Journal for Educators, Teachers and Trainers
The PROFESIOLab electronic, peer-reviewed, open-access Magazine

ISSN 1989-9572

DOI: 10.47750/jett.2025.16.04.24

EXPLORING THE ROLE OF MIDDLE LEADERS IN SUPPORTING MATHEMATICALLY GIFTED STUDENTS

Lukanda Kalobo

Journal for Educators, Teachers and Trainers, Vol.16(4)

https://jett.labosfor.com/

Date of reception: 10 Feb 2025

Date of revision: 15 Mar 2025

Date of acceptance: 13 April 2025

Lukanda Kalobo (2025). EXPLORING THE ROLE OF MIDDLE LEADERS IN SUPPORTING MATHEMATICALLY GIFTED STUDENTS. ***Journal for Educators, Teachers and Trainers, Vol.16(4) 372-391***

Journal for Educators, Teachers and Trainers, Vol.16(4)

ISSN 1989-9572

https://jett.labosfor.com/

EXPLORING THE ROLE OF MIDDLE LEADERS IN SUPPORTING MATHEMATICALLY GIFTED STUDENTS

Lukanda Kalobo
Email: lkalobo@cut.ac.za
Central University of Technology, South Africa
Department of Mathematics, Science and Technology education
Senior Lecturer Mathematics and Mathematics Methodology

ABSTRACT

This research explores the role of middle leaders in supporting mathematically gifted students. While much of the literature on gifted education emphasizes academic outcomes, this study shifts the focus to the perceptions of middle leaders in fostering an inclusive and supportive environment that nurtures mathematically gifted students. Drawing on data from 34 middle leaders in a district of Free State Province, South Africa, the study uses semi-structured interviews. The data were analyzed through thematic analysis, and the findings are framed within the Distributed Leadership Theory (DLT), which sees leadership as shared across roles, leveraging collective expertise in decision-making and problem-solving.

The study reveals that middle leaders recognize the importance of providing an environment where gifted students are neither isolated nor disengaged. They highlight the need for clear communication of desired learning outcomes, as well as for giving students agency over their educational journey. These leadership practices align with the broader aim of creating a more equitable and transformative educational experience for gifted students. The insights provided by middle leaders in this study

contribute valuable evidence to the literature on leadership in education, offering practical recommendations for improving support for mathematically gifted students and empowering them to drive meaningful change in society.

KEY WORDS: Educational Provisions, Inclusive Education, Middle Leader, Mathematically Gifted Student, Transformative Learning

INTRODUCTION

This research examines the role of middle leaders in supporting mathematically gifted students through Distributed Leadership Theory (DLT). While much of the existing literature on gifted education focuses on academic outcomes, this study shifts attention to how middle leaders, such as principals, deputy principals, head of department and subject specialists, create inclusive environments for gifted students. It aims to understand how middle leaders perceive their role in nurturing the growth of mathematically gifted students, a group often overlooked in educational reforms (Anderson & Sun, 2017; Yan & Yang, 2021).

Framed by Distributed Leadership Theory (Spillane, 2006), which views leadership as shared across various roles, this research explores how leadership, teaching, and collaborations shape educational experiences for gifted students. By exploring the role of middle leaders in supporting mathematically gifted students, the study contributes to the discourse on educational leadership and offers insights into how DLT can enhance the learning experience for mathematically gifted students in middle schools.

PROBLEM STATEMENT

Mathematically gifted students possess advanced cognitive abilities that allow them to excel in mathematics beyond the capabilities of their peers (Leikin, et al., 2017, Yip, et al., 2025). However, traditional teaching methods often fail to adequately challenge or engage these students, requiring designed educational strategies and specialised support. Middle leaders, positioned between senior management and classroom teachers, play a critical role in addressing the unique needs of mathematically gifted students by translating strategic goals into actionable classroom practices. Despite

their pivotal role, there is a lack of comprehensive research on how middle leaders specifically support mathematically gifted students and foster environments that meet their advanced learning needs. This gap in knowledge calls for further exploration into the strategies and practices used by middle leaders to promote the academic growth of mathematically gifted Students and enhance their educational experience.

