

The Impact of Multiple Emotions on English Learning in High Schools—A Case Study of N City

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Abstract

This study takes high school students in N city as the object and adopts a questionnaire survey and statistical analysis method to systematically explore the influence mechanism of multiple emotions on English learning. Positive emotions significantly enhance learning by improving intrinsic motivation, enhancing the use of learning strategies, and facilitating goal planning; negative emotions inhibit cognitive engagement and interfere with the learning process, hindering academic development; curiosity, as a cognitive catalyst of neutral emotions, can effectively drive knowledge exploration and maintenance of motivation for learning, but it needs the guidance of the teacher to play a sustained role; the study further revealed that the differences in the types of schools are as follows. This study further reveals the differences in school types, with students in general education having significantly higher levels of happiness and curiosity than students in secondary education and students in secondary education having more fear in the classroom. On this basis, this study proposes a practical path to build an “emotion-driven” teaching model, which provides a theoretical basis and practical reference for optimizing high school English teaching.

Keywords

multiple emotions, high school english learning, teaching strategies, empirical research

1. Introduction

1.1 Research Background

In the high school education system, English, as an important subject, is highly important for the future development of students, and good English proficiency will help students better adapt to the diverse social environment in the future. Emotions, as an important part of human psychological activities, have a wide and profound influence on the learning process. In the learning process, different emotions play unique roles in students' learning decision-making, learning strategy utilization, and acquisition of learning outcomes. Therefore, an in-depth exploration of the influence of multiple emotions in high school English learning is highly practical for optimizing English teaching and improving students' learning quality.

1.2 Research Purpose

This study aims to investigate the specific effects of multiple emotions on English learning in high schools in N city. Through a survey of high school students in different schools and grades in N city, we systematically analyse the manifestations of positive, neutral and negative emotions in high school English learning and clarify the specific mechanisms of various emotions on students' English learning to provide a scientific basis for teachers to formulate more targeted teaching strategies, guide students in effectively managing their emotions, and enhance the effect of English learning.

1.3 Research Significance

In terms of teaching improvement, the results of this study can help teachers better understand students' emotional changes in the process of English learning and recognize the important influence of emotional factors on learning outcomes. On the basis of the results of this study, teachers can adjust their teaching methods and contents to create a more positive classroom atmosphere to stimulate students' positive emotions and reduce the production of negative emotions, thus improving the quality of teaching.

From the perspective of students' learning strategy optimization, understanding the impact of multiple emotions can help students better understand their own emotional state, guide them to learn to actively regulate their emotions, make full use of the facilitating effect of positive emotions, and overcome the obstacles of negative emotions to improve their learning efficiency, formulate learning strategies that are more suitable for them, and enhance their autonomy and motivation in English learning.

1.4 Research Methodology

To investigate the impact of multiple emotions on English learning in high school, this paper performs a comprehensive and rigorous questionnaire as follows:

Questionnaire design: The curiosity questionnaire questions carefully designed six emotions—happiness, self-confidence, optimism, low self-esteem and fear—are closely related to various situations in the process of English learning in high school, such as learning new knowledge, classroom presentations, and exams. For example, in terms of curiosity, we set questions related to learning new grammar, encountering vocabulary in reading, and understanding niche festivals; in terms of happiness, we cover situations such as communicating with foreign friends and being praised for classroom presentations; and confidence, optimism, inferiority complex, and fear are also developed in terms of the learning outcomes, attitudes toward facing difficulties, comparisons of the learning process, and classroom and test performance to ensure that we can comprehensively collect the emotional feedback of the students in different learning scenarios.

Sample Selection: Considering that differences in school type and grade may have an impact on students' emotions and English learning, students from the first batch of general senior high schools in the high school entrance examination, the second batch of general senior high schools in the high school entrance examination, and students from secondary vocational schools (technical schools) in N city were selected as the target respondents of the survey. A total of 1550 questionnaires were issued in this survey, and 1471 valid questionnaires were obtained. The sample selection criteria include schools at different levels, including key ordinary high schools (the first batch of high school entrance examinations), ordinary high schools (the second batch of high school entrance examinations) and secondary vocational schools, to ensure that students from different educational backgrounds and learning environments can be included in the study. All grades are involved to ensure that students of different learning periods in high school can participate in the investigation so that the research results are more representative.

To avoid sample bias, in the sampling process, the actual proportion of students in each school and grade is strictly selected to ensure that the sample size of students at each level is appropriate. For school types, the sample number of each type of school is determined according to the overall number of high school schools in N city and the proportion of various schools. For grades, samples are allocated in proportion to the number of students in Grade 1, Grade 2, and Grade 3 in each selected school. At the same time, when the questionnaire was issued, different classes in the school were covered as much as possible to avoid only selecting classes with good or poor performance so that the sample could more comprehensively reflect the overall situation of high school students in N city.

Questionnaire implementation: Strictly follow the scientific standardized process to carry out questionnaire distribution, recovery and collation. During the distribution process, we ensure that the questionnaires are accurately distributed to the target students; when the questionnaires are recovered, we carefully check the completeness of the questionnaires, eliminate invalid questionnaires, and ensure the quality of the data; during the collation stage, the questionnaires are categorized and numbered, and we make full preparations for the subsequent data entry and analysis to ensure that the survey process is rigorous and orderly and that we can obtain real and effective data.

Data analysis: Statistical analysis software was used to process the collected data in depth. First, descriptive statistical analysis was used to obtain a clear picture of students' performance on various emotional dimensions, such as the percentage and degree distribution of different emotions. Then, correlation analysis and difference tests were used to explore the intrinsic relationship between different emotions and English learning, as well as the differences in the emotional performance of students in different schools and grades, to determine the influence law of multiple emotions in senior high school English learning, and to provide solid data support for this research.

