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Growth Mindset, Grit, and the Development of Character among School Students

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ABSTRACT. The development of pupils' character encompasses the ability to cope with failure, maintain perseverance, regulate behaviour, and achieve meaningful goals. In this context, a *growth mindset* and *grit* are two relevant concepts to examine. This study aims to analyse the contribution of these two concepts to the character development of pupils and to identify the relationship between them. The study employs a systematic literature review method, examining 24 studies, comprising 20 studies from two pre-defined literature collections and four additional studies that have been internationally verified. The data were analysed using a narrative-comparative synthesis, taking into account the diversity of populations, research designs, measurements and study outcomes. The findings indicate that a *growth mindset* is associated with engagement, interest in learning, perseverance, readiness to face challenges and adaptive responses to failure. Meanwhile, *grit* is associated with sustained effort, self-regulation, academic self-efficacy, engagement and perseverance in the face of difficulties. A number of studies also indicate a positive relationship between these two concepts, although evidence from international meta-analyses suggests that their average effect on performance tends to be moderate and context-dependent. This review contributes to the development of a conceptual understanding of character development in pupils by emphasising that perseverance and belief in one's developable abilities need to be supported by effective strategies, self-regulation, a conducive environment, and flexibility in evaluating and adjusting goals.

Keywords. Growth Mindset; Grit; Pupil Character; Character Education; Systematic Literature Review.

Abstrak. *Pembentukan karakter siswa mencakup kemampuan untuk menghadapi kegagalan, mempertahankan ketekunan, mengatur perilaku, dan mencapai tujuan yang bermakna. Dalam konteks ini, growth mindset (pola pikir berkembang) dan grit (ketangguhan) menjadi dua konsep yang relevan untuk dikaji. Penelitian ini bertujuan menganalisis kontribusi kedua konsep tersebut terhadap pembentukan karakter siswa serta mengidentifikasi keterkaitan di antara keduanya. Penelitian menggunakan metode tinjauan pustaka sistematis dengan mengkaji 24 studi, yang terdiri atas 20 studi dari dua kumpulan literatur yang telah ditentukan sebelumnya dan empat studi tambahan yang diverifikasi secara internasional. Data dianalisis melalui sintesis naratif-komparatif dengan mempertimbangkan keragaman populasi, desain penelitian, pengukuran, dan hasil studi. Hasil kajian menunjukkan bahwa growth mindset berkaitan dengan keterlibatan, minat belajar, ketekunan, kesiapan menghadapi tantangan, dan respons adaptif terhadap kegagalan. Sementara itu, grit berkaitan dengan upaya berkelanjutan, pengaturan diri, efikasi diri akademik, keterlibatan, dan ketekunan dalam menghadapi kesulitan. Sejumlah studi juga menunjukkan hubungan positif antara kedua konsep tersebut, meskipun bukti meta-analisis internasional menunjukkan bahwa efek rata-ratanya terhadap kinerja cenderung moderat dan*

bergantung pada konteks. Kajian ini berkontribusi pada pengembangan pemahaman konseptual tentang pembentukan karakter siswa dengan menegaskan bahwa ketekunan dan keyakinan terhadap kemampuan yang dapat dikembangkan perlu didukung oleh strategi yang efektif, pengaturan diri, lingkungan yang kondusif, serta fleksibilitas dalam mengevaluasi dan menyesuaikan tujuan.

Kata Kunci. *Growth Mindset; Grit; Karakter Siswa; Pendidikan Karakter; Tinjauan Pustaka Sistematis.*

Introduction

Students' character building is a process that relates not only to understanding right and wrong, but also to the ability to sustain effort, manage failure, take responsibility for goals, and improve oneself when facing difficulty (Firmansyah & Rindaningsih, 2025; Solfema dkk., 2019). Character becomes visible when students are able to persist in the learning process, do not give up easily, are willing to accept feedback, develop discipline, and continue to make an effort when the results obtained do not yet meet expectations. This development has made noncognitive psychological factors increasingly important in educational research (Muflihah dkk., 2023; Woenardi, 2024).

The development of pupils' character is shaped by family experiences, the school environment, role models, habitual behaviour and social support (Zulfa & Mulyono, 2025). Parental support, parenting styles, school culture and the religious climate play a role in developing pupils' discipline, responsibility, self-control and moral behaviour (Darmawan dkk., 2025; Manda dkk., 2025; Risqi & Darmawan, 2024; Syaiful dkk., 2025). Furthermore, the exemplary behaviour of teachers, peers and the wider community reinforces the internalisation of character values and religious behaviour (Darmawan dkk., 2025; Muttaqin dkk., 2025; Nafisa & Darmawan, 2025; Yusuf & Darmawan, 2026). Thus, character development is an ongoing process involving interaction between the family, school and the social environment.

Students' success is not determined entirely by intellectual ability, because the way students understand their own abilities and the way they respond to difficulty also shape their behavior during the learning process (Soeparwati dkk., 2025). Two constructs that have received considerable attention in this regard are growth mindset and grit. Within this framework, psychological factors such as growth mindset and grit become relevant because both can explain how students translate environmental support into belief in their capacity to develop, perseverance, persistence under difficulty, and consistency in improving themselves (Hecht dkk., 2021).

