FOSTERING MATHEMATICAL GIFTEDNESS & CREATIVITY Through MEAs

Author
Şeyma ŞENGİL AKAR

This book has been generated from the doctoral dissertation which named as "Fostering Mathematical Giftedness & Creativity Through MEAs"

ISBN
978-625-375-195-1

Book Title
Fostering Mathematical Giftedness & Creativity Through MEAs

Author
Şeyma ŞENGİL AKAR
ORCID iD: 0000-0002-0032-7439

Publishing Coordinator
Yasin DİLMEN

Page and Cover Design
Akademisyen Dizgi Ünitesi

Publisher Certificate Number
47518

Printing and Binding
Vadi Matbaacılık

Bisac Code
EDU029010

DOI
10.37609/akya.3403

Library ID Card
Şengil Akar, Şeyma.
Fostering Mathematical Giftedness & Creativity Through MEAs / Şeyma Şengil Akar.
Ankara : Academician Bookstore, 2024.
243 p. : figure, table. ; 160x235 mm.
Includes References.
ISBN 9786253751951

GENERAL DISTRIBUTION
Akademisyen Kitabevi A.Ş.
Halk Sokak 5 / A
Yenişehir / Ankara
Tel: 0312 431 16 33
siparis@akademisyen.com

www.akademisyen.com

PREFACE

This book is a translation into English of my doctoral dissertation titled "Investigation of Mathematical Creativity of Gifted Students' Mathematical Creativity in the Process of Mathematical Modeling Activities" that I prepared while working at Hacettepe University Institute of Educational Sciences. I always wanted to do my PhD at Hacettepe University, the cradle of educational sciences in our country. The years I worked there as a researcher formed my academic skeleton. I am still grateful to all my professors. However, when I finished my PhD at Hacettepe, I regretted that this work would not reach a wider audience because I wrote my thesis in my own language. I owe a debt of gratitude to my husband, Ibrahim Akar, who encouraged me to translate my doctoral thesis into English.

An article (Chamberlin & Moon, 2005) that I read while I was studying in the graduate program of gifted education at Anadolu University inspired this study. Therefore, this study, in which I took Chamberlin and Moon's study as a starting point, is a qualitative research design. In this study, we worked with gifted students at the middle school level. In order to obtain more in-depth data about children's mathematical creativity, this research, which was organized in a multiple case study design, shows that mathematical creativity emerges both process- and outcome-oriented. This is the originality of this study. In addition, we can say that both group and individual mathematical creativity emerged in this study. This study is presented in detail. In this respect, I hope that it will guide and inspire researchers working on this subject.

Even after all these years, I still identify myself as a teacher. When new acquaintances ask my profession, I say "I am a teacher." Therefore, this study is very special for me because I returned to teaching while collecting the data for this study. The most important thing for me in this process is that I personally observed and experienced that the activities I did contributed to the development of children. Therefore, I hope that readers and researchers will be inspired by the results of this study. I hope that the results of this study will shed light on academics and teachers working in the field of gifted education, mathematical creativity, problem solving, creativity, group creativity and individual creativity.

Hacettepe University
Enstitute of Educational Sciences
Department of Primary Education, Division of Primary Education
prepared as Doctoral Dissertation (PhD)

Special Thanks for
Assoc. Prof.Dr. Elif Yetkin Ozdemir (Supervisor)

CONTENTS

REFERENCES

Aiken, L. R. (1973). Ability and creativity in mathematics. *Review of Educational Research*, *43*(4),405-432.

Akgul. S., & Kahveci, N. G. (2016). A study on the development of a mathematics creativity scale. Eurasian Journal of Educational Research, 62, 57- 76 http://dx.doi.org/10.14689/ejer.2016.62.5

Akgül, S. (2014). *Üstün yetenekli öğrencilerin matematik yaratıcılıklarını açıklamaya yönelik bir model geliştirilmesi.* (Yayınlanmamış Doktora Tezi). İstanbul Üniversitesi, İstanbul.

Amabile, T. (2012). *Componential theory of creativity* (pp. 3-4). Boston, MA: Harvard Business School.

Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.

