those who did not participate in the course; however, there was little difference in identified regulation and extrinsic regulation. In a study on 146 non-English major sophomores in China, Wang (2014) found that the students had greater autonomy in ELM. Zhu and Sun (2012) studied 125 non-English majors in Chinese universities and found that the English learners' motivation was generally high, with intrinsic motivation being higher than extrinsic motivation. According to Ngo et al. (2017), both Vietnamese university English majors and non-English majors showed high levels of ELM. However, the English majors had more intrinsic motivation, suggesting that more intrinsically motivated students put the most effort into learning English. As we can see from the above studies, researchers have mainly used quantitative approaches to explore students' motivation levels in English learning based on SDT (e.g., Y.-L. E. Chen & Kraklow, 2015; Y. Tanaka & Kutsuki, 2018; Wang, 2014; Zhu & Sun, 2012). The research subjects have mainly been college students (e.g., Y.-L. E. Chen & Kraklow, 2015; Ngo et al., 2017; Wang, 2014; Zhu & Sun, 2012), and many studies have found students' motivation in English learning to be generally high (e.g., Ngo et al., 2017; Wang, 2014; Zhu & Sun, 2012).

#### Gender Differences in English Learning Motivation

Several studies have explored gender differences in ELM (e.g., Vallerand et al., 1992; Zhu, 2014). Vallerand et al. (1992) noted that for English-speaking university students, girls had higher levels of intrinsic motivation – including the intrinsic motivation to know and to experience stimulation, identified regulation and introjected regulation – and lower levels of amotivation than boys. In his 2014 empirical study on college students in China, Zhu (2014) found that girls' interest in language learning gave them a higher degree of self-determination to learn and a greater capability of learning independently. As we can see from the above studies, in terms of the influence of gender on ELM, most studies have found that girls have higher levels of autonomous motivation than boys.

#### Factors of English Learning Motivation

Some studies have examined the influencing factors of ELM. M. Tanaka (2017) researched college students in Japan and highlighted that negative peer influence could negatively predict intrinsic motivation and identified regulation and positively predict amotivation. Ning and Hornby (2014) examined the effects of cooperative learning on Chinese

university students' learning motivation, including intrinsic motivation, integrative regulation, identified regulation, introjected regulation, external regulation and amotivation. Their results showed that cooperative learning significantly differed in increasing intrinsic motivation, but there were no significant differences in other aspects. In the Iranian context, Khodadady and Khajavy (2013) found that language anxiety had a positive effect on amotivation and lower levels of autonomous external motivation (i.e., extrinsic and introjected motivation), while it had a negative effect on intrinsic motivation and identified regulation. Recent studies have shown that teacher support can improve student achievement (e.g., X. Li et al., 2023; Liu & Li, 2023) and grit (e.g., Liu et al., 2023), thereby improving students' ability to resist pressure and consequently enhancing their learning motivation. In addition, it can cultivate students' psychological resilience and improve their engagement in classroom activities and flow (Liu & Song, 2021). A significant portion of the research has also demonstrated that the satisfaction of learners' needs for autonomy, relatedness and competence could accelerate the shift in their motivation type towards a more autonomous type along the motivational continuum, which is consistent with the internalization process of extrinsic motivation (e.g., Carreira, 2012; Hu & Zhang, 2017; Joe et al., 2017). These studies have demonstrated that positive educational factors positively affect the more autonomous forms of ELM.

In summary, studies exploring ELM levels based on SDT can provide insight into the current status of study participants' ELM levels, and related empirical studies based on quantitative research methods have been conducted among Chinese college students (e.g., Y.-L. E. Chen & Kraklow, 2015; Wang, 2014; Zhu, 2014; Zhu & Sun, 2012). Moreover, as we can see from the above studies, regarding the influence of gender on ELM, most studies have found that girls have higher levels of autonomous motivation than boys do. The above research has also uncovered that ELM is correlated with many influencing factors in the field of education, and these correlations are not identical. This is generally accepted in the literature, from which we can draw the conclusion that there is a positive correlation between more autonomous ELM and positive educational factors (e.g., Carreira, 2012; Y.-L. E. Chen & Kraklow, 2015; Hu & Zhang, 2017; Joe et al., 2017; Ning & Hornby, 2014; Wang, 2014; Zhu & Sun, 2012); it is negatively correlated with negative educational factors (e.g., Khodadady & Khajavy, 2013). Exploring ELM's correlations with other factors can provide a deeper and more thorough understanding of the complex relationships involved in students' English learning processes. Finally, as most of the aforementioned studies on ELM have focused on college students, senior high school students have received little attention. Therefore, there is a need for more mixed-methods research exploring Chinese senior high school students' ELM.

