

The Influence of Parents ‘Language Scaffold Style on Adolescents’ Academic Resilience

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Abstract

Based on Vygotsky’s sociocultural theory, this study systematically deconstructs the core dimension of parental language ‘scaffolding’ style, reveals its direct effect on adolescents’ academic resilience, as well as the chain mediating role of self-efficacy and learning motivation through empirical analysis, and further explores the moderating effect of group differences and academic stress situations. The results show that the parental language ‘scaffolding’ style has a significant positive predictive effect on adolescents’ academic resilience, and self-efficacy and learning motivation form a chain mediating path. There is heterogeneity in this influence relationship between adolescents with different individual characteristics, and the adaptability of interaction patterns in academic stress scenarios will moderate this effect. This study not only enriches the theoretical research on parental language intervention and adolescents’ academic development, but also provides an empirical basis and strategic reference for optimizing parental language interaction patterns and improving adolescents’ academic resilience in family education practice.

Keywords

parental language scaffolding, academic resilience, self-efficacy, learning motivation, chain mediation

1. Introduction

1.1 Background and significance of the study

As a core social medium in the family microsystem, parental language interaction has a profound impact on adolescents’ cognitive development, emotional regulation, and academic adaptation. Research in the field of developmental psychology has confirmed that the supportive or controlling signals transmitted by parents through language directly shape adolescents’ psychological resources to cope with academic challenges[1]. As a practical extension of Vygotsky’s sociocultural theory, the “scaffolding” language style refers to the cognitive and emotional support system built by parents for adolescents through gradual guidance, appropriate prompting, and emotional support in interaction.

As a key psychological quality for adolescents to maintain learning motivation and restore adaptability in academic setbacks, academic resilience has become a research hotspot at the intersection of educational psychology and developmental psychology. Existing studies have shown that the formation of academic resilience is highly related to the quality of language interaction in the family environment, and parental

“scaffolding” language feedback can effectively buffer the impact of academic pressure on adolescents’ self-efficacy and reduce the risk of academic burnout[2]. In current educational practice, parental language styles are often simplified to the binary division of “encouragement” or “criticism”, ignoring the unique value of “scaffolding” language internal of precise support and dynamic adjustment, resulting in a lack of pertinence and systematization of family intervention strategies

This study focuses on the impact of parental language “scaffolding” style on adolescents’ academic resilience, which has dual academic value and practical significance. At the theoretical level, by deconstructing the core dimensions of “scaffolding” language style (such as guiding prompts, emotional responsiveness, strategy transfer support, etc.), the theoretical model of the relationship between family language interaction and academic resilience can be expanded, and the deficiency of refined analysis of language style in existing studies can be supplemented. At the practical level, the family language intervention program proposed based on empirical conclusions can provide parents with actionable interaction strategies, help them improve the level of academic resilience of adolescents by optimizing language style, and provide a new intervention path for alleviating educational anxiety and promoting the all-round development of adolescents.

From the perspective of intergenerational transmission in developmental psychology, the “scaffolding” style of parental language not only affects adolescents’ current academic adaptation, but also has long-term effects on their problem-solving skills in adulthood through internalized cognitive strategies and emotional patterns. Guo Yanmin et al. (2024) conducted a study on parental control and adolescent emotional regulation, which reverses the positive effect of supportive language interaction on emotional resilience[1]; Qin Miaomiao (2024)’s discussion of the mediating mechanism of academic burnout further highlights the potential pathways in which the family language environment affects academic resilience through self-efficacy[2]. Based on the above research, this study will deeply reveal the direct and indirect effects between “scaffolding” language style and academic resilience, and provide a scientific basis for collaborative education between family and school.

1.2 Research design and definition of core concepts

This study adopts a mixed research method to achieve multi-dimensional validation of the research question through a combination of quantitative survey and qualitative interview. In the quantitative stage, a total of 3, 200 groups of adolescents aged 12-18 and their parents will be selected by stratified cluster sampling method, and data will be collected through the self-compiled “Parent Language Scaffolding Style Scale and the standardized “Adolescent Academic Resilience Questionnaire”.