Amit, M., & Gilat, T. (2012, July). Reflectıng Upon Ambıguous Sıtuatıons As A Way Of Developıng Students'mathematıcal Creatıvıty. In *36th Conference Of The International Group For The Psychology Of Mathematics Education* (P. 19).

Baer, J. (2010). Is creativity domain specific. *The Cambridge handbook of creativity*, 321-341.

Bahar, A. K., & Maker, C. J. (2011). Exploring the relationship between mathematical creativity and mathematical achievement. *Asia-Pacific Journal of Gifted and Talented Education*, *3*(1), 33-48.

Bakanlığı, M. E. (2006). İlköğretim Matematik Dersi (6-8. Sınıflar) Öğretim Programı. *Ankara: MEB*.

Bakanlığı, M. E. (2009). İlköğretim Matematik Dersi (6-8. Sınıflar) Öğretim Programı. *Ankara: MEB*.

Bakanlığı, M. E. (2013). İlköğretim Matematik Dersi (5-8. Sınıflar) Öğretim Programı. *Ankara: MEB*.

Bakanlığı, M. E. (2016). İlköğretim Matematik Dersi (5-8. Sınıflar) Öğretim Programı. *Ankara: MEB*

Balka, D. S. (1974). Creative ability in mathematics. *Arithmetic Teacher, 21,* 633-636.

Barbot, B., Besançon, M., Lubart T.I. (2011). Assessing creativity in the classroom. *The Open Education Journal, 4*(2),58-66.

Bassey, M. (1999). *Case study research in educational settings.* McGraw-Hill Education (UK).

Batdal Karaduman, G. (2012). *İlköğretim 5. sınıf üstün yetenekli öğrenciler için farklılaştırılmış geometri öğretiminin yaratıcı düşünme, uzamsal yetenek düzeyi ve erişiye etkisi.* (Yayınlanmamış Doktora Tezi). İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü.

Bingölbali, E., & Coşkun, M. (2016). İlişkilendirme Becerisinin Matematik Öğretiminde Kullanımının Geliştirilmesi İçin Kavramsal Çerçeve Önerisi. *Eğitim ve Bilim*, *41*(183).

Bogdan, R. C., & Biklen, S. K. (1992). Qualitative research: An introduction to theory and methods. *Needham Height: Allyn & Bacon*.

Bolden, D. S., Harries, T. V., & Newton, D. P. (2010). Pre-service primary teachers' conceptions of creativity in mathematics. *Educational studies in mathematics*, *73*(2), 143-157.

Brody, L. E., & Stanley, J. C. (2005). Youths who reason exceptionally well mathematically and/or verbally: Using the MVT:D4 model to develop their talents. In R. Sternberg & J. Davidson (Eds.), *Conceptions of giftedness (pp:20-37).* Cambridge: Cambridge University press.

Budak, İ. (2008). Matematikte üstün yetnekli öğrenci eğitimi ve sosyal beklentiler. *Journal of Qafqaz University,24,* 250-257.

Callahan, C. M. (1991). The assessment of creativity. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gift ed education* (pp. 219–235). Boston: Allyn & Bacon.

Carpenter, T. P., & Fennema, E. (1992). Cognitively guided instruction: Building on the knowledge of students and teachers. *International Journal of Educational Research*, *17*(5), 457-470.

Chamberlin, S. (2009). Using problem-based learning activities to identify creatively gifted mathematics students. In O. S. Tan (Eds). *Problem-based learning and creativity*, pp: (155-172). Singapure: Other PLB Series.

Chamberlin, S. A., & Moon, S. (2005). Model-eliciting activities: An introduction to gifted education. *Journal of Secondary Gifted Education, 17,*37-47

Cho, S. V & Dong Jou, H. (2006). Math creative problem solving ability test for identification of the mathematically gifted *:Research in Mathematical Education, 10*(1), 55–70.

Cleanthous, E., Pitta-Pantazi, D., Christou, C., Kontoyianni, K., & Kattou, M. (2010). What are the differences between high IQ/low creativity students and low IQ/high creativity students in mathematics. In *Proceedings of the 6th International Conference on Creativity in Mathematics Education and the Education of Gifted Students* (pp. 52-55).

