Original Research Article

**Cognitive Flexibility and Grit as Predictors of Adaptive Thinking Teaching Practices among**

**Public Elementary School Teachers**

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ABSTRACT

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| --- |
| This study aimed to determine if cognitive flexibility and grit significantly predict adaptive thinking teaching practices among teachers in public secondary institutions in Baganga District, Division of Davao Oriental, Philippines. A descriptive-correlational research design was employed, involving a sample of 145 teachers from public secondary schools in Baganga District, Division of Davao Oriental. Standardized questionnaires were administered through face-to-face surveys. The mean, standard deviation (SD), Pearson product-moment correlation, and simple and multiple linear regression analyses were utilized to analyze the collected data. The findings revealed that cognitive flexibility, grit and adaptive thinking teaching practices were very high. Correlation analysis indicated significant relationships between cognitive flexibility and adaptive thinking teaching practices, as well as between grit and adaptive thinking teaching practices. Furthermore, both psychological flexibility and grit significantly predicted adaptive thinking teaching practices. It is recommended that school administrators may continue to foster cognitive flexibility and grit among teachers by promoting resilience-building programs, stress management workshops, and opportunities for professional growth. Strengthening these factors may contribute to enhancing teachers' ability to apply adaptive thinking teaching practices, thereby improving educational outcomes in public secondary institutions. |

*Keywords*: Cognitive Flexibility, Grit, Adaptive Thinking Teaching Practices, Descriptive Correlational, Education, Philippines

1. INTRODUCTION

Teachers play a crucial role in ensuring quality education, yet their ability to adapt teaching practices to diverse student needs remains a persistent challenge. Adaptive teaching refers to the ability of educators to modify instructional strategies, curriculum content, and assessment methods based on students' learning styles, abilities, and sociocultural backgrounds. However, poor adaptive teaching practices among teachers lead to disengaged learners, ineffective instruction, and widening educational disparities. Furthermore, factors such as limited professional development, rigid curricula, and inadequate institutional support contribute to the inability of teachers to adjust their methods effectively, ultimately affecting student performance and learning outcomes.

On a global scale, poor adaptive teaching practices have been identified as a major barrier to inclusive and equitable education. Many teachers struggle to implement differentiated instruction and personalized learning approaches due to a lack of training, insufficient resources, and large class sizes (Whitley et al., 2019). In developing countries, where education systems are often underfunded, teachers face additional challenges such as outdated teaching methodologies, a lack of technological integration, and rigid assessment frameworks (Obidovna, 2023). Even in developed nations, issues such as resistance to pedagogical change and over-reliance on standardized curricula hinder efforts to tailor teaching methods to diverse learners (Gratz & Looney, 2020).