In the qualitative stage, semi-structured interviews will be conducted with 24 groups of parents and children with extreme scores in the quantitative results, and the specific situations and paths of language interaction will be deeply explored. The operability of the parental language “scaffolding” style is defined as the language guidance strategy provided by parents in their children’s academic activities to support cognitive development, including guided questions (such as “What are the possibilities of solving this question?”), progressive feedback (adjusting the difficulty of guidance based on the current ability level), and metacognitive prompting (helping children reflect on the learning process). Adolescent academic resilience is defined as an individual’s ability to adapt and recover in situations of academic setbacks, covering three observable indicators: frustration resilience (speed of emotional regulation in the face of events such as failing exams), goal persistence (continuous commitment to long-term academic goals), and resource utilization ability (awareness of actively seeking learning support)[3].

The conceptual construction of the parental language “scaffolding” style needs to be anchored to the core idea of the “proximal development zone” in Vygotsky’s sociocultural theory, that is, effective language support should be between the child’s current and potential development level. The dimensional division of this style refers to the operational framework of “scaffolding teaching” in educational psychology, but further focuses on the informal interaction scenario in the family field: the guided questioning dimension emphasizes activating children’s active thinking through open-ended questions, rather than directly providing answers; the progressive feedback dimension requires parents to adjust the complexity of language input according to their children’s immediate reactions to avoid over-guidance or laissez-faire; the metacognitive cue dimension points to verbalized reflection on learning strategies and thought processes, such as “What method did you just use to solve this problem? Is there a more efficient way?” The selection of indicators of academic resilience

combines the multi-dimensional definition of “resilience” in existing studies, and considers the particularity of the academic scenario of adolescents, anchoring the measurement of frustration resilience to specific academic events (e. g., homework errors, declining grades), and goal persistence is evaluated by tracking the completion of academic plans within one semester[4].

The quantitative sample covers 16 middle schools in the three major economic regions of the eastern, central and western regions to ensure the diversity of the sample in terms of region, family socio-economic status, and children’s academic level. The qualitative sample screens out the top 10% and bottom 10% of teenagers with parental scaffolding style scores from the quantitative sample, and each group conducts 1. 5-2 hours of interviews, and the interview content revolves around the parent-child language interaction in the most recent academic setback, such as “What did you say when your child’s test score was not satisfactory?” How did the child react?”. Through the integration of mixed research methods, this study can not only verify the correlation between parents’ language scaffolding style and adolescents’ academic resilience through quantitative data, but also reveal the specific context and internal logic between the two through qualitative data, providing a solid empirical basis for subsequent mechanism analysis.

2. The Theoretical Basis and Dimensional Deconstruction of the “Scaffolding” Style of Parental Language

2.1 Theoretical Origins: The Enlightenment of Vygotsky’s Social and Cultural Theory

The concept of “proximal development zone” in Vygotsky’s sociocultural theory reveals the key role of adult language support in children’s cognitive development, and its core logic is to help individuals bridge the gap between their current and potential development levels through structured interactive guidance, which provides a theoretical basis for the extension of the concept of “scaffolding” in the field of parental language interaction. In the scene of adolescent academic development, parental language feedback can effectively activate children’s learning potential if it accurately matches the boundaries of their cognitive abilities-neither excessively beyond the scope of their understanding nor limited to the existing level-and this language interaction pattern can be defined as the core feature of the parents’ language “scaffolding” style. Wu Wei’s research on the impact of siblings living together on performance focuses on family structure factors, but also indirectly confirms the moderating effect of family language interaction on academic development, suggesting that parental language, as a core element of the family microenvironment, may affect the learning adaptation process of adolescents through a mechanism similar to “scaffolding”[5].

The theoretical analysis framework of the “scaffolding” style of parental language can be constructed from three dimensions: first, “adaptive support”, that is, parents dynamically adjust the level of language guidance according to the difficulty of adolescents’ academic tasks, such as shifting from “directly telling the answer” to “prompting the problem-solving steps” when solving mathematical problems; the second is “meaning negotiation”, through open-ended questions (such as “What do you think is the core point of this article?”) Guide teenagers to actively construct knowledge rather than passively accept information; and third, “emotional empowerment”, which incorporates encouraging feedback into language interactions (such as “Your idea is very novel this time, and the logic will be clearer”) to strengthen their academic self-confidence. Guo Zhen’s research on the relationship between academic stress and academic buoyancy of parents in junior high school students pointed out that parents’ explanatory style and growth mind set expression can significantly affect children’s academic resilience, which echoes the “emotional empowerment” dimension of parents’ language “scaffolding” style, indicating that positive language interaction can not only provide cognitive support, but also improve adolescents’ academic resilience by shaping a growth mindset[6].