RESEARCH QUESTION AND AIM

Research Question

The research question guiding this study is: How do middle leaders support mathematically gifted students while creating an inclusive learning environment?

Research Aim

The aim of this study is to explore how middle leaders support mathematically gifted students while creating an inclusive learning environment.

LITERATURE REVIEW

Understanding Gifted Students and Underachievement

Gifted students often underperform due to inadequate educational environments and a lack of academic challenges, especially during the transition from elementary to middle school (Steenbergen-Hu et al., 2020; Barbier et al., 2022). Research emphasizes the critical role of school leadership, particularly principals, in addressing these issues and supporting gifted students (Guilbault & Kirsch, 2020; Hutton, 2018).

Theoretical Models of Giftedness

Models of giftedness, such as Gagné's Differentiated Model (2005), Renzulli's Tripartite Model (1988), and Ziegler's Actiotope Model (2005), emphasize the interplay between innate talent and environmental factors. Mathematical giftedness is now understood not only as an inherent trait but also as the result of educational experiences that stimulate intellectual curiosity (Leikin, 2021; Regier & Savic, 2020). Recent research also underscores the role of cognitive flexibility and creativity in explaining mathematical giftedness (Pelczer et al., 2013; Voica & Singer, 2013).

Characteristics of Mathematically Gifted Students

Mathematically gifted students excel in problem-solving, innovative thinking, and forming complex mathematical connections (Leikin, 2014; Deary, 2020). Their cognitive flexibility and creativity enable them to approach challenges with unique solutions (Pelczer et al., 2013; Schoevers et al., 2021). Fostering creativity boosts their motivation, engagement, and confidence (Bicer et al., 2020; Regier & Savic, 2020). Emotional and motivational factors also play a key role in their success (Silverman, 2020). They exhibit advanced critical thinking, strong memory, and excel in visual-spatial reasoning (Leikin et al., 2013; Al-Hroub, 2021). Ultimately, they demonstrate a deep understanding of concepts and offer original solutions (Ramírez-Uclés et al., 2018).

Educational Practices for Supporting Mathematically Gifted Students

Supporting mathematically gifted students requires differentiated instruction to meet their unique needs. Researchers are exploring effective approaches (Mofield, 2020), as these students are often placed in mainstream classrooms without the necessary accommodations to nurture their abilities (Brigandi et al., 2019). Without proper support, they may become disengaged and underachieve (Diezmann, 2018; Hoth et al., 2017). Teachers should implement strategies that promote independent thinking, creativity, and metacognitive development, while fostering self-regulation for long-term success (Ronksley-Pavia & Neumann, 2020; Steenbergen-Hu et al., 2020; Barbier et al., 2022).

Role of Leadership in Supporting Gifted Students

Leaders, particularly middle leaders such as principals and department heads, are essential in supporting gifted students. They promote collaboration among educators, families, and service providers to create an environment where gifted students can access the resources and strategies needed for their academic and personal growth. Effective leadership motivates and guides others while upholding rigorous academic standards (Vergeer et al., 2025). Middle leaders also play a crucial role in shaping policies and curriculum to meet the needs of gifted students, ensuring that these students receive appropriate challenges and support (Eyre, 2021).

Middle Leaders' Advocacy and Challenges

Middle leaders are key in advocating for differentiated instruction and specialized programs for mathematically gifted students (Tannenbaum, 2020). However, they face challenges like limited resources and unclear policies, which hinder their ability to create effective learning environments (Haug, 2020; Eyre, 2021). Without clear policies, they navigate complex systems to support gifted students (Oswald & Rabie, 2017). Their views on differentiation and acceleration programs are influenced by available resources, cultural values, and the well-being of gifted students (Rambo & McCoach, 2022; VanTassel-Baska et al., 2020; Gentry et al., 2021).