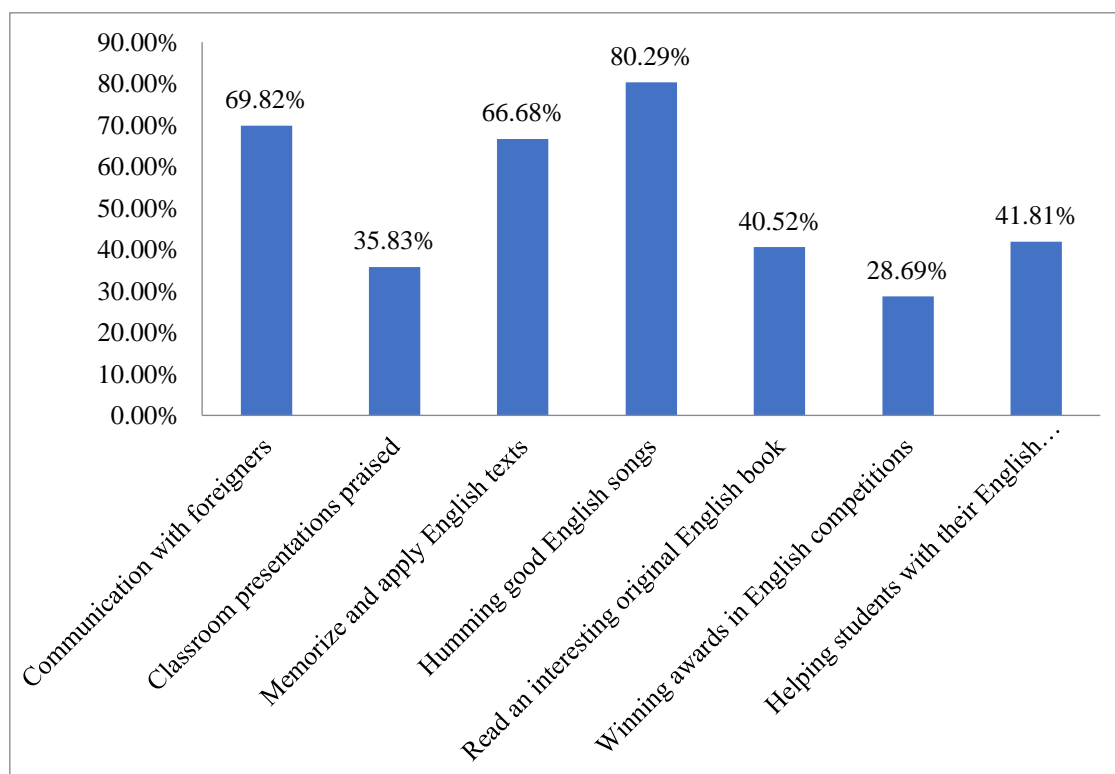
2. The current situation of multiple emotions in senior high school English learning

The questionnaires were selected from the students of the first batch of general high schools, the second batch of general high schools, and the secondary vocational schools (technical schools) in N city; a total of 1,550 copies were distributed, and 1,516 copies were retrieved, of which 1,471 were valid questionnaires.

2.1 Positive emotions

2.1.1 Happiness

Figure 1: Student Happiness in Different Scenarios



As shown in Figures 1, students' happiness in different scenarios indicates that they can experience happiness in various English learning scenarios. When communicating with foreign friends, most students can obtain a strong sense of happiness; being praised for showing up in class makes more than one-third of students more motivated to learn later. Reciting and using English texts also makes most students feel happy and enhances their confidence in learning. In addition, humming English songs, reading English original books,

winning English competitions and helping classmates solve difficult problems can also trigger students' happiness. Notably, the happiness of secondary vocational students in the process of English learning is lower than that of ordinary high school students, which may be because ordinary high schools have more advantages in terms of English teaching resources and activity organization, and students have more opportunities to participate in practical activities to obtain a greater sense of achievement and happiness, whereas English teaching in secondary vocational schools focuses on practicality, and students have relatively less emotional experience.