## Methodology

### *Research Design*

A quantitative–qualitative mixed-methods research design (Dörnyei, 2007) was used in the present study to address three research questions:

RQ1. What are Chinese senior high school students' levels of ELM?

RQ2. Do the students' ELM levels differ by gender?

RQ3. What are the influencing factors of the students' ELM?

A questionnaire was used to explore Chinese senior high school students' ELM levels and ascertain whether gender differences were associated with these levels. The data were analysed using SPSS 24.0. Descriptive statistical analysis was used to explore the ELM levels. Independent samples t-tests were used to ascertain whether gender differences were associated with the students' ELM levels. A semi-structured interview was adopted as a complementary instrument to provide some possible interpretations of the results of the questionnaire data analysis and explore the influencing factors of the students' ELM.

### *Instrument*

This study used mixed methods including a questionnaire and semi-structured interview. The questionnaire began by asking students to fill in their demographic information, such as their gender and grade level, to analyse demographic differences. The second part of the questionnaire contained a scale to measure the students' ELM, which was developed by Oga-Baldwin and Nakata (2017). The questionnaire consisted of 12 items, classified into the four dimensions of intrinsic regulation, identified regulation, introjected regulation and extrinsic regulation. All these items were guided by the main question, "Why are you working to learn English?" Participants were asked to respond using a 5-point Likert scale ranging from "strongly disagree" to "strongly agree", where 1 = "strongly disagree", 2 = "disagree", 3 = "uncertain", 4 = "agree" and 5 = "strongly agree". The questionnaire yielded a cumulative total score with a theoretical range of 12–60 points. In all cases, higher scores indicated higher levels of students' ELM. Cronbach's alpha for the whole scale was 0.76, demonstrating the scale's high level of reliability. More specifically, Cronbach's alphas of the four dimensions were 0.89 for intrinsic regulation, 0.88 for identified regulation, 0.83 for introjected regulation and 0.70 for extrinsic regulation. The more detailed conditions are presented in Table 1.

Table 1. Information of the English Learning Motivation Scale

Dimensions	$\alpha$	Item Distributions	Sample Item
Intrinsic regulation	0.89	1,2,3	English is fun.
Identified regulation	0.88	4,5,6	It will help me in other parts of my life.
Introjected regulation	0.83	7,8,9	I want my teacher to like me.
Extrinsic regulation	0.70	10,11,12	If I don't, my teacher will get angry

Table 2 shows the Pearson correlation between the dimensions of English learning motivation. The correlation coefficients of the dimensions of motivation were all smaller than the square root of the value of the corresponding average variance extracted (AVE), indicating satisfactory discriminant validity (Malhotra, 2010).

Table 2. Square Root of the AVE and Inter-construct Correlations of English Learning Motivation

	Intrinsic regulation	Identified regulation	Introjected regulation	Extrinsic regulation
Intrinsic regulation	0.864			
Identified regulation	0.805	0.842		
Introjected regulation	0.437	0.475	0.808	
Extrinsic regulation	-0.443	-0.340	0.000	0.652

Notes: The diagonal blue numbers represent the square root of the AVE

The interview was used as a complementary instrument to provide some possible interpretations of the results of the questionnaire data analysis and to explore the influencing factors of students' ELM. The primary goals of this research were to explore the students' ELM levels and the influencing factors to determine ways to improve the students' ELM. The interviewees were asked to describe their current situation concerning the questions posed by the researcher. These questions were designed to fill gaps left in the questionnaire data. The interview outline is provided here:

What is your motivation for learning English?

What factors do you think to influence your English learning motivation?