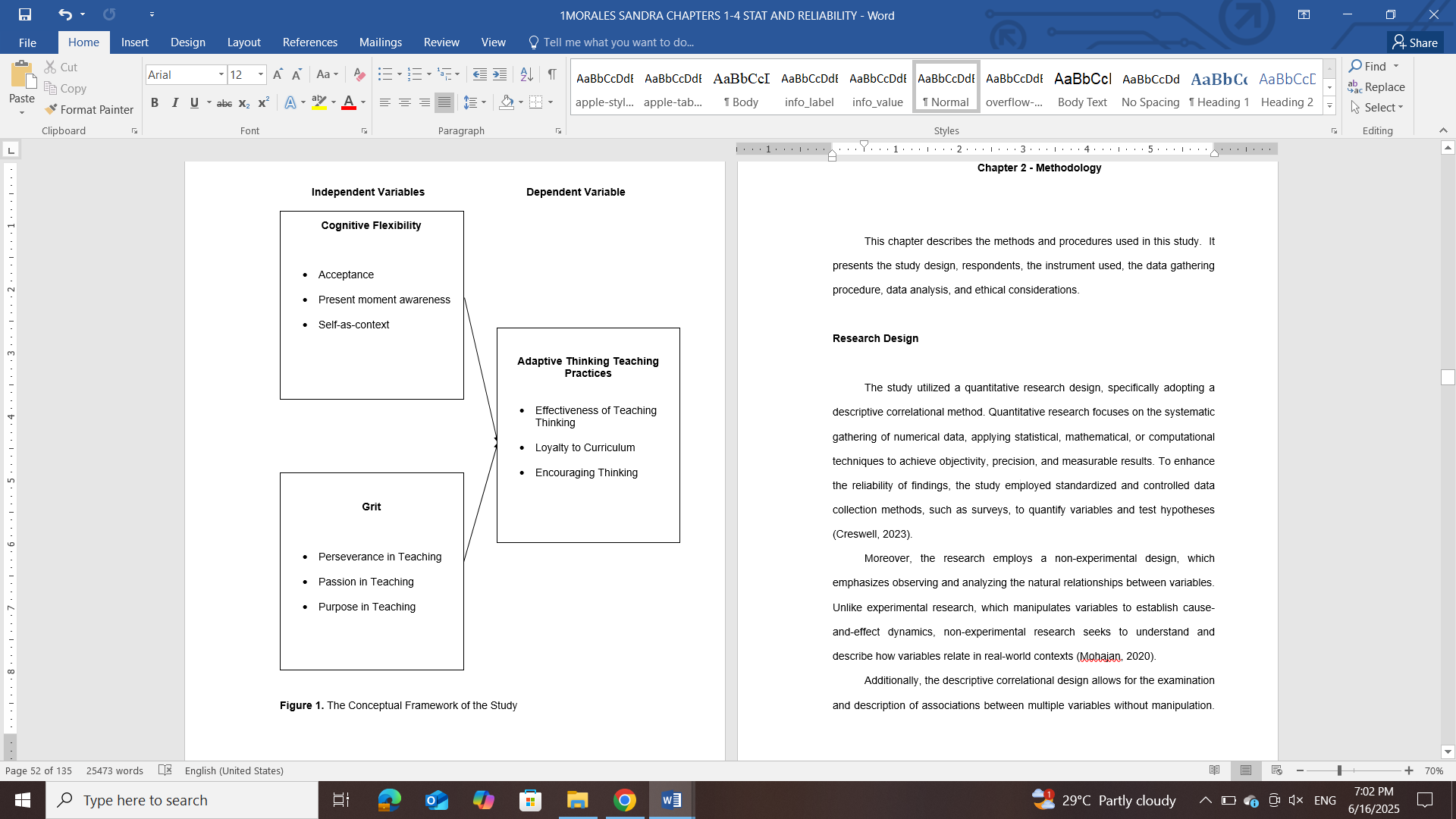
In the Philippines, poor adaptive teaching practices remain a pressing issue, particularly in public schools where resources are limited, and classrooms are overcrowded. The Department of Education (DepEd) has implemented initiatives such as the K-12 curriculum and teacher training programs to improve instructional flexibility, but many educators still struggle with adapting to diverse learning needs. The K–12 curriculum refers to the formal basic education system that includes Kindergarten and 12 years of basic education—comprising six years of elementary, four years of junior high school, and two years of senior high school. Implemented in the Philippines through the Enhanced Basic Education Act of 2013, the K–12 program aims to enhance the quality of education by promoting learner-centered instruction, 21st-century skills, and college and career readiness. By aligning instruction with developmental stages and global standards, the curriculum seeks to provide a more holistic and competency-based approach to teaching and learning. Including this context helps clarify the educational framework in which the study is situated (Barrot, 2019). Challenges such as inadequate in-service training, a heavy workload, and the reliance on traditional lecture-based teaching approaches contribute to the problem (Diano et al., 2023). Moreover, the shift to remote and blended learning during the COVID-19 pandemic exposed significant gaps in teachers’ ability to modify instructional strategies effectively (Barrot et al., 2021).

In Baganga District, Division of Davao Oriental, poor adaptive teaching practices persist as a challenge, particularly in public schools and higher education institutions that cater to diverse student populations (Abendaño et al., 2023). Teachers often struggle to implement differentiated instruction due to large class sizes, limited access to modern teaching resources, and the pressure to meet standardized curricular requirements (Cagape et al., 2023). While the local government and the Department of Education- Baganga District, Division of Davao Oriental have launched professional development programs to enhance teaching adaptability, many teachers still rely on traditional lecture-based methods that fail to accommodate students with varying learning styles and needs. Additionally, the shift to digital and blended learning has further highlighted gaps in teachers’ ability to modify instructional strategies, as some lack adequate training in technology integration (Cambalon et al., 2022). Cognitive flexibility and grit are crucial factors that influence adaptive thinking in teaching practices among educators.

