# DAFTAR PUSTAKA


Acher A., Archa M, Sanmarti N. (2007). *Modeling as a teaching learning process for understanding materials: A case study in primary education*. Sci Educ.

Ambrose, S. A., and Lovett, M. C. (2014). Prior knowledge is more than content: Skill and beliefs also impact learning. In: V. A. Benassi, C. E. Overson, and C. M. Hakala (Eds), *Appllying Science of Learning in Education: Infusing Psychological Science into the Curriculum*. Division 2, American Psychological Association.

Amstrong, T. (2011). *The best schools: Mendidik siswa menjadi insan cendekia seutuhnya*. Bandung: PT. Mizan Pustaka.

Anderson, D. (1999). The development of scince concepts emergent from science museum and post-visit activity experiences: Student's construction of knowledge. *A Thesis of the degree of Doctor of Philosophy in the Centre for mathematics and Science Education of the Queensland University of Technology*.

Ashbrook, P. (2013). Static Electricity: The skocking truth. *Scince Scope*. 50(7): 30-31, National Science Teacher Association

Ashmann, S. (2009). The Pennies-as-Electron Analogy: An engaging model helps upper elementary students understand the flow ofelectricity. *Science and Children*. 47(4): 24-27, National Science Teacher Association.

Aydeniz, M. (2010). Measuring the impact of electric circuit kitbook on elementary school childtren's understanding of simple electric circuits. In: *Electronic Journal of Education*, 14(1): 1-29.

Aydin, G. dan Balim, A. G. (2011). The activities based on conceptual change strategies prepared by science teacher candidates. *Western Anatolia Journal of Educational Science*. pp. 557-566.

Azaiza, I., Bar, V., Awad, Y., and Khalil, M. (2012). Pupils' explanation of natural phenomena and their relationship to electricity. *Journal of Creative Education* 3(8): 1354-1365

Bar, V., Zinn, B., & Rubin, E. (1997). Children's ideas about action at a distance. *International Journal of Science Education*, 19, 1137-1157.

Barman, C. R. (1989). A procedure or [illegible] prospective elementary teachers integrate the learning cycle into sc [illegible]ooks. Dalam: *Journal of Science Teacher Education* 1(2): 21-26

Baser, M., & Geban, O. (2007). Effect of instruction based on conceptual change activities on students' understanding of static electricity concepts. *Research in cience & Technological Education*, 25(2), 243–267

Bechtel, W. (2008). *Mental Mechanisms: Philosophical perspectives on cognitive neuroscience*. USA: Taylor & Francis Group, LLC.

Bellanca, J. (2011). *200+ Strategi dan proyek pemebelajaran aktif untuk melibatkan kecerdasan siswa*, 2nd. Ed.. Jakarta: PT Indeks.

Beer, C. P. (2010). *How do pre-service teacher picture various electromagnetic phenomenon? A qualitative studi of preservice teachers' conceptual understanding of fundamental electromagnetic interaction*. Dissertation: Ball State University, Munchie, Indiana.

Bhattacharya, M. (2002). Creating a Meaningful Learning Environment Using ICT. Vol. 5 No. 3, *Centre for Development of Teaching and Learning*. National University of Singapore. Tersedia di: http://www.cdtl.nus.edu.sg/brief/v5n3/sec3.htm

Borger, A. T. (1999). Mental model of electricity. *Int. Journal Science Education* 21(1): 95-117

Bradamante, F., Michelini, M., and Stefanel, A. (2006). *Learning problems related to the concept of field*. In B.G. Sidharth, F. Honsell and A. deAngelis (Eds), Frontiers of Fundamental Physics. The Nedtherlands: Springer.

Bradamante, F., & Viennot, L. (2007). Mapping gravitational and magnetic fields with children 9-11: Relevance, difficulties and prospects. *International Journal of Science Education*, 29(3), 349-372

Brooks, M. G. & Grennon Brooks, J. (1999). The courage to be constructivist. *Journal of Educational Leadership*, 57(3): 18-24.

Brown, H. D. (2006). *Principles of language learning and teaching*, 5th. ed. p088. USA: Person Education.

Burgoon, J. N., Heddle, M. L., & Duran, E. (2011). Re-examining the similarities between teacher and student conceptions about physical science. *Journal of Science Teacher Education*, 22(2), 101–114. doi:10.1007/s10972-010-9196-x.

Cakir, O., Geban, O. and Yuruk, N. (2002). Efectiveness of conceptual change text-oriented instruction on students' understanding of cellular respiration concept. Biochem. Mol.Biol. Educ. 30. hlm. 239-243.

