

The current status and outlook of the research on adolescent school adjustment in China in the past decade—A CiteSpace-based visualization analysis

Liao Caizhi, Zeng Linling, Yang Yiting*

College of Teachers, Chengdu University, Chengdu, Sichuan, 610106, China

**Corresponding author*

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Abstract: Adolescents are in a critical period of physical and mental development, facing changes in the school environment and greater learning pressures and challenges, and past studies have found that 16.6% of junior high school students detected school maladjustment. School adjustment is important for students to achieve academic success and maintain mental health. In recent years, issues concerning students' school adaptation have attracted the attention of many scholars in China. Taking the source data of CNKI journal database as a sample, the article analyzes the research hotspots, research themes, and developmental status of school adaptation of adolescents in the past ten years in China with the help of the function of Citespace visualization software, points out the main problems existing at present, and puts forward corresponding countermeasure suggestions, which is aimed at providing reference for the relevant applied research on educational practice.

According to Lin Chongde, “school adaptation” is how students make adjustments to the learning environment, atmosphere, conditions, and pace of learning they are in^[1]. As early as 1948, the World Health Organization made an authoritative statement on health “Health is not merely the absence of disease and infirmity, but a state in which the individual is physically, mentally, and socially well adjusted.” The Compulsory Education Curriculum and Curriculum Standards (2022 Edition) issued by the Ministry of Education emphasizes the need to adhere to a goal-oriented approach, focusing on the development of core literacy for secondary school students, and fostering the correct values, necessary character, and key competencies that will enable young students to adapt to future development. Past studies found that 16.6% of middle school students detected school maladjustment^[2]. Maladjustment can lead to problematic behaviors such as poor learning attitudes, low learning satisfaction, and unscientific learning methods^[3]; on the contrary, well-adjusted students are more likely to receive positive evaluations, which can enhance their self-esteem level and social accomplishment, help them cope with stressful events such as academic disfavor and difficulties in adapting to the environment, and reduce the risk of depression^[4]. Therefore, good adaptation is significant to the life of adolescents and is an important guarantee for students to achieve excellent grades and live a happy life.

In order to be able to have a macro grasp of the knowledge structure of the research field of

school adaptation of children and adolescents and to provide an effective reference and useful reference for future research, this study intends to systematically sort out and content mine the core papers in this field through visual analysis methods, in order to clarify the basic situation, hot topics, and the current status of research in the field of this research.

1. Data Sources and Research Methods

First, the topic search was conducted on China Knowledge Network using “school adaptation”, and a total of 679 documents were retrieved. After manually removing non-academic documents such as book reviews, conference reviews, work profiles, and other documents that did not fit the topic, 451 valid documents were finally obtained.

Second, CiteSpace was used to conduct co-occurrence analysis to show the dynamics and trends of the research field through knowledge mapping, aiming to macroscopically grasp the current status and hotspots of the research in the field, and provide reference for in-depth research.