Cognitive flexibility, which refers to the ability to adapt to changing circumstances and perspectives, allows teachers to remain open-minded and responsive to the needs of their students (Doorley et al., 2020). This flexibility enables them to modify their teaching strategies, embrace diverse learning styles, and effectively navigate challenges in the classroom (Hardy et al., 2019). Grit, characterized by perseverance and passion toward long-term goals, complements cognitive flexibility by fostering resilience in teachers (Lan, 2022). It empowers educators to persist through difficulties, such as struggling students or unforeseen classroom disruptions, while maintaining a focus on their educational objectives (Khedmatian et al., 2022).

Although studies exist regarding adaptive thinking in teaching practices, a significant research gap remains in Davao Oriental, Philippines, as no study has yet explored the combined influence of cognitive flexibility and grit on educators' adaptive teaching practices. While individual studies have examined these concepts in different educational settings, research investigating how these two factors interact and contribute to teaching effectiveness in Davao Oriental is lacking. Understanding the combined influence of cognitive flexibility and grit on adaptive thinking is crucial, particularly in areas where teachers face unique challenges.

This study aimed to examine the combined influence of cognitive flexibility and grit on adaptive thinking in teaching practices among public elementary school teachers in Baganga District, Division of Davao Oriental. This research was urgently needed because teachers face a rapidly evolving educational landscape, with increasing demands to address diverse student needs and adapt to changing teaching environments. The findings provided a deeper understanding of how cognitive flexibility and grit can enhance teachers’ adaptive thinking, fostering more resilient and effective teaching practices. The significance of this research lied in its potential to inform teacher development programs, guide policy decisions, and ultimately improve regional educational outcomes.



**Figure 1:** Conceptual Framework of the Study

**1.1 Statement of the Problem**

This study aimed to determine if cognitive flexibility and grit significantly predict adaptive thinking teaching practices among teachers in public secondary institutions in Baganga District, Division of Davao Oriental. Specifically, it sought answers to the following questions:

1. What is the extent of cognitive flexibility of teachers in terms of:

1.1 acceptance,

1.2 present moment awareness, and

1.3 self-as-context?

2. What is the extent of grit of teachers in terms of:

2.1 perseverance in teaching,

2.2 passion in teaching, and

2.3 purpose in teaching?

3. What is the extent of adaptive thinking teaching practices in terms of:

3.1 effectiveness of teaching thinking,

3.2 loyalty to curriculum, and

3.3 encouraging thinking?

4. Is there a significant relationship between:

4.1 cognitive flexibility and adaptive thinking teaching practices, and

4.2 grit and adaptive thinking teaching practices?

5. Do cognitive flexibility and grit significantly predict adaptive thinking teaching practices?

**1.2 Hypotheses**

The null hypotheses were tested at 0.05 level of significance:

The hypothesis under the study were tested at a significance level of 0.5.

Ho1. There is no significant relationship between cognitive flexibility and grit on adaptive thinking teaching practices.

Ho1. There is no significant influence between cognitive flexibility and grit on adaptive thinking teaching practices.

2. methodology

**2.1 Research Design**

This study employed a non-experimental quantitative research design utilizing the correlational method. This design was considered appropriate for examining the predictive relationship between cognitive flexibility and grit, and their influence on adaptive thinking teaching practices among public elementary school teachers. As Pregoner (2025) emphasized, patterns of association between psychological traits and professional behaviors can emerge due to underlying cognitive mechanisms or contextual factors. The correlational method enabled the researcher to analyze whether higher levels of cognitive flexibility and grit among teachers significantly predicted their use of adaptive thinking strategies in instructional settings. Through this approach, the study aimed to provide insights into the psychological traits that contribute to instructional adaptability—an essential competence in the dynamic environment of public elementary education.

**2.2 Research Respondents**

The respondents of this study were the 145 out of 260 public elementary school teachers in Baganga District, Division of Davao Oriental using Slovin’s formula, with a 95% confidence interval and a 5% margin of error, To maintain a uniform sample, specific inclusion criteria were established: First, participants had to be currently employed in a public elementary school within Baganga District, Division of Davao Oriental during the 2024-2025 academic year. Second, they have served at least one year of teaching experience in any subject area.

A simple random sampling technique was employed to select the participants. According to Demir (2022), this method ensures that every individual in the population has an equal and unbiased chance of selection. Each eligible teacher was assigned a unique identification number, and the final sample were chosen through a lottery system based on the compiled list of qualified teachers.

