

Grit Competency, Growth Mindset, and Mental Ability among Filipino High School Students

Competencia de determinación, mentalidad de crecimiento y capacidad mental entre estudiantes filipinos de secundaria

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Abstract: Educators and mental health professionals have promoted social and emotional learning (SEL) as the foundation for safe and positive education. SEL factors such as grit competency and growth mindset were the critical factors in this research, along with the student's mental ability level. Grit competency pertains to one's ability to work hard, overcome setbacks, finish tasks, and set long-term goals. At the same time, a growth mindset refers to believing intelligence and ability can change with persistence and practice and believing interests and behaviors can positively change with effort and learning. This research aimed to determine the grit and growth mindset levels of 137 all-female Filipino senior students from Quezon City and test their relationship with mental ability. A standardized test measured grit competency and growth mindset, while the Otis-Lennon School Ability Test, 7th Edition (OLSAT-7), measured cognitive ability. Results signified a low and negative relationship between grit competency and mental ability, with $r = -.152$ and $p = 0.039 < 0.05$. Similarly, there was a low and negative relationship between a growth mindset and cognitive ability with a value of $r = -.157$ and $p = 0.034 < 0.05$.

Keywords: Grit Competency; Growth Mindset; Mental Ability; High School Students.

Resumen: Los educadores y los profesionales de la salud mental han estado promoviendo el aprendizaje social y emocional (SEL) como la base para un aprendizaje seguro y positivo. Los factores SEL como la competencia de valor y la mentalidad de crecimiento fueron los factores clave (SEL) en esta investigación, junto con el nivel de capacidad mental del estudiante. La competencia de determinación se refiere a la capacidad de uno para trabajar duro, superar contratiempos, terminar tareas y establecer metas a largo plazo, mientras que una mentalidad de crecimiento se refiere a creer que la inteligencia y la capacidad pueden cambiar con la persistencia y la práctica, y creer que los intereses y comportamientos pueden cambiar positivamente con el esfuerzo y el aprendizaje. Esta investigación tuvo como objetivo determinar los niveles de determinación y mentalidad de crecimiento de 137 estudiantes filipinas de último año de la ciudad de Quezon y probar su relación con la capacidad mental. Una prueba estandarizada midió la capacidad de determinación y la mentalidad de crecimiento, mientras que la capacidad mental se midió mediante la Prueba de capacidad escolar de Otis-Lennon, 7.ª edición (OLSAT-7). Los resultados indicaron una relación baja y negativa entre la competencia de determinación y la capacidad mental, con un valor de $r = -.152$ y $p = 0.039 < 0.05$. De igual forma, hubo una relación baja y negativa entre mentalidad de crecimiento y habilidad mental con un valor de $r = -.157$ y $p = 0.034 < 0.05$.

Palabras clave: Competencia de determinación; mentalidad de crecimiento; habilidad mental; estudiantes de secundaria.

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1. Introduction

Grit has been defined by Duckworth (2014) as a personality trait that pertains to a tenacious pursuit of a dominant superordinate goal despite setbacks so one can actively engage and achieve long-term goals. For the last decade, studies on grit have received attention in the positive psychology discipline, stating that grit is predictive of well-being, educational achievement, and success in life. Jiang et al. (2020) described in their study that grit significantly lower depression decreasing the risk of suicidal ideation and being a predictor of success in work and personal life. Grit has been conceptualized as a personality trait that reflects two factors: consistency of interest and perseverance of effort. In this research, consistency of interest indicates the ability to focus on tasks related to a larger goal (i.e., ‘Focusing on task when there are several distractions’). At the same time, perseverance of efforts is expressed by sustaining effort to achieve a goal (i.e., Trying again when failing to finish an important task).

