

REFERENCES

- Abdullah, H. A., Abidin, N. L. Z. and Ali, M. (2015). Analysis of Students' Errors in Solving Higher Order Thinking Skills (HOTS) in Mathematics, *11(21)* <https://doi.org/10.5539/ass.v11n21p133>
- Alghazo, Y. M., & Alghazo, R. (2017). Exploring Common Misconceptions and Errors about Fractions among College Students in Saudi Arabia, *10(4)*, 133–140. <https://doi.org/10.5539/ies.v10n4p133>
- Allsopp, D., Lovin, L. H., & Ingen, S. Van. (2017). Supporting Mathematical Proficiency Education Teachers. <https://doi.org/10.1177/0040059917692112>
- Andini, W., & Suryadi, D. (2017). Student Obstacles in Solving Algebraic Thinking Problems. *Journal of Physics: Conference Series*, *895(1)*, 2–8. <https://doi.org/10.1088/1742-6596/895/1/012091>
- Bartlett, S. & Burton, D. (2009). *Introduction to Educational Studies: 3rd Edition*. (New Delhi). Sage Publications. India.
- Barnett, E., & Ding, M. (2018). Investigations in Mathematics Learning Teaching of the associative property: A natural classroom investigation. *Investigations in Mathematics Learning*, *00(00)*, 1–19. <https://doi.org/10.1080/19477503.2018.1425592>
- Booth, J. L., Barbieri, C., Eyer, F., & Paré-blagoev, E. J. (2014). Journal of Problem Solving Persistent and Pernicious Errors in Algebraic Problem Solving, *7*.
- Brousseau, G. (2002). *Theory of Didactical Situations in Mathematics. Proceedings of the Joint Meeting of PME 32 and PME-NA XXX*. <https://doi.org/10.1007/0-306-47211-2>
- Brown, J. P. (2017). Teachers' perspectives of changes in their practice during a technology in mathematics education research project. *Teaching and Teacher Education*, *64*, 52–65. <https://doi.org/10.1016/j.tate.2017.01.022>
- Bush, J. B., Webb, D. C., Kress, N. E., Yang, W., & Perkins, K. K. (2018). Classroom Activities for Digital Interactive Simulations to Support Realistic Mathematics Education.
- Christy, D. T. (1981). *Essentials of Pre-calculus Mathematics*. 2nd Edition. (Harper & Row) New York.

- Cohen, L., Manion, L. and Morrison, K (2007). *Research Methods in Education*. Sixth Edition. (London). Routledge: Taylor and Francis Group. United Kingdom
- Cotton, K. (1991). Teaching Thinking Skills, 1–19.
- Cresswell, J. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Fourth Edition, Pearson Education. (Boston). United Kingdom
- Crook, K., Halsey Bullen, & Todd Johnson. (2004). *Conceptual framework*. Retrieved from <http://www.ifrs.org/Meetings/MeetingDocs/IASB/Archive/Conceptual-Framework/0410b10.pdf>
- Dougherty, B., Bryant, D. P., Bryant, B. R., Darrough, R. L., & Pfannenstiel, K. H. (2015). Developing Concepts and Generalizations to Build Algebraic Thinking : The Reversibility , Flexibility , and Generalization Approach, *50*(5). <https://doi.org/10.1177/1053451214560892>
- Dubinsky, E . & McDonald, M. A. . (2001). The Teaching and Learning Of Mathematics. In *APOS: A Constrcutivist Theory of Learning in Undergraduate Mathematics Education Research* (pp. 1–22).
- Eddy, C. M., Fuentes, S. Q., Ward, E. K., Parker, Y. A., Cooper, S., Jasper, W. A., ... Wilkerson, T. L. (2015). Unifying the Algebra for All Movement. <https://doi.org/10.1177/1932202X14562393>
- Filloy, E., & Rojano, T. (1989). Solving Equations : the Transition from Arithmetic to Algebra, *2*(June), 19–26.
- Flavell, J. H. (1992). Cognitive Development: Past, Present, and Future. *Developmental Psychology*, *28*(6), 998–1005. <https://doi.org/10.1037/0012-1649.28.6.998>
- Fraenkel, J. R, Wallen, N.E & Hyun, H.H. (2012). *How to Design and Evaluate Research in Education*. 6th Edition. (McGraw Hill). New York.
- Frosch, C., & Simms, V. (2015). Understanding the role of reasoning ability in mathematical achievement. *EuroAsianPacific Joint Conference on Cognitive Science*, (SEPTEMBER), 633–638. <https://doi.org/10.13140/RG.2.1.1107.2727>
- Gamundani, A. M. (2015). A Mathematics Cloud Based Learning Model (MCBLM) Towards Addressing Mathematics Learning Challenges : A case of Na A Mathematics Cloud Based Learning Model (MCBLM) Towards Addressing Mathematics Learning Challenges : A Case of Namibia Grade 12, (September).
- Glaser, B. (2013). Grounded theory methodology. *Introducing Qualitative Research in Psychology*, 69–82.