2. Research on school adaptation in China in the past ten years: an overview analysis

2.1 Annual distribution of documents

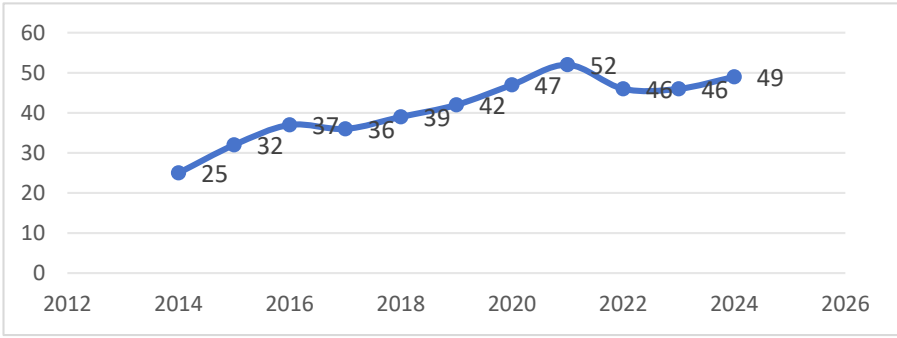


Figure 1 Distribution of School Adaptation Research Literature, 2014-2024

The annual distribution of the literature is valuable for exploring the research heat and development trend. The annual distribution of research on academic adjustment of primary and secondary school students is shown in Figure 1, from which it can be seen that the annual number of publications in this field fluctuates and fluctuates. Specifically, the number of articles issued in 2014 is on the low side, probably because the field is in the beginning stage, scholars lack of corresponding experience, and need to spend more time and energy to try and explore. And then 2014-2021 began to grow this trend shows that researchers and academics began to pay attention to the topic of school adaptation, attention continues to increase, this stage of the research angle is broad, more results. After 2022, the slow rise, this stage of school adaptation research tends to be saturated, the lack of breakthrough research progress.

2.2 High-frequency keyword analysis

The analysis of the frequency and centrality of keywords helps to understand the research focus and hotspots in the field. In the mapping, more connecting lines and higher density indicate a stronger connection between keywords. As shown in Figure 2, after excluding the high-frequency keywords in the research object category, the keywords with the top ten frequencies are “social adaptation” “social support” “influencing factors” “ self-esteem” ‘ teacher-student relationship’ ‘ psychological resilience’ ”life adaptation” “peer relationship” ‘mediating effect’ ‘teacher support’

‘countermeasures’, which are the focus and hotspot of research in this field. In addition, centrality can reflect the mediating ability of a node in the whole network. As can be seen from Table 1, in terms of the content of concern, the keywords of influencing factors, mental health, life adaptation, and cultural adaptation have larger centrality, indicating that they play an important role in the advancement and development of research in this field.

