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Impact of Family Environment on Academic Performance, Self-efficacy, and Learning Motivation

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Abstract: This study examines how students' academic performance (AP), self-efficacy (SE), and learning motivation (LM) are impacted by their family environment (FE). Results show that pupils' LM and SE are greatly increased by a kind and encouraging FE, which improves AP. Students' learning attitudes, AP, and school adaptability are greatly influenced by parental emotional support, scientific teaching strategies, and a healthy family environment. While domineering or careless teaching approaches may stifle students' passion and self-control, democratic teaching approaches encourage students' drive and accountability for self-directed learning. Effective online learning in the digital age depends especially on family help in time management, resource management, and setting up a comfortable learning environment. Students that have active family participation are better able to use resources, stay away from internet distractions, and complete assignments and SE more quickly. All things considered, the FE influences academic growth directly while also indirectly advancing AP by improving SE and LM. For adolescents to grow holistically and succeed academically, cooperation between families and schools is crucial. Suggestions include emphasising kids' emotional needs, autonomy development, and LM in order to establish a nurturing learning environment that promotes ongoing academic progress and individual development.

Keywords: Family environment, academic performance, self-efficacy, learning motivation.

1. Introduction

With society paying more attention to the comprehensive development of students, the impact of the family environment (FE) on the learning process and academic performance (AP) has gradually become a hotspot in educational research. The family is not only the main place where students live, but also an important foundation for their development in various aspects such as emotions, personality, and academics. Among the many factors in the FE, parental emotional support, educational methods, and family atmosphere are key to influencing students' learning motivation (LM) and AP [1]. In recent years, educational psychology research has gradually revealed that a warm and supportive FE could effectively enhance students' LM and self-efficacy (SE), thereby significantly improving AP. The profound impact of the FE makes exploring the mechanism of action and optimization strategies of the FE a valuable research direction.

The importance of this research is not only reflected in theoretical exploration, but also has guiding significance at the practical level. Currently, the approach and quality of family education vary due

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to differences in family background and cultural values. Therefore, understanding and optimizing the educational approach in the FE is of great practical significance for improving students' SE and autonomous LM. At the same time, with the rapid development of information technology, the popularization of online learning has also given the FE new functions. In a digital learning environment, family support for students becomes particularly critical, and parents' guidance in resource management, time planning, etc. will directly influence students' online learning experience and results [2].

From the macroscopic social needs to the microscopic learning process, the role of the FE in improving LM and AP has received widespread attention. This study explores the FE, LM, and SE, as well as their interrelationships, in order to reveal the mechanism of the FE's effect on students' academic development. At the same time, the study also focuses on the practical effects of different educational methods and puts forward suggestions that are suitable for promotion in actual educational contexts. Overall, the goal of this study is to help parents and educators better understand and optimize the family support system, create a more conducive learning environment for students, and promote their all-round development.

2. Key Concept

2.1. Concept Introduction

2.1.1. FE

The FE is an external influence that cannot be ignored in the growth process of students. It includes many aspects such as parents' educational methods, emotional support, family atmosphere, and economic conditions [1,3]. The quality of the FE directly affects students' AP. For example, a warm and supportive FE can enhance students' and self-directed learning [2,4]. Especially in an online learning environment, family support plays an important role in students' LM and task completion efficiency [2].

2.1.2. LM

LM is the internal or external driving force that motivates students to participate in learning activities. It can be divided into two types: intrinsic motivation and extrinsic motivation [5,6]. Intrinsic motivation comes from students' interest in the content of learning and a sense of achievement, while extrinsic motivation comes more from external incentives such as rewards or grades [7]. The higher the LM level, the better the students' commitment to their studies and AP [7]. Research shows that parental education methods and support have a significant impact on LM. In particular, an emotionally warm family atmosphere helps to improve students' intrinsic LM [8,9].

2.1.3. SE

SE refers to students' subjective assessment of their confidence and ability to complete specific tasks. It directly affects students' persistence and commitment when facing academic tasks [1]. An increase in SE can enhance students' self-confidence in learning, make them more proactive in learning, and show stronger ability to cope with learning challenges. Research has found that SE plays a mediating role between the FE and AP, that is, family support indirectly affects AP by enhancing students' SE.