Policy and Leadership Support for Gifted Education

In many educational systems, national policies on gifted education are often unclear or insufficient, making it difficult for middle leaders to provide adequate support for gifted students. In such environments, middle leaders must advocate for targeted support and adjust policies to align with the needs of gifted students (Haug, 2020; Sousa, 2019). This advocacy is essential for ensuring that gifted students receive the specialized programs and resources they need, despite the absence of clear national or local policies (Gubbins et al., 2021; Haug, 2020).

THEORETICAL FRAMEWORK

This study is based on Distributed Leadership Theory (DLT), which emerged as a response to the limitations of traditional hierarchical leadership models. While leadership ideas like DLT have existed since the 13th century (Oduro, 2004), it was formalized in the mid-20th century by scholars like Gibbs (1954), with the theory gaining prominence in education in the early 21st century (Bush et al., 2018). DLT evolved from Instructional Leadership Theory, which was critiqued for its narrow, principal-centered focus (Spillane, 2006). This study views leadership as a collaborative, collective process, where it is distributed across various school roles to leverage staff expertise for organizational improvement (Spillane et al., 2004; Harris, 2004).

DLT challenges traditional, principal-centered structures by decentralizing leadership, involving leaders, teachers, and students (Spillane, 2006; Spillane et al., 2004). It also emphasizes the importance of context, as the socio-cultural and organizational

environment shapes leadership effectiveness (Spillane et al., 2004). Leadership practices must adapt to the unique needs of each school.

Spillane (2006) identifies three forms of leadership distribution: collaborative, collective, and coordinated. In supporting gifted students, middle leaders such as subject-specialist teachers and deputy principals are key in implementing DLT, collaborating with senior leaders and teachers to meet the needs of gifted students. This research applies DLT principles to explore how middle leaders can support mathematically gifted students through collaboration and shared decision-making.

METHODOLOGY

Research Approach

Interviews were the primary data collection method, allowing participants to share their insights and strategies in their own words. This approach provided rich, firsthand information on how middle leaders support mathematically gifted Students, offering a deeper understanding of their roles (Islam & Aldaihani, 2022).

Data collection

The interview consisted of four open-ended questions designed to explore various aspects of middle leadership in this context. These questions include: 1) How do middle leaders support mathematically gifted students while collaborating with senior leadership and teachers to address their needs? 2) What challenges do middle leaders face in implementing differentiated instruction or specialized programs for gifted students, and how do they overcome these challenges? 3) How do middle leaders ensure school policies and leadership practices foster an inclusive and challenging environment for the growth of mathematically gifted students? 4) How do middle leaders assess and adapt their practices for mathematically gifted students, and in what ways do these strategies influence their academic outcomes?

The focus of the interview is on research exploring how middle leaders support mathematically gifted students, offering insights into effective leadership practices and recommendations for improving support for gifted students.

Sampling Technique

A purposive sampling technique was used to intentionally select middle leaders based on their roles and experience with mathematically gifted students. This approach ensured that participants had relevant expertise and experience in supporting gifted students.

Sample Size

The study involved 34 middle leaders from various schools within one of the districts in the Free State Province.

DATA ANALYSIS

Thematic analysis revealed patterns in middle leaders' responses, grouping them into five categories such as: Supporting gifted students through collaboration, building collaborative networks, challenges and solutions in differentiated instruction, fostering an inclusive and challenging environment, and assessing and adapting leadership practices for gifted students. These categories were further divided into subcategories based on the analysis of middle leaders' interviews. Each participant was assigned a unique identifier (e.g., ML1) for anonymity in the analysis.

Supporting Gifted Students through Collaboration

Supporting gifted students through collaboration consists of two subthemes: Developing collaborative networks and promoting shared leadership in gifted education. Building collaborative networks and shared leadership in gifted education emerged as essential strategies in supporting gifted students.

This reflects the idea that leadership does not solely rest on one individual but is instead a shared responsibility, which can enhance the effectiveness of gifted education programs.