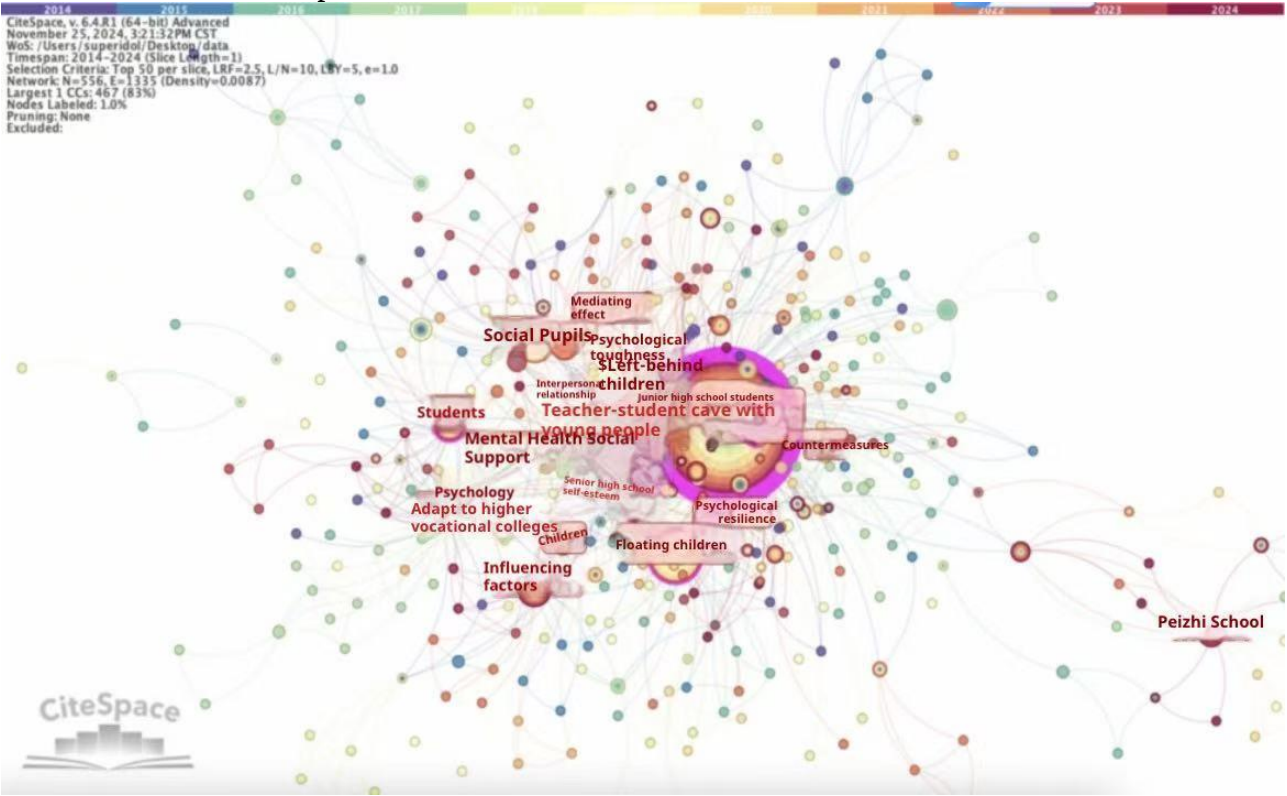


Figure 2 Co-occurrence mapping of keywords for domestic research on school adaptation

Table 1 High-frequency keywords for school adaptation research

No.	Centrality	Frequency	Keywords	No.	Centrality	Frequency	Keywords
1	1.03	211	School Adaptation	14	0.04	11	Primary School Students
2	0.11	44	Children on the move	15	0.07	11	Schools for the Mentally Handicapped
3	0.13	23	Adaptation	16	0.01	10	Mental Health
4	0.12	22	Students	17	0.03	10	Teacher-Student Relationships
5	0.01	20	Middle School Students	18	0.03	8	Psychological Resilience
6	0.10	19	Teenagers	19	0.09	8	Life Adaptation
7	0.03	17	High School Students	20	0.00	8	Peer Relationship
8	0.03	17	Left-behind Children	21	0.01	7	Countermeasures
9	0.03	16	Social Adaptation	22	0.03	7	Higher Education

							Institutions
10	0.04	15	Mental Health	23	0.00	7	Faculty Support
11	0.03	14	Social Support	24	0.08	5	Cultural Adaptation
12	0.06	14	Influencing factors	25	0.00	5	Family Functioning
13	0.01	14	Self-esteem	26	0.00	5	Intervention

2.3 Keyword cluster analysis

Keyword clustering analysis can simplify the keyword co-occurrence network relationship into a relatively small number of clusters by means of clustering statistics. Generally speaking, Q value is a measure of the quality of the network divided into communities, the higher the value means the better the clustering effect; S value is a measure of the clustering effect, the closer the value is to 1 means the better the clustering effect. The clustering results in Figure 3 show a Q value of 0.6102 and an S value of 0.8895, indicating good clustering results. Twelve clusters are shown in the plot. Among them, “#0, #1” are related to the research topic, “#2, #4, #7, #9, #11, #12” are related to the research object, which indirectly indicates that the retrieved literature is indeed in line with the topic of this research; “# 3, #5, #7, #9, #8, and #10” are related to the focus of research on school adaptation, factors influencing school adaptation, and responses to school adaptation implementation, indicating that they are the focus of the field.



Figure 3 Keyword clustering map

2.4 Analysis of research development trend

Mutant keywords appear or are used steeply over a period of time, often reflecting the latest cutting-edge dynamics of a specific research field to a certain extent^[5]. In this paper, we use CiteSpace software to derive the mutant keyword mapping to analyze the development trend of related research fields, which is shown in Figure 4.

“Social adaptation”, ‘school sports’ and ‘talent development’ are the earliest keywords with high

mutation intensity, and these three mutated keywords span a long period of time. Since these fields have been known and paid attention to by scholars, research has been gradually enriched, expanding the research horizons of this field.