#### Sample and Data Collection

The questionnaire was administered at a public high school in Xingtai City. The participants were 450 students from three grades – Grades 1, 2 and 3 – with 150 students per grade. In total, 146 questionnaires were collected in Grade 1, 146 in Grade 2 and 142 in Grade 3. Some questionnaires were subsequently eliminated owing to incomplete answers. Finally, 410 valid questionnaires were received from 145 students (35.37 %) in Grade 1, 140 students (34.15 %) in Grade 2 and 125 students (30.49 %) in Grade 3, 133 (32.44%) of whom were male and 277 (67.56%) of whom were female (see Table 3).

Table 3. Participant Information

	Gender				Total n
	Male		Female		
	n	%	N	%	
Grade 1	46	31.72	99	68.28	145
Grade 2	56	40	84	60	140
Grade 3	31	24.80	94	75.20	125
Total	133	32.44	277	67.56	410

Among the 80 students who volunteered to participate in the interview, the interviewees were selected in light of their gender and grade level. In addition, their ELM levels were different, representing the different situations of high school students' ELM levels. Finally, 12 students were selected as interviewees: four students from Grade 1, four students from Grade 2 and four students from Grade 3. Among the four students from each grade, there were two males and two females. The details of these interviewees are shown in Table 4.

Table 4. Interviewee Information

Student	Gender	Grade	Mean Value of English Learning Motivation
A	Male	Grade 1	3.08
B	Male	Grade 1	3.08
C	Male	Grade 2	3.08
D	Male	Grade 2	3.17
E	Male	Grade 3	2.83
F	Male	Grade 3	1.75
G	Female	Grade 1	3.42
H	Female	Grade 1	4.00
I	Female	Grade 2	2.67
J	Female	Grade 2	2.75
K	Female	Grade 3	2.83
L	Female	Grade 3	4.08

M = Male; F = Female; G1 = Grade 1; G2 = Grade 2; G3 = Grade 3

### Data Analysis

In total, 434 questionnaires were collected, with a return rate of 96.44%. Thirty-three questionnaires were excluded owing to incomplete answers, making the valid questionnaire rate 92.40%. Finally, a statistical data analysis was performed using SPSS 24.0, including descriptive statistical analysis (i.e., maximum, minimum, mean and standard deviation) and independent samples t-tests, to analyse the students' ELM levels and gender differences in their ELM levels.

In addition, 12 students were interviewed in their spare time. All participants were informed of the confidentiality commitment of this research. The researcher wrote down the talking points and transcribed the interviews after the researcher conducting the interviews. The researcher then checked the transcriptions with the interviewed students to ensure that the recorded conversations matched their honest thoughts and behaviours. The researchers then conducted a qualitative analysis of the transcribed data. The researchers transcribed, read and discussed the transcribed data. They used both emic and etic views on the transcribed data regarding the students' views on their intrinsic regulation, identified regulation, introjected regulation and extrinsic regulation.

## Results

After data collection, the retrieved data were analysed using SPSS 24.0 for descriptive statistics (i.e., maximum, minimum, mean and standard deviation) and independent samples t-tests to analyse the students' ELM levels and gender differences in their ELM levels. This section will report the results of the qualitative analysis of the transcribed data.

### Students' Levels of English Learning Motivation

Table 5 shows the descriptive analysis results of all variables of ELM, including maximum value, minimum value, mean value and standard deviation. According to Oxford and Burry-Stock's (1995) classification criteria for the Likert 5 subscale, a mean value greater than or equal to 3.5 is considered a high level, a mean value greater than 2.5 but less than 3.4 is considered the middle level and a mean value less than or equal to 2.4 is considered a low level. The descriptive statistics showed that students were generally at the middle level of ELM ( $M = 3.24$ ,  $SD = 0.62$ ), revealing that the participants' overall ELM was not very strong. The mean values for all dimensions are displayed in descending order.