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- Goodrow, A., Earnest, D., & Lara-roth, S. (2003). Algebra in elementary school 1, *9909591(9909591)*, 127–134.
- Granberg, C. (2016). The Journal of Mathematical Behavior Discovering and addressing errors during mathematics problem-solving — A productive struggle? *Journal of Mathematical Behavior*, 42, 33–48. <https://doi.org/10.1016/j.jmathb.2016.02.002>
- Hendriana, H. & Suemarmo, U. J. (2014). *Penilaian Pembelajaran Matematika*. (Bandung). Refika Aditama. Bandung
- Heuvel-panhuizen, M. Van Den. (2000). Mathematics education in the Netherlands : A guided tour 1, 2(March 1999), 26–27.
- Hoch, M. & Dreyfus, T. (2006). Structure Sense Versus Manipulation Skills: An Unexpected Result Maureen in Novotná J. N. S H. M. and Krátká, M.(Editors), 3 Psychology of Mathemativs Education § .
- Hoch, M. (2010). Developing Katy ' S Algebraic Structure Sense, 529–538.
- Jupri, A., & Drijvers, P. (2016). Student difficulties in mathematizing word problems in Algebra. *Eurasia Journal of Mathematics, Science and Technology Education*, 12(9), 2481–2502. <https://doi.org/10.12973/eurasia.2016.1299a>
- Jupri, A., Drijvers, P., & van den Heuvel-Panhuizen, M. (2014). Difficulties in initial algebra learning in Indonesia. *Mathematics Education Research Journal*, 26(4), 683–710. <https://doi.org/10.1007/s13394-013-0097-0>
- Jupri, A., Drijvers, P., & Van den Heuvel-Panhuizen, M. (2014). Student difficulties in solving equations from an operational and a structural perspective. *International Electronic Journal of Mathematics Education*, 9(1–2), 39–55.
- Jupri, A. & Sispiyati, R. (2017). Expert Strategies in Solving Algebraic Structure Sense Problems: The Case of Quadratic Equations. *J. Phys.: Conf. Ser.* **812** 012093 (article online)
- Kanginan, M. (2018). *Matematika Untuk SMA/MA/SMK/MAK Kelas X: Kelompok Wajib* (Grafindo Media Pertama) Bandung, Indonesia
- Katz, V., & Barton, B. (2014). Stages in the History of Algebra with Implications for Teaching, (May). <https://doi.org/10.1007/s10649-006-9023-7>
- Kemendikbud. (2014). Kementerian pendidikan dan kebudayaan, *00(021)*, 3–8.

- Kerry Lee, S. F. N. and R. B. (2018). Relational Algebra Developmental Psychology American Psychological Association. *American Psychological Association*, 54, 1758–1772. <https://doi.org/10.1037/dev0000561>
- Kilpatrick, J. (2001). Understanding Mathematical Literacy: The Contribution of Research. *Educational Studies in Mathematics* 47: 101–116, 2001.© 2002 Kluwer Academic Publishers. Printed in the Netherlands
- Klis, W. B. (2017). Focusing on Brackets as Structuring Elements: The Effect on High School Students's Algebraic Expertise. Utrecht University Desertation. Netherlands.
- Kokasih, A. (2017). Analisis Terhadap Mistake dan Miskonsepsi Peserta Didik Dalam Memahami Kekongruenan, Kesebangunan, dan Bangun Ruang Sisi Lengkung Melalui Pembelajaran Berbasis Masalah (UPI Desertation)
- Knuth, E. J., Alibali, M. W., Mcneil, N. M., Weinberg, A., & Stephens, A. C. (2005). Middle School Students ' Understanding of Core Algebraic: Equivalence, Concepts, 37(1).
- Lazić, B., Abramovich, S., Mrđa, M., & Romano, D. A. (2017). On the Teaching and Learning of Fractions through a Conceptual Generalization Approach, 12(8), 749–767.
- Lepak, J. R., Wernet, J. L. W., & Ayieko, R. A. (2018). Capturing and characterizing students ' strategic algebraic reasoning through cognitively demanding tasks with focus on representations. *Journal of Mathematical Behavior*, (January), 0–1. <https://doi.org/10.1016/j.jmathb.2018.01.003>
- Li, X. (2006). Misconceptions in Variables, Equations, and Functions, (December), 1–211.
- Linchevski, L. (1994). A cognitive gap between arithmetic and algebra 1, 2, 59–78.
- Livneh, D., & Linchevski, L. (2007). Algebrification of Arithmetic: Developing Algebraic Structure Sense in the Context of Arithmetic. *Proceedings of the 31 Conference of the International Group for the Psychology of Mathematics Education*, 3, 217–224.
- Making, S. (1992). Learning to Think Mathematically: Problem Solving , Metacognition , and Sense Making in Mathematics (Reprint) alan h . schoenfeld , the university of california , berkeley, (1).
- Molina, M., Rodríguez-Domingo, S., Cañadas, M. C. y Castro, E. (2017). Secondary School Students' Errors in the Translation of Algebraic Statements. (2017), 15, 1137–1156. <https://doi.org/10.1007/s10763-016-9739-5>