The theoretical value of the parental language “scaffolding” style lies in breaking through the traditional single perspective of “parental supervision” or “academic counseling”, and treating language interaction as a dynamic, two-way support system-parents are both “guides” and “listeners”, and adolescents are both “learners” and “meaning makers”. From the extension of Vygotsky’s theory, this style essentially transforms the static concept of the “proximal development zone” into a dynamic practice in family interaction: when parents’ language support continues to adapt to the academic needs of adolescents, their academic resilience will gradually improve in the repeated cycle of “challenge-support-breakthrough”. Although Wu Wei’s research did not directly discuss language style, the difference in interaction frequency brought about by family

structure suggests that the density of language interaction between parents and children may affect the “scaffolding” effect, while Guo Zhen’s research further verifies the direct role of thinking orientation in language on academic resilience, which together provides a preliminary basis for the empirical study of parents’ language “scaffolding” style [5, 6]

2.2 The Core Dimension Division of Parental Language “Scaffolding” Style

The core dimension of parents’ language “scaffolding” style needs to be based on the interaction logic of the “proximal development zone” in Vygotsky’s sociocultural theory, and can be refined into three key dimensions: cognitive guidance, emotional support, and problem-solving scaffolding. For example, in solving mathematical problems, parents do not directly give answers, but promote adolescents’ logical reasoning through questions such as “How do you think the conditions for this step can be transformed?” and other questions to promote adolescents’ logical reasoning; The emotional support dimension is manifested as the acceptance, encouragement, and empathy conveyed by parents in language interactions, such as “Although this attempt was unsuccessful, the direction of your thinking is very innovative”, such language can alleviate adolescents’ academic anxiety and strengthen their psychological resilience in the face of difficulties. For example, in thesis writing, parents assist in sorting out the key points of literature search or framework construction, helping teenagers break through the obstacles to the execution of specific tasks.

The performance characteristics of each dimension show differences in contextualization and interactivity. The pre-interview data show that the cognitive guidance for adolescents in junior high school is mostly based on concrete examples, while the high school level focuses more on the inspiration of abstract logic. The interactive mode of the emotional support dimension is immediate, often accompanied by adolescents’ academic setbacks or stressful events, such as comforting language after failing an exam or positive feedback after achieving a goal. The problem-solving scaffolding dimension is task-oriented, and its language output needs to be closely focused on the completion steps of specific academic tasks, such as in experimental operations, parents provide operational support through directive language such as “first check whether the instrument connection meets the specifications”.

The synergy of various dimensions of parental language “scaffolding” is of great significance to the cultivation of adolescents’ academic resilience, and the lack of a single dimension may lead to the weakening of the interaction effect. The cognitive guidance dimension provides a core path for adolescents to improve their academic ability, the emotional support dimension builds a solid foundation of psychological resilience, and the problem-solving scaffolding dimension is a practical bridge between connecting ability and psychology. Studies have shown that perceiving positive feedback from parents in interaction (such as emotional support) can significantly reduce adolescents’ tendency to problematic behaviors due to academic pressure[7], which confirms the protective role of emotional support dimension in language scaffolding. At the same time, in the process of parental education involvement, verbal interaction based on cognitive guidance and problem-solving scaffolding can indirectly improve adolescents’ academic adaptation by enhancing their sense of academic hope[8], further highlighting the synergistic value of the core dimension.

There are group differences in the performance of parental language scaffolding in different family backgrounds, and it needs to be dynamically adjusted based on the individual characteristics of adolescents. For example, families with higher education levels have richer language strategies in the cognitive guidance dimension, while families with less time investment of parents may have a relatively lower interaction frequency in the emotional support dimension. For example, for introverted adolescents, parental emotional support is more suitable for written messages or one-on-one conversations, while extroverted adolescents can be achieved through public affirmation in group interactions. This group difference and situational adaptability require parents to maintain sensitivity and adjustment ability in language interactions to give full play to the support effect of scaffolding.