Building collaborative networks

The role of middle leaders in fostering communication and collaboration between teachers, senior leadership, and other school staff to create a cohesive support system for mathematically gifted students.

Several participants emphasized the importance of forming networks among educators, parents, and community members. Participant ML1 noted:

"Collaborating with colleagues and parents allows for a richer learning environment and ensures gifted students receive the holistic support they need."

This highlights the significance of collective efforts in meeting the diverse needs of gifted students.

Shared leadership in gifted education

Shared leadership in gifted education is how middle leaders, working together with senior management, implement strategies and allocate resources that foster the academic development of gifted students. Another participant, ML2, pointed out the role of shared leadership in fostering a sense of ownership among all stakeholders. They commented:

"When leadership is distributed and shared, it empowers teachers to take initiative and feel invested in the success of gifted students."

This reflects the idea that leadership does not solely rest on one individual but is instead a shared responsibility, which can enhance the effectiveness of gifted education programs.

Challenges and Solutions in Differentiated Instruction

Addressing resource constraints and managing resistance to change were identified as significant barriers to effective differentiated instruction.

Overcoming resource limitations

How middle leaders address the challenge of limited resources (e.g., teaching materials, specialized training) when implementing differentiated programs for mathematically gifted students. A common concern among participants was the scarcity of resources, which restricts their ability to tailor instruction to the needs of all students. Participant ML3 shared:

"While I want to differentiate instruction for each gifted Student, the lack of sufficient materials and time makes it difficult to provide the individualized attention they need."

Navigating resistance to change

These are challenges middle leaders face in overcoming resistance from educators or parents regarding the adoption of differentiated instruction methods for gifted students and how they manage these barriers. Resistance to change was another challenge mentioned as ML4 remarked:

"It can be difficult to shift the mindset of some colleagues who are used to traditional methods and are reluctant to adopt more flexible, student-centered approaches."

This comment underscores the need for ongoing professional development and support to facilitate the implementation of effective differentiated strategies.

Fostering an Inclusive and Challenging Environment

The theme of aligning policies with gifted student needs and creating a culture of high expectations was discussed in relation to fostering an environment that is both inclusive and challenging for gifted students.

Aligning policies with gifted Student needs

The role of middle leaders in ensuring that school policies are aligned with the academic and emotional needs of mathematically gifted students, promoting an inclusive environment. ML5 stressed the importance of aligning school policies with the specific needs of gifted students, stating:

"It's crucial that policies support personalized learning opportunities that challenge gifted students while also acknowledging their unique social and emotional needs."

Creating a culture of high expectations

How middle leaders instil a culture of academic rigor and inclusivity that challenges mathematically gifted students while providing the necessary support. The idea of a *culture of high expectations* was also echoed by ML6, who noted:

"Creating a classroom culture where high expectations are the norm encourages gifted students to push themselves further, knowing they are capable of achieving great things."

This comment highlights how a culture that expects excellence can be a driving force for gifted students to reach their full potential.

Assessing and Adapting Leadership Practices for Gifted Students

Assessing and adapting leadership practices for gifted students includes two subthemes: Ongoing evaluation of practices and the impact of adaptive strategies on academic performance.

Ongoing evaluation of practices

Middle leaders regularly assess and adjust instructional strategies and leadership practices to address the evolving needs of mathematically gifted students through ongoing evaluation of practices. Participant ML7 shared:

"Constantly assessing our teaching practices and being open to adapting them based on student feedback ensures that we are meeting the evolving needs of gifted students."

This aligns with the idea that leadership in gifted education must be dynamic and responsive to students' needs.

Impact of adaptive strategies on academic performance

The relationship between middle leaders' adaptations in teaching and leadership strategies and the resulting academic outcomes for gifted students. Another participant, ML8, reflected on the impact of adaptive leadership, stating:

"When we adjust our leadership strategies based on student progress and needs, we see improvements not only in academic performance but also in student engagement and motivation."

This insight highlights the significant role that adaptive leadership plays in improving outcomes for gifted Students.