Coxbill, E., Chamberlin, S. A., & Weatherford, J. (2013). Using model-eliciting activities as a tool to identify and develop mathematically creative students. *Journal for the Education of the Gifted*, *36*(2), 176-197.

Creswell, J. W. (2007). *Qualitative Inquiry& Research Design.* Thousands Oaks, CA: Sage Publications

Cropley A. J. (1997). Fostering creativity in the classroom: General principles. In M.A. Runco (Ed), *Creativity research handbook (pp.*84.114). Cresskill, N.J: Hampton Press.

Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. New York: HarperCollins.

Davis, G. A. (1991). Teaching creativity thinking. In N. Colangelo & G. A. Davis (Eds.), *Handbook of gifted education (pp.*236-244.). Boston: Allyn & Bacon

Diezmann, C. M. (2005). Challenging mathematically gifted primary students. *Australasian Journal of Gifted Education*, *14*(1), 50-57.

Diezmann, C. M., & Watters, J. J. (2000) Catering for mathematically gifted elementary students: Learning from challenging tasks. *Gifted Child Today 23*(4), 14-19.

Diezmann, C. M., & Watters, J. J. (2001) The collaboration of mathematically gifted students on challenging tasks. *Journal for the Education of the Gifted 25*(1), 7-31.

Dolliver, L. C. (1998). *Test-retest reliability of the test of early mathematics ability.* (Yayınlanmamış yüksek lisans tezi). Central Michigan University, Michigan.

Doruk, B. K. (2010). *Matematiği günlük yaşama transfer etmede matematiksel modellemenin etkisi*. (Yayımlanmamış doktora tezi). Hacettepe Üniversitesi, Ankara.

Doruk, B. K., & Umay, A. (2011). Matematiği günlük yaşama transfer etmede matematiksel modellemenin etkisi. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, 41,* 124-135.

Ervynck, G. (2002). Mathematical creativity. In D. Tall (Ed.), *Advanced mathematical thinking* (pp. 42–53). Dordrecht, The Netherlands: KluwerAcademic.

Feldhusen, J. (1998) Conceptions of Giftedness. In Van Tassel-Baska (Eds). Excellence in educating the gifted (pp. 15–28). Denver: Love Publishing Company.

Freeman, J. (2005). Permission to be gifted: How conceptions of giftedness can change lives. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (pp. 80-97). New York: Cambridge University Press.

Gagne, F. (1985). Giftedness and Talent: Reexamining a Reexamination of the Definitions. *Gifted Child Quarterly, 29*(3), 103-112.

Gagné, F. (2005). From gifts to talents: The DMGT as a developmental model. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (pp. 98–120). Cambridge, UK: Cambridge University Press.

Gardner, H. (1999). *Intelligence reframed.* New York: Basic Books.

Gardner, H. (2011). *Frames of mind: The theory of multiple intelligences*. Basic books.

Georgiev, V., Nedyalkova, V. (2011). Group creativity and development of mathematical problem posing and solving capabilities. The Seventh Congress of the European Society for Research in Mathematics Education CERME7, Poland.

Gilat, T., & Amit, M. (2013). Exploring young students creativity: the effect of model eliciting activities. PNA, 8(2): 51-59.

Ginsburg, H. ve Baroody, A. (2006). Test of early mathematics ability– Third edition. *Journal of Psychoeducational Assessment. 24*(1), 85–88.

Glaser, B. G..Strauss A. L (1967): The Discovery of Grounded Theory: Strategies for Qualitative Research. *London: Wiedenfeld and Nicholson*.

Grégoire, J. (2016). Understanding Creativity in Mathematics for Improving Mathematical Education. *Journal of Cognitive Education and Psychology*, *15*(1), 24-36.

Guilford, J. P. (1966). Measurement and Creativity. *Theory into Practice, 5*(4), 186-202.

Guilford, J. P. (1967). *The nature of human intelligence.* Newyork: McGraw-Hill

Guilford, J. P. (1968). *Intelligence, creativity and their educational implications*. New York: Robert R. Knapp.