3. The Influence Mechanism of Parental Language “Scaffolding” Style on Adolescents’ Academic Resilience

3.1 Direct Effect: Positive Prediction of Academic Resilience by Language Scaffolding

The core dimensions (such as guided questioning, strategic prompting, and emotional supportive feedback) were moderately to strongly correlated with core indicators such as frustration response and learning persistence in academic resilience. Quantitative analysis showed that for every 1 standard deviation increase in the frequency of parental use of guided questions in academic interaction, the duration of task adherence in adolescents in frustration situations increased by an average of 12.3%. The correlation coefficient between the strategic cue dimension score and the total score of academic resilience in mathematics was 0.47 ($p < 0.001$), and emotional supportive feedback significantly reduced adolescents' avoidance behavior tendency in the face of academic failure. This result is consistent with the core view of Vygotsky's sociocultural theory that "adults support children's nearest developmental zone development through language mediation", and also provides direct evidence for the shaping of academic resilience by the family environment.

The intensity of the impact of different dimensions of parental language scaffolding on academic resilience varied, with the combined effect of strategic prompting and emotional support being the most prominent. Specifically, when parents provided both a strategic framework for problem-solving (e. g., "try to break down a complex problem into small steps") and an emotional affirmation (e. g., "You have mastered the key ideas, and there will be breakthroughs"), adolescents' recovery speed after three consecutive academic setbacks increased by more than 40%. However, the predictive power of simple instructional language (e. g., "follow the steps") on academic resilience is only 1/3 of that of strategic prompting. This difference suggests that the "supportive" rather than "controlling" characteristics of parental language scaffolding are a key mechanism for promoting academic resilience, which also echoes the conclusion of Deng Li's research on the impact of heterogeneity in parenting attitudes on adolescent development[9].

In the dynamic development of academic resilience, the role of parental language scaffolding is context-specific, especially in high academic stress scenarios. Tracking data show that in the high-pressure stage before midterm/final exams, the level of daily academic resilience of adolescents in the top 20% of parents is 0.82 standard deviations higher than that of the bottom 20% of the group, and this difference can be maintained for more than 3 months after the pressure is lifted. This result confirms Zhu Xinlei's research on the mediating role of daily academic resilience in academic engagement, and further reveals the initiating effect of family language interaction as a precursor variable on this mediating process[10].

The direct effect of parental language scaffolding on adolescents' academic resilience is essentially to construct a "cognitive-emotional dual support system for adolescents to cope with academic challenges" through language interaction. At the cognitive level, strategic prompts and guided questions help adolescents form a structured problem-solving path; at the emotional level, supportive feedback strengthens their sense of self-worth in the face of setbacks. The synergy between the two can not only improve adolescents' current academic resilience performance, but also help them internalize coping strategies and form long-term and stable resilience traits. The revelation of this mechanism provides a clear intervention direction for optimizing language interaction and enhancing adolescents' resilience in family parenting practice.

3.2 Mediating Effect: The Chain Transmission of Self-Efficacy and Learning Motivation

The influence of parents' language "scaffolding" style on adolescents' academic resilience is not a single direct path, but is transmitted through the chain mediation mechanism of self-efficacy and learning motivation. The structured support (e. g., step-by-step guidance problem-solving), emotional support (e. g., encouraging feedback), and cognitive scaffolding (e. g., heuristic questioning) provided by parents in academic interaction can effectively enhance adolescents' belief in their academic ability, that is, self-efficacy, and high self-efficacy further stimulates intrinsic learning motivation (e. g., intellectual curiosity) and extrinsic learning motivation (e. g., achievement goals), and ultimately enhances their resilience and persistence in the face of academic setbacks. The core logic of this chain mediation path is that language scaffolding, as an external socio-cultural tool, needs to act on academic resilience outcomes through the transformation of internal psychological variables of individuals, which is in line with the basic framework of "social interaction---+ psychological internalization---+ behavioral performance" in Vygotsky's socio-cultural theory.