Table 5. Results of Descriptive Analysis of Sub-dimensions of ELM

Variables	Min	Max	M	SD
Identified regulation	1.00	5.00	3.81	0.97
Intrinsic regulation	1.00	5.00	3.56	1.06
Introjected regulation	1.00	5.00	2.81	1.04
Extrinsic regulation	1.00	5.00	2.79	0.99
Global ELM	1.33	5.00	3.24	0.62

For the four dimensions of ELM, the mean value of identified regulation was 3.81 ( $SD = 0.97$ ), the mean value of intrinsic regulation was 3.56 ( $SD = 1.06$ ), the mean value of introjected regulation was 2.81 ( $SD = 1.04$ ) and the mean value of extrinsic regulation was 2.79 ( $SD = 0.99$ ). Deci and Ryan (2008) proposed that SDT classifies motivation into two main types: autonomous and controlled motivation. Autonomous motivation arises from people's intrinsic interest or from incorporating the value of an activity into their sense of self, whereas controlled motivation is more motivated by external rewards or punishments. Intrinsic regulation and identified regulation belong to autonomous motivation, whereas introjected regulation and extrinsic regulation belong to controlled motivation. As Table 6 shows, the level of

autonomous motivation ( $M = 3.69$ ,  $SD = 0.97$ ) was higher than that of controlled motivation ( $M = 2.80$ ,  $SD = 0.72$ ). Therefore, the participants' ELM tended to be more self-determined.

Table 6. Results of Descriptive Analysis of ELM

Variables	Min	Max	M	SD
Autonomous motivation	1.00	5.00	3.69	0.97
Controlled motivation	1.00	5.00	2.80	0.72
Global ELM	1.33	5.00	3.24	0.62

#### Gender Differences in English Learning Motivation

The results of the independent samples t-test, as shown in Table 7, showed that two dimensions of students' ELM differed significantly by gender: intrinsic regulation ( $t = -2.98$ ,  $df = 210.30$ ,  $p < 0.05$ ) and identified regulation ( $t = -2.79$ ,  $df = 214.10$ ,  $p < 0.05$ ). The intrinsic regulation of male students was significantly lower than that of female students ( $MD = -.36$ ), and the identified regulation of male students was significantly lower than that of female students ( $MD = -.31$ ). This study showed that female students had higher intrinsic regulation and identified regulation than male students. Chinese female senior high school students' ELM tended to be more self-determined. In addition, there was no significant difference in the other two dimensions of students' ELM by gender: introjected regulation and extrinsic regulation.

Table 7. Gender Differences in Students' ELM

Factors	Male (n = 133)		Female (n = 277)		MD	t(410)	p
	M	SD	M	SD			
Intrinsic regulation	3.31	1.23	3.67	0.95	-.36	-2.98	.003
Identified regulation	3.60	1.12	3.91	0.89	-.31	-2.79	.006

\* $p < 0.05$

#### Influencing Factors of English Learning Motivation

The interviews revealed some factors that influence students' ELM. From Extract 1, it can be confirmed that the pressure of the college entrance examination and anxiety (Khodadady & Khajavy, 2013) affect students' ELM:

##### Extract 1

Researcher: What factors do you think influence your English learning motivation?

Student F: A few days before the exam, I would always worry about not doing well on the English test, and after each exam, the teacher would specifically talk to students who did not do well on the exam. So, when I thought about this, I avoided studying English and always felt short of breath when I saw English. So, I don't like learning English anymore. (M; G3; ELM: 1.75) (2022/1/18)

The above interview data showed that Student F was facing great academic pressure. As "the teacher would specifically talk to students who did not do well on the exam", he was prone to anxiety. He was worried "about not doing well on the English test" and "felt short of breath". The feeling of anxiety would weaken Student F's ELM, and he "avoided studying English". Some studies have shown that the English learning environment, including peer influence (M. Tanaka, 2017), for example, could also affect students' ELM. Student B mentioned this in the interview:

##### Extract 2

Student B: I think my classmates will have some influence on me. Sometimes, in English class, when my classmates around me do not listen carefully and whisper, I get upset and do not want to listen to the class. (M; G1; ELM: 3.08) (2022/1/18)

In addition, significant others, including peer influence ("my classmates"), had "some influence" on Student B's English learning. This kind of negative peer influence, such as his classmates "not listen[ing] carefully and whisper[ing]" would significantly reduce his ELM, which resulted in him not wanting "to listen to the class". Some studies have shown that cooperative learning (Ning & Hornby, 2014) could also affect students' ELM. Student D mentioned this in the interview:

##### Extract 3

Student H: My enthusiasm for learning English improved when my classmates were all discussing in the group activities. Other students would ask me if they did not know something during the group activities. I felt a sense of accomplishment after helping my classmates solve their problems. (F; G1; ELM: 4.00) (2022/1/18)

The above interview indicated that cooperative learning involving "group activities" could improve Student H's "enthusiasm for learning English". Her intrinsic regulation improved when she could feel the link with her classmates.