Growth mindset describes the belief that individuals' abilities and competencies can still develop through effort, learning strategies, experience, and appropriate support. This belief differs from a fixed mindset, which views ability as a relatively fixed quality. In students' lives, this difference can influence the meaning they attach to failure (Burman & Johnson, 2025). Students

with a growth mindset are more likely to see mistakes as part of the process of mastery, rather than as evidence that they lack ability (Shi, 2025). A national-scale experimental study by (Yeager dkk., 2019) showed that a brief growth mindset intervention can improve academic outcomes among lower-achieving students and increase enrollment in advanced mathematics courses, although its effectiveness is also influenced by school environment norms. This finding indicates that a growth mindset is not merely positive thinking, but a belief about the possibility of development that can influence behavioral choices when students encounter challenges.

In character building, growth mindset shapes how students perceive self-development, supporting perseverance, learning responsibility, openness to correction, and willingness to face challenges (Baidarus & Fithri, 2025). Research links growth mindset to student engagement, learning interest, grit, academic persistence, technology use for learning, well-being, and resilience to academic anxiety. Acording (Dewi & Istiarsyah, 2026) found a positive relationship with student engagement, while (Hasibuan & Maipita, 2026) reported a positive relationship with learning interest. Acording to (A. Wahidah, 2024) also found that growth mindset significantly and positively predicted grit among secondary school students.

However, findings on growth mindset and student development remain inconsistent. Findings (Mutaharrikah & Wahidah, 2023) found no significant partial effect of growth mindset on school well-being, while school climate was a stronger predictor. Similarly, (Sisk dkk., 2018) reported relatively small average associations between mindset and academic achievement and small intervention effects, although some student groups benefited more. These findings suggest that believing abilities can develop does not automatically produce strong character; it requires supportive learning experiences, opportunities to learn from mistakes, effective strategies, and an environment that values effort.

The second construct is grit, which in its early development was defined as perseverance and passion for long-term goals. Showed that grit makes an additional contribution to several indicators of success after intelligence and a number of other characteristics are taken into account. In that early study, grit was related to educational attainment, retention, and achievement in several contexts, although its average contribution to the variation in outcomes was not large. From a character building perspective, grit is relevant because it involves the ability to sustain effort when goals cannot be achieved quickly. Students with grit not only begin an activity enthusiastically, but also tend to sustain effort when facing boredom, obstacles, mistakes, and setbacks (Toyama, 2024).

Research on grit shows a fairly broad pattern. Grit is related to academic achievement, self-regulated learning, language performance, academic stress, self-efficacy, engagement, and professional attitudes. Finding (Zulfa & Mulyono, 2025), for example, found that grit has a positive effect on the English achievement of junior high school students, while (Winandari & Naqiyah,

2022) found that grit, together with the family environment, is related to the academic self-efficacy of seventh- and eighth-grade students. Among elementary school students, Abuk et al. (2026) also found grit to be a stronger predictor of English language performance than learning interest in the model they used.

The relationship between growth mindset and grit is an important part of character building because the two constructs are not the same concept. Growth mindset is primarily related to the belief that ability can be developed, whereas grit describes the endurance of effort and consistency in pursuing goals. Conceptually, students may believe that they are capable of developing but do not necessarily have sufficient perseverance to sustain effort. Conversely, students may work very hard but use strategies that do not develop if they are less open to correction. Findning (F. R. N. Wahidah & Royanto, 2021) provided direct evidence that growth mindset is positively related to grit among 418 senior high school students in Purbalingga. Found the same pattern in a university student population, with a strong relationship between growth mindset and grit.

The relationship between the two is also evident in studies that place growth mindset and grit within a single, more complex model. Acording to (Wulandari & Sudrajat, 2025) found that the two are jointly related to the academic achievement of junior high school students in Pesawaran. Acording to (Purwati dkk., 2026) showed a more complex pattern, finding that grit does not directly reduce academic anxiety, but may operate through growth mindset, academic resilience, and academic well-being. This finding is important because it shows that grit does not always produce positive outcomes directly. Perseverance requires ways of thinking and psychological resources that enable students to use effort adaptively.

On the other hand, the grit literature also requires a critical reading. Acording to (Credé dkk., 2017), through a meta-analysis of 88 independent samples covering 66,807 individuals, found that grit has only a moderate relationship with performance and retention, whereas its relationship with conscientiousness is fairly strong. They also found that the perseverance of effort dimension has better predictive validity than consistency of interest. This finding sets an important limit on the use of grit as a character building concept. Education should not encourage students to sustain every goal without evaluation. Healthy perseverance requires the ability to determine when effort should be sustained, when strategies should be changed, and when goals should be reconsidered.

A research gap remains in understanding how growth mindset and grit jointly contribute to students' character building. Previous studies have mainly examined academic achievement, engagement, interest, anxiety, or self-efficacy rather than character building directly. Moreover, studies involving university students, teachers, and adults provide contextual rather than equivalent evidence for school students. Therefore, this SLR distinguishes direct, supporting, and contextual evidence to identify plausible mechanisms linking growth mindset, grit, and character building.

On the basis of this gap, this review has three research questions. First, how does growth mindset contribute to the character building of school students? Second, how does grit contribute to the character building of school students? Third, how can the interrelationship between growth mindset and grit explain students' character building more comprehensively? These three questions are directed at examining character building through students' ability to understand self-development, face difficulty, sustain effort, adjust strategies, and build self-regulation on an ongoing basis.