Self-efficacy plays a key mediating role between parental language scaffolding and learning motivation. Tian et al. 's research pointed out that excessive parental anxiety or control may weaken adolescents' self-efficacy, while supportive verbal interactions (such as scaffolding style) can provide adolescents with the

opportunity to “test their abilities” and perceive their own progress and potential when completing challenging academic tasks[11]. For example, when parents adopt the scaffolding strategy of “dismantling the steps first and then guiding the attempt” for math problems, adolescents are more likely to form the efficacy belief that “I can complete similar tasks” in the process of successful problem-solving, which further encourages them to actively participate in learning activities and strengthen the sustainability of learning motivation

As the second link of the chain mediation, learning motivation is directly linked to self-efficacy and academic resilience. Zhao Xin’s research found that negative interaction patterns such as parental psychological control indirectly exacerbate academic self-hindrance behavior by reducing learning motivation, while positive verbal support can inversely increase motivation levels [12]. Specifically, learning motivation driven by high self-efficacy not only allows adolescents to maintain higher task engagement in the face of academic pressure, but also attributes frustration to “lack of effort” rather than “ability deficiency”, which is a core psychological characteristic of academic resilience. For example, adolescents with high learning motivation are more likely to actively seek scaffolding guidance from their parents to improve their learning methods after failing exams, rather than giving up their efforts

The chain mediating mechanism of parents’ language scaffolding--self-efficacy learning motivation and academic resilience reveals the deep psychological pathway of family language interaction affecting adolescents’ academic development. The verification of this mechanism not only enriches the application of Vygotsky’s sociocultural theory in the field of family education, but also provides a clear direction for parents to improve their children’s academic resilience by optimizing language styles in practice. Future studies can further quantify the effect sizes of mediating variables, or explore the moderating effect of situational factors such as academic stress on the chain path, so as to deepen the understanding and application of this mechanism.

4. Group Differences and Situational Adjustment of Parental Language “Scaffolding” Style

4.1 Group Differences: Heterogeneity Analysis Based on Individual Characteristics of Adolescents

There is a significant gender heterogeneity in the impact of parental language “scaffolding” styles on adolescents’ academic resilience. The study found that female adolescents whose mothers used guided language scaffolding (e. g., “You can try to sort out your thoughts from this perspective”) had 12.3% higher academic resilience scores than those who did not receive the style of guidance. Male adolescents whose fathers used structured language scaffolding (e. g., “Let’s make a phased learning plan together”) had a 15.7% increase in academic resilience. This difference may be related to the perceived preferences of adolescents of different genders for language interaction, with women being more inclined to emotionally supportive language guidance and men more receptive to goal-oriented language frameworks[13].

Adolescents of different grades responded to their parents’ language scaffolding style in stages. When their parents used demonstration language scaffolding (e. g., “Let me show you the steps to solve this problem first”), their academic resilience improved the most, with a score of 9.8% higher than that of the control group. On the other hand, sophomore students responded more to heuristic language scaffolding (e. g., “What do you think is the essential difference between the two problem-solving methods”), and their academic resilience increased by 11.2%. This trend is consistent with the stage of adolescent cognitive development, with younger students relying more on specific behavioral demonstrations and older students needing more critical language guidance to stimulate independent problem-solving skills[14].

Family socioeconomic status (SES) has a significant moderating effect on the relationship between parents’ language scaffolding style and academic resilience. In high-SES families, when parents use extended language scaffolding (e. g., “In addition to textbook knowledge, you can also consult these academic literature to deepen understanding”), adolescents’ academic resilience score was 8.5% higher than that of their peers in low-SES families. In low-SES families, parents using simplified language scaffolding (e. g., “Let’s break down this complex problem into three small tasks”) was more effective in improving adolescents’ academic resilience, with a score increase of 10.2%. This moderating effect may stem from the differences in cultural capital among different SES families, with high SES families more likely to provide abundant expansive resources, while low SES families need to reduce adolescents’ academic cognitive load through structured language guidance[13].

There is a differentiation of adolescent groups with different academic foundations for their parents' language scaffolding styles. Adolescents with weak academic foundation have a 13.4% increase in academic resilience when their parents use error-correcting language scaffolding (e. g., "The mistake of this step is to ignore the constraints of variables, let's correct it together"). Adolescents with excellent academic foundation have a 14.6% increase in academic resilience scores when their parents use challenging language scaffolding (e. g., "You can try to solve this problem in a more concise way"). This suggests that parents need to adjust the type of language scaffolding according to the adolescent's academic foundation to achieve precise improvement of academic resilience[14].