Recent studies have shown that teacher support can improve student achievement (e.g., X. Li et al., 2023; Liu & Li, 2023) and grit (e.g., Liu et al., 2023), thus improving the students' ability to resist pressure and consequently enhance their learning motivation. In addition, it can cultivate students' psychological resilience and improve their engagement in classroom activities and flow (Liu & Song, 2021). This was confirmed in the following interview:

*Extract 4*

Student L: My English teacher often encourages me. This gives me great confidence and determination to learn English well. Whenever I encounter difficulties, I will think of the teacher's encouraging words, which gives me a steady stream of motivation to learn English. So, I always listen and take notes carefully in English classes, and when the teacher asks us new words, I will take the initiative to answer if I know. (F; G3; ELM: 4.08; ELE: 4:00) (2022/1/19)

The above interview data showed that Student L could feel the teacher's support, and this gave her "great confidence". It benefited her ELM, which in turn improve her English learning engagement (ELE).

SDT suggests that every person requires autonomy, competence and relatedness and that satisfying these three basic needs promotes the internalization of external motivation. This means that after the basic psychological needs are met, the individual will have a higher degree of intrinsic regulation. This was confirmed in the following interviews:

*Extract 5*

Student I: When the English teacher gave us more independent study time, I would think about the difficulties I was currently having when learning English and try to solve them. For example, I would look for word patterns when I could not remember English words, such as putting the same root together. In this way, it would be easier to remember. (F; G2; ELM: 2.67) (2022/1/19)

The above interview data showed that Student I would "solve" "difficulties" in the English learning process when she had "more independent study time". Thus, when Student I's sense of autonomy was satisfied, her intrinsic regulation would improve. Her ELM tended to be more self-determined.

*Extract 6*

Student E: When I previewed what I would learn before the English class and felt that I could learn it well, I looked forward to the English class more and behaved more actively in the English class. (M; G3; ELM: 2.83) (2022/1/18)

The interview data showed that when Student E thought he "could learn it well," he "behaved more actively" and "looked forward to the English class more". It could be seen that the intrinsic regulation of learning English was positively related to the satisfaction of the sense of competence. In the interview, Student C talked about the same statement:

*Extract 7*

Student C: When I was in junior high school, the English class adopted the new curriculum reform mode; that is, students would work in groups, and they would give a lecture for about 20 minutes as "little teachers". Under this pattern, my enthusiasm for English learning increased a lot. After entering high school, I proposed this proposal to my English teacher, which could give students some opportunities to teach in groups by themselves, and the teacher accepted my proposal. In group cooperation, I experienced the pleasure brought by cooperation. After class, I felt my English ability was better than expected, so I enjoyed learning English more. (M; G2; ELM: 3.08) (2022/1/20)

The above interview data showed that the "new curriculum reform mode" could improve the satisfaction of Student C's autonomy. Unlike in the traditional teaching model, students could be "little teachers" in English class. This would give students more confidence and a challenge. His "enthusiasm for English learning increased a lot". Working in groups could also improve his satisfaction with relatedness. He could experience "the pleasure brought by cooperation". This showed that his intrinsic regulation of learning English improved. His sense of competence was also satisfied when he thought his "English ability was better than expected". Student C "proposed this proposal to" his English teacher, showing that his English learning motivation tended to be more self-determined. It could be seen that the satisfaction of students' three basic psychological needs was positively related to their autonomous learning motivation.

## Discussion

The results of our descriptive analysis, independent sample t-tests and interviews have been presented. This section will offer detailed explanations of ELM levels, gender differences and the influencing factors of students' ELM.