The data reveals that successful support for gifted students involves collaboration, overcoming resource limitations, fostering high expectations, and ongoing evaluation of leadership practices. By building collaborative networks, overcoming resistance to change, and aligning policies with the unique needs of gifted students, educators can create an environment that promotes both inclusivity and high achievement.

Furthermore, the flexibility of leadership practices plays a crucial role in adapting to the diverse needs of gifted Students, ultimately enhancing their academic success.

Limitations

This study has limitations. The small, limited sample size means the findings may not represent all educators' experiences. The focus on current practices without considering historical or contextual factors limits the analysis, and further exploration of these factors would deepen understanding of their effectiveness.

Discussion of Data Analysis

The analysis identifies four key themes essential for the support and development of gifted students: Collaboration, Challenges in Differentiated Instruction, Fostering an Inclusive and Challenging Environment, and Ongoing Evaluation of Leadership Practices. These themes provide valuable insights into the strategies employed by educators, the challenges they encounter, and the methods used to improve the learning outcomes of gifted students. The findings also highlight areas for improvement, particularly regarding resource constraints, resistance to change, and the need for more adaptive leadership and collaboration.

Collaboration for Gifted Students

The analysis underscores the importance of collaborative networks among educators, parents, and the community. Shared leadership in gifted education was identified as a key strategy for empowering teachers and providing a holistic approach to supporting gifted students. This finding aligns with existing research that highlights the significance of teamwork and distributed leadership in enhancing educational outcomes for gifted students (Guilbault & Kirsch, 2020; Hutton, 2018). Collaboration between educators, families, and community stakeholders is crucial for ensuring that gifted students receive the appropriate support and resources needed for their academic and personal growth (Vergeer et al., 2025).

Challenges in Differentiated Instruction

Resource limitations and resistance to change emerged as significant obstacles in implementing differentiated instruction. Educators highlighted the difficulties of

meeting the diverse needs of gifted Students due to constraints in time, materials, and professional development opportunities (Haug, 2020). The resistance to adopting new instructional methods further exacerbates these challenges, underscoring the need for sustained professional development and institutional support (Oswald & Rabie, 2017). This supports existing research which emphasizes the challenges of providing differentiated instruction and specialized programs for mathematically gifted students (Tannenbaum, 2020; Haug, 2020).

Fostering an Inclusive and Challenging Environment

The importance of aligning school policies with the specific needs of gifted students was emphasized, alongside cultivating a culture of high expectations. Educators noted that policies must be flexible to accommodate the unique needs of gifted students, while maintaining an environment that promotes high standards for success (Gubbins et al., 2021). Creating such an environment also involves recognizing the importance of emotional and motivational factors, which play a key role in the success of gifted students (Silverman, 2020; Leikin et al., 2013). This aligns with research highlighting the critical role of leadership in shaping policies and curriculum that meet the needs of gifted students (Eyre, 2021).

Ongoing Evaluation of Leadership Practices

Middle leaders were found to regularly assess and adapt their instructional strategies and leadership practices to meet the evolving needs of mathematically gifted students. This ongoing evaluation is crucial for ensuring that leadership practices remain effective in driving student engagement and improving academic performance (Spillane, 2006). As identified in the literature, middle leaders, such as subject-specialist teachers and deputy principals, are key in implementing differentiated strategies and collaborating with senior leaders to support gifted students (Vergeer et al., 2025; Eyre, 2021). Their role in adapting leadership practices to support the unique needs of gifted students is crucial for long-term academic success.

In summary, the study reveals that fostering environments for gifted students requires enhancing collaboration, addressing resource limitations, and adapting leadership practices. Shared leadership, ongoing evaluation, and a focus on policies that support gifted students are essential for creating an inclusive, challenging, and effective

educational environment where gifted students can thrive (Guilbault & Kirsch, 2020; Hutton, 2018; Eyre, 2021).

Recommendations

Enhance Collaboration and Shared Leadership

Schools should prioritize the creation of collaborative networks that involve not only teachers but also parents, administrators, and community members. Shared leadership approaches should be promoted, where leadership responsibilities are distributed across various stakeholders, ensuring a more inclusive approach to gifted education.