An earlier study by Duckworth et al. (2011) described that people with high levels of grit are determined people who can healthily control their impulses and concentrate on their goals. They are persistent in pursuing personal and long-term academic and professional ambitions. Other characteristics include being able to focus heavily on the task at hand, giving great attention to actively working, and expecting high-quality output or outcomes should be done. Highly determined people can set long-term goals and refuse to give up with and without constructive feedback. Also, Kleiman (2013) defined such individuals with the ability to reflect and believed they could positively change their lives. They maintain a positive spirit to achieve goals, become more inspired by engaging more, find their purpose instead of pleasure, and remain grateful. Li (2018) suggested that grit positively impacts life satisfaction. Some studies supported the predictive ability of determination to academic success and cognitive Ability (Perkins-Gough, 2013). Duckworth et al. (2007) focused on the predictive effect of grit on GPA at four-year universities, using GPA as a proxy for intelligence. They found out that determination was negatively associated with intelligence. On the other hand, they noted that SAT scores could be an inadequate measure of intelligence.

Meanwhile, Credé et al. (2020) suggested that grit was deemed as separate or distinct from cognitive ability. Eskreis-Winkler et al. (2016) reported that grit and cognitive ability do not correlate with several studies. In connection to this, a more recent study conducted by Aguerre et al. (2022) among 134 participants highlighted that higher grit scores did not correlate to higher overall cognitive ability. Despite this, they signified that higher grit scores were significantly related to higher levels of mindfulness and lower impulsivity, both factors highly associated with self-regulation. These findings were parallel to the suggestions of Duckworth and Quinn (2009), which signified that people with high grit rely more on whatever kind of capacity they have rather than having a higher cognitive ability. Aguerre et al. (2022) argued that future research should comprehensively evaluate grit and other fluid intelligence variables. Fluid intelligence pertains to one’s ability to solve problems and reason without existing knowledge.

Moreover, mindset theories state that children’s beliefs about whether the essential ability is a stable or fixed mindset or can be changed or a growth mindset can impact IQ and achievement (Dweck, 2006). Dweck’s implicit theories or self-theories is a popular mindset theory within the academe and media that specifies that individuals have different beliefs about whether their traits are malleable or relatively stable. A fixed mindset pertains to the belief that basic ability is stable, while a growth mindset pertains to the belief that ability can be changed substantially. This belief can affect educational attainment, achievement, and IQ (Paunesku et al., 2015). These positive findings have been largely recognized. Policies were created for local and state, and federal adoption to increase educational outcomes (Rattan et al., 2015). Although such claims were widely cited, these have been subject to little replication. There were also limited studies that included outcome measures such as IQ. With this, a study conducted by Li and Bates (2019) discovered that chil-

dren’s mindsets, whether positive or negative showed no relationship with IQ or cognitive Ability. Having a fixed or growth mindset appears to be unrelated to IQ. They found no minimal support for the effects of both perspectives on cognitive ability.

2. Methodology

The participants comprised 137 all-female Filipino grade 12 students aged 16 to 18. A non-probability sampling technique, specifically purposive sampling, was used for recruiting participants. The study duration spanned from June to September 2022. A local psychological center in the Philippines administered a standardized test measuring grit (7-item) and growth mindset (6-item) based on Daniel Goleman’s emotional intelligence. For mental ability, the students took the Otis-Lennon School Ability Test, 7th Edition (OLSAT-7), as part of their school’s regular testing program. Informed consent was issued to parents, and the test was carefully explained to the students.

3. Results

3.1. Grit Competency

Grit competency was measured with seven items using a Likert scale with five choices from 1 – 5. The participants on this scale gave an average rating of 3.3 with a standard deviation of 1.06. If the observed mean is greater than 3.3, it signifies a high value of the item. The table shows the descriptive statistics for grit competency items. The participants provided a high rating on items related to independent goal completion, trying again even after failure and focusing on the same task for a longer time. However, they showed a low rating on flexibility in changing goals and interests when faced with several distractions and encountering problems. The participants may initially present direction and commitment in attaining meaningful goals but also show rigidity or difficulty adapting to changes when faced with problems and distractions. Perseverance of effort, an essential aspect of grit that translates talent and skills to success (Duckworth, 2016), was less seen among these high school students.

Table 1.