2.1.2 Confidence

Figure 2: Changes in Self-confidence Mood After Progressing in the English Test

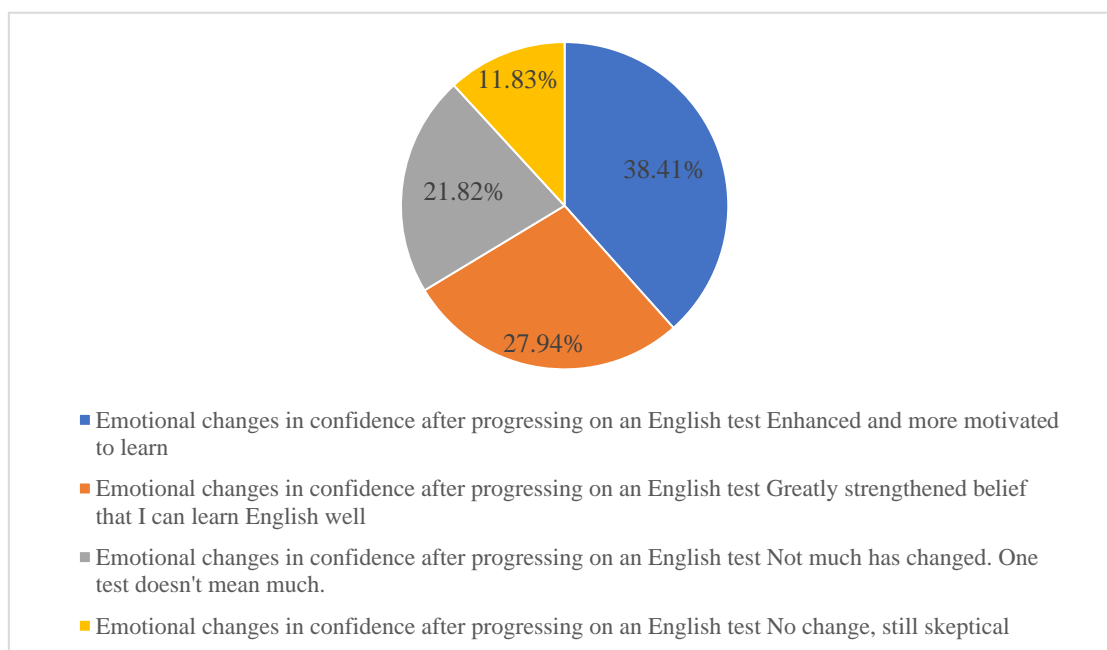


Figure 3: Sources of Student Self-confidence

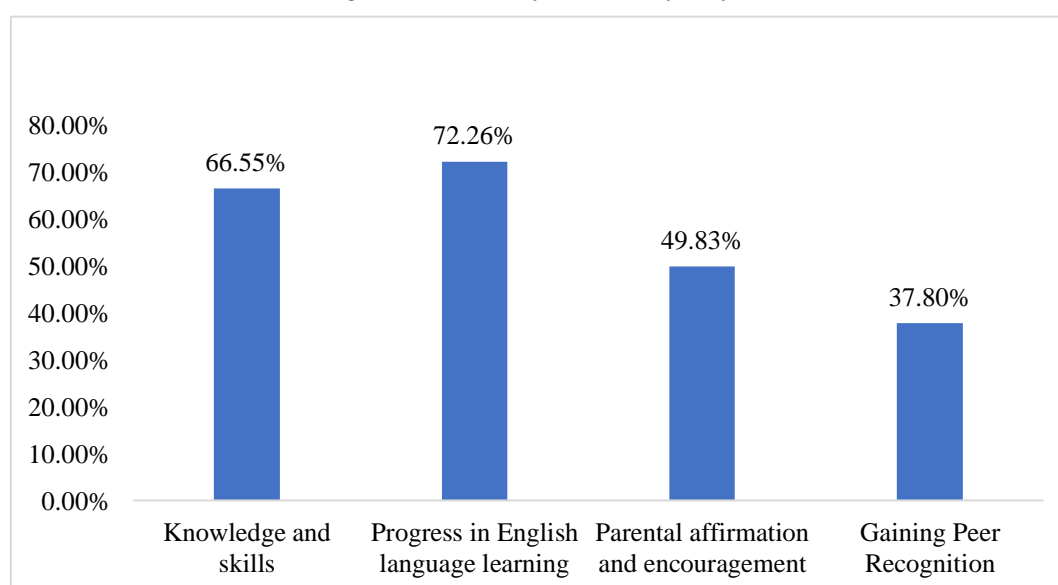


Figure 2 shows the changes in self-confidence after progress in the English test. Although more than half of the students had increased self-confidence after progress in the English test, some students still lacked enough confidence in their English ability. As seen from the sources of students' self-confidence in Figures 3, students' self-confidence comes from a wide range of sources, and their own accumulation of knowledge and

skills and learning progress are important factors. Moreover, parents' affirmation and encouragement and peers' recognition also play a positive role in enhancing students' self-confidence.

2.1.3 Optimism

Figure 4: Optimism when English Learning Is Difficult

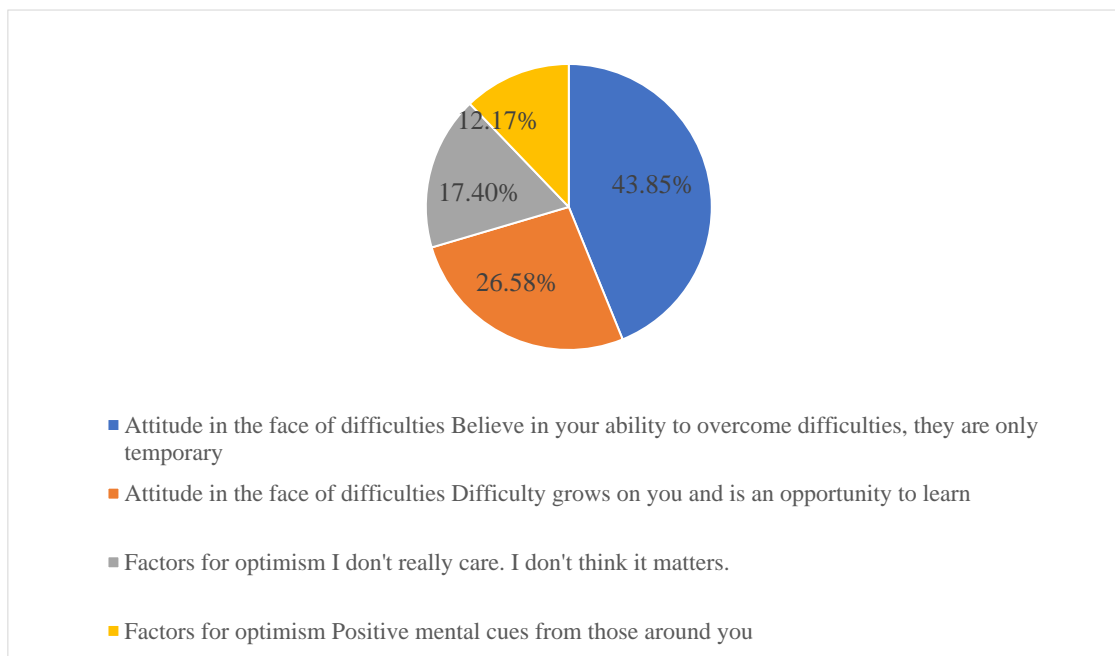
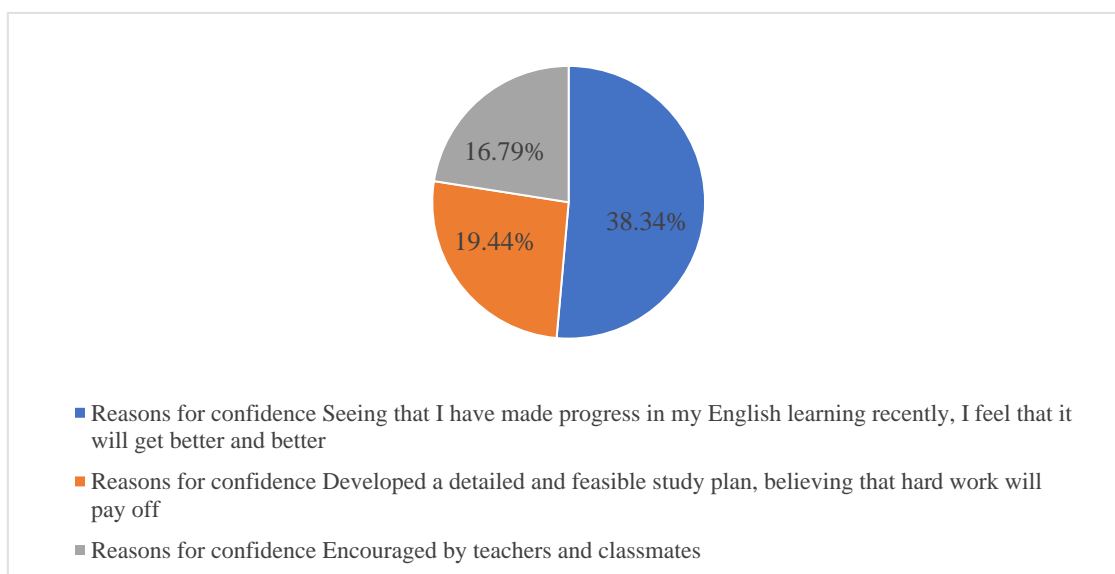