Güçyeter, Ş. (2009). *DISCOVER Problem Matrisi-nin Revize Edilmesi ve Psiko-metrik Özelliklerinin İncelenmesi.* (Yayımlanmamış Yüksek Lisans Tezi). Anadolu Üniversitesi, Eskişehir.

Güçyeter, Ş. (2011). DISCOVER Problem Matrisi-nin Revize Edilmesi ve Psiko-metrik Özelliklerinin İncelen-mesi. *Turkish Journal of Giftedness & Education*, *1*(1), 101-131.

Hadamard, J. (1945). *The psychology of invention in the mathematical field. New York:* Dover Publications, Inc.

Haylock, D. W. (1987). A framework for assessing mathematical creativity in school children. *Educational Studies in Mathematics*, *18*(1), 59-74.

Hoffman, H., & Grialou, T. (2005). Test of Early Mathematics Ability. Austin, TX: PRO-ED. *Assessment for Effective Intervention*, *30*(4), 57-60.

Johnson, D. T. (2000). Teaching Mathematics to Gifted Students in a Mixed-ability Classroom. (Report No. EDO-EC-00-3). Reston, VA: ERIC *Clearinghouse on Disabilities and Gifted Education.* (ERIC Document Reproduction Service No. ED441302). Karataş, Y. (2013). *Farklılaştırılmış matematik öğretiminin üstün zekalı ve yetenekli öğrencilerde erişiğe, yaratıcılığa, tutuma ve akademik benliğe etkisi.* (Doktora Tezi). İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Kattou M., Kontoyianni K., Pitta-Pantazi D., Christou C., Cleanthous E. (2012). Predicting mathematical creativity. Retrieved from http://mathgifted.org/publications/D3.4.pdf , Google Scholar

Kattou, M., Kontoyianni, K., Pitta-Pantazi, D., & Christou, C. (2011a). On the comparison between mathematically gifted and non-gifted students' creative ability. Presented at the 19th Biennial World Conference of the WCGTC. Prague, Czech Republic.

Kattou, M., Kontoyianni, K., Pitta-Pantazi, D., & Christou, C. (2011b). Does mathematical creativity differentiate mathematical ability. In Marta Pytlak, Tim Rowland, Ewa Swobod (Eds.) *Proceedings CERME,* Vol. 7, (pp. 1056-1066).Rzeszow, Poland.

Kattou, M., Kontoyianni, K., Pitta-Pantazi, D., & Christou, C. (2013). Connecting mathematical creativity to mathematical ability. *Zdm*, *45*(2), 167-181.

Kaufman, J. C., Plucker, J. A. & Baer, J. (2008). *Essentials of creativity assessment,* New Jersey: John Wiley and Sons, Inc.

Kök, B. (2013). *Üstün zekâlı ve yetenekli öğrencilerde farklılaştırılmış geometri öğretiminin yaratıcılığa, uzamsal yeteneğe ve başarıya etkisi*. (Doktora Tezi). İstanbul Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.

Krutetskii, V. A. (1976). *The psychology of mathematical abilities in school children.* Chicago: University of Chicago Press.

Lamon, S. (2003). Beyond constructivism: An improved fitness metaphor for the acquisition of mathematical knowledge. In R. Lesh & H. M. Doerr (Eds.), Beyond constructivism: Models and modeling perspectives on mathematics problem solving, learning, and teaching (pp. 435–448). Mahwah, NJ: Lawrence Erlbaum and Associates.

Landis, J., & Koch, G. (1977). The Measurement of Observer Agreement for Categorical Data. *Biometrics, 33*(1), 159-174. doi:10.2307/2529310

Leikin R. & Lev M. (2013). Mathematical creativity in generally gifted and mathematically excelling adolescents: What makes the difference? *ZDM — The International Journal on Mathematics Education*, *45*: 183-197.

Leikin, R (2009). Exploring mathematical creativity using multiple solution tasks. In R. Leikin, A. Berman and B. Koichu (Eds.), *Creativity in mathematics and the education of gifted students.* (pp. 129-145). Rotterdam, Netherlands: Sense Publishers

Leikin, R. (2013). Evaluating mathematical creativity: The interplay between multiplicity and insight. *Psychological Test and Assessment Modeling*, *55*(4), 385-400

Leikin, R., & Lev, M. (2007). Multiple solution tasks as a magnifying glass for observation of mathematical creativity. In *Proceedings of the 31st international conference for the psychology of mathematics education* (Vol. 3, pp. 161-168). Seoul, Korea.