This sampling method allows for a thorough assessment of public elementary school teachers in Baganga District, Division of Davao Oriental while preserving sample uniformity according to the set criteria. It also ensures that the sample accurately represents the broader teacher population, providing a reliable foundation for analyzing the study's variables.

**2.3 Research Instrument**

In order to determine cognitive flexibility, grit and adaptive thinking teaching practices, an adopted survey questionnaire was used. The questionnaire to be used for this study will be composed of three parts, namely, the cognitive Flexibility Inventory, Grit Scale, and Adaptive Thinking Teaching Scale. The items in the questionnaire were carefully chosen and based on published related studies and literature.

An expert review panel of five individuals was asked to review the survey to establish content validity. These experts were asked about clarity and readability and to provide written comments on the issues table were included in the expert review packet. A pilot survey was conducted involving 30 teachers to determine the items' face validity and logical ordering. This process also determined if any items have been overrepresented or omitted in the data collection process. Changes were made to the survey based on the expert panel review and the pilot survey. Additionally, the pilot survey process was conducted to determine the instrument reliability of the survey. The Cronbach alpha coefficient was used to estimate the consistency of scores in the instrument. A Cronbach alpha score of 0.718 and above will be obtained to declare that the research instrument was reliable.

The reliability analysis for the Cognitive Flexibility scale yielded a Cronbach's alpha of 0.724, indicating acceptable internal consistency among the 15 items. The second part, the Grit scale, garnered a Cronbach's alpha of 0.718, across 15 items. Finally, the Adaptive Thinking in Teaching scale demonstrated a notably higher level of internal consistency, with Cronbach’s alpha of 0.891

**2.4 Data Gathering Procedure**

# In order to collect data for this study, the researcher undergoes the following processes and procedures:

# The data collection process for this study was carried out systematically to ensure ethical integrity and obtain the necessary authorizations. The process begins with a formal request for approval from the Dean of the Graduate School. Once this approval was secured, the request was subsequently submitted to the School's Division Superintendent for further evaluation. This sequential approval process ensures full compliance with institutional and educational standards.

# The next phase involves designing and distributing survey questionnaires that are carefully crafted to align with the study's objectives. Collaboration with school officials to ensure the efficient distribution of the surveys to public school teachers, accompanied by a clear explanation of the study's purpose. During the data collection process, the confidentiality and anonymity of respondents were prioritized to foster honest and transparent responses.

# Once data collection is completed, the information will be meticulously organized and analyzed. The questionnaires were tallied, and the responses were systematically documented for statistical evaluation. The data was carefully examined to identify relationships and influences related to cognitive flexibility, grit, and adaptive thinking teaching practices, utilizing statistical methods such as mean, standard deviation, Pearson's correlation coefficient, and multiple linear regression.

# 2.5 Data Analysis

In analyzing and interpreting the data gathered for this study, several statistical tools were utilized to determine the aim of the study.

Weighted Mean. This was employed to determine the extent of cognitive flexibility, grit, and adaptive thinking teaching practices.

Pearson Product-Moment Coefficient. This analysis was conducted to examine the significant relationship between cognitive flexibility, grit, and adaptive thinking teaching practices.

Multiple Linear Regression Analysis. This analysis was employed to determine whether cognitive flexibility and grit significantly predict adaptive thinking teaching practices.

3. results and discussion

**3.1 Extent of Cognitive Flexibility among Teachers in Public Elementary Schools**

Table 1. *Extent of Cognitive Flexibility among Teachers in Public Elementary Schools*

|  |  |  |  |
| --- | --- | --- | --- |
| **Indicators** | **SD** | **Mean** | **Descriptive Level** |
| Acceptance | 1.02 | 4.35 | Very Extensive |
| Present moment awareness | 1.00 | 4.38 | Very Extensive |
| Self-as-context | 1.05 | 4.41 | Very Extensive |
| **Overall** | **1.02** | **4.38** | **Very Extensive** | |

Presented in Table 1 are the indicators of the extent of cognitive flexibility of teachers, including acceptance, present moment awareness, and self-as-context, based on the mean scores and standard deviations. According to the data, the overall mean of 4.38 is categorized as "very extensive", suggesting that teachers exhibit strong cognitive flexibility in these areas. This indicates that teachers are highly adaptable in managing their thoughts, emotions, and behaviors, allowing them to effectively navigate diverse classroom situations. Among the indicators, self-as-context has the highest mean of 4.41, categorized as "very extensive", reflecting teachers' ability to maintain a broader perspective of their roles, separate from their experiences and emotions. Present moment awareness follows closely with a mean score of 4.38, also categorized as "very extensive" indicating that teachers are skilled at focusing on the present moment and being fully engaged in their teaching practices. Acceptance has a mean of 4.35, categorized as "very extensive" suggesting that teachers effectively embrace their thoughts and feelings, facilitating a more flexible and adaptive approach to their professional challenges. The overall standard deviation of 1.02 indicates a moderate spread around the mean, suggesting a consistent distribution of responses.