Figure 5: Main Reasons for Confident Future Improvements in English Learning Achievement



According to Figures 4, when students encounter difficulties in English learning, most can maintain a relatively optimistic attitude when they encounter difficulties in English learning. As shown in Figures 5, students' optimism is closely related to their own learning experience (such as recent learning progress), external encouragement (from teachers and classmates), and reasonable learning planning (making detailed and feasible learning plans).

2.2 Neutral Emotions

2.2.1 Curiosity

Figure 6: Active exploration when new English grammar is learned

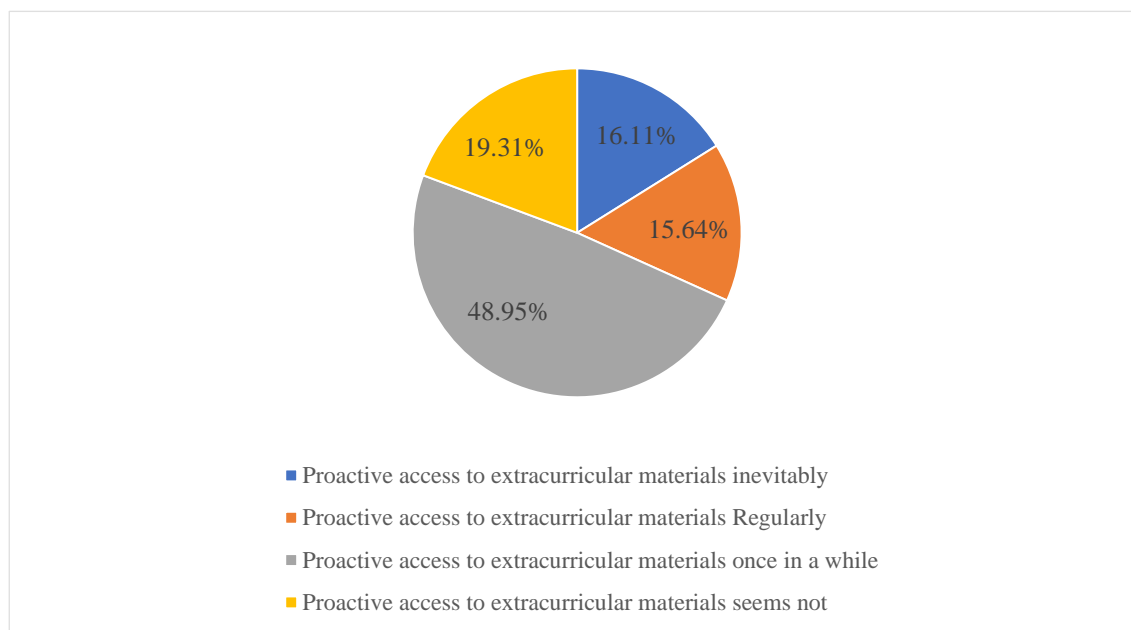


Figure 7: Active Queries When Encountering the Out-of-the-way Vocabulary in English Reading