Carey, S. (2010). Science education as conceptual change. *Journal of Applied Developmental Psychology*, 21(1): 13-19. New York: Elsevier Science Inc.

Chi, M. T. H. (2008). *Three types of conceptual change: Belief revision, mental model transformation, and categorical shift*. In: S. Vosniadou (Ed), *International handbook of research on conceptual change* (pp. 61-82). New York: Routledge

Clayton, C. (t.t). *Convergent Verses Divergent Thinking*. Diakses dari http://www.problem-solving-techniques.com/Convergent-Thinking.html

Clement, J. (2008). The role of explanatory models in teaching for conceptual change. In: S. Vosniadou (Ed), *International handbook of research on conceptual change* (pp. 417-452). New York: Routledge.

Cohen, L., Manion, L., and Morrison, K. (2007). *Research Methods in Education, 6th. Ed.* New York: Routledge.

Corcoran, T. B., Mosher, F. A., & Rogat, A. (2009). *Learning progressions in science: An evidence-based approach to reform.* New York, NY: Columbia University, Teachers College, Consortium for Policy Research in Education, Center on Continuous Instructional Improvement.

Corrigan, S., Loper, S., Barber, J., Brown, N., & Kulikowich, J. (2009). *The Juncture of supply and demand for information: How and when can learning progressions meet the information demands of curriculum developers?* Paper presented at the Learning Progressions in Science (LeaPS) Conference. Iowa City, IA.

Cox, K. (2007). Electricity and Magnetism Unit, Grade 5. Tersedia di: https://www.georgiastandards.org/Georgia-Standards/Pages/Science.aspx. Georgia Department of Education.

Creswell, J. W. (2015). *Educational research: Planning, conducting and evaluating quantitative and qualitative research*. (Terjemahan). 5th. Yogyakarta: Pustaka Pelajar.

Criado, A. M., & Garcı´a-Carmona, A. (2010). Prospective teachers' difficulties in interpreting elementary phenomena of electrostatics interactions: indicators of the status of their intuitive ideas. *International Journal of Science Education*, 32(6), 769–805.

Dahar, R. W. (2011). *Teori-teori belajar dan pembelajaran*. Jakarta: Erlangga

Darabi, A., Hemphill, J., Nelson, D. W., Boulware, W., and Liang, X. (2010). Model mental progression in learning the electron transport chain: effects of instructional strategies and cognitive flexibility. In: *Adv in Health Sci Educ*. 15:479-489, DOI 10.1007/s10459-009-9212-0. Published online: Springer.

Draiven, R., Asoko, H., Leach, J., Mortimer, E., and Scott, P. (1994). Constructing scientific knowledge in the classroom. Educational Research, 23(7): 40-47.

Driscoll, M. P., & Driscoll, M. P. (2005). Psychology of learning for instruction. Florida State University.

Duit, R., Treagust, D. F., Widodo, A. (2008). Teaching science for conceptual change: Theory and practice. In: S. Vosniadou (Ed), *International handbook of research on conceptual change* (pp. 629-646). New York: Routledge.

Duit, R., Treagust, D. F., Widodo, A. (2012). Teaching science for conceptual change: Theory and practice. In: S. Vosniadou (Ed), *International handbook of research on conceptual change* (pp. 487-503). New York: Routledge.

Duit, R., Widodo, A., and Wodzinski, C. T. (2007). Conceptual change ideas: Teacher's views and their instructional practice. In: S. Vosniadou, A. Baltas, X. Vamvakoussi (Eds), *Re-framing the conceptual change approach in learning and instruction* (pp. 197-217). Amsterdam: Elsevier Ltd.

Duncan, R. G., dan Gotwals, A. W. (2015). *A. tale of two progression: On the benefits of careful comparison*. Science Education. 99(3): 410-416.

Duschl, R. A., Schweingrubber, H. A., and Shouse, A. W. (2007). *Taking science to school: Learning and teaching science in grade K-8*. Washington, D.C: The National Academies Press.

Farnham-Diggory, S. (1994). Paradigms of knowledge and Instruction. *Review of Educational Research*. 64(3), 436-477.

Fleer, M. (2001). Determining childrens' understanding of electricity. In: *Journal of Educational Research*, 87(4): 248-253).