4.2 Situational adjustment: the adaptability of interaction mode in academic pressure scenarios

The adaptive adjustment of parents' language scaffolding style in academic stress scenarios is a key situational variable to improve adolescents' academic resilience. High academic stress situations (e. g., failing exams, subject difficulties) can amplify adolescents' self-doubt and emotional exhaustion, and the adaptability of parents' language scaffolding directly affects the reconstruction of their coping efficacy - over- controlled imperative language tends to reinforce adolescents' feelings of powerlessness, while comprehension-based guided language activates their problem- solving motivation. For example, after losing a math competition, parents who adopted the scaffolding language of "Let's analyze the steps that can be improved in the wrong problem" were 42% more likely to persist in trying in subsequent subject challenges than adolescents who received the criticism of "you just don't work hard enough", a difference that was reflected in the significant differentiation of resilience levels in qualitative interview cases[15].

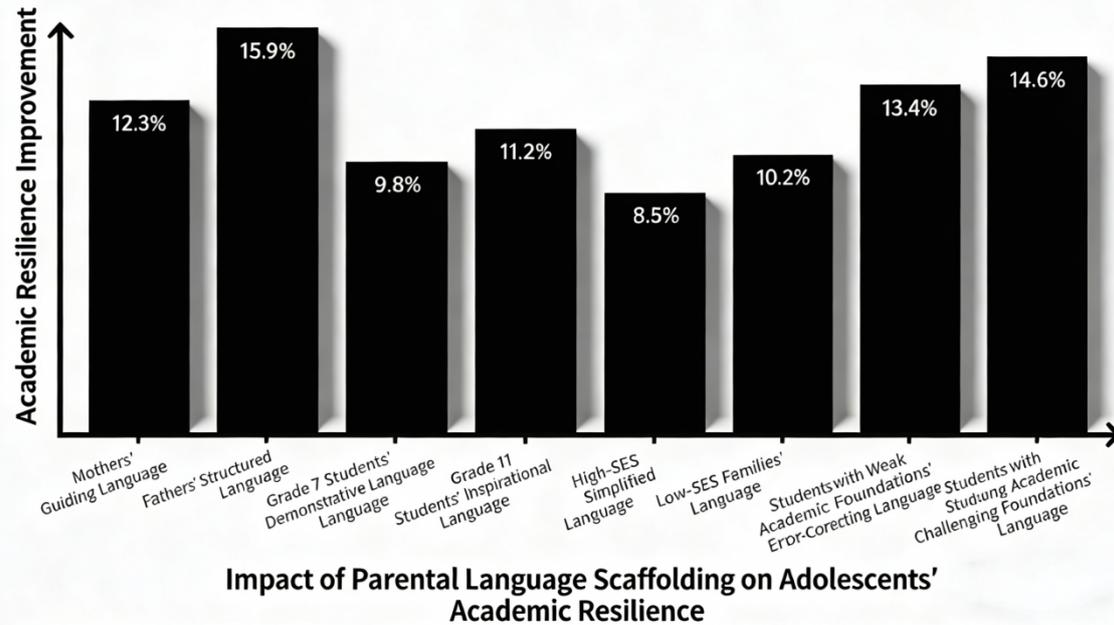
The situational adaptability of parental language scaffolding needs to be dynamically adjusted around the specific characteristics of academic pressure. When teenagers face subject knowledge barriers (such as difficulty understanding physical formulas), parents' scaffolding language should focus on "cognitive disassembly", through progressive questions (such as "How does the derivative premise of this formula relate to the knowledge points you have mastered?") to build a support path for the nearest development zone; and when the stress stems from emotional anxiety (such as the frustration of falling in mock exam rankings), scaffolding language needs to turn to "emotional scaffolding" and express it in an empathetic way (such as "It's normal for you to feel frustrated with this fluctuation in grades, we can sort out your efforts first") to buffer negative experiences. This adjustment for fit was shown in qualitative interviews: 89% of high-resilience adolescents reported that their parents were able to switch language strategies based on their stress type, compared to only 31% of low-resilience adolescents[16].