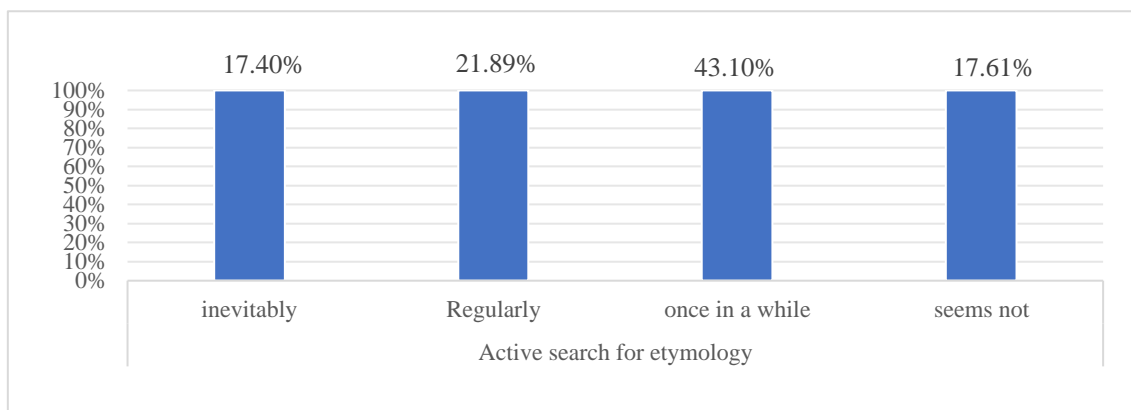
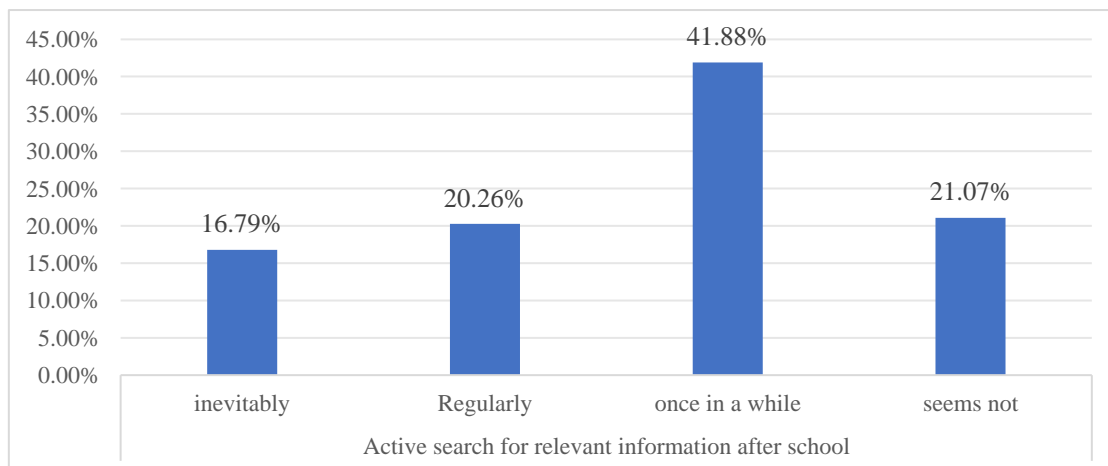


Figure 8: Active Searches During Obscure Festivals in Native English-speaking Countries



The active exploration when learning new English grammar is shown in Figures 2--6, the active search when encountering rare words in English reading is shown in Figures 2--7, and the active search when encountering niche festivals in native English-speaking countries is shown in Figures 2--8. Students have different levels of enthusiasm for active exploration when facing new English knowledge. The curiosity of secondary vocational students in English learning is generally lower than that of ordinary high school students, which may be related to the fact that the training objectives and curriculum of secondary vocational schools are more focused on vocational skills, and students have fewer opportunities to contact English to expand their knowledge. Curiosity plays a positive role in promoting students' active exploration of English knowledge, but some students' curiosity needs teachers' guidance to continue to play a role. For example, when learning new grammar, nearly half of the students need teachers' prompts to take the initiative to learn.

2.3 Negative Emotions

2.3.1 Inferiority Complexes

In different aspects of English learning, some students are prone to inferiority. In English writing, listening tests, reading comprehension and other learning links, students are prone to inferiority when they compare themselves with others or face learning difficulties. This may be related to students' excessive expectations of their own abilities, excessive attention to learning results, and external evaluation.

2.3.2 Fearfulness

The survey results revealed that some students feared English classroom questioning, important English exams, oral presentations and other scenarios. In addition, secondary vocational school students have significantly greater classroom fear than ordinary high school students do, possibly because ordinary high school students are more adapted to the exam-oriented environment, whereas secondary vocational school students have relatively few opportunities to learn English and lack confidence in facing English learning tasks, thus generating greater fear.

3. The Effects of Multiple Emotions on High School English Learning

3.1 The Impact of Positive Emotions

Positive emotions can significantly improve students' learning efficiency. Lindon (2012) argues that self-confidence is an emotion that arises through the recognition and respect of others. In English-language learning, students' self-confidence increases as learning outcomes accumulate. When students do well on English exams, successfully complete class presentations, or receive praise from teachers and peers, they feel confident that this confidence motivates them to be more willing to learn and face new problems. Confident students are more likely to speak English on their own initiative, actively participate in classroom interactions, and are not afraid to make mistakes. In oral expression, they are able to express their ideas more fluently, and they do not shy away from the stage even if there are pronunciation errors or grammatical errors. This attitude of active exploration allows them to build vocabulary and grammar knowledge and improve their language skills in a relaxed and enjoyable atmosphere. According to Stacey (2019), optimistic students develop greater curiosity about the world and explore the world, and in English learning, this optimism is reflected in their confidence in their future learning; their ability to take into account the training of listening, speaking, reading, and writing skills; and the rational allocation of time to improve their overall ability. Optimistic students fully consider their actual situation and development needs when making a study plan and set challenging but realistic goals. They rationalize their daily study time and focus on consolidating the basics and schedule time for extended learning, such as attending English corners and reading English newspapers. These positive emotions help students learn and achieve a better learning state. Cohen (2013) summarized Vygotsky' point that a stable society and a harmonious family environment can increase children's happiness, and in learning, happy emotions can reduce students' distractions from other factors, increasing their focus on learning tasks. Berk (2012) stated that happy emotions can activate multiple areas of the brain, making students more focused and with stronger memory. In regard to memorizing English words, students who are in a good mood tend to remember the spelling and explanation of words faster and more accurately and maintain a high rate of accuracy in subsequent recall. When students experience joy in learning English, it stimulates their intrinsic motivation to learn. This positive emotional experience will make them more interested in learning, actively

seek out more learning opportunities, and invest more time and energy in exploring the knowledge of a foreign language. They take the initiative to participate in the English corner, read original English books, watch English movies, etc., to improve their English.