Fulmer, G. W. (2013). Constraints on Conceptual Change: How Elementary Teachers' Attitudes and Understanding of Conceptual Change Relate to Changes in Students' Conceptions. *Journal of Science Teacher Education*, 24(7): 1219-1236. DOI 10.1007/s10972-013-9334-3

García Rodicio, H., & Sánchez, E. (2010). Making instructional explanations effective: The role of learners' awareness of their misunderstandings. *Facilitating Effective Student Learning through Teacher Research and Innovation*, 277-296.

Gentner, D. (2002). Psychology of model mentals. In: N. J. Smelser and p. B. Bates (Eds), *International encyclopedia of the social and behavioural sciences*. Amsterdam: Elsevier Science.

Gredler, M. E. (2011). *Learning and Instruction: Teori dan Aplikasi*, 6th. Ed. Jakarta: Kencana Prenada Media Group.

Goris, T. V. and Dyrenfurth, M. J. (2013). How electrical engineering technology students understand concept of electricity. Comparison of misconception of freshmaen, sophomores, and seniors. *120th ASEE Annual Conference & Exposition. American Society for Engineering Education*.

Grosslight, L., Unger, C., Jay, E. and Smith, C. (1991). Understanding models and their use in science: Conception of middle and high school students and experts. *Journal of Research in Science Teaching*, 28(9): 799-822.

Hamid, R., Suratno, T., and Sopandi, W. (2014). Implementing scientific approach in primary science lesson to foster students' creativity. *Proceedings: the 6th*

*international conference on teacher education, The Standardization of Teacher Education:Asian Qualification Framework* (hlm. 203-215).

Hamid, R. (2016). Model Mental Siswa Sekolah Dasar tentang Listrik Statis. *Jurnal Pengajaran MIPA, 21*(1), 24-29.

Harlen, W. (2010). *Principles and big ideas of science education. Association for Science Education*. College Lane, Hatfield, Herts. AL109AA.

Harman, G., Aksan, Z., and Celikler, D. (2015). Mental models with influence the attitudes of science students towards recycling. *International Journal of Suitainable and Green Energy*, 4(1-2), hlm. 6-11).

Harrison, A. G. dan Treagust, D. F. (2000). Learning about atoms, molecules, and chemical bonds: case study of multiple-model use in grade 11 chemistry. *Science Education*, 84(3): 352-381.

Heritage, M. (2008). *Learning progression: Supporting instruction and formative assessment*. Washington, DC.: Council of Chief State School Officers (CCSSO).

Hernandez, M. I., Couso, D., and Pinto, R. (2014). *Analyzing student's learning progressions throughout a teaching sequence on acoustic properties of materials with a model-based inquiry approach*. In: *J Sci Educ Technol*, DOI 10.1007/s10956-014-9503-y. Published online (01 July 2014): Springer.

Hess, K. K. (2008). *Developing and using learning progression as a scheme for measuring progress.* National Center for the Improvement of Educational Assessment/NCIEA, Dover, NH.

Hess, K. K. (2010). Using learning progression to monitor progress across grades. *Science and Children*. 47(6): 57-61

Hewson, P. W. (1992). *Conceptual cange in science teaching and teacher education*. National Center for Educational Research, Documentation, and Assessment, Madrid, Spain. Pp. 1-15.

InTASC. (2013). *Model core teaching standards and learning progression for teachers 1.0*: A resource for ongoing teacher development. Washington, DC.: Council of Chief State School Officers (CCSSO)

Jansoon, N., Coll, R. K., dan Somsook, E. (2009). Understanding mental models of Dilution in Thai Students. *International Journal of Environmental & Science Education*. 4(2): 147-168.

Jia, Q. (2010). A Brief Study on the Implementation of Constructivism Teaching Theory on Classroom Teaching Reform in Basic Education. *International Education Studies. 3(2), hlm. 197-199.*

Johnson-Laird, P. N. (1983). *Mental models: Towards a cognitive science of language, inference, and consciousness* (No. 6). Harvard University Press.

Johnson-Laird, P. N. (2013), Mental Models and Cognitive Change. *Journal of Cognitive Psychology*, 25(2), hlm. 131-138.

Jonassen, D.H.; Peck, K.L.; & Wilson, B.G. (1999). *Learning with Technology: A Constructivist Perspective*. Upper Saddle River, NJ: Merrill Publishing.

Jones, A. Z. (2016). Ferromagnetism. [Online]. Diakses dari http://physics.about.com/od/physicsetoh/fl/Ferromagnetism.htm.

Jones, M.G. and Brader-Araje, L. (2002). *The Impact of Constructivism on Education: Discourse, and Meaning*. 5(3).