Provide Adequate Resources and Professional Development

Addressing resource limitations should be a priority, with schools allocating more time, funding, and materials to support the differentiated needs of gifted students. Additionally, professional development programs should focus on training educators to implement differentiated instruction effectively and to overcome resistance to new teaching methods.

Policy Alignment and High Expectations

Educational policies should be re-evaluated and aligned with the specific needs of gifted students. This includes providing personalized learning opportunities and creating an academic environment where high expectations are the norm. Leaders should foster an environment where gifted students are consistently challenged and supported to achieve their full potential.

Support Ongoing Evaluation and Adaptation

Educational leaders should continue to assess and adapt their instructional practices regularly to meet the evolving needs of gifted students. This requires the establishment of systematic evaluation processes and the use of data to inform practice. Middle leaders should be given the tools and resources necessary to lead these evaluations and adapt their strategies as needed.

Conclusion

The data analysis highlights the complexity of supporting gifted students and the critical role that collaboration, adaptive leadership, and the alignment of policies and

practices play in their educational success. The challenges identified particularly in relation to resources and resistance to change are significant but not insurmountable. By fostering collaborative networks, aligning policies with gifted students' needs, and continually evaluating and adjusting leadership practices, educational institutions can better meet the needs of gifted students and promote an environment conducive to high achievement.

The data analysis highlights the complexity of supporting gifted students and the critical role that collaboration, adaptive leadership, and the alignment of policies and practices play in their educational success. The challenges identified particularly in relation to resources and resistance to change are significant but not insurmountable. By fostering collaborative networks, aligning policies with gifted students' needs, and continually evaluating and adjusting leadership practices, educational institutions can better meet the needs of gifted students and promote an environment conducive to high achievement.

Further Research Studies

Future research should focus on the impact of collaborative networks (e.g., teacher-parent partnerships) on gifted students' development, the long-term effects of differentiated instruction on their academic and creative growth, and the role of leadership in shaping gifted education success. Additionally, exploring cultural factors in gifted education could improve global practices. These studies will help refine strategies to better support gifted Students.

Acknowledgement

The authors express gratitude to their colleagues from the Department of Mathematics, Sciences, and Technology Education at the Central University of Technology for their support in preparing this paper. However, the views, findings, and recommendations presented in this study are solely those of the authors and do not represent the perspectives of the Department or the University.

References

Al-Hroub, A. (2021). Utility of psychometric and dynamic assessments for identifying cognitive characteristics of twice-exceptional students. *Frontiers in Psychology, 12*, 747872. https://doi.org/10.3389/fpsyg.2021.747872

Anderson, M. H., & Sun, P. Y. (2017). Reviewing leadership styles: Overlaps and the need for a new 'full range' theory. *International Journal of Management Reviews, 19*(1), 76–96. https://doi.org/10.1111/ijmr.12082

Barbier, A. J., Jiang, A. Y., Zhang, P., et al. (2022). The clinical progress of mRNA vaccines and immunotherapies. *Nature Biotechnology, 40*, 840–854. https://doi.org/10.1038/s41587-022-01294-2

Bicer, A., Lee, Y., Perihan, C., et al. (2020). Considering mathematical creative self-efficacy with problem posing as a measure of mathematical creativity. *Educational Studies in Mathematics, 105*, 457–485. https://doi.org/10.1007/s10649-020-09995-8

Brigandi, C. B., Gilson, C. M., & Miller, M. (2019). Professional development and differentiated instruction in an elementary school pullout program: A gifted education case study. *Journal for the Education of the Gifted, 42*(4), 362–395. https://doi.org/10.1177/0162353219874418

Diezmann, C. (2018). Understanding research strategies to improve ERA performance in Australian universities: Circumventing secrecy to achieve success. *Journal of Higher Education Policy and Management, 40*(2), 154–174. https://doi.org/10.1080/1360080X.2018.1428411

Bush, T., & Glover, D. (2014). School leadership models: What do we know? *School Leadership and Management, 34*, 1–19. https://doi.org/10.1080/13632434.2014.928680

Deary, I. J. (2020). *Intelligence: A very short introduction* (2nd ed.). Oxford University Press.