From a macroscopic perspective, related research has experienced a shift from basic to applied research. The previous basic research involved the exploration of basic concepts and theories such as social adaptation and school sports. With the evolution of time, applied research began to enter the vision of scholars, who gradually began to pay attention to the application of these areas in real life and their solution strategies, and used survey questionnaires, experimental research and other methods to conduct research, intuitive understanding of the problems that exist in the research object.

From a microscopic point of view, in addition to the three keywords of “social adaptation”, “school sports” and “talent cultivation”, which have longer time periods, the fourth longest continuation length of the emergent keywords is “mental toughness”, with a duration of 3 years, and ‘life adaptation’ and ‘family functioning’, with a duration of 2 years, ranked fifth, due to the following reasons:

The first is the social attention to mental health: with the increase of social attention to mental health issues, mental toughness, as an important psychological trait, has received the attention of researchers^[6].

Second, the research demand for life adaptation and family functioning: with social change and changes in family structure, there is a growing demand for research on life adaptation and family functioning, and research in these areas helps to understand and solve family problems in modern society.

Third, the diversification of education and talent cultivation: the diversified demand for talent cultivation in the field of education has prompted researchers to focus on talent cultivation in different educational stages and contexts^[7].

Top 17 Keywords with the Strongest Citation Bursts



Figure 4 Keywords for mutation in domestic school adaptation research

3. Analysis of school adaptation related research in China in the past ten years

Based on the previous analysis of the overview of school adaptation and the analysis of the main topics, this study elaborates on the impact of school adaptation on adolescents' mental health and the analysis of the factors affecting school adaptation.

3.1 The impact of school adaptation on adolescent mental health

School adaptation, as a measure of students' adaptability to learning, participation in school activities, interpersonal interactions, and emotional adjustment in the school environment, not only affects an individual's physical and mental health, but also has an impact on his or her lifelong development^[8]. Tang Tiangui et al. found that school adjustment negatively predicted depression by tracking freshmen in high school. This result is basically consistent with the study of Cheng Shao-gui and Zhao Ruolan et al. and further verified that good and bad school adjustment in the schooling stage is significantly associated with future mental health^[9]. On the one hand, good school adjustment is associated with low autistic traits and better communication skills; on the other hand, well-adjusted students are more likely to receive positive evaluations, which can enhance their self-esteem level and sense of social fulfillment, help them cope with stressful events such as academic disfavor and difficulties in adapting to the environment, and reduce the risk of depression^[10].

3.2 Analysis of factors affecting school adjustment

(1) Internal factors

The internal psychological traits of an individual play an important role. According to previous studies, the main internal individual influences on students' school adjustment development are self-concept, individual psychological factors, and personality traits.

Self-concept is a relatively stable experience and evaluation of one's own physical, mental, and social status through feedback from others and self-experience. An Xuiju and Su Xianbiao found that factors such as low levels of self-esteem, high neuroticism, and negative life events affected students' school adjustment outcomes and led to their school maladjustment^[11]. Wang Xiao's study showed that students with high self-esteem experience more joy in school life, which further supports the positive relationship between self-esteem and school adjustment^[12].

Individual psychological factors influence adolescents' school adjustment. Wang Zhonghui et al. conducted a questionnaire survey on 449 migrant children and found that if the migrant children's positive psychological qualities were well developed, then they would be more adapted to school life^[13]. Zhang Guangzhen and Wang Juanjuan conducted a one-year follow-up study on middle school students and found that there was a significant positive correlation between psychological resilience and school adjustment, and that the relationship between psychological resilience and school adjustment was unidirectional^[2].

In terms of personality traits, Lily Ji et al. showed that the higher the level of self-reliant personality, the easier it is for individuals to achieve school adjustment^[14]. On the contrary, individuals with low levels of self-reliant personality tend to lack the ability to proactively solve problems in the face of negative events, which is not conducive to enhancing their school adaptation. Chen Yingmin and Xiao Sheng et al. found that there is a negative correlation between an individual's level of shyness and school adaptation, i.e., extroverted individuals usually have a higher level of school adaptation, while the opposite is true for introverted individuals^[15].