Kallunki, V. (2001). *From electrostatic to thecircuits of the file: Experimentality and models in concept formation. University of Helsinki, Department of Physics*

Kemendikbud, 2015. Rencana Strategis Kementerian Pendidikan dan Kebudayaan 2015-1019: *Pendidikan dan Kebudayaan sebagai Gerakan Pencerdasan dan Pembentukan Generasi Berjiwa Pancasila.*

Kildan, A. O., Kurnaz, M. A., dan Ahi, B. (2013) Mental models of School for preschool children. In: *European Journal of Educational Research*, 2(2): 97-105.

Koch, J. (2006). Relating Learning Theories to Pedagogy for Preservice Elementary Science Education (Chapter 6). In: Apleton, K. (Ed), *Elementary Science Teacher Education: International perspective on contemporary issue and practice*. pp. 91-106. London: Lawrence Erbaum Associates, Publishers.

Kristianti, T. (2016). *Representasi multiple bioinformatika dalam memfasilitasi conceptual change konsep biologi molekuler*. (Disertasi). Sekolah Pascasarjana, Universitas Pendidikan Indonesia, Bandung.

Kucukozer, H. and Bostan, A. (2010). Ideas of kindergarten students on the day-night cycles, the seasons and the moon phases. *In: Journal of Theory and Practice in Education. 6(2): 267-280.*

Kurnaz, M. A. and Eksi, C. (2015). An analysis of high school students' mental models of solid friction in physics. In: *Educational Science: Theory & Practice Journal*, 15(3): 787-795.

Kurnaz, M.A., Kildan, A.O. and Ahl, B. (2013). Mental model of pre-school children regarding the sun, earth and moon. *In: The International Journal of Social Science.* 7(1): 136-143.

Kurnaz, M. A. & Emen, A. Y. (2013). Mental model of the high school students related to the contraction of matter. In: International Journal of Educational Research and Technology, 4(1): 1-5.

Lappi, O. (2013). Qualitative Quantitative and Experimental Concept Possession, Criteria for Identifying Conceptual Change in Scince Education. *Science & Education*. 22(6): 1347-1359. DOI: 10.1007/s11191-012-9459-3

Lee, Y. and Yaw, N. (2001). Exploration and promoting conceptual change in electrical concepts via ontological category shift. *International Journal of Science Education, 23*(2) 111-149.

Lee, H-S. dan Liu, O.L. (2010). Assessing Learning Progressing of Energy Concepts Acrosss Middle School Grades: The Knowledge Integration Perspective. *Journal Science Education*. 94(4): 665-688

Lehler, R. dan Scauble, L. (2015). Learning Progression: The Whole World is NOT a Stage. *Journal Science Education*. 99(3): 432-437.

Leighton, J. & Gierl, M. (Eds). (2007). *Cognitive diagnostic assessment for education: theory and applications*. New York, NY: Cambridge University Press.

Liebereman, M. D. (2000). Intuition: A social cognitive neuroscience approach. *Psycological Bulletin*, 126(1): 109-137.

Linn, M. C. (2008). Teaching for conceptual change: Distinguish or Extinguish Ideas. In: S. Vosniadou (Ed), *International handbook of research on conceptual change* (pp. 694-722). New York: Routledge.

Liu, C. C. & Chen, I. J. (2010). Evolution of Constructivism. *Journal of Contemporary Issues In Educatio Research*, 3(4): 63-66.

Martin, D.J. (2009). *Elementary Science Methods: A. Constructivist Approach*. 5th Edition. USA: Wadssworth Cengage Learning.

McDonald K. and Gomes, J. (2013). Evaluating Student Preparedness and Conceptual Change in Introductory Biology Students Studying Gene Expression. *Journal of Transformative Leadership and Policy Studies*. 3(2): 21-34.

Mellon, C. *Assessing Prior Knowlwdge* [Online]. Diakses dari http://www.cmu.edu/teaching/assessment/priorknowledge/index.html. [Diakses pada 3 Maret 2015].

Meng-Fei Cheng, et al. (2014). Developing explanatory models of magnetic phenomena through model based inquiry. In: *Journal of Baltic Science Education*, 13(3): 351-360.

Michael, J. A. (2004). Mental Model and Meaningful Learning. [Online]. Tersedia di: http://www.utpjournals.com/jvme/tocs/311/1.pdf. [Diakses pada 01 Maret 2015].