### *Levels of Students' English Learning Motivation*

Table 5 showed that the students' ELM was at a median level ( $M = 3.24$ ,  $SD = 0.62$ ), indicating that the overall ELM of the high school students in this study was not very strong. This differed from Zhu and Sun's (2012) finding that non-English

major college students were generally highly motivated to learn English online. This was also different from the results of Ngo et al. (2017), who explored the status of ELM among college students with English and non-English majors and found that both groups of participants showed high levels of ELM. The difference in the results may be because their subjects were college students, whereas the subjects of the present study were high school students. As Zhang and Liu (2022) mentioned, a moderate level of high school students' ELM may be related to the characteristics of middle school students' physical and mental development. College students are more aware than high school students of the importance of English. They are better prepared psychologically and cognitively for their future English learning and therefore have higher levels of ELM. As shown in Table 6, the level of autonomous motivation ( $M = 3.69, SD = 0.97$ ) was higher than that of controlled motivation ( $M = 2.80, SD = 0.72$ ). Therefore, high school students' ELM in this study tended to be more self-determined. This result is similar to Y. Tanaka and Kutsuki's (2018) view that self-determined orientation motivation (intrinsic motivation and identified regulation) constituted the most significant motivational component of primary school students' English learning. This is also similar to the findings of Zhu and Sun (2012) and Wang (2014). They studied non-English major college students and found that the students' autonomy in ELM was relatively high. Specifically, the level of autonomy motivation was higher than that of controlled motivation. This shows that autonomous motivation dominates students' ELM at different stages. In the present study, the personality development of high school students was beginning to mature, and they could realize the pleasure and self-identity brought by English learning. Therefore, their ELM tended to be a self-determined type. This was confirmed in Student G's interview:

Student G: I like learning English very much. I like listening to English songs and watching English movies. I think English is very useful. Now, a lot of information and knowledge on the Internet are written in English. If I learn English well, I can understand these contents. In addition, our English teacher will reward students who learn English well, but this is not the main reason for me to study English, because I will study English seriously without these rewards. (F; G1; ELM: 3.42) (2022/1/21)

The above interview data showed that Student G could realize that English was "very useful" to herself, and she could also experience the pleasure brought by English. She liked "listening to English songs and watching English movies". The above identified regulation and intrinsic regulation belonged to autonomous motivation. In addition, the external regulation of getting a "reward" accounted for part of Student L's ELM, but "this is not the main reason" for her to study English. Therefore, we could see that Student G's ELM tended to be self-determined.

In summary, senior high school students had a median level of ELM; their ELM tended to be more self-determined. English learning motivation, especially autonomous English learning motivation, is very important for improving students' performance. Therefore, teachers should pay special attention to students' ELM and cultivate their interest in English learning to enhance their autonomous English learning motivation.

#### *Gender Differences in English Learning Motivation*

Table 7 showed that female students had higher intrinsic regulation and identified regulation than male students. This supports previous findings (e.g., Oga-Baldwin & Nakata, 2017; Vallerand et al., 1992). Oga-Baldwin and Nakata (2017) explored 5th-grade elementary school students' ELM using an ELM questionnaire, consistent with the present study, and they found that gender was a factor that influenced students' ELM; specifically, boys had a lower degree of intrinsic regulation and a higher degree of external regulation. Unlike in the present study, the results showed no significant difference in external regulation between boys and girls. Vallerand et al. (1992) noted that among English-speaking college students, female students had higher levels of intrinsic motivation, identified regulation and introjected regulation than male students. Conversely, the present study showed no significant difference in introjected regulation between boys and girls. Zhu's (2014) empirical study on college students showed that female students had a higher level of autonomous motivation (intrinsic regulation and identified regulation) and a lower level of controlled motivation (introjected regulation and extrinsic regulation) compared to male students. By contrast, there was no significant difference between boys and girls in the present study in terms of controlled motivation (introjected regulation and extrinsic regulation). The possible reason for these different results is that both boys and girls in high school face pressure due to the college entrance examination, and many students are motivated to learn English to achieve excellent English scores on this examination. Therefore, there is not much difference in controlled motivation (introjected regulation and extrinsic regulation). According to the results in Table 7, boys' intrinsic regulation and identified regulation were significantly lower than those of girls; that is, compared with boys, girls tended to have more autonomous ELM.