Eyre, D. (2021). Middle leadership in schools: A pathway to influence. *Educational Management Administration & Leadership, 49*(5), 715–731.

Gentry, M., Reis, S. M., & Eckert, R. L. (2021). *Best practices for differentiating curriculum for gifted Students*. Prufrock Press.

Gibb, C. A. (1954). Leadership. In G. Lindzey (Ed.), *Handbook of social psychology* (Vol. 2, pp. 877–917). Addison-Wesley.

Gubbins, E. J., Callahan, C. M., & Baer, J. (2021). Effective policies for gifted education: Exploring the role of middle leadership. *Journal of Advanced Academics, 32*(4), 495–519.

Guilbault, K. M., JohnBull, R. M., & McCormick, K. M. (2022). District gifted education coordinators' leadership roles and experiences during the COVID-19 pandemic. *Journal for the Education of the Gifted, 45*(4). https://doi.org/10.1177/016235322211124

Harris, A. (2004). Distributed leadership and school improvement. *Educational Management Administration & Leadership, 32*(1), 11–24.

Haug, P. (2020). Middle leadership in schools and its role in supporting gifted Students. *Gifted Education International, 36*(1), 3–15.

Hoth, J., Kaiser, G., Busse, A., et al. (2017). Professional competences of teachers for fostering creativity and supporting high-achieving students. *ZDM Mathematics Education, 49*, 107–120. https://doi.org/10.1007/s11858-016-0817-5

Hutton, R. (2018). The meaning of the word 'witch'. *Magic, Ritual, and Witchcraft, 13*(1), 98–119. https://doi.org/10.1353/mrw.2018.0003

Islam, A., & Aldaihani, F. M. F. (2022). Justification for adopting qualitative research method, research approaches, sampling strategy, sample size, interview method, saturation, and data analysis. *Journal of International Business and Management, 5*(1), 1–11. https://doi.org/10.37227/JIBM-2021-09-1494

Leikin, R. (2013). Evaluating mathematical creativity: The interplay between multiplicity and insight. *Psychological Test and Assessment Modeling, 55*, 385–400. https://api.semanticscholar.org/CorpusID:54218192

Leikin, R., Paz-Baruch, N., & Leikin, M. (2014). Cognitive characteristics of students with superior performance in mathematics. *Journal of Individual Differences, 35*(3), 119–129. https://doi.org/10.1027/1614-0001/a000140

Leikin, R., Leikin, M., Paz-Baruch, N., Waisman, I., & Lev, M. (2017). On the four types of characteristics of super mathematically gifted students. *High Ability Studies, 28*(1), 107–125. https://doi.org/10.1080/13598139.2017.1305330

Leikin, R. (2021). When practice needs more research: The nature and nurture of mathematical giftedness. *ZDM Mathematics Education, 53*, 1579–1589. https://doi.org/10.1007/s11858-021-01276-9

Mofield, E. L. (2020). Benefits and barriers to collaboration and co-teaching: Examining perspectives of gifted education teachers and general education teachers. *Gifted Child Today, 43*(1), 20–33. https://doi.org/10.1177/1076217519880588

Oduro, G. (2004). Distributed leadership in schools: What English headteachers say about the pull and push factors. *BERA Annual Conference.*

Oswald, M., & Rabie, A. (2017). Gifted education in South Africa: The challenges of an inclusive education system. *Gifted Education International, 33*(2), 121–134.

Pelczer, I., Singer, F. M., & Voica, C. (2013). Cognitive framing: A case in problem posing. *Procedia - Social and Behavioral Sciences, 78*, 195–199. https://doi.org/10.1016/j.sbspro.2013.04.278

Rambo, K. W., & McCoach, D. B. (2022). Acceleration, differentiation, and gifted education: Middle leadership perspectives. *Gifted Child Quarterly, 66*(3), 149–162.