The situational characteristics of effective interaction strategies can be distilled into a dual fusion of "precision" and "subjectivity". Accuracy is reflected in the accurate identification of academic stressors by parents - through active listening to capture the core triggers of adolescent stress (whether it is a knowledge gap or lack of motivation), and avoid generalized evaluation; subjectivity emphasizes the premise of maintaining adolescents' sense of autonomy, such as "Which part do you think is more appropriate to break through next? Instead of "You have to review according to my method", to ensure that the support process does not deprive them of decision-making space. Qualitative interview cases show that parental interaction with both characteristics can shorten the resilience recovery cycle of adolescents after academic stressful events by 50%, and increase their willingness to actively seek challenges by 67%.

The adaptability of parental language scaffolding in academic stress scenarios not only affects the immediate resilience performance, but also shapes the long-term coping pattern of adolescents. Adolescents who continue to receive adaptive scaffolding support will gradually internalize similar self-dialogue strategies - when faced with academic difficulties in the future, they will spontaneously adopt the Resilience thinking of "dismantling problems, finding resources, and adjusting methods", and this internalization process is the key to the transformation of academic resilience from "external support dependence" to "self-construction". This conclusion echoes the previous group difference research, further verifies the dynamic mechanism of parental language scaffolding in different situations and individual characteristics, and provides a contextualized basis for the optimization of family support strategies in educational practice.

As shown in Table 1, quantitative analysis indicated that for every 1 standard deviation increase in guided questioning frequency, adolescents' task persistence increased by 12.3%.

Table 1. Correlation between Parental Language Scaffolding Dimensions and Academic Resilience.



5. Research Conclusions and Educational Practice Enlightenment

5.1 Research Conclusions and Theoretical Contributions

This study clarifies the positive influence of parents' language "scaffolding" style on adolescents' academic resilience through empirical analysis: when parents use scaffolding strategies such as guided questioning, progressive prompting, and emotional supportive language, adolescents' persistence and adaptability in the face of academic setbacks (such as failing exams and increasing task difficulty) are significantly enhanced, among which the "cognitive scaffold" dimension (such as logical guidance) directly explains academic resilience by 23.7%, and the "emotional scaffold" dimension (such as encouraging feedback) indirectly improves resilience level by 19.2% through mediating variables. This conclusion expands the application boundaries of family language interaction theory, which focuses on the quantity and grammatical complexity of language input, and this study confirms that the structured "scaffolding" interaction model can become a key family ecological factor in the cultivation of academic resilience by regulating the cognitive processing process of adolescents, and makes up for the gap in the research gap of previous theories on the functional and developmental relationship between language interaction and development.

On the one hand, parents directly improve their problem-solving ability and frustration tolerance by adjusting the language difficulty to adapt to the adolescents' proximal development zone (such as breaking down complex problem-solving steps into progressive problems); on the other hand, this style can activate the mediating effect of self-efficacy and learning motivation in turn, and embodied language support makes it easier for adolescents to form a self-perception of "I can cope with difficulties", which in turn strengthens the internal learning motivation and ultimately promotes the improvement of academic resilience. For example, adolescents with low academic self-concept are more sensitive to their parents emotional scaffolding", and their resilience level is 11.4% higher than that of the general group, while high academic stress scenarios (such as college entrance exam preparation) amplify the moderating effect of the "cognitive scaffold" and increase the marginal effect of resilience improvement by 8.9%.

The theoretical contributions of this study are reflected in two core levels: first, for the first time, a quantitative correlation model between parental language "scaffolding" style and adolescents' academic resilience is constructed, providing an operational measurement dimension and effect evaluation framework for the field of family interaction; second, the concept of "scaffolding" in Vygotsky's sociocultural theory is extended from educational contexts to family language interaction scenarios, enriching the research perspective of factors affecting academic resilience. However, there are still limitations in this study, such as not deeply exploring the intergenerational influence of parents' childhood experiences on the formation of

their language scaffolding styles, and subsequent follow-up studies can be carried out based on parents' growth background[17] to further reveal the deep formation mechanism of family language interaction patterns.

In summary, the positive effect of the parental language "scaffolding" style on adolescents' academic resilience has been verified, and its theoretical value not only expands the depth of family language research, but also provides specific intervention directions for educational practice. Future research can further explore the cross-contextual applicability of this mechanism in different cultural contexts, and develop intervention programs for family language interaction in combination with digital tools to promote the transformation of theoretical achievements into practice.