Method

This study employed a systematic literature review approach with narrative-comparative synthesis. The main evidence base consisted of two topics. The first topic comprised studies on growth mindset and various educational outcomes, while the second topic comprised research on grit and various psychological and academic outcomes. All 20 studies were retained as the initial corpus so that the synthesis would remain consistent with the literature base provided.

A limited additional search was conducted to strengthen conceptual validity and to provide a comparison for the research findings. Four further publications were added, namely (Yeager dkk., 2019) in the growth mindset domain, and (Duckworth dkk., 2007) in the grit domain. Accordingly, the number of substantive studies synthesized was 24 publications. Methodological publications such as PRISMA were not counted in the evidence table because they do not constitute evidence on the relationships between variables.

The studies were classified into three relevance levels: direct, covering school students and outcomes related to perseverance, engagement, self-regulation, behavior, resilience, or character; supporting, covering school students with primarily academic or well-being outcomes; and contextual, covering university students, teachers, or adults to clarify psychological mechanisms. All studies were included in the synthesis, but their generalizability to character building among school students was interpreted according to their relevance level.

The synthesis compared each study's design, participants, constructs, relationships, and outcomes. Meta-analysis was not conducted because of substantial heterogeneity in the measurement of growth mindset, grit, character building, and related outcomes. Statistical findings were treated as supporting evidence rather than directly compared across studies due to differences in research designs and instruments. The interpretation focused on relationship patterns, inconsistencies, explanatory mechanisms, and limitations in generalizability.

Results and Discussion

Growth Mindset and Students' Character Building

The synthesis shows that growth mindset is most consistently related to character when it is translated into behavior toward the learning process, such as engagement, learning interest,

perseverance, readiness to face challenges, and the ability to view difficulty as an opportunity to develop. However, the evidence does not show that growth mindset automatically improves every aspect of student development. The nonsignificant results in several studies, together with the international meta-analyses, indicate that the benefits of mindset are context-dependent and rely on supporting mechanisms.

Table 1. Synthesis of Growth Mindset Studies

No.	Study and context	Focus	Main findings	Position of evidence
1	Dewi & Istiarsyah (2026), senior high school students	Growth mindset → engagement	Positive and significant; β = 0.356	Direct
2	Hasibuan & Maipita (2026), senior high school students	Growth mindset → learning interest	Positive and significant	Direct
3	Wahidah & Royanto (2021), 418 senior high school students	Growth mindset → grit	Positive; β = 0.445	Highly direct
4	Mahmmoud et al. (2026), school students	SEL → classroom behavior	SEL associated with discipline, cooperation, and participation	Contextual
5	Wulandari et al. (2025), junior high school students	Growth mindset + grit → achievement	Both significant in the model	Direct
6	Lawal (2023), 1,125 senior high school students	Academic mindset + perseverance → performance	Mindset and perseverance significant	Strong supporting
7	Agustina & Hapsari (2025), university students	Growth mindset as moderator	Moderation not significant	Contextual
8	Mutaharrikah & Wahidah (2023), elementary school students	Growth mindset → well-being	Partial effect very small/not significant	Critical supporting
9	Miko (2026), prospective teachers	Digital growth mindset → technology use	Positive relationship with digital learning	Contextual
10	Purwati et al. (2026), 294 senior high school students	Grit → mindset/resilience → anxiety	Growth mindset acts as a protective mediator	Direct
11	Yeager et al. (2019), US high school students	Growth mindset intervention	Positive effects, especially among low-achieving students; dependent on school context	Experimental evidence
12	Sisk et al. (2018), two meta-analyses	Mindset → achievement	Average effect relatively small; benefits depend on group/context	Critical evidence

Research Findings (Dewi & Istiarsyah, 2026) show that growth mindset is positively and significantly related to secondary school students' engagement. Growth mindset has a coefficient of $\beta = 0.356$ in a model that also includes the flipped classroom, while the overall model explains 50.7 percent of the variance in student engagement. Engagement is not character building in the moral sense, but it is relevant because it reflects students' willingness to participate, take responsibility for the process, and sustain attention in learning activities.

Research (Hasibuan & Maipita, 2026) obtained a similar pattern. Growth mindset is positively related to Grade XI students' interest in learning Economics. In the context of character building, learning interest cannot be equated with character, but it is meaningful because students who believe that ability can be developed are more likely to sustain engagement when facing difficult material. Growth mindset can thus provide a motivational foundation that supports learning character such as openness, responsibility, and the courage to face challenges.

More direct evidence appears in (F. R. N. Wahidah & Royanto, 2021). A study of 418 secondary school students found that growth mindset significantly predicted grit, with $\beta = 0.445$. This finding indicates a relationship between beliefs about the possibility of development and the willingness to sustain effort. Students who see ability as something that can be improved have a stronger psychological reason to keep trying after experiencing failure. Conversely, when failure is regarded as evidence of permanent inability, further effort is more easily perceived as futile.

The study by (Wulandari & Sudrajat, 2025) further strengthens the connection between the two main constructs. Among junior high school students in Pesawaran, growth mindset and grit were simultaneously related to academic achievement. Although the sample consisted of only 33 students and the coefficient of determination was relatively high, so the results should be read with caution, the study is useful because it directly includes growth mindset and grit in a junior high school population.