Descriptive Statistics for Grit Competency Items

Items	Mean	Standard Deviation	Frequency
1. Focusing on the same goal for an extended period	3.55	0.76	137
2. Trying again when failing to finish an important task	3.88	0.95	137
3. Focusing on a task when there are several distractions	2.81	0.95	137
4. Working on a task despite encountering several problems	3.17	0.94	137
5. Working towards goals independently and remaining focused	4.12	0.89	137
6. How often do interests change over some time	2.77	1.12	137
7. How often new goals can direct from finishing current goals	2.82	0.97	137

This table presents the percentage breakdown of responses in terms of grit competency. There were 5.1% who rated not at all focused and persistent and 18.2% who rated slightly focused and persistent. Less than half of the participants reported being somewhat focused and persistent at 30.4% and 33.9%. Only 12.4% of the participants described themselves as extremely focused and persistent.

Table 2.

Percentage breakdown of responses for Grit Competency

Percentage	Response Description
5.1%	Not at all focused and persistent
18.2%	Slightly focused and persistent
30.4%	Somewhat focused and persistent
33.9%	Quite focused and persistent
12.4%	Extremely focused and persistent

3.2. Growth Mindset

Growth mindset was measured with six items using a Likert scale with five choices from 1 – 5. The participants on this scale gave an average rating of 3.55 with a standard deviation of 1.06. Similarly, with grit competency, an observed mean higher than 3.55 indicates a high value of the item. Table 3 shows the descriptive statistics for growth mindset items. A growth mindset believes intelligence can be developed, similarly to talents, skills, and behaviors. This is contrary to the fixed mindset or the students’ belief that intelligence, along with their abilities, skills, and behaviors, are fixed traits already set. The participants rated highly on items related to their beliefs that working hard, being intelligent, and persevering on a task could change or develop through hard work, using effective strategies and help from others when needed. However, they provided a somewhat low rating on items about beliefs that behavior during class, level of talent, and enjoyment in studying could change or improve. This might indicate that school could be perceived as a place where they may be worried about proving their ability or avoiding looking “incompetent.” Beliefs about these items may incite students to avoid challenges and give up when they struggle.

Table 3.

Descriptive Statistics for Growth Mindset Items

Items	Mean	Standard Deviation	Frequency
1. The level of talent can change	3.42	0.97	137
2. Enjoying studying can change	3.22	0.99	137
3. Being intelligent can change	3.63	0.90	137
4. Working hard can change	3.85	1.13	137
5. Having good behavior during class can change	3.52	1.11	137
6. Persevering on a task can change	3.65	1.09	137

This table presents the percentage breakdown of responses regarding a growth mindset. 3.5% of the participants reported that it was not possible to change intelligence and interests, and 14.4% reported a belief that it was possible to change intelligence and interests. Less than half of the participants said it was possible to change intelligence and interests, with 24.2% and 39.5%. Only 18.4% of participants reported that it was possible to change intelligence and interests.

Table 4.

Percentage breakdown of responses for Growth Mindset

Percentage	Response Description
3.5%	Believes that not possible to change intelligence and interests
14.4%	Believes that slightly possible to change intelligence and interests
24.2%	Believes that somewhat possible to change intelligence and interests
39.5%	Believes that quite possible to change intelligence and interests
18.4%	Believes that extremely possible to change intelligence and interests

3.3. Mental Ability

The mental ability of the participants was measured using Otis-Lennon School Ability Test, 7th Edition (OLSAT-7). Based on the data obtained, the resulting mean value is 107.13, which could be interpreted as average according to the participant’s age group.

Table 5.

Descriptive statistics for Mental ability

Variable	N	Min	Max	Mean	Standard Deviation
Mental Ability	137	83	150	107.13	10.166

Kolmogorov-Smirnov test of normality was used to determine whether the data were normally distributed. Based on the results, the data showed that three variables had a p-value of $0.000 < 0.05$; thus, both variables are not normally distributed. With this, the Spearman Rho technique was used to determine the association between grit competency, growth mindset, and mental ability. Table 6 shows that grit competency and growth mindset have a significant but low and negative relationship with the mental ability with a value of $r = -.151$ and $p = 0.039 < 0.05$ and $r = -.157$ and $p = 0.034 < 0.05$.

Table 6.

