

Parental Involvement in Supporting Students' Self-Regulated Learning

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Abstract

This study investigates the relationship between parental involvement and high school students' self-regulated learning (SRL) capacity. A survey-based quantitative research design was employed with a sample of 40 Grade 12 students enrolled in A-Level Physics at Mongolian Aspiration School, along with their parents or guardians. Pearson correlation analysis was used to determine the relationship of four SRL constituent factors—foundational knowledge, personal organization, growth mindset, and motivation—with students' academic performance. A 17-item Likert-scale questionnaire (Cronbach's $\alpha = 0.72$) was developed and validated to measure four dimensions of parental involvement: home environment involvement, school activity involvement, support for goal attainment, and psychological support. Results revealed that foundational knowledge ($r = 0.59$) and personal organization ($r = 0.54$) demonstrated moderate correlations with SRL, while growth mindset ($r = 0.35$) and motivation ($r = 0.32$) showed fair correlations. The overall parental involvement index was 3.2 (moderate level), with psychological support (2.8) and goal-attainment support (2.7) rated lowest. Most critically, a very strong positive correlation ($R = 0.94$) was found between parental involvement and students' SRL capacity. These findings underscore the necessity of redirecting parental support from material provision toward psychological encouragement, goal-setting facilitation, and self-regulatory skill development. A practical guideline for parents and guardians is proposed based on these findings.

Keywords

Self-Regulated Learning, Parental Involvement, Academic Achievement, Motivation, Goal-Setting

1. Introduction

Learning capacity is not solely dependent on subject-specific knowledge; rather, it stems from the ability to manage and regulate one's own learning process. Parent-child interactions and the support they provide are primary factors that influence a child's learning environment, motivation, and habits of self-regulation. Therefore, it is imperative to study this relationship and consistently and effectively enhance parental involvement (Nanyang Technological University, 2022).

Although schools, teachers, and parents operate within their distinct roles and responsibilities, a practical need has arisen to investigate the actual effectiveness of this collaborative effort in real-world settings. Preliminary observations conducted at Mongolian Aspiration School suggest that high-achieving students tend to have well-developed personal study strategies. Students who have not yet found effective learning methods, and who require additional support, face various external barriers that impede their academic progress. These barriers range from family pressure and teacher attitudes to fatigue and digital distractions. This study seeks to identify which internal factors most strongly correlate with SRL capacity, and how parents can be appropriately guided to strengthen those factors.

Research Objectives and Aims

The primary objective of this study is to calculate the magnitude of the relationship that factors constituting high school students' self-regulated learning (SRL)—namely, foundational knowledge, motivation, personal organization, and growth mindset—have with their academic achievement. Furthermore, the study aims to identify parental involvement directed at these specific factors through a survey-based study, analyze the correlation between them, and ultimately develop a practical guideline for parents and guardians based on these findings.

Specifically, this study aims to align with the following analytical steps:

- 1) Determine the correlational relationship of constituent factors (foundational knowledge, motivation, personal organization, and growth mindset) with the self-regulated learning of high school students.
- 2) Identify the levels of various forms of parental involvement (involvement in the home environment, school involvement, support for goal attainment, and psychological support).
- 3) Conduct a correlation analysis between the forms of parental involvement and the factors of self-regulated learning, thereby developing a guideline for parents and guardians based on the results.

2. Literature Review

Self-regulated learning (SRL) is the capacity of a learner to organize and control their emotions, behaviors, motivations, and learning processes (Henderson, 1986; Wang & Peverley, 1986; Puustinen & Pulkkinen, 2001). It enables learners to

achieve success based more on their own internal motivation, goals, and self-control rather than on external factors. Zimmerman (2002) defines SRL through a cyclical three-phase model: the forethought phase (planning and goal setting), the performance phase (strategy use and self-monitoring), and the self-reflection phase (self-evaluation). Students who employ this model systematically are more likely to outperform those who do not.

A child's SRL capacity is largely determined by external factors, particularly by their closest adults—parents and guardians (Rohrkemper, 1989). Research indicates that properly directed parental involvement is strongly linked to students' motivation, sense of responsibility, and the process of acquiring learning strategies. A growth mindset approach has a significant impact on a child's ability to learn from mistakes and increases their persistence (Borkowski et al., 1990), and the type of praise provided by parents greatly influences this mindset (Dweck, 2006). Furthermore, the organization of the home study environment has been noted to enhance students' concentration and planning skills.