Research (Lawal, 2023) used a broader model and a sample of 1,125 secondary school students in Nigeria. Academic mindset and academic perseverance were found to be significant predictors of Economics performance, with β coefficients of approximately 0.41 and 0.15, respectively. This finding shows that mindset and perseverance can operate within a motivational system involving engagement and motivation. For character building, this result is important because it positions mindset not as a single factor but as part of a chain of processes linking ways of thinking to action.

The study is nevertheless retained because it provides evidence on the behavioral character that forms the context for developing mindset. Social-emotional learning (SEL) is related to students' discipline, cooperation, and participation. Its position in this SLR is that of contextual

evidence that beliefs about self-development require social-emotional skills in order to be translated into behavior.

A different finding emerges from (Mutaharrikah & Wahidah, 2023). School climate is positively related to school well-being, whereas growth mindset made only a very small and non-significant partial contribution. This result serves as a reminder that growth mindset is not always the main predictor of every student outcome. Well-being is influenced by relational experiences and the quality of the environment, which may be more direct than beliefs about ability.

Research (Agustina & Hapsari, 2025) also found that growth mindset did not significantly moderate the relationship between self-compassion and flourishing among university students. Because the population consisted of university students, this study is contextual. However, its results are important for preventing an overly simplistic argument that growth mindset always strengthens every psychological resource.

Acording to (Miko, 2026) showed a positive relationship between digital growth mindset, collaboration skills, and the use of dynamic technology among prospective teachers. Its relevance to the character building of school students is indirect. Nevertheless, the study shows that growth mindset can be applied to new and continually changing abilities. Adaptive character is related not only to perseverance but also to readiness to learn skills that have not previously been mastered.

Research (Purwati dkk., 2026) provide a more in-depth explanation. Grit does not have a direct effect on academic anxiety, but its indirect effect operates through growth mindset, academic resilience, and academic well-being. This finding positions mindset as a transformational mechanism. Perseverance alone is not enough; students need a way of understanding difficulty that allows effort to be sustained without turning into maladaptive pressure.

Two additional studies both reinforce and limit the conclusions. Acording (Yeager dkk., 2019) show that mindset interventions have real benefits under certain conditions, but their effects are influenced by peer norms and school context. Research (Sisk dkk., 2018) show that the average effects of the relationship between mindset and achievement, as well as of mindset interventions, are relatively small. Growth mindset is therefore relevant to character building not because it can independently produce character, but because it helps students give constructive meaning to mistakes, effort, and the learning process.

Growth mindset contributes to character building primarily through increased readiness to face challenges, engagement, perseverance, learning from failure, and willingness to improve ability. Its influence is more likely to emerge when the environment provides opportunities to try, informative feedback, and norms that do not treat mistakes as evidence of inability. Growth mindset is therefore better understood as a cognitive foundation for adaptive character rather than as a standalone character.

Grit and the Character Building of Students

Grit shows a fairly consistent relationship with perseverance, achievement, self-regulation, self-efficacy, and the ability to sustain effort. However, the evidence base varies in relevance. Some studies were conducted with elementary, junior high, and senior high school students, while others were conducted with university students, teachers, and investors. Studies outside the student population are still used, but only as evidence on mechanisms and not as the main basis for generalization to schools.

Table 2. Synthesis of Grit Studies

No.	Study and Context	Focus	Main Findings	Position of Evidence
1	Hubbi & Aulia (2025), university students	Growth mindset → grit	Strong relationship; R = 0.751	Strong contextual
2	Zulfa & Mulyono (2025), junior high school students	Grit + SRL → English achievement	Grit positive and significant	Direct
3	Krismona et al. (2026), elementary school students	Mindfulness + self-compassion → grit	Both significant	Direct
4	Abuk et al. (2026), elementary school students	Interest + grit → English performance	Grit is the stronger predictor; β = 0.503	Strong supporting
5	Quing & Baudin (2021), senior high school students	Grit → academic stress	Grit negatively correlated with stress	Direct
6	Taylan & Özkan (2025), nursing students	Grit → professional attitude	Positive and significant	Contextual
7	Widyatno et al. (2023), investors	Self-control → grit	Self-control predicts grit	Low contextual
8	Abbas et al. (2023), adult learners	Grit → achievement	High grit associated with achievement	Contextual
9	Lailla et al. (2025), teachers	Grit → engagement/burnout	Grit increases engagement	Contextual
10	Winandari & Naqiyah (2022), junior high school students	Family environment + grit → self-efficacy	Simultaneous effect significant	Direct
11	Duckworth et al. (2007)	Grit → various achievements	Grit provides additional contribution to success	Theoretical foundation
12	Credé et al. (2017)	Meta-analysis of grit	Perseverance stronger than consistency; moderate performance effects	Critical evidence

Hubbi and Aulia (2025) found a strong relationship between growth mindset and grit, with $R = 0.751$ and $R^2 = 0.564$. Although the subjects were university students, the finding supports the conceptual mechanism that beliefs about ability that can be developed encourage sustained effort. This study is also important because it directly links the two constructs that are the focus of this SLR.

In a population more suited to the topic of school students, (Zulfa & Mulyono, 2025) found that grit had a positive effect on junior high school students' English achievement. Grit partially contributed approximately 16.1 percent, while together with self-regulated learning the model explained 25.5 percent of the variance in academic outcomes. Family support was not found to be a significant moderator. This finding shows that perseverance is related to success, but that success also depends on students' ability to plan and regulate the learning process.