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- Montenegro, P., Costa, C., & Lopes, B. (2018). Transformations in the Visual Representation of a Figural Pattern Transformations in the Visual Representation of a Figural Pattern. *Mathematical Thinking and Learning*, 20(2), 91–107. <https://doi.org/10.1080/10986065.2018.1441599>
- Muchoko, C., Jupri, A. & Prabawanto, S. (2019). Algebraic Visualization difficulties for Junior High School. *Journal of Physics Conference Series*. Vol. 1152. 032108
- NCEE. (2015). *What Works Clearing House: Teaching Strategies for Improving Algebra Knowledge in Middle and High School Students*. NATIONAL CENTER FOR EDUCATION EVALUATION AND REGIONAL ASSISTANCE.
- National Council of Teachers In Mathematics NCTM (2000). *Assessment Standards for School Mathematics*
- NCTM. (2012). *Call for Manuscripts (p. 2012)*.
- Ndlovu, Z., & Brijlall, D. (2016). Pre-service Mathematics Teachers ' Mental Constructions of the Determinant Concept, 14, 145–156.
- Novotná, J., & Hoch, M. (2008). How Structure Sense for Algebraic Expressions or Equations is Related to Structure Sense for Abstract Algebra Structure Sense in High School Algebra, 20(2), 93–94.
- Novotna, J., Stehlikova, N., & Hoch, M. (2006). Structure Sense for University Algebra. *Proceedings of the 30th Conference of the International Group for the Psychology of Mathematics Education*, 4(1999), 249–256.
- Nutkins, S., McDonalds, C. & Stephen, M. (2013). *Early Childhood Education and Care: An Introduction*. (London) Sage Publication Inc.
- O'Reilly, M. and Kiyimba, N. (2015). *Advanced Qualitative Research: A Guide to Using Theory*. (London). Sage Publications Pvt Ltd. United Kingdom.
- O'Reilly, M., Ronzoni. P and Dogra, N. (2013). *Research with Childrean: Theory and Practice*. Sage Publications. London.
- Palatnik, A., & Koichu, B. (2017). Sense making in the context of algebraic activities. *Educational Studies in Mathematics*, 95(3), 245–262. <https://doi.org/10.1007/s10649-016-9744-1>
- Papalia, D. E. & Feldman, R. D. (2012). *Experience Human Development 12th Edition*. New York: McGrall Hill