In the classroom, students with positive emotions are more likely to actively participate in interactions. These students are more motivated to look for solutions to problems and try different learning strategies rather than giving up easily when they encounter difficulties. They believe in their abilities and are willing to take on more difficult learning tasks to continuously improve their English. Through active problem-solving and interaction, students not only deepen their understanding of knowledge but also gain inspiration from the perspectives of others. For example, in English writing training, confident learners are not limited to simple sentence patterns and vocabulary but use complex sentences and advanced vocabulary to express their opinions, and through continuous experimentation and improvement, their writing skills have improved significantly. A positive attitude towards learning helps create a good classroom atmosphere and motivates other students to participate in learning. In cooperative group learning, motivated students are often able to take on the role of leadership, organize group discussions and cooperation, give full play to the strengths of the team, and improve the learning effect. These positive attitudes infect the people around them, form a positive and energetic learning atmosphere, continuously improve their language use ability in communicative practice, promote the efficient development of group learning, share learning experiences and happiness among members, collide with more sparks of thinking, and increase the richness and accuracy of language output.

In terms of learning strategies, students with positive emotions are better at using various learning resources to improve their English. Through diversified learning channels, they take the initiative to read original English works, watch English movies, and participate in English corners and other activities to broaden their knowledge and horizons. They can also make a reasonable study plan according to their own learning situation and flexibly adjust their learning strategies. When preparing for the English listening test, confident learners can improve their listening skills by experimenting with different listening materials and practice methods to find the learning style that works best for them. Moreover, under the influence of positive emotions, students can flexibly adjust with a positive mindset when their learning plans are interrupted by unforeseen circumstances. They take advantage of fragmented time or change the number of follow-up tasks to ensure a smooth learning schedule. Instead of feeling anxious or depressed if classes are delayed due to illness or other reasons, optimistic students adjust their plans and make classes after school to ensure consistency in their learning.

Positive emotions even have a direct effect on improving students' English academic performance. Because of the positive emotions of students, they are more willing to actively participate in learning activities, so they accumulate more knowledge and skills in the learning process and can cope with various topics in exams more comfortably. Their self-confidence can help them overcome exam tension and perform at their best. The research data also revealed that students with higher levels of self-confidence tended to perform better on English tests than those with lower levels of self-confidence under the same learning conditions.

Positive emotions play a vital role in students' English learning. Teachers should pay attention to cultivating students' self-confidence in the teaching process and encourage them to have an optimistic attitude toward learning by encouraging them, affirming them and providing more demonstration opportunities to help them find joy in foreign language learning to help them achieve better results and greater progress in English learning.

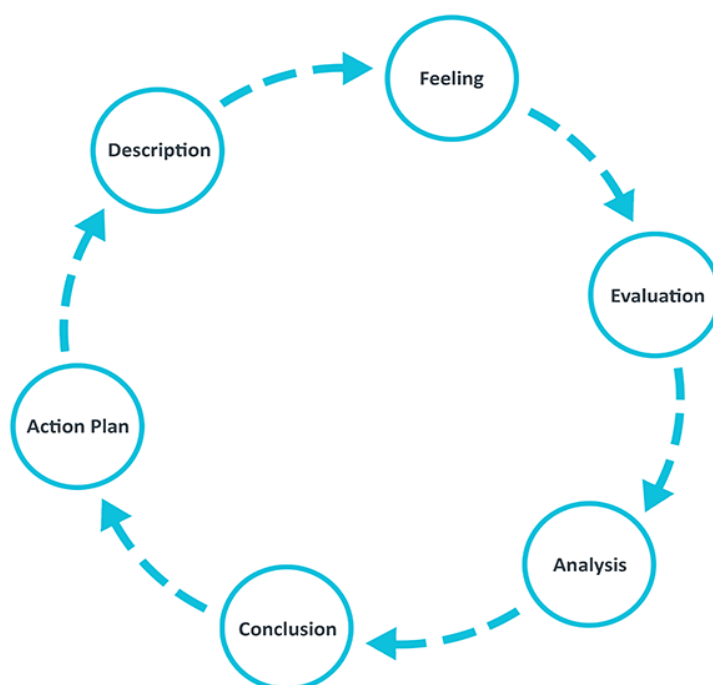
3.2 The Influence of Neutral Emotions

According to Leat (2017), curiosity is an important driver for students to actively acquire knowledge of the English language. Curiosity is an instinctive drive for people to explore the world and learn, and in English learning, it is manifested in students' strong interest in new language knowledge, cultural phenomena, etc. When students are curious about what they are learning in English, they take the initiative to ask questions and seek answers in a variety of ways to satisfy their curiosity. Curious students who are not satisfied with the basic explanations in textbooks when learning English grammar will take the initiative to consult extracurricular materials to learn more about the special uses of grammar and practical application scenarios. This positive act of exploration helps students broaden their knowledge and deepen their understanding and mastery. According to Hutchings (2006), curiosity sparked through inquiry-based learning is essential for

cognitive development. In English learning, teachers can provide enlightening questions or learning tasks to guide students to explore independently. For example, when explaining an English reading passage, the teacher can ask open-ended questions for students to find answers through reference materials and group discussions. This learning process not only satisfies students' curiosity but also develops their independent learning ability and critical thinking skills. Fung (2017) argues that curiosity can help students engage in inquiry-based learning, enabling them to actively participate in learning activities and explore independently. In English-language learning, students' curiosity about British culture can motivate them to take the initiative to learn about the cultural customs and historical backgrounds of different countries so that they can better understand and use the English language. Students' interest in the culture of their native English-speaking countries will lead them to read books and watch movies, as well as learn about their customs and festivals, which not only enriches their cultural knowledge but also improves their English reading and listening skills.