Krismona et al. (2026) used a different direction of relationship by examining the factors that shape grit among Islamic elementary school students. Mindfulness and self-compassion simultaneously influenced grit. This finding is important because it shows that perseverance does not have to be built through pressure. The ability to accept failure without excessive self-judgment and to remain adaptively aware of experience can help students sustain effort.

Research (Abuk dkk., 2026) found that grit has a positive relationship with elementary school students' English performance and was a stronger predictor than learning interest in their model. The grit coefficient was $\beta = 0.503$ with $p < 0.001$, while the overall model explained 52.1 percent of the variance in performance. Although the main outcome was academic, this finding illustrates the function of perseverance in maintaining the continuity of learning effort.

Findings (Quing, 2021) found that grit was negatively correlated with academic stress among senior high school students in the Philippines. This relationship suggests that students who are able to sustain effort and goals have certain psychological resources when facing pressure. However, the reported correlation was relatively weak, so grit should not be regarded as a sole protection against stress.

As for (Winandari & Naqiyah, 2022) linked grit with academic self-efficacy among junior high school students. Family environment and grit simultaneously had a significant effect on students' beliefs about their academic abilities. Self-efficacy is relevant to character building because the belief that one is capable of completing tasks influences decisions to begin, sustain, and evaluate effort. Research (Taylan & Özkan, 2025) used nursing students and found that grit and passion were positively related to professional attitudes and behaviours. Although it cannot be directly generalized to school students, this finding shows that perseverance can develop from academic character into broader professional behavior.

Resecarch found a high level of grit among adult learners, as well as a relationship with academic achievement. Its relevance is contextual because the participants were adult learners. Nevertheless, the situation of learners who must sustain their studies while carrying out other responsibilities illustrates how perseverance works toward long-term goals. Research (Widyatno dkk., 2023) is the study furthest from the main population because it used capital market investors. Self-control was found to influence grit. This study is still included in line with the corpus, but it is not used as direct evidence for the character building of students. Its value lies in the mechanistic explanation that self-control may be related to the ability to sustain behavior toward goals. Teachers and found that grit and self-efficacy were positively related to work engagement, whereas engagement was negatively related to burnout. As with the investor study, this finding is only contextual. It shows that perseverance still has meaning in adult work behavior, but it cannot serve as direct evidence for students.

The international literature places stronger limits on the interpretation of grit. Resecarch (Duckworth dkk., 2007) showed that grit has incremental validity for predicting several forms of success, but its average contribution to the variance in outcomes is around a few percent. Subsequently showed that overall grit does not always have the predictive power that is often assumed. The perseverance of effort component is in fact more consistent than consistency of interest. Character building should therefore not emphasize rigid consistency of goals. Adaptive perseverance is more important than maintaining interests that are no longer appropriate without evaluation.

Grit contributes to character building primarily through perseverance, the ability to sustain effort, self-regulation, academic self-efficacy, engagement, and the ability to cope with pressure. Grit becomes a constructive character when perseverance is directed toward meaningful goals and accompanied by the ability to evaluate strategies. Grit education that emphasizes only "don't give up" risks overlooking students' need to rest, ask for help, change strategies, or revise unrealistic goals.

The Interconnection of Growth Mindset and Grit in the Character Building of Students

The synthesis results show that growth mindset and grit are strongly interconnected but serve different functions. Growth mindset provides a cognitive framework regarding the possibility of development, whereas grit provides the behavioral stamina to sustain effort. In character building, mindset helps students answer the question "can I still develop?", whereas grit relates to the question "am I willing to sustain the effort needed to develop?". Adaptive character requires both.

Table 3. Mechanisms of the Interconnection of Growth Mindset, Grit, and Character Building

Mechanism	Role of Growth Mindset	Role of Grit	Character Implications
Response to failure	Failure is understood as learning information	Effort is sustained after failure	Not easily giving up
Acceptance of challenge	Ability is believed to be developable	Energy is sustained for difficult goals	Courage and perseverance
Feedback	Criticism is used for improvement	Corrections are applied consistently	Openness and responsibility
Self-regulation	Strategies can be changed and learned	Action is kept directed toward goals	Self-discipline
Resilience	Difficulty is not regarded as permanent	Effort is continued after obstacles	Character resilience
Learning engagement	Encourages mastery orientation	Maintains continuity of participation	Learning responsibility
Goal setting	Development is seen as a process	Long-term goals are sustained	Commitment
Adaptation	Encourages changes in strategy	Prevents quitting too early	Flexible perseverance

The most direct evidence on this relationship comes from (Purwati dkk., 2026; F. R. N. Wahidah & Royanto, 2021; Wulandari & Sudrajat, 2025). Showed that growth mindset predicts grit among senior high school students. Hubbi and Aulia found a similar pattern among university students. Wulandari et al. included both in the same model among junior high school students and found a contribution to academic outcomes. This series of results supports the idea that the way students understand the development of ability can be one of the foundations for the emergence of perseverance.

