

DAFTAR PUSTAKA

- Akgun, O. E. (2013). *Technology in STEM Project—Based Learning*. Dalam Capraro, R. M., Capraro, M. M., & Morgan, J. R. (penyunting) *STEM Project-Based Learning: An Integrated Science, Technology, Engineering, and Mathematics (STEM) Approach*. Rotterdam/Boston/Taipei: Sense Publisher, 66-75.
- Asmuniv. (2015). *Pendekatan Terpadu Pendidikan STEM Upaya Mempersiapkan Sumber Daya Manusia Indonesia yang Memiliki Pengetahuan Interdisipliner dalam Menyongsong Kebutuhan Bidang Karir Pekerjaan Masyarakat Ekonomi Asean (MEA)*. Dipublikasikan pada Jum'at, 15 Mei 2015.
- Atman, C., Kilgore, D., & McKenna, A. (2008). Characterizing design learning: A mixed-methods study of engineering-designers' use of language. *Journal of Engineering Education*, 97(3), 309–326.
- Badan Standar Nasional Pendidikan. (2013). *Panduan Penyusunan Kurikulum Tingkat Satuan Pendidikan Jenjang Pendidikan Dasar dan Menengah*. Jakarta: Depdikbud.
- Beghetto, R. A. (2007). Ideational Code-Switching: Walking The Talk About Supporting Student Creativity in The Classroom. *Roeper Review*, 29(4), 265–270.
- Beghetto, R. A., & Kaufman, J. C. (2007). Toward a Broader Conception of Creativity: A Case for Mini-C Creativity. *Psychology of Aesthetics, Creativity, and the Arts*, 1(2), 73–79.
- Becker, K. & Park, K. (2011). Effects of Integrated Approaches Among Science, Technology, Engineering, and Mathematics (STEM) Subjects on Students' Learning: a Preliminary Meta-Analysis. *Journal of STEM Education*, 12(5), 23-37.
- Brophy, S. (2008). Advancing Engineering Education in P-12 Classrooms. *Journal of Engineering Education*, 93(3), 369-387.
- Campbell, D. (1986). *Mengembangkan Kreativitas*. Yogyakarta: Kanisius.
- Campbell, B., Reece, I., & Neil, A. (2011). *Biology*. U.S.A: Pearson.
- Chan, M. S., & Black, J. B. (2005). When Can Animation Improve Learning? Some Implications for Human Computer Interaction and Learning. *Educational Media*, 9, (6), 87-93
- Chin, C. (2007). Teacher Questioning in Science Classrooms: Approaches That Stimulate Productive Thinking. *Journal of Research in Science Teaching*, 44(6), 815–843.

- Claxton, G., Edward, L., & Scale-Constantinou, V. (2005). Cultivating Creative Mentalities: A Framework for Education. *Thinking Skills and Creativity*, 57-61.
- Crismond, D. (2001). Learning and Using Science Ideas When Doing Investigate-And-Redesign Tasks: A Study Of Naïve, Novice, and Expert Designers Doing Constrained and Scaffolded Design Work. *Journal of Research in Science Teaching*, 38(7), 791–820.
- Csikszentmihalyi, M. (1996). *Creativity: Flow and the Psychology of Discovery and Invention*. New York: HarperCollins.
- Cunningham, C. M., & Hester, K. (2007). Engineering is Elementary: An Engineering and Technology Curriculum for Children. In *Proceedings of the American Society for Engineering Education Annual Conference*. Honolulu, HI.
- Cunningham, C. M., & Lachapelle, C. P. (2014). Designing Engineering Experiences to Engage All Students. Dalam S. Purzer, J. Strobel, & M. Cardella (Eds). *Engineering in Pre-college Settings: Synthesizing Research, Policy, and Practices*. Lafayette, IN: Purdue University Press.
- Dahar, R. W. (2011). *Teori-teori Belajar & Pembelajaran*. Jakarta: Erlangga.
- Dahl, D. W., & Moreau, P. (2002). The Influence and Value of Analogical Thinking During New Product Ideation. *Journal of Marketing Research*.
- Davis, D. & Veenstra, C. (2014). Thought and Experiences of Educators Related to Quality and Change. *The Journal for Quality & Participation: Educators World*, 30-33.
- de Vries, M. J. (1997). Science and Technology Teacher Training: What Kind of Training for What Type of Teaching. *European Journal of Education*, 32(1), 59-73.
- DeHaan, R. L. (2009). Teaching Creativity and Inventive Problem Solving in Science. *CBE-Life Sciences Education*, 8(3), 172–181.
- Eide, A.R., Jenison, R. D., Northup, L. L., & Mickelson, S. K. (2012). *Engineering Fundamentals and Problem Solving*. New York: McGraw-Hill.
- English, L. D. (2015). STEM: Challenges and Opportunities for Mathematics Education. Dalam K. Beswick, T. Muir, & J. Wells (Eds). *Proceedings of the 39th Conference of the International Group for the Psychology of Mathematics Education*. Hobart, Australia: PME.
- English, L. D., & King, D. T. (2005). STEM Learning Through Engineering Design: Fourth-Grade Students' Investigations in Aerospace. *International Journal of STEM Education*.