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2.2. Classification and Characteristics

2.2.1. Classification and Characteristics of the FE

The FE can be subdivided into aspects such as parents' educational approach, emotional support and family atmosphere. These factors affect students' to varying degrees. Research shows that a supportive FE can promote students 'LM and SE [1]. For example, warm emotional support from parents can help enhance students' intrinsic LM, while controlling or neglecting parenting styles tend to inhibit students 'learning interest and SE [8,10]. In addition, the family's economic conditions and the availability of learning resources also affect students' AP. With good material support, students have easier access to learning resources, which in turn motivates them to learn [5].

2.2.2. Classification and Characteristics of LM

LM is mainly divided into two types: intrinsic motivation and extrinsic motivation. Research shows that students with intrinsic motivation are more inclined to set high goals and remain focused during learning, while students who rely on extrinsic motivation are easily affected by external factors and their performance is not stable [6,7]. The multidimensional nature of LM is also reflected in the learning outcomes of different subjects. For example, LM in the subject of chemistry plays an important role in students' interest in the subject and improvement of their grades [7].

3. The Relationship between FE and LM

The importance of the FE in a student's growth process is self-evident. It is not only a place of residence but also the soil for students' physical and mental development. By shaping students' values, self-awareness, and providing emotional support, the FE has a lasting and profound impact on their AP and LM. The FE is not a single concept; it encompasses various aspects, including parental support, parenting styles, and family atmosphere. These factors directly or indirectly promote students' academic development, enhancing their SE and autonomous LM. This paper, drawing on existing research, will delve into how the FE affects students' LM and school adaptability. Additionally, this paper will focus on the role of family in fostering the ability for online autonomous learning.

Among the many factors within the FE, parental support is particularly crucial. Through a path analysis of questionnaires distributed to 114 students majoring in public administration, a study found that emotional encouragement and academic assistance from parents can instill confidence in students when facing learning challenges. Positive parental support also enhances students' SE, making them confident in their abilities [6]. However, the study did not clarify the gender ratio or age distribution of the sample, presenting some limitations. Confident students tend to set higher academic goals and exhibit persistence and resilience when facing difficulties. Undoubtedly, parental involvement adds motivation to students' learning, and when they feel their parents' care and expectations, they naturally pay more attention to academics and demonstrate a positive learning attitude. In a study conducted by Zhang Yuanni, the researcher selected 240 graduate students from different grades and regions to complete an online questionnaire, examining the positive impact of parental emotional warmth on graduate students' LM through correlation analysis and mediation analysis [8]. The study found that parental affection and encouragement for independence have been closely related to students' learning interest and goal-setting. Maternal affection negatively correlates with LM, while excessive maternal control may dampen learning interest and affect clarity in learning goals. Paternal support and encouragement, on the other hand, positively correlate with students' learning interest and motivation, indicating that an emotionally warm, supportive parenting style contributes to enhancing LM. Evidently, parental support not only increases students' interest in learning but also effectively stimulates their intrinsic LM.

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Differences in family education methods significantly determine the direction of students' LM. authoritative parenting style encourage respect and autonomy, and through this model, students' self-regulation abilities improve, naturally displaying greater autonomy and responsibility in academics [1]. Growing up in such a free educational atmosphere makes it easier for students to find enjoyment in learning and to proactively set learning goals. This study used linear regression analysis with a sample of 103 high school students, yielding a significant value ($p = 0.040$) and a regression equation ($Y = 3.217 - 0.156x$), with $\beta = -0.156$ and a t-value of -2.077. Empirical data demonstrates that controlling or neglectful parenting often suppresses students' LM. Excessive interference easily leads to a loss of autonomy, fostering dependency and even aversion to learning. Conversely, if parents show little interest in their children's studies, students may also exhibit low LM, ultimately leading to poor AP.

Moreover, the quality of the family atmosphere has a direct impact on students' school adaptability. Research shows that a harmonious family atmosphere, with ideal levels of intimacy, knowledge, and recreation, helps students face learning challenges positively and integrate into school life [4]. Students who grow up in a good family atmosphere excel not only academically but also in establishing harmonious relationships with classmates and teachers. They demonstrate strong cooperation skills and a high level of enthusiasm in group activities. Conversely, a tense or conflict-ridden family atmosphere may create more difficulties in school adaptation. Such students often lack emotional management skills and are more prone to anxiety when facing school pressure, thereby affecting AP.