Findings (Purwati dkk., 2026) show that this relationship is not always linear. Grit does not directly reduce academic anxiety, but it can work through growth mindset, academic resilience, and academic well-being. This finding is interesting for character building because it shows that perseverance without supporting cognitive and emotional mechanisms is not necessarily sufficient to produce adaptation. Students may keep trying yet still experience high anxiety when their effort is accompanied by rigid beliefs or low well-being. This relationship also explains why growth mindset without grit may produce limited change. Students may believe that ability can be improved but still stop making effort when results do not appear immediately. Conversely, grit without growth mindset may lead to rigid perseverance, namely maintaining the same strategy even though it has proven ineffective. A more constructive combination is the belief that development is possible, accompanied by perseverance and willingness to change strategies based on feedback.

Character building through growth mindset is not appropriately carried out merely with the slogan that "anyone can become anything." Beliefs about development must be connected to

concrete processes, such as practice, evaluation, alternative strategies, teacher assistance, and reflection. The meta-analysis by (Sisk dkk., 2018) shows why an overly simplistic approach should be avoided: the average effect of mindset interventions on achievement is relatively small. Mindset becomes more meaningful when the environment provides opportunities that genuinely make development possible. The same applies to grit. Character education should not equate perseverance with maintaining a single goal indefinitely. The meta-analysis by (Credé dkk., 2017) shows that perseverance of effort is more beneficial than consistency of interest. In students' development, changes in interest do not always indicate weakness of character. Students may gain new information about their strengths, limitations, and goals. Mature character in fact includes the ability to distinguish between giving up in order to avoid difficulty and changing direction after rational evaluation.

Growth mindset and grit also meet at the mechanism of self-regulation. Growth mindset encourages students to seek new strategies when old strategies fail, whereas grit helps maintain continuity of effort while the new strategies are being learned. The study by (Zulfa & Mulyono, 2025) shows that grit and self-regulated learning together are related to learning outcomes. This relationship provides a basis for the view that character building requires not only motivation but also the ability to set goals, monitor progress, and adjust actions.

Self-compassion can also serve as an important counterbalance. Findings show that mindfulness and self-compassion contribute to the grit of elementary school students. This finding is important because healthy perseverance is not built through constant self-criticism. Students need to be able to accept failure proportionally in order to be able to try again. Character building based on grit therefore needs to combine perseverance with the ability to maintain psychological well-being.

The school environment then determines whether these two qualities receive reinforcement. Findings (Yeager dkk., 2019) show that the effects of mindset interventions are influenced by the norms of the school context. If a school says that ability can develop but its assessment practices label students permanently, the growth mindset message loses credibility. Likewise, schools cannot ask students to show grit if failure is immediately punished without opportunities for improvement. The educational environment needs to provide room for repeated effort and correction.

The role of teachers is very important in this process. Process-oriented feedback can help students understand that current results are not a fixed representation of ability. However, praise for effort also needs to be given carefully. Students do not only need recognition for "having tried," but also assistance to ensure that their effort uses more effective strategies. Perseverance with a poor strategy does not support character building.

The SLR findings also show that character building is still often represented through proxy outcomes. In the 20 studies collected, the outcomes used include engagement, learning interest, grit, academic performance, well-being, anxiety, self-efficacy, stress, professional attitudes, and burnout. Only a few studies explicitly measured character building as a multidimensional construct. This condition constitutes the main research gap. The relationship with character must be stated through mechanisms, rather than assuming that academic achievement automatically equals character.

Growth mindset and grit have a complementary relationship in the character building of students. Growth mindset helps students understand ability as something that can be improved, whereas grit helps sustain effort toward that development. The relationship between the two becomes productive when students are able to accept failure as information, sustain meaningful goals, change strategies when necessary, and develop self-regulation. Strengthening character is not achieved merely by fostering optimism about ability or by demanding that students keep persisting. Character building requires flexible perseverance that is reflective and still takes into account the quality of the learning process.

Conclusions

This systematic literature review of 24 studies shows that growth mindset and grit are two psychological resources relevant to the character building of students, but that they work through different mechanisms and are not deterministic. Growth mindset is related to engagement, interest, readiness to face challenges, and the tendency to view mistakes as part of learning. Grit is related to perseverance, self-regulation, self-efficacy, engagement, and the ability to sustain effort toward goals. The relationship between the two receives fairly consistent support, particularly from studies showing that growth mindset can predict grit. However, international meta-analyses show that the strength of the average effects of both constructs on performance is not as great as is often assumed. Sustainable character building is more likely to occur when growth mindset and grit work together with learning strategies, environmental support, self-regulation, and the ability to evaluate goals.

The findings indicate that growth mindset and grit should not be merged into a single concept. Growth mindset is a belief about the nature of ability, whereas grit is a tendency to sustain effort and goals. The two can reinforce each other, but they have different mechanisms. In character education, growth mindset provides the foundation for learning from failure, whereas grit provides continuity to that process.

Schools can foster growth mindset by providing opportunities for revision, using process-oriented feedback, learning from mistakes, and emphasizing that development requires strategies and practice. Grit can be developed through medium-term and long-term targets, progress

monitoring, self-regulation exercises, and experiences of completing sufficiently challenging tasks. Teachers need to avoid an approach that merely demands that students "don't give up" without helping them evaluate their strategies.

Future research needs to measure growth mindset, grit, and character building directly in a single model among school students. Character building should be operationalized through several dimensions such as responsibility, self-discipline, perseverance, openness to correction, integrity, ability to cooperate, and self-regulation. Longitudinal studies are needed to determine whether growth mindset truly precedes the development of grit or whether the relationship between the two is reciprocal.