Goal setting is a core element of SRL; allowing students to define their own goals fosters higher motivation and active engagement in learning (Schunk, 2013). The mastery of learning strategies is another crucial factor in SRL, and their application has been shown to have a tangible positive impact on academic performance (Pressley & Harris, 2006). Emotional support is vital for students' resilience and ability to overcome failure; research has confirmed that children with strong family support exhibit more stable learning habits (Santiago et al., 2018). Thus, when parental involvement is correctly directed and optimally balanced, it becomes a foundational factor that comprehensively improves students' self-regulated learning.

Key Prior Studies

Zimmerman and Martinez-Pons (1986) developed a structured interview method to measure students' SRL strategies, identifying 14 types of self-regulation strategies. Their key finding was that high-achieving students utilize a greater number of highly effective strategies, and that self-regulatory capacity is strongly correlated with academic success. A subsequent study further demonstrated that grade level, sex, and giftedness relate differently to self-efficacy and strategy use among learners (Zimmerman & Martinez-Pons, 1990).

Tumenbayar and Ariungere (n.d.) examined the correlation between students' SRL strategies and performance on international mathematics examinations in a Mongolian context. Using data from 55 Grade 12 students at a local school, they found that metacognitive strategies, self-efficacy, and effort regulation demonstrated statistically significant positive correlations with examination scores.

Gonida and Cortina (2014) investigated parental involvement in homework, finding that both parent and student motivational beliefs are significant mediators of homework engagement. Parents who hold mastery-oriented beliefs tend to foster more autonomous learning in their children.

3. Methodology

3.1. Research Design

This study employed a quantitative, survey-based research design. A mixed approach combining correlational analysis and descriptive statistics was used to examine the relationship between parental involvement and students' SRL capacity. The study was conducted at Mongolian Aspiration School during the 2023-2024 academic year.

3.2. Participants

A purposive sampling approach was used to recruit a single-school cohort. Participants consisted of 40 Grade 12 students enrolled in the A-Level Physics program at Mongolian Aspiration School, and their respective parents or guardians ($n = 40$ parents). Student participants were selected using purposive sampling based on enrollment in the A-Level Physics cohort. Parent participants were the corresponding guardians of the student sample. Because this study aimed to investigate a specific localized cohort, it does not represent a probability sample of a wider population.

3.3. Sample Size Determination

Depending on the objectives, scope, timeframe, and costs of a research study, sample sizes are determined in various ways (Avdai & Enkhtuyaa, 2007). The primary requirement is that the sample must be capable of adequately representing the target population. Here, we determine the sample size based on the proportion formula (NSO, 2020a, 2020b):

$$n = \frac{z^2 p(1-p)}{e^2} \quad (1)$$

where: n = sample size; z = statistical distribution value at a given level of significance; p = estimated proportion for the population (set at 50% when unknown); e = acceptable margin of error (5% - 15% for survey research).

Setting the margin of error at $e = 0.15$ (85% confidence level), the corresponding z -value from Student's t -distribution table is 1.9. With $p = 0.5$:

$$n = \frac{1.9^2 * 0.5 * (1-0.5)}{0.15^2} \approx 40$$

This calculation confirmed that a minimum sample of 40 participants is sufficient to represent the target population at the specified confidence level.

3.4. Instruments

Two instruments were developed:

1) A student questionnaire measuring SRL constituent factors (foundational knowledge, motivation, personal organization, and growth mindset) in relation to AS-Level Physics examination performance. The student questionnaire comprised [Insert number] items across the four factors, utilizing a [Insert scale type]-point

Likert scale. Reliability for the student instrument was established at Cronbach's α = [Insert alpha].

2) A 17-item Likert-scale parental involvement questionnaire (A1 - A17, scored 1 - 5) measuring four dimensions of parental involvement. The parental involvement questionnaire was structured as follows: A1 - A5 measured home environment involvement; A6 - A9 measured school activity involvement; A10 - A13 measured support for goal attainment; and A14 - A17 measured psychological support. The instrument's internal consistency was validated using Cronbach's alpha.