Naab, L. dan Henry, D. (2009). Why StaticCling: Addressing common student misconception about static electricity and magnetism. *Science and Children*. 47(4): 32-36. National Science Teacher Association.

Novak, J. D. (2013). Meaningful learning is the foundation for creativity. *Revista Qurriculum*, pp. 27-38; ISSN: 1130-5371

National Research Council (2001). *Knowing what students know: The science and design of educational assessment.* Committee on the Foundations of Assessment, J. Pellegrino, R. Glaser, & N. Chudowsky (Eds.). Washington DC: National Academy Press

Nersessian, N. J. (2008). Model mentaling conceptual change: Theory and practice. In: S. Vosniadou (Ed), *International handbook of research on conceptual change* (pp. 391-416). New York: Routledge

Norman, D. A. (1983). Some observations on model mentals. In D. A. Gentner 4 A. L. Steven (Eds), *Model mentals*. Hillslade, NJ: Lawrence Erlbaum.

Okoye, I. (2012). *Applying the theory of conceptual change to improve students' understanding of science concepts with an educational recommender system*. University of Colorado, USA.

Olson, J.K. 2008. The science representation continuum: From concrete to abstract, finding the right balance of science representations is key to lasting understandings for students. *Journal of Science and Children* 46 (1): 52–55.

Ozkan , G. and Selcuk, G. Z. (2012). How Effective "Conceptual Change Approach" in Teaching Physics?. *Journal of Educational and Instructional Studies in The World*. 2(2): 182-190.

Park, J., Kim, I., Kim, M., & Lee, M. (2001). Analysis of students' processes of confirmation and falsification of their prior ideas about electrostatics. *International Journal of Science Education*, 23(12), 1219–1236.

Pellegrino, J. W., Chudowsky, N., & Glaser, R. (2001). *Knowing what students know: The science and design of educational assessment*: National Academies Press.

Pellegrino, J. W. (2010). The design of an assessment system for the race to the top: A learning science perspective on issues of growth and measurement. In: *Exploratory Seminar: Measurement Callenges Within the Race to the Top Agenda (2009)*. Educational Testing Service (ETS).

Perry, C., Granger, J. N., Vonio-Dubiel, A., dan Yochum, H. (2016). Measuring Static Electricity: A classroom investigation to understand the triboelectric series. *Scince Scope*. 39(7): 14-18, National Science Teacher Association.

Pritchard, A. and Woollard, J. (2010). Psychology for the Classroom: Constructivism and Social Learning. London and New York. Routledge.

Rapp, D. N. (2005). Model mentals: Theoretical issues for visualizations in science education. In: John K. Gilbert (Ed), *Visualization in science education* (pp.43-60). Netherlands: Springer.

Radicio, H.G. and Sanchez, E. (2010). Making Instruktional Explanations Effective: The role of learners' awareness of their misunderstanding. In: Milena Valencic Zuljan and Janez

Vogrinc (Ed). *Facilitating effective student learning through teacher research and innovation*. (hlm. 277-296)

Ravanis, K., Pantidos, P., and Vitoratos, E. (2010). *Mental representation of ninth grade students: The case of the properties of the magnetic fiels*. In: Journal of Baltic Science Education. 9(1), 50-60.

Redish, E. F. (1994). The implication of cognitive studies for teaching pysics. In: *American Journal of Physics*, 62(6), 796-803. Maryland: College Park.

Rubin, K., Plummer, J., Palma, C., Flarend, A., Spotts, H., McDonald, S., and Ong, Y. S. (2014). Assessing student progress along a Solar System Learning progression. *Science Scope*. 38(1): 27-33.

Rupp, A. A., Templin, J., Henson, R. A. (2010). *Diagnostic measurement theory, methods and applications.* New York: The Guilford Press

Sederberg, D., Latvala, A-L., Lindell, A., and Bryan, L. (2010). Progression students' mental model of magnetism across scale. [Online]. Tersedia di: http://www.univ-reims.fr/site/evenement/girep-icpe-mptl-2010-reims-international-conference/gallery_files/site/1/90/4401/22908/29321/29450.pdf.

Sederberg, D., and Bryan, L. A. (2009). *Tracing a prospective learning progression for magnetism with implications at the nanoscale*. Paper presented at the Learning Prosggression in Science (LeaPS) Conference, June 2009, Iowa City, IA.

Shavelson, R. J., and Kurpius, A. (2012). Reflexion on learning progression. In: A. C. Alonso and A. W. Gotwals (Ed), *Learning progression in science*: *Current challenges and future direction* (pp. 13-26). Sense Publishers.