Research also needs to distinguish perseverance of effort from consistency of interest because meta-analytic evidence shows that the two dimensions do not have equal strength. In addition, experimental or quasi-experimental designs can be used to compare growth mindset interventions alone with programs that combine growth mindset, self-regulated learning, self-compassion, and perseverance exercises. With this approach, character development can be directed toward adaptive perseverance rather than rigid perseverance.

References

Abuk, D., Nurhasanah, Y. H., Nahak, M. C., & Manek, Y. N. (2026). The Influence of Interest and Grit on Indonesian Primary Students' English Language Performance. *JEES: Journal of Education and Educational Sciences*, *2*(2), 1–9. https://doi.org/10.70152/jees.v2i2.45

Agustina, E. V., & Hapsari, M. T. B. (2025). The influence of self-compassion on flourishing with growth mindset as a moderator variable in Sleman Regency collage students. *Jurnal Psikologi Tabularasa*, *20*(1), 76–88. https://doi.org/10.26905/jpt.v20i1.15442

Baidarus, & Fithri, R. (2025). Implementation of Growth Mindset in Islamic Education and Its Impact on Character Development of Students at MTs. Muhammadiyah Pekanbaru. *POTENSIA: Jurnal Kependidikan Islam*, *11*(1), 75.

Burman, N. J., & Johnson, C. L. (2025). Growth Mindset: Embracing Our Challenges to Help Us Continue to Improve Toward Mastery. *Academic Pediatrics*, *25*(8), 102876. https://doi.org/10.1016/j.acap.2025.102876

Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, *113*(3), 492–511. https://doi.org/10.1037/pspp0000102

Darmawan, D., Irsyadul'Ibad, A., & Arrisallah, A. (2025). Pengaruh Pola Asuh Orang Tua dan Lingkungan Sekolah Terhadap Akhlak Siswa Smp Sederajat. *Didaktik : Jurnal Ilmiah PGSD STKIP Subang*, *11*(04), 214–237. https://doi.org/10.36989/didaktik.v11i04.11771

Dewi, N. R., & Istiarsyah, I. (2026). The Influence of Flipped Classroom on Student Engagement Considering Growth Mindset in Secondary Schools in Indonesia. *The Eastasouth Journal of Learning and Educations*, *4*(01), 58–68. https://doi.org/10.58812/esle.v4i01.951

Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *92*(6), 1087–1101. https://doi.org/10.1037/0022-3514.92.6.1087

Firmansyah, M. I., & Rindaningsih, I. (2025). *Implementation of Student Management in Forming Student Character: Implementasi Manajemen Kesiswaan Dalam Membentuk Karakter Siswa*. UMSIDA Preprints Server. https://doi.org/10.21070/ups.8603

Hasibuan, M. R. F., & Maipita, I. (2026). The Influence of Self-Confidence and Growth Mindset on Students' Interest in Learning Economics: A Study of Grade XI Social Science Students at Senior High School. *Journal of English Language and Education*, *11*(4), 607–617. https://doi.org/10.31004/jele.v11i4.2652

Hecht, C. A., Yeager, D. S., Dweck, C. S., & Murphy, M. C. (2021). Beliefs, Affordances, and Adolescent Development: Lessons from a Decade of Growth Mindset Interventions. *Advances in child development and behavior*, *61*, 169–197. https://doi.org/10.1016/bs.acdb.2021.04.004

Lawal, B. M. (2023). Structural equation model of academic mindset, motivation, perseverance, engagement and secondary school students' performance in economics in south-west, Nigeria. *Journal of Social and Educational Research*, *2*(2). https://doi.org/10.5281/zenodo.10444314

Manda, D., Darmayanti, D. P., & Junaeda, S. (2025). The Role of Parenting Style on Aggressive Behavior of Junior High School Adolescents. *Celebes Journal of Elementary Education*, *3*(1), 37–46. https://doi.org/10.31605/cjee.v3i1.5181

Miko, A. G. (2026). *Navigating Students' Growth Mindset and Connectivist Learning Experience With Dynamic Technologies*. Research Square. https://doi.org/10.21203/rs.3.rs-10613564/v1

Muflihah, L., Lumenta, H., & Ulfawaty, U. (2023). The Importance of Characters Education for Students in Teaching Learning Process. *EDUKASI*, *21*(2), 493–497. https://doi.org/10.33387/j.edu.v21i2.6514

Mutaharrikah, H., & Wahidah, F. (2023). School well-being, school climate, and growth mindset: Regression analysis on elementary school students. *Psychology Research on Education and Social Sciences*, *4*(4), 185–194.

Muttaqin, S. K., Ibrahim, C. F., Azizah, M. N., & Hasbulloh, M. F. (2025). The Effects of Teacher Modeling and Peers on Religious Behavior among Secondary School Students. *Maharot : Journal of Islamic Education*, *9*(2), 145–162. https://doi.org/10.28944/maharot.v9i2.2273

Nafisa, N. N. I., & Darmawan, D. (2025). Pengaruh Kompetensi Kepribadian Guru Terhadap Pembentukan Karakter Setingkat Sekolah Menengaah Atas. *Karakter : Jurnal Riset Ilmu Pendidikan Islam*, *2*(2), 307–321. https://doi.org/10.61132/karakter.v2i2.616

Purwati, P., Japar, M., Pratama, R. A., Nikmah, F. K., Sari, D. L., Gumintang, B., & Sari, I. N. (2026). Understanding the link between grit and academic anxiety: The mediating roles of growth mindset, academic resilience, and academic well-being. *BIS Humanities and Social Science*, *4*, V426032–V426032. https://doi.org/10.31603/bishss.468

Quing, K. (2021). *Roles of Internal Locus of Control and Grit in Managing the Academic Stress of Senior High School Students in a State University in the Philippines*.