3.5. Data Analysis

Data were analyzed using three statistical approaches: 1) Pearson's correlation coefficient (r) to measure the relationship between SRL factors and academic performance; 2) descriptive statistics including mean index scores, medians, and interquartile ranges (IQR) for parental involvement dimensions; and 3) Cronbach's alpha (α) to assess internal reliability of the survey instrument. All calculations were performed manually and verified using data from the structured survey.

Pearson's correlation coefficient was derived using the following formula:

$$r = \sqrt{\frac{\phi^2}{1 + \phi^2}} \quad (2)$$

where ϕ represents the Phi coefficient, used for 2×2 contingency tables when both variables are dichotomous.

The Parental Involvement Index (PII) for each dimension was calculated as:

$$PII = \frac{\sum_{i=1}^k X_i}{k} \quad (3)$$

where X_i represents the score for the i -th question and k represents the total number of questions in the dimension.

Cronbach's alpha was calculated as:

$$\alpha = \frac{k}{k-1} \left(1 - \frac{\sum \delta_i^2}{\delta_{total}^2} \right) \quad (4)$$

where k is the number of items, and δ represents the variance of each item.

3.6. Ethical Considerations

Prior to data collection, written informed consent was obtained from all participating parents and guardians, and verbal assent was obtained from the student participants. All survey responses were anonymized to ensure confidentiality. The research protocol was approved by the administration of Mongolian Aspiration School.

4. Results

4.1. Study 1: SRL Factor Correlations with Academic Performance

To determine which of the four SRL factors had the greatest impact on AS-Level

Physics examination scores, Pearson's correlation coefficient was calculated for each factor against examination results. The general interpretation of the coefficient is as follows: 0 - 0.2 (weak), 0.21 - 0.4 (fair/modest), 0.41 - 0.59 (moderate), 0.6 - 0.79 (strong), and ≥ 0.8 (very strong) (Naranchimeg & Ganzurig, 2007).

The results are summarized in **Table 1**.

Table 1. Pearson correlation coefficients for SRL constituent factors.

SRL Factor	Pearson r	Strength	p-value
Foundational knowledge	0.59	Moderate	<0.05
Personal organization	0.54	Moderate	<0.05
Growth mindset	0.35	Fair/Modest	<0.05
Motivation	0.32	Fair/Modest	<0.05

Foundational knowledge ($r = 0.59$) and personal organization ($r = 0.54$) demonstrated moderate correlations with academic performance, while growth mindset ($r = 0.35$) and motivation ($r = 0.32$) exhibited fair/modest correlations. These findings confirm that a child's cognitive level and behavioral organization are the most vital components of self-regulatory capacity, while motivational factors, though significant, play a secondary role.

4.2. Study 2: Parental Involvement Index and Survey Reliability

A 17-item Likert-scale questionnaire was administered to 40 parents/guardians. **Table 2** presents the average index for each dimension of parental involvement.

Table 2. Levels of parental involvement by dimension.

Dimension	Items	Average Index	Level
Involvement in the home environment	A1 - A5	3.3	Moderate involvement
Involvement in school activities	A6 - A9	3.9	Moderate involvement
Support for goal attainment	A10 - A13	2.7	Low involvement
Psychological support	A14 - A17	2.8	Low involvement
Total Index	A1 - A17	3.2	Moderate involvement

The total parental involvement index is 3.2, evaluated at a moderate level. Involvement in school activities (3.9) and home environment involvement (3.3) demonstrated the highest engagement. Conversely, support for goal attainment (2.7) and psychological support (2.8) fell into the low-involvement category, indicating that parents are relatively weak in helping children define long-term goals and providing consistent psychological backing. **Figure 1** presents a radar chart visualization of parental involvement across all four dimensions, illustrating the relative engagement levels for each survey item within each category.