This finding aligns with Doorley et al. (2020), who described cognitive flexibility as the ability to adapt to challenging situations while maintaining a focus on meaningful goals. According to Kruty (2024), cognitive flexibility helps individuals respond to experiences in ways that align with their values, enabling teachers to manage classroom dynamics more effectively. Moreover, Marais (2020) emphasized that cognitive flexibility enhances teachers' well-being and effectiveness by helping them navigate stressors and adapt to changing circumstances.

**3.2 Extent of Grit among Teachers in Public Elementary Schools**

Table 2. *Extent of Grit among Teachers in Public Elementary Schools*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Indicators** | | **SD** | **Mean** | | **Descriptive Level** |
| Perseverance in Teaching | | 1.03 | 4.35 | | Very Extensive |
| Passion in Teaching | | 1.05 | 4.21 | | Very Extensive |
| Purpose in Teaching | | 1.08 | 4.19 | | Extensive |
| **Overall** | **1.04** | | **4.25** | **Very Extensive** | | |

Presented in Table 2 is the summary of indicators in the extent of the grit of teachers, including perseverance in teaching, passion in teaching, and purpose in teaching, based on the mean scores and standard deviations. According to the data, the overall mean of 4.25 is categorized as "very extensive" suggesting that teachers generally demonstrate a strong level of grit in these areas. This reflects their determination and dedication to their profession, showing strong levels of perseverance, passion, and purpose. Among the indicators, perseverance in teaching has the highest mean of 4.35, categorized as "very extensive," indicating that teachers exhibit a strong commitment to overcoming challenges in the teaching process. Passion in teaching follows with a mean score of 4.21, also categorized as "very extensive," suggesting that teachers have a deep enthusiasm and love for their work. Purpose in teaching has a slightly lower mean of 4.19, categorized as "extensive," indicating that while teachers demonstrate a clear sense of purpose, there is room for further strengthening this aspect of their professional drive. The overall standard deviation of 1.04 indicates a moderate spread around the mean, suggesting a relatively consistent distribution of responses.

This finding aligns with Lan et al. (2022) definition of grit, which focuses on the sustained effort and determination teachers demonstrate to achieve long-term educational goals. Such persistence is especially critical in the face of challenges, such as limited resources, diverse student needs, and shifting educational policies. Teachers who exhibit high levels of grit are more likely to remain committed to their professional objectives despite setbacks, thereby enhancing both student outcomes and institutional resilience. This suggests that grit is not only a personal trait but also a crucial factor in educational success. In line with this, Hamilton (2020) highlighted that grit enables teachers to persist through challenges and remain steadfast in their professional duties. Additionally, Namaziandost (2022) emphasized that grit is essential for teachers to maintain consistency and effectiveness in their teaching practices, even when faced with adversity or setbacks.

**3.3 Extent of Adaptive Thinking Teaching Practices among Teachers in Public Elementary Schools**

Table 3. *Extent of Adaptive Thinking Teaching Practices among Teachers in Public Elementary Schools*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Indicators** | | **SD** | **Mean** | | **Descriptive Level** |
| Effectiveness of Teaching Thinking | | 1.06 | 4.41 | | Very Extensive |
| Loyalty to Curriculum | | 1.08 | 4.35 | | Very Extensive |
| Encouraging Thinking | | 1.02 | 4.40 | | Very Extensive |
| **Overall** | **1.02** | | **4.39** | **Very Extensive** | | |