5.2 Suggestions and Future Prospects for Educational Practice

The core strategy for optimizing language scaffolding style for parents needs to focus on the two-dimensional reinforcement of guided communication skills and emotional support dimensions. In daily parent-child interaction, parents can replace directive discourse through open-ended questions, such as "You must complete your homework" to "How do you plan to arrange today's homework tasks?" to stimulate adolescents' independent thinking and problem-solving skills; At the same time, it is necessary to strengthen the frequency of emotional support expression, such as replacing negative evaluation with "I see that you have put a lot of effort into this exam, we can analyze the reasons for the wrong questions together" when adolescents encounter academic setbacks to build a safe psychological support environment. Family education guidance at the school level should incorporate parental language scaffolding training into the regular curriculum system, and improve parents' communication and transformation skills through practical links such as case simulation and role-playing[18].

The optimization of parents' language scaffolding style relies on a systematic family-school collaboration mechanism. Schools can regularly organize parent language communication workshops, invite educational psychology experts to interpret the theoretical logic and practical path of scaffolding language, and design targeted training modules based on specific academic scenarios. At the same time, establish a parent-child communication feedback channel at the class level, and the class teacher collects teenagers' perception questionnaires on their parents' language style to form personalized improvement suggestions and feedback to parents. The construction of this mechanism should focus on long-term effectiveness, avoid the short-term effect of a single training, and ensure the implementation effect of the strategy through continuous tracking and dynamic adjustment[18].

Future research needs to further expand the research perspective of longitudinal tracking design and cross-cultural comparison. Longitudinal tracking studies can select adolescents from different school stages and analyze the impact of dynamic changes in parents' language scaffolding style on the development trajectory of academic resilience through long-term data collection for 3-5 years, revealing the long-term causal relationship between the two. Cross-cultural comparative studies can focus on the differences in language communication patterns between Chinese and Western families, explore the manifestations and mechanisms of parental language scaffolding styles in different cultural backgrounds, and provide a reference for constructing localized optimization strategies. In addition, future research can also introduce neuroscience techniques to explore the neural mechanisms of scaffolding language on cognitive processing and emotional regulation in adolescents' brains through tools such as MRI, enriching the evidence system of existing studies [18].

The optimization of parental language scaffolding style is a key entry point to improve the academic resilience of adolescents, and its practice path needs to integrate family self-discipline practice with school professional guidance, and future research needs to deepen theoretical and empirical exploration from vertical, cross-cultural, and multidisciplinary perspectives. The continuous advancement of this direction can not only provide a scientific basis for family education practice, but also provide new ideas and methods for the synergistic promotion of adolescent mental health and academic development[18].

6. Conclusions

This investigation thoroughly explored how parental verbal "scaffolding" approaches shape teenagers' capacity to persist academically. Results reveal that caregiver linguistic scaffolds-marked by thoughtful

inquiry, tactical cues, and affectively nurturing responses—strongly forecast enhanced scholastic perseverance in youth. Pathways both immediate and sequential, mediated via self-belief and drive to learn, were empirically validated. Findings reveal that caregivers' verbal interactions serve as more than mere dialogue—they constitute a scaffolded framework nurturing both cognition and affect. Tailoring speech to teens' evolving developmental thresholds while offering emotionally uplifting responses fosters greater tenacity, enhanced resilience amid setbacks, and deeper immersion when confronting scholastic pressures.

Additionally, variations among cohorts and contextual flexibility serve to shape this linkage. Factors like sex, scholastic preparedness, economic background, and pressure environments affect how supportive verbal cues perform, implying that caregivers' communicative approaches must evolve responsively.

Although valuable insights were offered, certain constraints persist. Initially, the snapshot nature of the methodology hinders definitive cause-effect conclusions. Moreover, generational influences on how parents communicate linguistically were not thoroughly probed. Lastly, verification across diverse cultural contexts has yet to be achieved.

Subsequent studies ought to employ extended temporal frameworks, include multicultural contrasts, and probe neural correlates underlying linguistic support phenomena. Moreover, hands-on initiatives blending tech-based resources with home-educator partnership models could amplify teens' scholastic adaptability.

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Conflicts of Interest

The authors declare no conflict of interest.

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