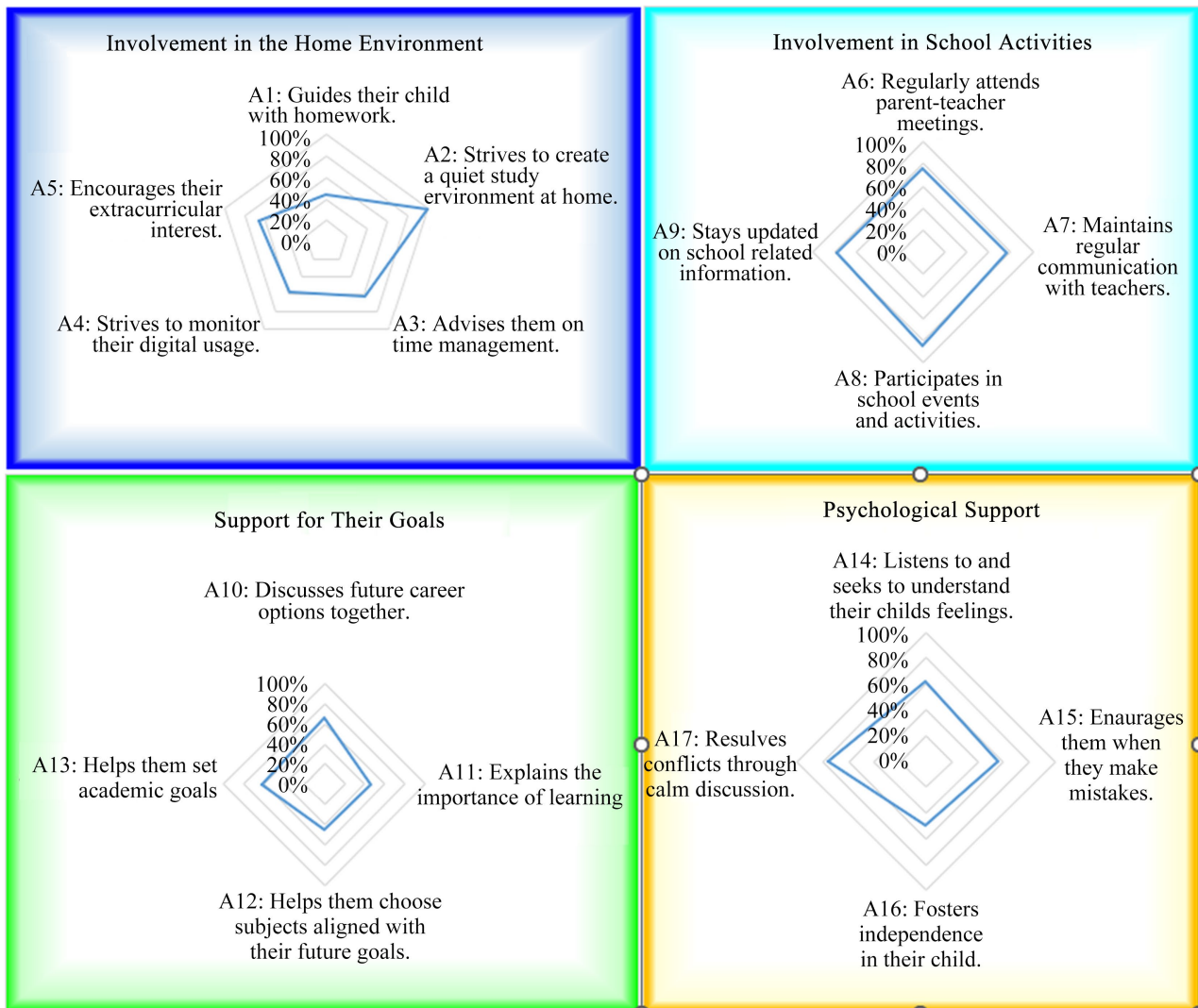


Figure 1. Individual survey item means (A1 - A17).

Individual survey item scores are presented in **Table 3**. Particularly noteworthy are items A3 (Mean = 5.0, advises on time management) and A9 (Mean = 4.2, stays informed about school-related updates), which were the highest-scoring items. In contrast, items A2 (Mean = 2.2, creates a quiet study environment), A13 (Mean = 2.2, assists in defining learning goals), and A12 (Mean = 2.3, helps child select subjects aligned with goals) were the lowest.