Risqi, A. S., & Darmawan, D. (2024). Pengaruh Perhatian Orang Tua dan Budaya Sekolah Terhadap Pembentukan Karakter Santri di Pondok Pesantren Nurul Ikhlas Sidoarjo. *Ambarsa : Jurnal Pendidikan Islam*, *4*(2), 151–161. https://doi.org/10.59106/abs.v4i2.231

Shi, J. (2025). Exploring the Impact of Growth Mindset Theory on Student Motivation and Academic Achievement: A Review of Recent Literature. *Journal of Interdisciplinary Humanities and Communication Studies*, *3*(6), 9702–9702. https://doi.org/10.61173/k4a6gv31

Sisk, V. F., Burgoyne, A. P., Sun, J., Butler, J. L., & Macnamara, B. N. (2018). To What Extent and Under Which Circumstances Are Growth Mind-Sets Important to Academic Achievement? Two Meta-Analyses. *Psychological Science*, *29*(4), 549–571. https://doi.org/10.1177/0956797617739704

Soeparwati, S., Ahmad, Z. A., Sumarni, S., & Istiningsih, I. (2025). The Grit Character Education Model Based on Islamic Values for Madrasah Ibtidaiyah Students: A Systematic Literature Review. *Khazanah Pendidikan Islam*, *7*(1), 1–19. https://doi.org/10.15575/kpi.v7i1.40255

Solfema, Wahid, S., & Pamungkas, A. H. (2019). *The Development of Character through Extra-Curricular Programs*. 918–926. https://doi.org/10.2991/icesshum-19.2019.143

Syaiful, A., Amiruddin, Hafid, & Fitriyah, F. (2025). Habituation and Internalization of Islamic Education Values in Character Building: A Phenomenological Study at Madrasah Ibtidaiyah Nasy'atul Muta'allimin Candi Sumenep. *Jurnal Ilmiah Gema Perencana*, *4*(2), 1449–1470. https://doi.org/10.61860/jigp.v4i2.324

Taylan, S., & Özkan, İ. (2025). Examining the Relationship Between Grit, Passion, and Professional Attitudes in Nursing Students: A Cross-Sectional Study. *Scandinavian Journal of Caring Sciences*, *39*(3), e70079. https://doi.org/10.1111/scs.70079

Toyama, M. (2024). Is grit persistence adaptive? Goal pursuit behavior when faced with a difficult goal. *Personality and Individual Differences*, *223*, 112610. https://doi.org/10.1016/j.paid.2024.112610

Wahidah, A. (2024). Strategi Kiai dalam Peningkatan Kualitas Pendidikan di Madrasah untuk Menghadapi Tantangan Globalisasi. *At Tadbir: Islamic Education Management Journal*, *2*(2), 78–86. https://doi.org/10.54437/attadbir.v2i2.1666

Wahidah, F. R. N., & Royanto, L. R. (2021). Growth Mindset Leads Grittier Students. *Sains Humanika*, *13*(2–3).

Widyatno, A., Rosita, A., & Wahyu, A. M. (2023). Self-control and grit: Study on investors in the capital market. *Psychology Research on Education and Social Sciences*, *4*(1), 1–6.

Winandari, N. Z. P., & Naqiyah, N. (2022). The Influence of The Family Environment and Grit on Student's Academic Self-Efficacy. *Bisma The Journal of Counseling*, *6*(2), 228–237. https://doi.org/10.23887/bisma.v6i2.47862

Woenardi, T. N. (2024). Coaching Management: Tough Student Character. *IJFMR - International Journal For Multidisciplinary Research*, *6*(5). https://doi.org/10.36948/ijfmr.2024.v06i05.28334

Wulandari, F., & Sudrajat. (2025). The Influence of Teachers' Pedagogical Competence on the Implementation of Differentiated Instruction at Muhammadiyah Senior High School Imogiri. *JIPSINDO*, *12*(2), 140–159. https://doi.org/10.21831/jipsindo.v12i2.87960

Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., … Dweck, C. S. (2019a). A national experiment reveals where a growth mindset improves achievement. *Nature*, *573*(7774), 364–369. https://doi.org/10.1038/s41586-019-1466-y

Yusuf, M. Z., & Darmawan, D. (2026). Pengaruh Budaya Sekolah Terhadap Pembentukan Karakter Siswa SMA. *Jurnal Al-Fatih*, *9*(1), 490–514. https://doi.org/10.61082/alfatih.v9i1.739

Zulfa, I., & Mulyono, R. (2025). The Influence of Grit and Self-Regulated Learning on English Academic Achievement with Family Support as a Moderating Variable. *Pasundan Social Science Development*, *5*(2), 132–148. https://doi.org/10.56457/pascidev.v5i2.194