Correlation Test Between Grit Competency, Growth Mindset, and Mental Ability

Variables	r	p	Interpretation
Grit and Mental Ability	-.151	0.039	Low, negative, and significant relationship
Growth Mindset and Mental Ability	-.157	0.034	Low, negative, and significant relationship

4. Discussion

Several studies in the educational setting have emphasized the importance of social-emotional learning competencies in unleashing and honing each student’s capacity to succeed not only inside the four walls of the classroom but more with the so-called ‘outside world.’ This study focused on the two competencies, grit and growth mindset, and their relationship with mental ability. Regarding grit, most participants reported being focused and persistent in task completion. Many of these students evaluated themselves as having the capacity to work independently toward their goals while remaining especially focused, no matter how hard or critical the work was. They highly considered trying again after experiencing failure to accomplish essential tasks. These students could concentrate on the same goal for a long time and carry the tasks to completion. This is congruent with the definition of Duckworth et al. (2011), which described that people with high levels of grit are persistent in finishing long-term academic goals and high-quality outcomes while maintaining good focus and concentration.

On the other hand, it was evident that many students struggled with changing interests over time which could be related to encountering several distractions. Such results were deemed somewhat inconsistent. Although students carried the capacity to focus and concentrate on carrying out long-term goals to completion, they were vulnerable to changing interests. They struggled to focus when faced with several distractions. In terms of a growth mindset, many participants believed it was possible to change their intelligence and interests. Concerning the implicit theories or self-theories of Dweck (2015), the high school students evidenced a growth mindset or the belief that traits, intelligence, and interests are not static, malleable and can be improved over time. Many high school

students believed hard work and perseverance could change intelligence and abilities. They also believed that even good behavior could be changed or improved, as well as finding enjoyment in studying.

Most high schools have the average mental ability measured by a standardized test. Spearman rho was utilized because the data were not normally distributed to determine the relationship between mental ability and two social-emotional learning competencies. The results suggested a low and negative relationship between grit and mental ability. This was consistent with the studies of Créde et al. (2020), which suggested that grit was separate from mental ability. In support of this, a 2022 study by Aguerre et al. also showed a negligible correlation between grit and mental ability. This recent study suggested that higher grit scores were more associated with self-regulation. The research also showed that there was also a low and negative relationship between a growth mindset and cognitive ability. Although Paunesku et al. (2015) indicated that a growth mindset affects educational achievement and IQ, the result showed otherwise. The low and negative relationship between these two variables was found to be consistent with the study of Li and Bates (2019) showed that having a fixed or growth mindset appeared unrelated to IQ. The results suggested that both mindsets have little to no relationship or effect on cognitive ability.

5. Conclusions

Many high school students deemed themselves quite focused and persistent in pursuing long-term goals independently. However, the focus could be somewhat inconsistent as they faced several distractions. Meanwhile, they believed that intelligence, interests, good classroom behavior, and enjoyment in studying could positively change through hard work and perseverance. Both grit and growth mindset have a low and negative relationship with mental ability. This suggests that these social-emotional learning competencies are separate entities from cognitive ability.

Limitations

The present study has several limitations that should be acknowledged, which may illustrate positive directions for future research, such as limited sample size. The study focused on one gender, grade level, and adolescent group only. Also, although standardized, the measure of grit and growth mindset were limited to selected items.

Recommendation

Using more extensive and more diverse samples to replicate results and examine other factors such as age, grade level, and socio-economic status about the three variables would be beneficial. This is relevant because measures of social-emotional learning competencies and mental ability differ between age groups and cross-culturally. It is also recommended to use a bar of social-emotional learning competencies that utilizes more items to reflect a more in-depth result.

Ethics Statement

The studies involving human participants were reviewed and approved by the School of the Holy Spirit of Quezon City. The participants provided their written informed consent to participate in this study.

Acknowledgments

The author expresses his gratitude to the students who participated and contributed to this research.

Author contributions

Jowie Lumanog Advincula: Conceptualization, Data Analysis, Methodology, Investigation, Resources, Writing the Original Draft, Review, and Editing.

Conflict of Interest

The author has declared that no conflict of interest that exists.

Funding

The author has no funding to report.

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