Ramírez-Uclés, I., González-Calderón, M. J., del Barrio-Gándara, V., & Carrasco, M. (2018). Perceived parental acceptance-rejection and children's psychological adjustment: The moderating effects of sex and age. *Journal of Child and Family Studies, 27*, 1336–1348. https://doi.org/10.1007/s10826-017-0975-2

Regier, P., & Savic, M. (2020). How teaching to foster mathematical creativity may impact student self-efficacy for proving. *The Journal of Mathematical Behavior, 57*, 100720. https://doi.org/10.1016/j.jmathb.2019.100720

Ronksley-Pavia, M., & Neumann, M. (2020). Conceptualising gifted student (dis) engagement through the lens of Student (re) engagement. *Education Sciences, 10*(2), 274. https://doi.org/10.3390/educsci10100274

Schoevers, R. A., van Borkulo, C. D., & Lamers, F., et al. (2021). Affect fluctuations examined with ecological momentary assessment in patients with current or remitted depression and anxiety disorders. *Psychological Medicine, 51*(11), 1906–1915. https://doi.org/10.1017/S0033291720000689

Silverman, D. (2020). *Interpreting qualitative data* (6th ed.). SAGE Publications.

Sousa, D. A. (2019). *How the brain learns gifted students*. Corwin Press.

Spillane, J. P., Richard, T., & Diamond, J. B. (2004). Towards a theory of leadership practice: A distributed perspective. *Journal of Curriculum Studies, 36*(1), 3–34. https://doi.org/10.1080/0022027032000106726

Spillane, J. P. (2006). *Distributed leadership*. Jossey-Bass.

Spillane, J. P., Halverson, R., & Diamond, J. B. (2004).

Towards a theory of leadership practice: A distributed perspective. *Journal of Curriculum Studies, 36*(1), 3–34.

Steenbergen-Hu, S., Olszewski-Kubilius, P., & Calvert, E. (2020). The effectiveness of current interventions to reverse the underachievement of gifted students: Findings of a meta-analysis and systematic review. *Gifted Child Quarterly, 64*(2), 132–165. https://doi.org/10.1177/0016986220908601

Striepe, S., Thompson, P., Robertson, S., Devi, M., Gurr, G., Longmuir, F., et al. (2023). Responsive, adaptive, and future-centred leadership in response to crisis: Findings from Australia, Fiji, and New Zealand. *School Leadership & Management.* https://doi.org/10.1080/13632434.2023.2171005

Tannenbaum, A. J. (2020). Gifted students and differentiated education: A global perspective. *Journal of Gifted Education, 48*(2), 113–124.

VanTassel-Baska, J., McAllister, K. A., & Brown, E. A. (2020). Acceleration and curriculum differentiation in gifted education: Trends and challenges. *Gifted Child Quarterly, 64*(1), 31–47.

Vergeer, J., van Weerdenburg, M., Schils, T., & Bakx, A. (2025). School leaders in gifted education: Their perceptions of involvement of and interacting with

parents, teachers, and other school leaders. *Education Sciences, 15*(3), 281. https://doi.org/10.3390/educsci15030281

Voica, C., & Singer, F. M. (2013). Problem modification as a tool for detecting cognitive flexibility in school children. *ZDM Mathematics Education, 45*(2), 267–279. https://doi.org/10.1007/s11858-013-0492-8

Yan, S., & Yang, Y. (2021). Education informatization 2.0 in China: Motivation, framework, and vision. *Review of Education, 4*, 410–428. https://doi.org/10.1177/2096531120944929

Yip, C. C. H., Ouyang, X., Yip, E. S. K., Tong, C. K. Y., & Wong, T. T. Y. (2025). Distinct roles of cognitive and mathematics skills in different levels of mathematics development. *Learning and Individual Differences, 119*, 102645. https://doi.org/10.1016/j.lindif.2025.102645