However, curiosity needs to be maintained to ensure effective learning, and maintaining curiosity over time is essential for students to learn English. According to Figures 9, Gibbs's theory of the reflective cycle, learning is a continuous process of reflection and practice (University of Edinburgh, 2024).

Figure 9: Gibbs' reflective cycle theory



In English learning, students actively learn new words and explore new grammatical knowledge out of curiosity, and this new knowledge and experience becomes the basis for their further learning. When students come across words they do not know while reading, out of curiosity, they consult the dictionary to understand the meaning and usage of the words. This kind of learning behavior not only enables them to master new words but also increases their interest in English reading, making them more willing to invest time and energy in reading more English articles and further improving their reading ability.

However, studies have shown that some students' curiosity needs guidance from teachers. This finding shows that teachers play a key role in stimulating and sustaining students' curiosity. Teachers can stimulate students' curiosity by creating diverse teaching situations, such as introducing interesting English stories and highlighting the cultural characteristics of English-speaking countries. Moreover, teachers can also guide students in reflecting on the learning process, help them realize the positive impact of curiosity on learning, and make curiosity a driving force for students' continuous learning.

3.3 The Influence of Negative Emotions

Negative emotions can reduce students' foreign language learning efficiency and outcomes. Underdown (2007) argues that children are prone to low self-esteem when they find themselves too different from others. Low self-esteem significantly hinders students' motivation and attempts at learning methods. Surveys have shown that low self-esteem can lead to self-doubt and frustration in students, and negative emotions can cause students to become bored with learning, lack the confidence to try new learning methods, and always be stuck to patterns that they are familiar with but are ineffective. According to Brooker and Woodhead (2008), fear can cause students to lose the courage to try something new or take an exam. In English learning, fear can interfere with students' concentration, making it difficult for them to concentrate in class or during reading and listening exercises, thus missing important information. In English exams, a high degree of fear inhibits the brain's effective storage and retrieval of vocabulary, grammar and other knowledge, and familiar content may become blurry when stressed, causing students to make mistakes.

In English learning, students with negative emotions are often afraid to express themselves for fear of making mistakes. In class, even if they have the answer in mind, they choose to remain silent for fear of being ridiculed for inaccurate pronunciation or grammatical errors, which makes it difficult to improve their speaking skills in the long run, forming a vicious circle. When writing in English, students with low self-esteem hesitate to fear that their expression is not authentic enough, resulting in insufficient practice and stagnation of their writing skills. In the performance of these students with negative emotions in reading and listening to learning, they are confronted with complex English texts; they preconceived that they cannot understand them, give up easily before they can analyse them in depth, and miss the opportunity to build vocabulary and understand grammatical structures. In listening exercises, students who are affected by fear may be overly nervous and unable to concentrate, which can affect the effectiveness of listening. Studies have shown that fear is one of the main causes of exam nervousness among students, which can make them emotionally nervous and thus prone to mistakes. If students already have learning problems, fear often makes them feel depressed and anxious, reduces their interest and motivation to learn, and may even lead to avoidance of learning behaviors, reluctance to speak a foreign language or participation in related communication activities. In social interactions, the fear of making mistakes and being criticized may prevent learners from actively communicating with others in a foreign language, while the lack of practice opportunities further limits the improvement of language skills and the lack of opportunities to communicate with others and miss out on opportunities to improve language skills through interaction. For example, in an English Corner activity, students with negative emotions may be afraid to communicate with others for fear of making mistakes, thus missing the opportunity to practice speaking and affecting the improvement of language skills. Therefore, as teachers, we need to detect students' negative emotions in time and help them alleviate their negative emotions to achieve a better learning state.

4. Research Conclusions and Pedagogical Recommendations

4.1 Conclusions of the Study

Through a survey and data analysis of high school students in different schools and grades in N city, this study explored the influence of multiple emotions on high school English learning in detail and reached the following comprehensive and in-depth conclusions.

4.1.1 The Multifaceted Nature of the Impact of Emotions on Learning

Positive emotions play a significant facilitating role in high school English learning; curiosity among neutral emotions has positive significance for high school English learning, but some students' curiosity needs the guidance of teachers to be sustained; and negative emotions significantly hinder high school English learning.

4.1.2 Differences in the Emotional Expression of Students in Different Schools

There is a significant difference in emotional performance between students in ordinary high schools and students in secondary schools. The curiosity and well-being of students in ordinary high schools were significantly greater than those of students in intermediate schools, whereas those of students in intermediate schools were significantly greater than those of students in ordinary high schools, which may be because

intermediate schools have relatively fewer opportunities to learn English, and their lack of familiarity and self-confidence in English learning tasks leads to fearfulness in the face of English learning tasks more easily.

4.1.3 Interaction Between Emotions and Learning Behavior

Students' emotional state affects their learning behavior, and the results of learning behavior in turn affect emotions. For example, when students succeed in English learning, they will have positive emotions and then be more actively engaged in subsequent learning; conversely, if they experience frequent setbacks in the learning process, they are likely to trigger negative emotions, leading to a decrease in motivation and a decrease in learning behaviors. This interaction between emotions and learning behaviors forms a dynamic cycle that has a continuous impact on students' English learning.

4.1.4 Trends in Emotions at Different Stages of Learning

As the grade level increases, students' emotional state changes. In the first year of senior high school, students are fresh and anticipate English learning, and their curiosity is relatively high. At the senior stage, facing the pressure of the college entrance examination, students' moods fluctuate, and both positive and negative emotions may change frequently due to the ups and downs of their academic performance.

4.2 Pedagogical Recommendations

On the basis of the above findings, to guide students to better manage their emotions and enhance the effectiveness of high school English learning, teachers can adopt the following comprehensive and targeted teaching measures.