With the wave of educational informatization, online learning is gradually becoming an essential channel for students to acquire knowledge. In this process, the role of parents becomes particularly important, as it not only provide material support but also play a crucial role in guiding and managing students' online learning. Zhang Jing's research, through a questionnaire survey of 343 junior high school students from a region in Hunan Province, analyzed factors influencing the online autonomous learning ability model and its assumptions, revealing that family support significantly improves students' online autonomous learning ability, helping them learn to plan time, set goals, and increase task completion efficiency [1]. In this digital age, students face a wide variety of learning resources. The key to effectively utilizing technological means, a double-edged sword, lies in parental guidance. Parental support can help students use online tools reasonably and avoid distractions and temptations on the internet. In this process, parental supervision and feedback are essential. With parental help, students can continually reflect on and adjust their learning strategies, enhancing learning initiative.

Through research involving 205 middle school students from a Beijing school, Liu Zong jiang utilized FE and LM scales, performing correlation and regression analyses using SPSS, finding a significant positive correlation between family support and students' AP [10]. Furthermore, LM plays an essential mediating role between the two, indicating that family directly enhances both students' AP and LM. However, as the study sample was limited to the Beijing area, its applicability in a broader context may be limited. In another study conducted at a middle school in Yanji City by Xu Hongmei, the researcher used FE, school adaptation, and self-regulation questionnaires for regression analysis on 480 students, revealing that autonomy motivation also plays a mediating role between FE and school adaptation [4]. This means that family education methods affect students' self-regulation abilities and directly impact their school adaptability. However, as the research data is concentrated in Yanji, its applicability in other cultural contexts also has limitations.

SE is students' confidence in their ability to complete academic tasks, and parental support can enhance this confidence, making students more confident in learning and better able to cope with various academic challenges. The enhancement of SE not only helps students improve AP but also increases their learning interest, manifesting a higher enthusiasm in learning. The openness and respectfulness of family education methods directly influence students' autonomous motivation.

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When recognized and supported by parents, students are more willing to actively engage in learning and discover self-worth in the process. This boost in SE undoubtedly serves as a source of motivation for continuous progress. Furthermore, a harmonious family atmosphere is crucial for students' school adaptability. A good FE not only helps students better integrate into school life but also enhances their social skills, making them more confident in peer interactions. Additionally, family education's guidance in emotional management and behavioral norms helps students present themselves more maturely and steadily in school.

In conclusion, the FE has a significant impact on students' LM and AP. Parental support, education methods, and family atmosphere not only directly affect students' academic development but also indirectly improve their school adaptability by enhancing SE and autonomous motivation. However, most of the current research focuses on specific regions, with certain limitations in sample size and generalizability. Future research should expand the sample range and conduct in-depth analyses based on FEal characteristics in different cultural contexts. In practical terms, parents and schools should strengthen cooperation to promote students' all-round development. Parents should actively participate in the student's learning lifecycle, provide abundant emotional support, and build a warm family atmosphere. At the same time, schools can offer parents cutting-edge educational guidance, helping them use scientific methods in family education to reinforce the educational chain. Amidst the tide of the digital age, parents should encourage students to make proper use of internet resources, instill a brave attitude toward future learning environment challenges, and foster their autonomous learning abilities to meet the more diverse educational demands of the future.

4. The Relationship between LM and AP

Research shows a significant positive correlation between the level of LM and students' AP, a connection that is particularly evident in various subjects, especially those of higher difficulty [3,5]. Taking chemistry as an example, this subject requires students to have good comprehension, reasoning, and practical skills, thereby necessitating high LM for effective support. Zeng Tao et al. indicated that LM plays a vital role in enhancing students' interest and academic achievement in chemistry [7]. In this study, middle school students' focus on learning was measured using a scale based on the Expectancy-Value Theory (EVT), encompassing primary dimensions of intrinsic value, attainment value, utility value, and learning cost to gauge motivation and subsequently estimate students' focus levels. Chemistry learning motivation not only enhances students' focus on the subject but also effectively improves their performance in knowledge comprehension, application, and practical skills, leading to better results in exams, classroom participation, exam preparation, and task completion.