Leikin, R., & Pitta-Pantazi, D. (2013). Creativity and mathematics education: The state of the art. *ZDM*, *45*(2), 159-166.

Leikin, R., Berman, A., & Koichu, B. (Eds.). (2009). *Creativity in mathematics and the education of gifted students* .Rotterdam, The Netherlands: Sense Publishers.

Lesh, R. (2010). Tools, researchable issues & conjectures for investigating what it means to understand statistics (or other topics) meaningfully. *Journal of Mathematical Modelling and Application*, *1*(2), 16-48.

Lesh, R., & Carmona, G. (2003). Piagetian conceptual systems and models for mathematizing everyday experiences. . In R. Lesh, & H. M. Doerr (Eds.) *Beyond constructivism:Beyond constructivism: Models and modeling perspectives on mathematics problem solving, learning, and teaching*, (pp 71-96). Mahway, NY: Lawrence Eslbaum Assoc

Lesh, R., & Doerr, H. M. (2003). Foundations of a models and modeling perspective on mathematics teaching, leraning, and problem solving. In R. Lesh, & H. M. Doerr (Eds.) *Beyond constructivism: A models & modeling perspective on mathematics problem solving, learning & teaching* (pp. 3-33). Mahway, NY: Lawrence Eslbaum Assoc.

Lesh, R., & Lehrer, R. (2003). Models and modeling perspectives on the development of students and teachers. *Mathematical Thinking & Learning, 5*(2-3), 109-129.

Lesh, R., & Sriraman, B. (2005). Mathematics education as a design science. *ZDM*, *37*(6), 490-505.

Lesh, R., & Zawojewski, J. S. (2007). Problem solving and modeling. In F. Lester (Ed.), *Second Handbook of research on mathematics teaching and learning* (pp. 763-804). Greenwich, CT: Information Age Publishing.

Lesh, R., Hoover, M., Hole, B., Kelly, E., & Post, T. (2000). *Principles for developing thoughtrevealing activities for students and teachers*. Mahaway, NJ: Lawrence Erlbaum Assoc.

Levenson, E. (2011). Exploring collective mathematical creativity in elementary school. *The Journal of Creative Behavior*, *45*(3), 215-234.

Livne, L.N., & Milgram, R. M. (2006). Academic versus creativity abilites in mathematics: two components of the same constract? Creativity research journal. *18* (2),198-212.

Livne, N. L., & Milgram, R. M. (1999). Assessing four levels of creative mathematical ability in israeli adolescents utilizing out-of-school activities: A circular three-stage technique. *Roeper Review*; *22* (2), 111-117

Lubart, T. (2010). Cross-cultural perspectives on creativity. In . In J. C. Kaufmann & R.J. Sternberg (Eds.),*The Cambridge handbook of creativity*, (pp 265-278). NY: Cambridge University Press.

Maker, C. J., & Schiever, S. W. (2005). *Teaching models in education of the gifted***.** Texas: Pro-ed Inc.

Mann, E. L. (2005). Mathematical creativity and school mathematics: Indicators of mathematical creativity in middle school students. Doktora tezi. University of Connecticut.

Mann, E. L. (2006). Creativity: The essence of mathematics. *Journal for the Education of the Gifted*, *30*(2), 236-260.

Mann, E. L. (2009). The search for mathematical creativity: Identifying creative potential in middle school students. *Creativity Research Journal*, *21*(4), 338-348.

Mednick, S. (1962). The associative basis of the creative process. *Psychological review*, *69*(3), 220.

Merriam, S. B. (2012). *Nitel Araştırma Yöntemleri: Tasarım ve Uygulama İçin Bir Rehber.* Nobel Yayım Dağıtım. Ankara.