(2) External factors

External factors such as peer acceptance, school climate, classroom environment, teacher-student

relationships, and parental co-parenting styles were found to be related to individual school adjustment.

Peer relationships play an increasingly important role in the development of an individual's mental health and social functioning^[16]. Students who are rejected by their peers or left out in their peer groups generally have lower academic achievement than highly popular individuals in their peer groups, and they have high rates of early school leaving and dropping out of school, which can be accompanied by severe academic anxiety^[17]. In terms of school, the school system, as one of the important external environments for adolescents' learning and life, the overall school climate, classroom environment, etc., have a significant impact on individuals' adjustment^[18]. In the family aspect, Zhang Cherry et al. found a positive relationship between father's parenting input and junior high school students' school adjustment^[19], and Liu Chang et al. surveyed 1,370 junior high school students to explore the relationship between collaborative parenting and school adjustment, and found that the effect of collaborative parenting on school adjustment plays a significant role through the chain mediation of parenting input and parent-child attachment^[20].

4. Problems

4.1 Lack of innovation in school adaptation research

According to Figure 1, it can be seen that from 2021 to the present, research related to school adaptation has leveled off or even declined, with a bottleneck phenomenon and a lack of innovation in both research tools and content.

In terms of research tools, the current research model tends to examine the school adjustment of students in all school segments through the same indicators, however, whether it is a change resulting from the personal development of students or a change based on the needs and goals of the students, there is a need for the development of new student assessment tools that meet the characteristics of the group and the contextual characteristics of each age group.

In terms of research content, first of all, the research is too much about students' psychological, social and interpersonal adaptation, and lacks attention to academic adaptation. In the study of Nie Yengang and Zhang Chengfang, it was clarified that students will have poor learning attitude, low learning satisfaction, unscientific learning methods and other problematic behaviors due to academic maladjustment^[3]. It can be seen that academic adaptation is also significant to the academic life of junior high school students and should be emphasized. Secondly, most of the previous studies focus on the adaptation problems of left-behind children and migrant children, while the society is progressing and developing, and the challenges faced by the student groups under the new situation will be multifaceted and need to keep pace with the times.

4.2 The mechanism of school adaptation needs to be explored

Existing research tends to examine the role of a few individual resources or environmental resources on the influence of adolescent school adaptation, such as academic performance, teacher-student relationships, psychological development and other one-sided to explore the student's school adaptation, which is reasonable, but for the development of modern quality education is more one-sided^[21]. School adaptation is a complex concept involving multiple aspects of individual student adaptation. In addition, it is highly likely that psychological resources work synergistically in real-life situations, so it is necessary for researchers to grasp the value of psychological resources from a more comprehensive and broader perspective, and to explore the mechanism that promotes the role of individual and environmental resources in jointly promoting adolescent school adaptation.

4.3 The cooperation mechanism of “home-school-society” has not yet been put into practice

Existing research has not yet formed an authoritative guidance for school adaptation, and the improvement of a few factors alone is not enough to solve the problem, or only put forward a general slogan of home-school-society cooperation, but has not been put into practice^[22].

First of all, one of the reasons for this is insufficient conceptual understanding. Many students, families, and schools do not have sufficient understanding of the importance of school adaptation and have not formed a unified sense of cooperation and cultivation goals, which makes it difficult to promote the cooperation mechanism effectively. Cultural differences and value conflicts are also one of the reasons. Different regions have differences in cultural backgrounds and values, which are prone to disagreements.

Secondly, the allocation of resources is unreasonable. There is an imbalance in the allocation of resources among schools, families and social institutions, which makes it difficult to form a synergy when cooperating, making it difficult for the cooperative mechanism to adapt to changing educational needs and realize effective school adaptation support.

Finally, there is a lack of long-term planning and continuous follow-up. Cooperation mechanisms often lack long-term planning and continuous tracking and evaluation, making it difficult to identify problems and adjust strategies in a timely manner during the cooperation process, which affects the long-term effects of cooperation.