In China, the college entrance exam, a crucial factor in determining students' future academic and career paths, imposes high requirements on students' LM. Through a survey of 256 senior high school students in Hunan Province, Jiang Li et al. found that the "tension intensity" factor within LM had a significant positive impact on college entrance exam scores [9]. This study used the Motivation for Academic Achievement Test (MAAT) and conducted a comprehensive analysis of the factors influencing entrance exam scores using variance and multiple regression analyses. The results showed that high-intensity motivation under exam pressure positively influenced students' AP, indicating that moderate tension and pressure help students focus more on learning, resulting in better outcomes in critical exams. The study suggests that motivational interventions could help students cope with exam pressure, thereby improving AP. However, this study has limitations in that it only includes data from senior high school students, excluding other grade levels and exam types. Although the findings have high reference value, their generalizability requires further investigation.

In theoretical frameworks exploring how LM impacts AP, the Expectancy-Value Theory offers an in-depth perspective. This theory posits that when deciding whether to engage in a learning activity,

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students weigh the expected achievement rewards against the input costs, such as time, effort, and opportunity costs. LM is driven by factors like intrinsic value (learning interest), attainment value, utility value (relevance to future career or life), while learning costs (such as effort, emotional, and opportunity costs) may weaken motivation. Specifically, if students perceive that a subject's rewards in terms of achievements or future opportunities outweigh the input costs, their motivation is strengthened; otherwise, it might decrease. Based on this theory, Zeng Tao et al. conducted a study on middle school students in Hebei and Beijing regarding perceived academic value in chemistry, analyzing the impact of interest, attainment, utility, and cost dimensions on students' AP [7]. The study found that students with a higher perception of academic value had better AP, suggesting that awareness of learning's significance and application motivates students to invest more effort, leading to superior results. Additionally, the study revealed that academic value perception not only have influenced current subject performance but also have predicted future subject choices and career paths. Various dimensions of academic value (such as intrinsic value, attainment value, and utility value) can significantly enhance motivation, while learning costs (such as emotional and effort costs) tend to weaken it. These academic value dimensions, influencing students' recognition, sense of accomplishment, and future career expectations, directly correlate with motivation levels. Nonetheless, the study is limited in that it only covers chemistry, so whether this positive impact on performance extends to other subjects remains to be investigated. The regional limitations of the sample, which included only Hebei and Beijing, also affect the generalizability of the results.

In modern educational discussions, LM is considered a core factor determining students' AP. The development of LM is closely related to the support of external environments, especially in the home and school settings. In the FE, parents' educational level, academic support for children, and the overall family atmosphere significantly influence students' motivation. Studies indicate that when parents maintain a positive attitude, possess a high level of education, and foster a harmonious FE, students' motivation often strengthens, positively impacting their AP. Conversely, a lack of family support or a stressful environment tends to reduce students' motivation, resulting in lower AP.

In summary, LM has a significant impact on AP, and various motivational factors positively affect entrance exam scores, especially under conditions of high tension. This motivation can help students perform well under pressure. Additionally, academic value perception has predictive power for both AP and future career choices. The stronger a student's interest, sense of achievement, and utility perception in a subject, the more likely they are to achieve better results. LM also relies on the support of family and school environments; by creating a positive FE and school atmosphere, students' motivation can be further enhanced. Therefore, parents and teachers are encouraged to support students in various ways to strengthen both internal and external motivation, promoting greater academic success.

However, current studies have limitations, such as regional and subject constraints, single-grade focus, and limited generalizability. Future research could expand sample ranges to include different regions, grades, and subjects for a more comprehensive understanding of how LM affects AP, providing a basis for optimizing educational strategies. Additionally, research could explore the differences in LM across grade levels, especially analyzing why and how motivation changes at various stages, to help educators understand the developmental trajectory of LM and design targeted strategies to stimulate and support motivation.

From the perspective of partition, schools and families can further enhance students' motivation by providing learning opportunities, creating a positive learning environment, setting examples, and encouraging independent learning. For example, teachers can engage students with diverse teaching methods, allowing them to participate actively and enjoy learning; parents can discuss learning with their children, provide resources, and encourage them to pursue excellence. Additionally, setting appropriate goals and providing positive feedback on student achievements are effective ways to

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stimulate motivation. Ultimately, the combined efforts of families and schools can help students achieve greater academic success.