- Patton, B., Prof, A., De, E., & Santos, L. (2012). Analyzing Algebraic Thinking Using "Guess My Number" Problems. *International Journal of Instruction*, 5(1), 1694–609.
- Primary, M. O. F., & Education, S. (2015). Ministry of Primary and Secondary Education Heritage Studies Syllabus.
- Puspita, I., Kaniawati, I., & Suwarma, I. R. (2017). Student Obstacles in Solving Algebraic Thinking Problems, 2–8.
- Rojano, T. (2016). Student's access to Mathematics Learning in Middle and Junior Secondary Schools. In English, D. L. & Kirshner, D. (Editors) *Handbook of International Research in Mathematics Education*. (pg. 219-251) New York. Rutledge.
- Sari, L. (2014). Analisis Learning Obstacles Siswa SMP Dalam Mempelajari Materi Aljabar (Thesis UPI, Bandung). Indonesia.
- Schoenfeld, A. H. (2002). Making Mathematics Work for All Children: Issues of Standards, Testing, and Equity. *Educational Researcher*, 31(1), 13–25. <https://doi.org/10.3102/0013189X031001013>
- Schoenfeld, A. H. (2007). Chapter 5 What is Mathematical Proficiency and How Can It Be Assessed?, 53, 59–74.
- Shahrill, M. (2014). Understanding Students' Mathematical Errors and Misconceptions: The Case of Year 11 Repeating Students Understanding Students' Mathematical Errors and Misconceptions: The Case of Year 11 Repeating Students, (September). <https://doi.org/10.5899/2014/metr-00051>
- Shea, A. O., Booth, J. L., Barbieri, C., McGinn, K. M., Young, L. K., & Oyer, M. H. (2016). learning disabilities and students of varying achievement levels. *Contemporary Educational Psychology*. <https://doi.org/10.1016/j.cedpsych.2016.03.003>
- Stacey, K. (2011). The PISA View of Mathematical Literacy in Indonesia: IndoMS. *J.M.E Vol. 2 No. 2 July 2011*, pp. 95-126
- Susac, A., Bubic, A., Vrbanc, A., & Planinic, M. (2014). Development of abstract mathematical reasoning: the case of algebra. *Frontiers in Human Neuroscience*, 8(September), 1–10. <https://doi.org/10.3389/fnhum.2014.00679>
- Suter, N. W. (2012). *Introduction to Educational Research: A critical Thinking Approach*. Second Edition. Sage Publications (New Delhi) India

- Tall, D. (2013). *How Humans Learn to think Mathematically: Exploring the three Worlds of Mathematics*. (New York). Cambridge University Press. U.S.A
- Tejeda, S., & Gallardo, K. (2017). Performance Assessment on High School Advanced Algebra, *12*(3), 777–798.
- Träff, U., Olsson, L., Skagerlund, K., & Östergren, R. (2017). Cognitive mechanisms underlying third graders ' arithmetic skills: Expanding the pathways to mathematics model *Journal of Experimental Child Cognitive mechanisms underlying third graders ' arithmetic skills: Expanding the pathways to mathematics model*, (December). <https://doi.org/10.1016/j.jecp.2017.11.010>
- Treffers, A. (1991). Didactical Background of a Mathematics Program For Primary Education. In Steefland, L. (Editor). *Realistic Mathematics Education in Primary School*. Technipress. Culemborg. Netherlands. pg. 21-56
- Teppo. R. A. (1998). *Qualitative Research In Mathematics Education. National Council Teachers Of Mathematics*. INC
- UPI. (2015). Peraturan Rektor Universitas Pendidikan Indonesia Nomor 5804/Un40/Hk/2015 Tentang Pedoman Penulisan Karya Ilmiah Upi Tahun Akademik 2015 Universitas, (229), 2013163–2013164.
- Van Stiphout, I. (2011). The development of algebraic proficiency (PhD Thesis). Retrieved from <http://alexandria.tue.nl/extra2/719774.pdf>
- Verschaffel, L., Corte, E. De, & Vierstraete, H. (2012). Upper Elementary School Pupils ' Difficulties in Modeling and Solving Nonstandard Additive Word Problems Involving Ordinal Numbers, *30*(3).
- Weinberg, A., Dresen, J., & Slater, T. (2016). The Journal of Mathematical Behavior Students ' understanding of algebraic notation : A semiotic systems perspective. *Journal of Mathematical Behavior*, *43*, 70–88. <https://doi.org/10.1016/j.jmathb.2016.06.001>
- Wolk, S. B. Y. (2007). Why Do Go To School? *Amean JournalO f Education*, Vol. *88*(09), 648–658.
- Xu, L., Liu, R., Star, J. R., Wang, J., Liu, Y., & Zhen, R. (2017). Measures of Potential Flexibility and Practical Flexibility in Equation Solving, *8*(August), 1–13. <https://doi.org/10.3389/fpsyg.2017.01368>
- Ziegler, E & Kapur, M. (2018). The interplay of creativity, failure and learning in generating algebra problems. In *The Interplay Of Creativity, Failure And Learning I The*. <https://doi.org/10.1016/j.tsc.2018.03.009>

Ziegler, E., & Stern, E. (2014). Delayed benefits of learning elementary algebraic transformations through contrasted comparisons. *Learning and Instruction*, 33, 131–146. <https://doi.org/10.1016/j.learninstruc.2014.04.006>

Zimmerman, B. J. (2000). Self-Efficacy: An Essential Motive to Learn. *Contemporary Educational Psychology*, 25(1), 82–91. <https://doi.org/10.1006/ceps.1999.1016>