Presented in Table 3 is the summary of indicators in the teaching practices of teachers, including the effectiveness of teaching thinking, loyalty to curriculum, and encouraging thinking, based on the mean scores and standard deviations. According to the data, the overall mean of 4.39 is categorized as "very extensive", indicating that teachers consistently demonstrate strong adaptive thinking in these areas. This suggests that teachers are highly effective in fostering critical thinking, maintaining alignment with curriculum objectives, and encouraging students to actively engage in the learning process. Among the indicators, effectiveness of teaching thinking has the highest mean of 4.41, categorized as "very extensive" reflecting teachers' ability to employ strategies that stimulate students' cognitive development and problem-solving skills. Loyalty to curriculum follows closely with a mean score of 4.35, also categorized as "very extensive", indicating that teachers prioritize adhering to curriculum objectives while incorporating adaptive thinking practices. Encouraging thinking has a slightly lower mean of 4.40, but it is still categorized as "very extensive", suggesting that teachers are committed to promoting an environment where students are encouraged to think critically and express their ideas. The overall standard deviation of 1.02 indicates that the ratings were spread out moderately around the mean.

This finding aligns with Chew et al. (2021) focus on the role of teaching practices that challenge students cognitively, helping them develop adaptive thinking skills. Khalid et al. (2020) emphasized that teachers who create learning environments that present diverse challenges enable students to refine their thinking and expand their problem-solving capabilities. Killen (2023) also argued that effective teaching should encourage students to engage with complex issues, allowing them to adjust their thinking and approach when confronted with new and varying contexts.

**3.4 Significant Relationship between Cognitive Flexibility, Grit and Adaptive Thinking Teaching Practices**

Table 4. *Significant Relationship between Cognitive Flexibility, Grit and Adaptive Thinking Teaching Practices*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Adaptive Thinking Teaching Practices** | | |
|  | R | p-value | Remarks |
| **Cognitive Flexibility** | 0.740 | 0.000 | Significant |
| **Grit** | 0.820 | 0.000 | Significant |

Presented in Table 4 is the correlation analysis between cognitive flexibility, grit, and adaptive thinking teaching practices. The relationship between psychological flexibility and adaptive thinking teaching practices has a correlation coefficient of 0.740 with a p-value of 0.000, indicating a significant positive relationship between cognitive flexibility and adaptive thinking teaching practices. Similarly, the relationship between grit and adaptive thinking teaching practices has a correlation coefficient of 0.820 with a p-value of 0.000, also demonstrating a significant positive relationship. These findings suggest that higher levels of cognitive flexibility and grit are strongly associated with more effective adaptive thinking teaching practices.

This finding aligns with the research of Auerbach et al. (2020), who emphasized that Cognitive flexibility enables teachers to adapt to changing circumstances in the classroom, thus fostering a learning environment where adaptive thinking can thrive. Similarly, Ng et al. (2023) suggested that teachers who exhibit cognitive flexibility are more capable of implementing varied teaching strategies, encouraging students to think critically and adapt their approaches to learning.

In relation to grit, Fathi et al. (2023) highlighted that grit enables teachers to maintain their commitment to long-term goals, even in the face of challenges, which positively influences their ability to foster adaptive thinking. Likewise, Namaziandost et al. (2022) emphasized that teachers with high levels of grit are more likely to persist in creating dynamic and engaging learning environments which support the development of adaptive thinking skills. Robertson-Kraft and Duckworth (2014) found that novice teachers with high grit levels demonstrated greater teaching effectiveness and were more likely to remain in the profession, suggesting that grit underpins long-term commitment and professional resilience. Similarly, Sun (2022) showed that grit, alongside resilience, was a significant predictor of creativity among Chinese EFL teachers, highlighting its role in promoting flexible and innovative teaching practices.

**3.5. Significant Influence Between Cognitive Flexibility, Grit on Adaptive Thinking Teaching Practices**

**Table 5.** *Significant Influence Between Cognitive Flexibility, Grit on Adaptive Thinking Teaching Practices*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | **Adaptive Thinking Teaching Practices** | | | |
| Singular Influence of the  Predictors | | Standardized Coefficients | T | p-value | Remarks |
| **Cognitive Flexibility** | | 0.388 | 4.258 | 0.000 | Significant |
| **Grit** | | 0.540 | 8.235 | 0.000 | Significant |
| Combined Influence of the Predictors | | | | |  |
| R | 0.678 |  |  |  |  |
| R2 | 0.456 |  |  |  |  |
| F | 70.312 |  |  |  |  |
| P | 0.000 |  |  |  | Significant |

Presented in Table 5 is the multiple regression analysis examining the influence of cognitive flexibility and grit on adaptive thinking teaching practices. The analysis shows that both cognitive flexibility and grit significantly predict adaptive thinking teaching practices. Specifically, cognitive flexibility has a positive influence on adaptive thinking teaching practices, with a standardized coefficient of 0.388, a t-value of 4.258, and a p-value of 0.000, indicating that as cognitive flexibility increases, so does the adaptive thinking teaching practice.