According to Ryan and Deci (2002), SDT suggests that autonomous motivation facilitates the development of an individual's positive affect, cognition and behaviour (e.g., positive adaptation, learning improvement, mental health and well-being, behavioural persistence, effortful engagement, etc.). This is further evidence of girls' strength in learning motivation. Girls' interest in language learning makes them more self-determined in their learning motivation and more capable of independent learning. Some boys' autonomous ELM level was low:

Student F: I do not like English from the bottom of my heart. My motivation for studying English is mainly because my parents and English teacher will criticize me if I cannot do well in English, so I have to study English.

I am resistant to English and often tend to be distracted in English classes. Furthermore, I often keep silent in English classes and pretend that I am listening. (M; G3; ELM: 1.75) (2022/1/18)

Student F's ELM was typically extrinsic regulation. He did not recognize the importance of English to him, nor did he "like English from the bottom of [his] heart", but only responded to external demands. His teacher would "criticize" him if he "[did not] do well in English"; therefore, he was "resistant to English" and "tend[ed] to be distracted in English classes". Consequently, he always kept "silent in English classes" and pretended to be "listening". This is consistent with L. Li's (2012) view that students whose ELM was extrinsic regulation would show less interest and effort and more deception to teachers and parents, resulting in adverse learning effects. Therefore, teachers should pay special attention to boys' ELM and cultivate their interest in English learning to enhance their autonomous English learning motivation.

### *Influencing Factors of English Learning Motivation*

From the interviews, we could detect some influencing factors of ELM. Extract 1 revealed that anxiety reduced students' ELM. Ning and Hornby (2014) mentioned that high school students were under tremendous pressure from the National College Entrance Examination. Test-oriented English teaching in high school significantly reduced students' interest in English learning. Student F did not "like learning English anymore", which weakened his ELM. From Extract 2, we concluded that peers influenced students' ELM. M. Tanaka (2017) mentioned that negative peer influence was negatively related to intrinsic motivation and identified regulation, and L2 motivation was contagious among peers. Therefore, the teacher was good at creating a positive learning environment for students' English learning. While learning cooperatives were shown to positively influence students' ELM. Ning and Hornby (2014) argued that cooperative learning made significant differences in increasing intrinsic motivation but no significant difference in other aspects. From Extract 3, we could see that Student H's inner motivation for learning English improved in "group activities". In Extract 4, we could see that teacher support was beneficial to students' ELM and English learning achievement, including English learning engagement. Extracts 5, 6 and 7 showed that students' English learning motivation tended to be more self-determined when their basic psychological needs – autonomy, a sense of competence and relatedness – were satisfied. Vansteenkiste et al. (2020) pointed out that "Autonomy refers to the experience of volition and willingness; Relatedness frustration comes with a sense of social alienation, exclusion, and loneliness; Competence concerns the experience of effectiveness and mastery" (p. 3). According to SDT, students' intrinsically motivated tendencies require satisfying three psychological needs (Ryan & Deci, 2002). SDT suggests that when people's psychological needs are met, they can internalize motivated behaviour, which means that they become more self-determined and autonomously motivated (Ryan & Deci, 2002). Therefore, the higher the degree of satisfaction of students' psychological needs, the higher their degree of motivation internalization. First, high school students' need for autonomy should be respected. Teachers should consciously provide opportunities for students to make independent choices in class and create an independent learning environment. Just as in Extracts 5 and 7, teachers required students to choose the content of their homework and the time to complete it, encouraged students to set their own learning goals, allowed them to revise their learning errors and gave them independent time to practise regulating and controlling their learning. In this way, students could experience learning responsibility and thus develop greater autonomy. Second, attention should be paid to students' need for competence. In Extract 7, the teacher optimized classroom instruction and provided opportunities for students to express themselves. The teacher was good at uncovering students' strengths and offered enthusiastic encouragement. When designing and arranging teaching activities, the teacher paid attention to matching students' knowledge and skills to meet their need to feel a sense of competence. Finally, the teacher met the students' need for a sense of relatedness. In Extract 7, the teacher's emotional support – "the teacher accepted my proposal" – could put students in a positive state of motivation. Even students with inferior academic performance would remain motivated to learn and persist as long as they could feel their teachers' support. The teacher created a cooperative class environment for students from peer relationships and provided more opportunities to work with peers. For example, in Extract 7, group members shared a common learning goal in collaborative learning situations, and evaluation and rewards were based on the group's collective performance. This reduced the psychological burden of many students who avoided challenges owing to their fear of failure and facilitated the formation of a harmonious and safe classroom atmosphere and peer relationships, giving students a sense of relatedness to the cooperative team.