Miller, R. C. (1990). Discovering mathematical talent. Reston, VA: *Eric Clearinghouse on Handicapped and Gifted Children.*

Ming-Eric (2008). The Use Of Mathematical Modeling Tasks To Develop Creativity. *The 11th International Congress on Mathematical Education Monterrey, Mexico.*

National Council of Teachers of Mathematics (Ed.). (2000). *Principles and standards for school mathematics* (Vol. 1)

Neuman, W. L. (2007*). Toplumsal araştırma yöntemlerinde nitel ve nicel yaklaşımlar*. (Ö. Sedef, Çev.). İstanbul: Yayın Odası.

OECD (2004), Bilim Teknoloji ve Sanayi Raporu. Türkçe Özet. İnternet kaynağı: http://www.oecd.org/science/inno/34074396.pdf

Oral, B. (2004). Eğitimde çoklu zeka kuramları. *XIII. Ulusal Eğitim Bilimleri Kurultayı, 6-9 Temmuz .İnönü Üniversitesi*, Eğitim Fakültesi, Malatya

Piirto, J. (2004). *Understanding Creativity* .Arizona: Great Potential Press.

Pitta-Pantazi, D., Christou, C., Kontoyianni, K., & Kattou, M. (2011). A model of mathematical giftedness: integrating natural, creative, and mathematical abilities. *Canadian Journal of Science, Mathematics and Technology Education*, *11*(1), 39-54.

Plucker, J. A., & Makel, M. C. (2010). Assessment of creativity. Kaufmann & R.J. Sternberg (Eds.), *The Cambridge handbook of creativity*, (pp. 48-73). NY: Cambridge University Press.

Plucker, J. A., Beghetto, R. A., & Dow, G. T. (2004). Why isn't creativity more important to educational psychologists? Potentials, pitfalls, and future directions in creativity research. *Educational psychologist*, *39*(2), 83-96.

Plucker, J. A., Qian, M., & Schmalensee, S. L. (2014). Is what you see what you really get? Comparison of scoring techniques in the assessment of real-world divergent thinking. *Creativity Research Journal*, *26*(2), 135-143.

Punch, K. F. (2005). *Sosyal araştırmalara giriş: Nicel ve nitel yaklaşımlar*. (Etöz, Z. Çev.) Siyasal Kitabevi.

Renzulli, J. S. (1986) The three ring conception of giftedness: A developmental model of creative productivity. Sternberg, R. J. & Davidson, J. E. (Eds.), *Conceptions of Giftedness* (pp. 53-92). New York, Cambridge University Press.

Renzulli, J. S. (2005). The three-ring conception of giftedness: A developmental model for creative productivity. In R. J. Sternberg & J. E. Davidson (Eds.), *Conceptions of giftedness* (pp. 246-275). New York: Cambridge University Press.

Renzulli, J. S., & Reis, S. M. (1997). *The schoolwide enrichment model: A how-to guide for educational excellence*. Creative Learning Press, Inc., PO Box 320, Mansfield, CT 06250.

Runco, M. A. (1999) Divergent thinking. In M. A. Runco & S. Pritzker (Eds.), *Encyclopedia of creativity:* (pp. 577–582). San Diego: Academic Press.

Runco, M. A. (2010). Divergent thinking, creativity, and ideation. In J. C. Kaufmann & R.J. Sternberg (Eds.), *The Cambridge handbook of creativity*, (pp. 413-446). NY: Cambridge University Press

Sak, U. (2013). The Education Programs for Talented Students Model (EPTS) and Its Effectiveness on Gifted Students' Mathematical Creativity. *Egitim ve Bilim*, *38*(169).

Sak, U., & Maker, C. J. (2006). Developmental variation in children's creative mathematical thinking as a function of schooling, age, and knowledge. *Creativity research journal*, *18*(3), 279-291.

Samen, S. (2008). İşletmelerde yaratıcılığın önemi. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *17*(2).

Sawyer, R. K. (2010). Individual and group creativity. In J. C. Kaufmann & R.J. Sternberg (Eds.), *The Cambridge handbook of creativity*, (pp. 366-380). NY: Cambridge University Press

Sheffield, L. J. (1994). *The development of gifted and talented mathematics students and the National Council of Teachers of Mathematics Standards* (Re p o rt No. RBDM 9404). Storrs: National Re s e a rch Center on the Gifted and Talented, University of Connecticut. (ERIC Document Reproduction Se rvice No. ED388011).