Grit, on the other hand, shows a stronger influence with a standardized coefficient of 0.540, a t-value of 8.235, and a p-value of 0.000, indicating a highly significant and positive impact on adaptive thinking teaching practices. For every unit increase in grit, adaptive thinking teaching practices improve more significantly than with cognitive flexibility.

When considering the combined influence of both predictors, the R value is 0.678, indicating a strong positive relationship with adaptive thinking teaching practices. The R² value of 0.456 shows that 45.6% of the variance in adaptive thinking teaching practices is explained by the combined effect of cognitive flexibility and grit. Additionally, the model is statistically significant, as indicated by the F-value of 70.312 and the p-value of 0.000. This suggests that cognitive flexibility and grit together have a significant influence on adaptive thinking teaching practices. Therefore, the findings highlight that both factors are important contributors to enhancing adaptive thinking teaching practices, with grit having the stronger impact.

The results of the study suggest that cognitive flexibility and grit together have a significant influence on adaptive thinking teaching practices. Teachers who exhibit higher levels of cognitive flexibility are better able to adjust to changing classroom dynamics and respond effectively to diverse student needs, while grit enables them to persevere through challenges and maintain a long-term commitment to improving their teaching practices (Erarslan, 2023). This combination fosters an environment in which teachers are not only resilient in the face of setbacks but also adaptable, allowing them to continuously refine their instructional strategies to engage students better and enhance learning outcomes (Dass et al., 2024). Additionally, a study by Decker (2024) underscores that the interplay between cognitive flexibility and grit equips teachers to embrace innovation, adopt new teaching methods, and improve their overall pedagogical effectiveness, thus fostering adaptive thinking in their teaching practices.

**5. CONCLUSIONS**

Based on the findings of the study, the following conclusions were formulated:

The cognitive flexibility of teachers is always observed, indicating that teachers consistently demonstrate very extensive levels of acceptance, present-moment awareness, and self-as-context. This suggests that teachers are able to adapt to the challenges of teaching, remain open to different perspectives, and manage their emotions effectively, all of which contribute positively to their teaching practices.

The grit of teachers is always observed, highlighting that teachers consistently exhibit perseverance, passion, and a strong sense of purpose in their teaching. This resilience helps them persist through challenges and maintain a long-term commitment to their profession, which is essential for fostering a productive learning environment.

The teaching practices of the adaptive thinking of teachers are always manifested, reflecting their ability to think critically, solve problems, and encourage creativity and innovative thinking in their students. These practices are essential for creating an environment that values flexibility and adaptability, allowing students to thrive in dynamic and ever-changing educational contexts.

A significant relationship exists between cognitive flexibility and adaptive thinking teaching practices. Teachers who exhibit higher levels of cognitive flexibility tend to engage in more adaptive thinking in their teaching, allowing them to better adjust to classroom challenges and improve the effectiveness of their teaching strategies.

Similarly, there is a significant relationship between grit and adaptive thinking teaching practices. Teachers with higher levels of grit are more likely to employ adaptive thinking in their teaching, as their persistence and passion help them overcome challenges and find creative solutions to improve student learning outcomes.

Finally, cognitive flexibility and grit significantly predict adaptive thinking teaching practices. Teachers who possess both cognitive flexibility and grit are more likely to engage in adaptive thinking, as these qualities enable them to approach teaching with resilience, open-mindedness, and a commitment to continuous improvement.

Based on the results of the study, it was found that cognitive flexibility and grit significantly predict adaptive thinking teaching practices among teachers. This outcome is consistent with the theoretical frameworks of Acceptance and Commitment Theory, Self-Determination Theory and Growth Mindset Theory. According to Acceptance and Commitment Theory by Lundgren et al. (2020), cognitive flexibility allows teachers to engage with challenges in a more adaptive way, fostering creativity and resilience in their teaching practices. Self-Determination Theory by Deci and Ryan (2024), suggests that grit, with its focus on perseverance and passion for teaching, enhances teachers' intrinsic motivation, which contributes to better adaptive thinking in the classroom. Finally, Growth Mindset Theory by Dweck (2006), as cited by Campbell et al. (2020), emphasizes that teachers with a growth mindset, who possess both cognitive flexibility and grit, are more likely to promote adaptive thinking by viewing setbacks as opportunities for growth. These findings indicate the crucial role of cognitive flexibility and grit in shaping effective adaptive thinking teaching practices.