5. Countermeasures for future development

5.1 Innovation in research tools and content

One is to innovate from the research and assessment tools. The development of psychological assessment tools should be based on the psychological traits that need to be measured by students of different ages, with due consideration given to whether the descriptions of the psychological test questions are suitable for the student population, and whether the reliability of the alternative test results is within an acceptable range. Strengthen the development of localized and information-based assessment tools, and focus on updating them according to the evolution of the times. For example, the scale of school adaptation in epidemic situation should be different from the scale in normal period.

Secondly, innovations can be made in terms of research content. First, research on learning adaptation and academic adaptation can be added. Separate research on academic adaptation is conducive to educators proposing more targeted countermeasures based on students' academic maladaptation to help students solve their adaptation problems. Second, school adaptation research needs to continuously expand its research horizons and focus on emerging student groups in order to adapt to the new needs and challenges of social development. For example, it has also become a new topic to consider how children adapt to schooling in the digital age. This includes adaptation to digital technology, cultivation of cyber safety awareness, and adaptation to the digital learning environment.

5.2 In-depth study of its mechanism of action

Bronfenbrenner pointed out in his ecosystem theory that the development and adaptation of an individual is the result of the interaction between the individual and the environment^[23]. Intrinsic psychological factors play an important mediating role in the relationship between parental and teacher support and students' internalizing and externalizing problems. These psychological factors include an individual's mental toughness, self-efficacy, and self-esteem, which act as a bridge

between the external protective environment (or risky environment) and positive developmental outcomes (or negative developmental outcomes) ^[24]. Delving deeper into the mediating role of these intrinsic psychological factors can help us better understand how individuals adapt and develop under different environmental conditions, especially in education and mental health interventions, which need to take into account individual differences and the complex interactions between individuals and their environments. For example, individuals with high psychological resilience may be more able to effectively utilize the support of parents and teachers to better cope with challenges and adversity, thereby promoting positive developmental outcomes.

5.3 Improvement of the “home-school-society” cooperation mechanism

It is necessary for researchers to take a holistic approach, incorporating multiple dimensions of school, teacher, family, and society, to propose more comprehensive, practical, and generalizable strategies for improvement.

First, to address the problem of insufficient awareness of the concept of school adaptation, the first step is to strengthen publicity and education to raise awareness of the importance of school adaptation among students themselves, their families and schools. This can be done by organizing seminars, group counseling and parent symposiums, etc., so that all parties can understand the long-term significance and practical benefits of school adaptation, thus forming a unified concept and goal of cooperation. Secondly, cross-cultural exchanges and cooperation, such as the production of public service videos or publicity, can be used to help students understand the behaviors and values of different cultures, promote mutual respect and understanding, and gradually overcome conceptual and cultural barriers.

Secondly, in order to alleviate the problem of irrational allocation of resources in the cooperation mechanism of “family, school and society”, a joint system of school, family and society can be established to create a platform for information exchange, timely detection and solution of problems in adolescents' academic adaptation, so as to realize the synergistic cultivation of students in multiple aspects and multiple sectors. Give full play to the advantages of the system, culture and resources to ensure the formation of a whole-chain parenting ecological chain of “government-promoted-school-led-family-responsible-social-support” , so that society as a whole can share the responsibility for the growth and success of young people.

Finally, in response to the lack of long-term planning and continuous tracking of the cooperation mechanism between families, schools and society in the school adaptation of adolescents, the core of the countermeasures lies in the establishment of a systematic cooperation framework: first, a clear long-term plan should be formulated, which involves every aspect of students' adaptation, as well as the roles of the family, the school and the society. Second, regular tracking assessments are implemented, both quantitative assessments of the entire process and qualitative analyses of issues and challenges that arise during the process. Through such assessments, shortcomings in the cooperative mechanism can be captured in a timely manner, providing a basis for subsequent adjustments. Finally, based on the results of the assessment, the strategy can be flexibly adjusted to meet the changing educational needs and environment. This dynamic adjustment mechanism enhances the flexibility and continuity of the cooperative mechanism to better serve adolescents' school adjustment.

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