5. Discussion and Suggestion

5.1. Summary of Overall Findings of the Current Study

The current study shows that the FE plays an important role in students 'LM, SE, and AP. The FE also plays an important role in digital education. In an online learning environment, family support has a significant impact on students' ability to effectively manage online resources, plan time, and set learning goals. Parental guidance and supervision can help improve students' self-directed learning ability [1]. In summary, the home environment not only directly affects students' academic development, but also indirectly promotes their school adaptability and AP by enhancing their SE and motivation for self-directed learning.

5.2. Suggestions

Based on the current research findings, there are various ways for families and schools to support students' comprehensive development. Parents should pay attention to emotional support and enhance their children's LM by creating a warm family atmosphere and timely encouragement. Parents' emotional support for their children's studies can significantly enhance their LM. Especially when facing academic difficulties, parents' positive encouragement and understanding can help students gain confidence in dealing with academic challenges [6].

In addition, scientific methods of family education should be promoted. Parents can encourage students to make their own decisions and regulate themselves through democratic education methods, avoiding over-control or neglect. Respecting students' learning pace and willingness can effectively cultivate their LM and sense of responsibility. Schools can also help parents master effective education strategies through parent-teacher conferences or family education courses, so that they can provide more support for students' studies in the FE [8]. Home-school collaboration is also crucial. Schools and families should work together to provide students with a good support system. Home-school collaboration can work together to develop programmers to support students' mental health, such as providing psychological counselling services to help students enhance their sense of SE and academic self-confidence. With the dual support of family and school, students can better cope with academic pressure and achieve all-round development.

With the continuous development of information technology in education, online learning has become one of the important learning modes. Parents should provide appropriate support in this process, such as setting up a dedicated learning space and arranging learning time reasonably to avoid online distractions. With parental guidance and supervision, students can improve the efficiency of completing online learning tasks and gradually enhance their self-directed learning ability [1].

5.3. Future Research Directions

Although current research has revealed the impact of the home environment on students' LM and AP, there are still some limitation. Future research can be further explored in several ways. First, current research has focused on specific regions or stages of education, and the limitations of the sample have affected the universality of the research results. Future research should expand the sample scope to include students of different cultural backgrounds and ages to obtain more representative conclusions [4].

Future research can also explore in depth the specific influencing mechanisms of family factors. FE factors are complex and diverse, including parents' education level, economic conditions, and the

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quality of family relationships. Future research can further explore the influencing mechanism at different learning stages and in different subjects to reveal more detailed family influencing mechanisms [10].

In addition, different subjects have different requirements for LM. Current research mostly focuses on a single subject (such as chemistry). In the future, research can be conducted on the impact of LM on AP in a multi-disciplinary context to determine whether there are subject-specific motivational patterns and needs [7].

With the popularization of online education, the mode of family support for digital learning has become particularly important. Future research can explore the role of the FE in online live and recorded courses and blended learning and conduct in-depth analysis of parents' support for students' online learning strategies, time management and resource utilization, in order to better adapt to the needs of educational informatization [1].

6. Conclusion

This study explores in depth the impact of the FE on students 'LM, SE and AP. The results show that a warm and supportive FE can effectively enhance students' LM and SE, thereby promoting academic achievement. Parents' emotional support, scientific education methods and a good family atmosphere all affect students' learning attitude, AP and school adaptability to varying degrees. Democratic education methods can enhance students' motivation and sense of responsibility for self-directed learning, while controlling or neglecting education methods may inhibit students' enthusiasm and self-regulation.

In addition, in the information age, the supporting role of the family in students 'online learning is particularly important. Research shows that parental support in resource management, time planning, and creating a learning environment significantly improves the effectiveness of students' online learning. Active participation by the family not only helps students make rational use of learning resources and avoid online distractions, but also improves their sense of SE in online learning and the efficiency of task completion.

Overall, the home environment not only directly affects students 'academic development, but also indirectly promotes their academic achievement by enhancing their sense of SE and motivation for self-directed learning. Therefore, the collaborative cooperation between schools and families is of great significance for the comprehensive growth and academic success of students. In order to maximize the positive effects of the home environment, it is recommended that parents and educators pay attention to students' emotional needs, autonomy development and motivation for learning during the education process, and create a supportive and encouraging learning environment, thereby helping students achieve continuous academic improvement and personal growth.

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