**6. RECOMMENDATIONS**

Based on the findings and conclusions of the study, the following recommendations were proposed:

Given that cognitive flexibility among teachers is very extensive, it may be beneficial for schools to continue fostering and enhancing this key trait. Administrators may consider offering programs focused on developing emotional regulation, mindfulness practices, and acceptance strategies to strengthen teachers’ cognitive flexibility further. This could include workshops on stress management, coping with strategies for challenges, and creating an adaptive mindset. Supporting teachers in building cognitive flexibility may enable them to navigate classroom challenges more effectively, leading to more innovative and adaptable teaching practices.

Since grit among teachers is also very extensive, schools may focus on maintaining and enhancing this perseverance and passion for teaching. Providing teachers with opportunities for professional development that align with their passions and long-term goals can help sustain their grit. Administrators may also implement initiatives that celebrate and recognize teachers' dedication and persistence, further motivating them to engage deeply in their teaching. Encouraging a culture of resilience and goal setting can help teachers maintain their commitment to educational excellence despite challenges.

Given that adaptive thinking teaching practices are very extensive, schools may continue nurturing and support the development of these practices among teachers. Administrators may promote collaborative environments where teachers can exchange strategies for fostering adaptive thinking in their classrooms. Providing teachers with resources, tools, and time for reflective practices could also be beneficial in maintaining the very extensive level of adaptive thinking teaching practices. Additionally, schools may encourage innovation and creative problem-solving by allowing teachers to experiment with new teaching methods and share their experiences with peers.

Considering the significant relationships between cognitive flexibility, grit, and adaptive thinking teaching practices, it is recommended that schools adopt a comprehensive approach that integrates these three elements. Leaders may foster a school environment that emphasizes the importance of cognitive flexibility, resilience, and perseverance, while also encouraging adaptive teaching strategies. Creating an empowering atmosphere that promotes these attributes may further enhance the teaching effectiveness of educators and positively impact student learning outcomes.

Since cognitive flexibility and grit significantly predict adaptive thinking teaching practices, it may be recommended that schools focus on further developing these factors through targeted professional development and supportive programs. Administrators could offer specialized training on how to cultivate perseverance and adaptability, as well as encourage teachers to reflect on their growth and how these traits influence their teaching. Supporting teachers in these areas may help maintain high levels of adaptive thinking, ultimately benefiting both the teachers and their students.

The findings of this study offer valuable insights for policymakers and institutions involved in teacher education and professional development. Policymakers may use the results to inform evidence-based strategies that support instructional innovation and collaborative leadership in schools, particularly in underserved regions. Integrating concepts such as cognitive flexibility and grit into teacher training curricula can enhance teachers' adaptive capacities and resilience in dynamic classroom environments. Teacher training institutes, in turn, can design targeted programs that cultivate these attributes through experiential learning, reflective practice, and mentoring. By aligning policy initiatives and training frameworks with the competencies highlighted in this study, stakeholders can better equip educators to meet evolving educational challenges.

Consent (where ever applicable)

This study was carried out in strict compliance with established ethical guidelines to ensure the protection, dignity, and well-being of all participants. Prior to data collection, the researcher secured all required approvals from the appropriate institutional authorities, including endorsement from the Dean of the Graduate School and clearance from the designated Ethics Review Committee. The ethical procedures followed were based on the principles outlined by Pregoner et al. (2025), in accordance with contemporary standards for conducting educational research involving human subjects. Participation in the study was entirely voluntary. All participants were thoroughly informed about the study’s aims, methods, and their right to decline or withdraw at any point without any negative consequences. Informed consent was obtained to confirm their understanding and agreement to take part. To ensure anonymity, no personal identifiers were gathered, and confidentiality was strictly upheld throughout the research. All data collected were used exclusively for academic purposes, reinforcing the transparency, ethical accountability, and overall integrity of the research process.

Disclaimer (Artificial Intelligence)

The author(s) hereby declare that generative AI technologies have been used during the writing and editing of this manuscript. The details of the AI usage are as follows:

1. Grammarly: Used for grammar and spellchecking, as well as suggestions for improving sentence structure and overall clarity.
2. Quillbot: Employed for paraphrasing and refining sentence flow to enhance readability and coherence.

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