### **Conclusion**

Generally, senior high school students had a median level of ELM. Their ELM tended to be more self-determined, meaning that they had higher levels of autonomous motivation (intrinsic regulation and identified regulation) than controlled motivation (introjected regulation and extrinsic regulation). The high school students' levels of ELM differed by gender; specifically, girls had higher levels of intrinsic and identified regulation than boys. As can be seen from the data, anxiety and negative peer influence were two factors that contributed to a decline in high school students' ELM, and cooperative learning and teacher support contributed to students' intrinsic learning motivation. The satisfaction of these three basic needs promotes the internalization of external motivation. Therefore, teachers can improve high school students' level of ELM by focusing on these aspects.

### Recommendations

First, teachers should maintain students' autonomous English learning motivation levels. In this study, high school students had higher levels of autonomous English learning motivation than controlled English learning motivation. Autonomous learning motivation is more conducive to students' English learning because it is more motivated by the students' love for and enjoyment of English and is less susceptible to outside influences. Controlling motivation relates to extrinsic values, such as scores and rewards. These represent some of the lower levels of value satisfaction, and once they fail, they will increase students' anxiety and lead to self-doubt, which is detrimental to English learning. Learning is a long-term process that requires effort, and an overemphasis on external goals should be avoided as much as possible, especially when the learning task requires students to process the learning material deeply and meaningfully. External goals should be avoided as the only means of motivation. Therefore, teachers should use various methods in the teaching process to maintain students' autonomous learning motivation and interest in learning English and minimize external pressure as much as possible to preserve students' autonomous learning behaviour and their good learning results. Second, the results of the interviews revealed that anxiety and negative peer influence harmed high school students' ELM. Therefore, teachers should try to create a relaxed and positive classroom atmosphere. For example, teachers should maintain good classroom discipline during lessons. They should also regulate students' tension before and after exams to reduce their anxiety levels and keep them in a reasonable frame of mind. In addition, teachers can carry out various forms of cooperative learning and try to satisfy students' basic psychological needs, including autonomy, a sense of competence and relatedness. Third, the impact of teacher support on high school students' ELM is critical. In the interviews, students mentioned that their ELM increased when their teachers supported and encouraged them. Teachers who show adequate support and encouragement to students will create a positive classroom atmosphere. In such a classroom environment, students are willing to try new things, enjoy the class tasks and maintain that mindset even when they face possible failure.

### Limitations

Although the researchers attempted to explore students' ELM reliably, the research faced limitations. First of all, the participants were all from one high school in the province of Hebei. Since the sample was limited in number and scope, replication of this research with other groups of EFL learners is strongly recommended to increase the generalizability of this study's findings. Secondly, this study only adopted two representative methods – a questionnaire and an interview – to collect data due to time constraints. However, these tools are insufficient to gain insight into more detailed and profound information about students' behaviour and psychological activities. Therefore, the current study would have been more reliable if more data collection tools, such as journals and classroom observations, had been used to collect the data. Finally, there may be more influencing factors involved in student ELM. Therefore, future studies involving, for example, both the self-efficacy and mastery-approach goals, may help to generate more insights.

### Ethics Statements

The studies involving human participants were reviewed and approved by Xingtai No. 5 Middle School, Hebei Province. The participants provided their written informed consent to participate in this study.

### Authorship Contribution Statement

Wang: Conceptualization, data analysis, writing, and revision. Liu: Conceptualization, data analysis, revision, supervision, and funding. Both authors contributed to the article and approved the submitted version.

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