4.2.1 Positive Emotion Development Strategies

Creating rich and varied positive learning experiences. Teachers should give students concrete and sincere affirmation and encouragement in class, highlighting students' strengths and progress in response to their answers or performance so that students can truly feel that their efforts are recognized. Diverse immersion teaching activities, such as English drama performances, should be organized. To enhance their sense of satisfaction and happiness in learning, students are encouraged to fully utilize their English knowledge and experience the fun and sense of accomplishment of English learning in the process of participating in these activities. Teachers can engage in regular one-on-one communication with students, analyse their strengths and weaknesses in English learning, set small goals suitable for students, and provide timely praise and rewards to students when they achieve their goals. The importance of cultivating students' optimistic attitudes, helping students set clear long-term learning goals, and helping students realize the importance of English learning for their future development are important. In the process of teaching, appropriate challenging tasks are set according to the actual situation of the students, which are not only difficult but also within the ability of the students so that the students can experience the joy of success when successfully completing the tasks, thus cultivating an optimistic attitude towards learning. When explaining English-language articles, some questions that require students to think deeply and analyse can be set, and when students find answers through their efforts, affirmation and encouragement can be given so that students can feel their own ability and progress.

4.2.2 Negative Emotional Coping Strategies

Attention should be given to the negative emotional state of students, and emotional problems such as low self-esteem and fear in English learning should be identified in time. For students with low self-esteem, teachers should provide more care and support to help them correctly recognize their own abilities and guide them in setting reasonable learning goals. For example, when students are found to have low self-esteem due to poor English writing, teachers should analyse the strengths and weaknesses of their compositions with the students and encourage gradual improvement from the basics. For students who are afraid of English, teachers should understand the root cause of their fear, formulate a preparation plan for the exam, and teach them revision methods to reduce pressure. At the same time, teachers should mold students into a positive mindset and share stories of celebrities who have overcome difficulties so that students can face setbacks. They should also teach students ways to cope with negative emotions, such as deep breathing and positive self-suggestions, so that they can cope with the challenges of learning with a good mindset.

4.2.3 Curiosity Stimulation And Maintenance Strategies

Teachers should create interesting situations to stimulate students' curiosity. When English grammar is explained, English stories, movie clips or life examples can be introduced, inspiring questions can be asked, and students can be guided to think and explore. In reading teaching, open-ended questions can be asked to let students think on behalf of their characters, find answers through consulting information and group discussions, and cultivate independent learning and critical thinking. Teachers need to provide timely guidance and support to help students solve problems so that they can gain a sense of achievement in exploration and maintain curiosity.

4.2.4 Specialized Strategies for Students in Secondary Schools

To enhance the English learning ability of secondary students, improvements can be made in both the curriculum and the classroom. In terms of the curriculum, industry English courses should be developed according to students' professional and vocational needs to increase their motivation to learn and help them understand that English is closely related to their career development. In the classroom, a relaxed atmosphere is created, the pressure of questioning is reduced, and diverse questioning methods, such as questioning after group discussion and voluntary answers, are adopted to encourage students to participate in interaction. At the same time, we promote cooperative group learning, organize students to complete English projects and dialogue exercises so that students can learn from each other in cooperation and enhance their sense of security and self-confidence in English learning, and teachers guide students to play to their strengths and develop teamwork and English application skills.

Through the implementation of the above comprehensive and targeted teaching suggestions, teachers can better guide students to manage their emotions, give full play to the facilitating role of positive emotions, overcome the obstacles of negative emotions, stimulate and maintain students' curiosity, enhance the effect of high school English learning, and promote the overall development of students. Moreover, the implementation of these suggestions requires the joint support and cooperation of schools, families and society to form an all-round educational support system to create a favourable English learning environment and emotional development space for students.

5. Conclusion

This study focuses on high school students in N city, explores the influence of multiple emotions on high school English learning, and obtains valuable research results through a rigorous questionnaire survey and data analysis.

The influence of multiple emotions on high school English learning is multifaceted. Positive emotions such as happiness, confidence and optimism can significantly promote English learning by stimulating learning behavior, improving the learning effect and guiding learning planning, respectively. Although curiosity with respect to neutral emotions has positive significance for knowledge exploration and learning motivation maintenance, some students' curiosity can be sustained only by teacher guidance. Negative emotions, such as inferiority and fear, hinder the progress of learning, interfere with the learning process, and have a negative impact on English learning.

There are obvious differences in the emotional performance of students from different schools. The curiosity and happiness of ordinary high school students are significantly greater than those of secondary vocational students, whereas the fear of secondary vocational students is more prominent. This is closely related to the differences in teaching resources, curricula and students' learning opportunities between the two types of schools.

There is an interaction between emotion and learning behavior. Positive learning outcomes trigger positive emotions and encourage students to be more actively engaged in learning. Conversely, learning frustration can easily lead to negative emotions and reduce learning motivation and behavior. This dynamic cycle continues to affect students' English learning process. Moreover, with increasing grade level, students' emotional state changes. In the first year of high school, they are more curious, and in the third year, they are affected by the pressure of college entrance examinations.

On the basis of the above conclusions, to improve the quality of senior high school English teaching and improve students' learning ability, this study proposes a series of targeted teaching suggestions. Teachers should focus on cultivating students' positive emotions, creating rich positive learning experiences, affirming and encouraging students, and setting reasonable challenge tasks; pay attention to students' negative emotions, help students with inferiority and fear to understand themselves correctly, relieve emotional pressure, and build a positive attitude; and stimulate and maintain students' curiosity by creating interesting situations. Secondary vocational students should develop English courses that meet their career needs, create a relaxed classroom atmosphere, and promote group cooperative learning.

This study provides a theoretical basis and practical reference for senior high school English teaching, which will help teachers better understand students' emotions and develop more effective teaching strategies. Future studies can expand the sample scope, explore the long-term impact of different emotions and the effects of emotion management strategies in different teaching environments, and provide continuous support for optimizing high school English teaching.

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The authors declare no conflict of interest.

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