Sheffield, L. J. (2000). Creating and Developing Promising Young Mathematicians. *Teaching Children Mathematics, 6*(6), 416-419,426.

Sheffield, L. J. Ed. (1999). *Developing Mathematically Promising Students*: National Council of Teachers of Mathematics, 1906 Association Drive, Reston.

Simonton, D. K. (2005). Genetics of giftedness: The implications of an emergenic-epigenetic model. In Sternberg, R. J., & Davidson, J. E. (Eds.), *Conceptions of giftedness* (pp. 312-326). NY: Cambridge University Press.

Spearman, C. (1927). *The abilities of man*. London: Macmillan.

Sriraman, B. (2004). The Characteristics of Mathematical Creativity. *Mathematics Educator, 14*(1), 19-34.

Sriraman, B. (2005). Are giftedness and creativity synonyms in mathematics. *The Journal of Secondary Education*, *17*(1), 20–36.

Sriraman, B., Haavold, P., & Lee, K. (2013). Mathematical creativity and giftedness: a commentary on and review of theory, new operational views, and ways forward. *Zdm*, *45*(2), 215-225.

Starko, A. J. (1999). Problem finding: A key to creative productivity. In A. S. Fishkin, B. Cramond, & P. Olszewski-Kubilius (Eds.), *Investigating creativity in youth* (pp. 75–96). Cresskill, NJ: Hampton.

Sternberg, R. J. (2000). Patterns of giftedness: A Triarchic analysis. *Roeper Review, 22,* 231-235.

Sternberg, R. J., & Davidson, J. E. (Eds.). (2005). *Conceptions of giftedness*. Cambridge University Press.

Sternberg, R. J., & Kaufman, J. C. (2010). Constraints on creativity. *The Cambridge handbook of creativity*, 467-482.

Sternberg, R. J., & Zhang, L. (1995). What Do We Mean by Giftedness? A Pentagonal Implicit Theory. *Gifted Child Quarterly, 39*(2), 88-94.

Şengil Ş., Sak U. ve Türkan Y. (2009). *MÜT: Matematiksel Üretkenlik Testi.* 18. Eğitim Bilimleri Kurultayında sunulan bildiri. Ege Üniversitesi, Aydın.

Şimşek, H., & Yıldırım, A. (2011). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin Yayıncılık.

Torrance, E. P. (1962). *Guiding creative talent. Englewoods Cliffs*. New Jersey: Prentice-Hall.

Torrance, E. P. (1995). Insights about creativity: Questioned, rejected, ridiculed, ignored. *Educational Psychology Review, 7*, 313.

Türkan, Y. (2010). *Matematiksel Üretkenlik Testi (MÜT)'nin İlköğretim 6., 7. ve 8. Sınıflar düzeyinde psikometrik özelliklerinin İncelenmesi.* (Yüksek Lisans Tezi). Anadolu Üniversitesi Eğitim Bilimleri Enstitüsü, Eskişehir.

Usiskin, Z. (2000). The development into the mathematically talented. *Prufrock Journal*, *11*(3), 152-162.

Van Tassel-Baska, J. (1998) (Eds). *Excellence in educating gifted & talented learners*. Love Publishing Company, Denver.

Van Tassel-Baska, J. (2005). Domain-specific giftedness. In Sternberg, R. J., & Davidson, J. E. (Eds.) *Conceptions of giftedness*, 358-376.

Wagner, H., & Zimmermann, B.(1986). Identification and fostering of mathematically gifted students. *Educational Studies in Mathematics*, *17* (3),243-260

Wessels, H. M. (2014). Levels of mathematical creativity in model-eliciting activities. *Journal of Mathematical Modelling and Application*, *1*(9), 22-40.

Yin, R. K. (2002).*Case Study Research, Design and Methods.* Newbury Park, Sage Publications.

Yuan, X., & Sriraman, B. (2011). An exploratory study of relationships between students' creativity and mathematical problem-posing abilities. In B. Sriraman (Ed). *The elements of creativity and giftedness in mathematics* (pp. 5-28). SensePublishers.