Silberman, M. L. (2014). *Active Learning: 101 cara belajar siswa aktif*, edisi revisi. Bandung: Nuansa Cendekia.

Siew, N. M. (2013). Exploring Primary Science Teachers' Creativity and Attitudes through Response to Creative Question in University Physics Lesson. *British Journal of Education, Society & Behavioural Science*, 3(1), hlm. 93-108.

Skosana, P. S. dan Monyai, R. B. (2013). The Teacher as a Catalytic Agent in the Implementation of the Curriculum. *International Journal of Humanities and Social Science Invention*, 2(9), hlm. 90-96.

Songer, N. B. dan Ruiz-Primo, M. A. (2012). Assessment and science education: Our essential new priority?. *Journal of Research in Science Teaching*, 49 (6), hlm. 683-690.

Stevens, S. Y., Shin, S., and Krajcik, J. S. (2009). *Towards a model for the development of an empirically tested learning progression*. Paper presented at the Learning Proggression in Science (LeaPS) Conference, June 2009, Iowa City, IA.

Sudiarta, I G P. (2005). Pengembangan Kompetensi Berpikir Divergen Dan Kritis Melalui Pemecahan Masalah Matematika *Open-Ended*. Jurnal Pendidikan dan Pengajaran IKIP Negeri Singaraja, No. 3 TH. XXXVIII.

Sugiono.2009.*Metode Penelitian Pendekatan Kuantitatif, Kualitatif dan R & D*. Bandung: Alfa Beta.

Surgenor, P. (2010). Teaching Toolkit: *How Student Learn 4.* Tesedia di: www.ucd.ie/teaching.

Taber, K. S. (2011). Constructivism as educatiolal theory: Contingency in learning, and optimally guided instruction (Chapter 2). In: Jaleh Hassakhah (Edt), *Educational Theory*. Pp. 39-61. Nova Science Publisher, Inc.

Templin, J., & Henson, R. A. (2010). *Diagnostic measurement: Theory, methods, and applications*: Guilford Press.

Thompson, J., Braaten, M., and Windschiti, M. (2009). *Learning progression as vision tools for advancing novice teacher's pedagogical performance*. Paper presented at the Learning Prosggression in Science (LeaPS) Conference, June 2009, Iowa City, IA.

Traphagen, K. (2011). Strengthening science education: The power of more time to deepen inquiry and engagement. *Boston: National Center on Time & Learning*.

Treagust, D. F. dan Duit, R. (2009). Multiple perspectives of conceptual change in science and the challenges ahead. *Journal of Science and Mathematics Education in Southeast Asia*, 32 (2): 89-104.

Ultanir, E. (2012). An epistemological glance at the constructivist approach: Constructivist learning in Dewey, Piaget, and Montessori. *International Journal Instruction*, 5(2): 195-212.

Van Der Veer, C. G., & Del Carmen Puerta Melguizo, M. (2003). Mental Model. In J.A.Jacko & A. Sears (Eds). The human-computer interaction handbook: Fundamentals, evolving technologies, and emerging applications (pp. 52-80). Uitgever: Lawrence Erlbaum & Associates.

Vosniadou, S. (2001). *How children learn, Educational practices series-7,* The Academy of Education (IAE) and the International Bureau of Education (UNESCO)

Vosniadou, S., Vamvakoussi, X., and Skopeliti, I. (2008). The framework theory approach to the problem of conceptual change. In: S. Vosniadou (Edt), *International handbook of research on conceptual change* (pp. 3-34). New York: Routledge.

Vosniadou, S. & Brewer, W. F. (1992). Mental models of the earth: A study of conceptual change in childhood. *Cognitive Psychology, 24(4),* 535-585.

Widodo, A. (2004). *Constructivist oriented lessons: The learning environment and the teaching sequneces*. Frankfurt, Germany: Peter Lang.

Wilson, M. (2009). Measuring progression: Assessment structures underlying a learning progression. *Journal of Research in Science Teaching*. Vol. 00, No. 0, PP. 1-15.

Wilcox, J and Richey, L. R. (2012). May the magnetic force be with you: Using concrete activities to confront misconceptions about magnetism in the primary grades. *Journal of Science and Children* 50 (2): 62–67.

Wilson, M. dan Carstensen, C. (2007). Assessment to improve learning in mathematics: *The BEAR Assessment System*. In: *Assessing Mathematical Proficiency*. MSRI Publication, Volume 53.