Table 3. Individual survey item means (A1 - A17).

Item	Survey Statement	Mean
A1	Guides child in completing homework	3.3
A2	Creates a quiet study environment at home	2.2
A3	Advises on time management	5.0
A4	Monitors digital device usage	3.1

Continued

A5	Encourages extracurricular interests	2.9
A6	Regularly attends parent meetings	3.3
A7	Maintains regular communication with teachers	3.8
A8	Participates in school activities and events	3.8
A9	Stays informed about school-related updates	4.2
A10	Discusses future career aspirations with child	3.9
A11	Explains the importance of learning	3.3
A12	Helps child select subjects aligned with goals	2.3
A13	Assists in defining learning goals	2.2
A14	Listens and understands child's emotions	3.1
A15	Encourages child after mistakes or failures	3.1
A16	Provides opportunities for independent decision-making	2.8
A17	Calmly resolves conflicts with child	2.5

Box plot analysis (Figure 2) revealed that A2 (Median = 5) and A8 (Median = 5) had the highest satisfaction ratings, while A1 (Median = 1) indicated weak home environment involvement. Item A17 exhibited the highest variance (IQR = highest among all items), indicating significant divergence in how parents provide psychological support. The average IQR across all items was approximately 1.68, with a confidence interval of approximately 58.09%, suggesting moderate response stability.

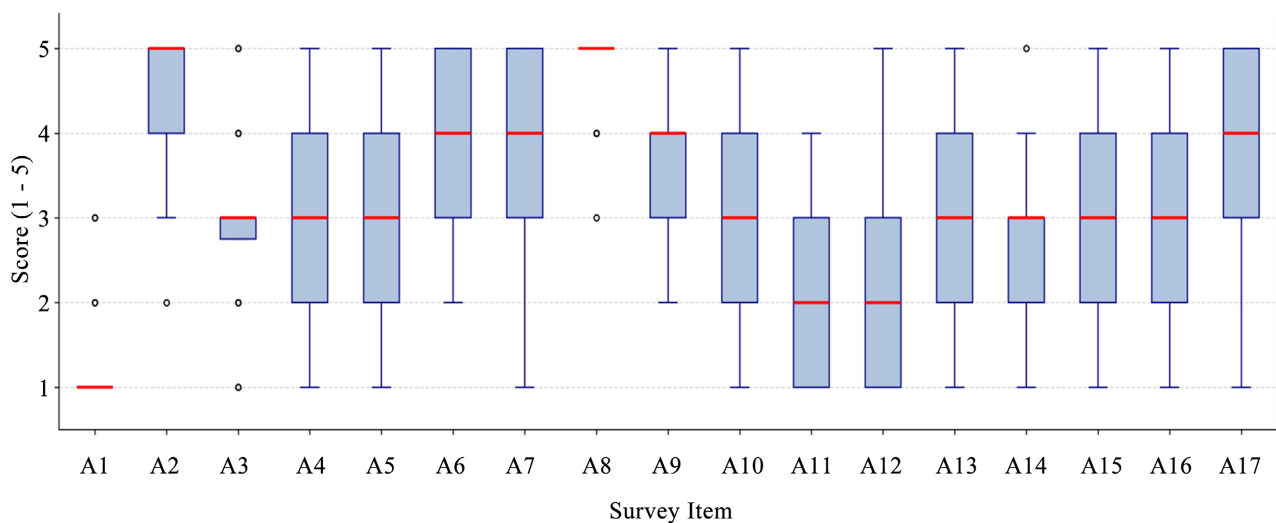


Figure 2. Box plot distribution of parental involvement items A1 - A17.

Table 4 presents the Cronbach's alpha reliability coefficients for each dimension of the parental involvement survey.

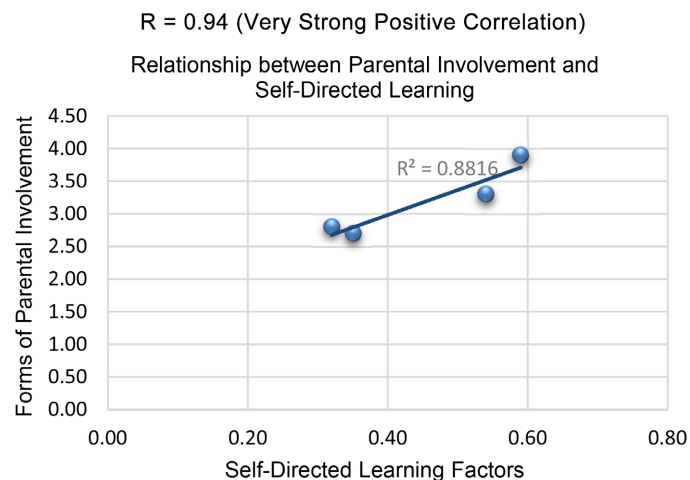
Table 4. Cronbach's alpha reliability coefficients.

Forms of Parental Involvement	Items	Alpha (α)	Interpretation
Involvement in the home environment	A1 - A5	0.75	Acceptable
Involvement in school activities	A6 - A9	0.67	Marginal
Support for goal attainment	A10 - A13	0.70	Acceptable
Psychological support	A14 - A17	0.74	Acceptable
Total (17 items)	A1 - A17	0.72	Acceptable

All dimensions achieved alpha values of 0.67 or above, with the total scale achieving $\alpha = 0.72$ (Acceptable). These results confirm that the dimensions are conceptually unified and that the items consistently measure a single construct, making them fully viable for subsequent correlation analysis.

4.3. Study 3: Correlation between Parental Involvement and SRL

A correlation analysis was conducted between students' aggregated SRL scores and their parents' total parental involvement index. The scatter plot (Figure 3) revealed a clear upward linear trend, with data points clustering tightly along a positive trajectory from the lower left to the upper right, confirming a very strong positive relationship between the two variables.

**Figure 3.** Scatter plot of parental involvement index vs. SRL score.

This result ($R = 0.94$) statistically supports the core hypothesis: higher levels of parental involvement correspond to a stronger developmental trend in students' self-regulated learning capacities.

5. Discussion

The findings of this study have several important implications for education practice and parental guidance. The very strong correlation ($R = 0.94$) between paren-

tal involvement and SRL capacity aligns with established theoretical frameworks and extends prior Mongolian findings into a new context.

The moderate-level parental involvement index (3.2) reveals a structural gap in how parents understand their supportive role. Parents appear well-engaged at the logistical level, but substantially less engaged at the cognitive and psychological level (goal-setting support, emotional encouragement). This mirrors findings by [Gonida and Cortina \(2014\)](#), noting that parental involvement is often operationalized as monitoring rather than motivational scaffolding. The high variance observed in item A17 (psychological conflict resolution) suggests that family communication styles vary considerably across households, and that this dimension requires targeted intervention.

6. Conclusion

This study demonstrates that parental involvement is a statistically robust correlate of students' self-regulated learning capacity ($R = 0.94$). Although overall parental involvement stands at a moderate level (PII = 3.2), there is a clear deficit in two critical dimensions: psychological support (2.8) and support for goal planning (2.7). Among SRL factors, foundational knowledge ($r = 0.59$) and personal organization ($r = 0.54$) are the most powerful correlates of academic performance. Parents should move beyond material support and invest meaningfully in psychological accompaniment: listening to their child's academic struggles, assisting in goal formulation, and modeling calm stress management.

Limitations: A limitation of this study is the relatively small sample size ($n = 40$) confined to one school and one subject area, limiting generalizability. Furthermore, the exceptionally high correlation ($R = 0.94$) must be interpreted with caution. Because the data relies on self-report questionnaires distributed concurrently, the results may be subject to shared-method bias and social desirability, which can artificially inflate correlational magnitude. Future studies should replicate this design with larger, more diverse samples.

7. Recommendations

Based on the findings of this study, the following recommendations are proposed:

- 1) Schools should develop structured programs to increase parental support for learning, organizing regular collaborative meetings and tailored parent training sessions.
- 2) The positive dimensions identified in items A6 - A9 (school activity involvement) should be highlighted and disseminated as best practices.
- 3) Teachers and school counselors should be equipped with tools to identify students with low SRL capacity early and communicate actionable guidance to parents regarding how they can address each deficit at home.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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