- Eshach, H. (2006). *Science Literacy in Primary Schools and Pre-Schools*. Dordrecht: Springer.
- Evans, M. A., Lopez, M., Maddox, D., Drape, T., & Duke, R. (2014). Interest-Driven Learning Among Middle School Youth in an Out-of-School STEM Studio. *Journal Science Education Technology*.
- Fensham, P. J. (1990). What Will Science Educators Do About Technology? *Australian Science Teachers Journal*, 36(3), 8-12.
- Figliano, F. (2007). *Strategies for Integrating STEM Content: a Pilot Case Study*. Virginia: Polytechnic Institute and State University Press.
- Filsaime, & Dennis, K. (2008). *Menguak Rahasia Berpikir Kritis dan Kreatif*. Jakarta: Prestasi Pustaka.
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to Design and Evaluate Research in Education*. McGraw-Hill inc.
- Gagne, C., & Shoben, E. J. (1997). The Influence of Thematic Relations on the Comprehension of Non predicting Combinations. *Journal of Experimental Psychology: Learning, Memory, and Cognition*.
- Ge, X., & Land, S. M. (2003). Scaffolding Students' Problem-Solving Processes in an Ill-Structured Task Using Question Prompts and Peer Interactions. *Educational Technology Research and Development*, 51(1), 21–38.
- Gregan-Paxton, J., & Roedder, D. J. (1997). Consumer Learning by Analogy: A Model of Internal Knowledge Transfer. *Journal of Consumer Research*.
- Guilford, J. (1950). "Creativity". *American Psychologist*, 5(9), 444 - 454.
- Guilford, J. P. (1956). *Fundamental Statistic in Psychology and Education*. New York: McGraw-Hill Book Company, Inc.
- Hadi, M., Tarwotjo, U., & Rahadian, R. (2009). *Biologi Insektai Entomologi*. Yogyakarta: Graha Ilmu.
- Harsokusomo, H. D. (2000). *Pengantar Perancangan Teknik (Perancangan Produk)*. Bandung: Direktorat Jendral Pendidikan Tinggi Departemen Pendidikan Nasional.
- Heffernan, D. A. (1991). *The World of Science*. United State: Longman.
- Hennessey, B. A., Amabile, T. M. & Mueller, J. S. (2011). *Consensual Assessment*. In: Runco MA, and Pritzker SR (eds.) *Encyclopedia of Creativity*, 2(1), 253-260. San Diego: Academic Press.
- Hathcock, S. J. (2015). Scaffolding for Creative Product Possibilities in a Design-Based STEM Activity. *Research Science Education* , 727-748.

- Hegarty, M., & Just, M. A. (1993). Constructing Mental Models of Machines from Text and Diagrams. *Journal of Memory and Language*, 32(6), 717–742.
- Holtzapple, M. T., & Reece, W. D. (2011). *Concepts in Engineering* (Edisi Kedua). Jakarta: Kencana.
- Honey, M., Pearson, G., dan Schweingruber, H. (2014). *STEM Integration in K-12 Education: Status, Prospects, and An Agenda for Research*. Washington: National Academic Press.
- Hong, M. & Kang, N. (2009). South Korean and The US Secondary School Science Teachers, Conceptions of Creativity and Teaching for Creativity. *International Journal of Science and Mathematics Education*, 8(5), 821-843.
- Joko, T. (2010). *Unit Produksi dalam Sistem Penyediaan Air Minum*. Yogyakarta: Graha Ilmu.
- Katehi, L., Pearson, G., Feder, M. (2009). *Engineering in K-12 Education*. Washington, DC: National Academies Press.
- Kolodner, J. L., Camp, P. J., Crismond, D., Fasse, B., Gray, J., Holbrook, J., ... Ryan, M. (2003). Problem-Based Learning Meets Case-Based Reasoning in The Middle-School Science Classroom: Putting Learning by Design(tm) into Practice. *Journal of the Learning Sciences*, 12, 495–547.
- Lave, J. and E. Wenger (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Leonard, D., & Reayport, J. (1997). Spark Innovation Through Empathic Design. *Harvard Business Review*.
- LoCasale-Crouch, J., Konold, T., & Pianta, R. (2007). Observed Classroom Quality Profiles in State-Funded Pre-Kindergarten Programs and Associations with Teacher, Program, and Classroom Characteristics. *Early Childhood Research Quarterly*, 3-17.
- Lucas, B., Claxton, G. & Spencer, E. (2013). Progression on Student Creativity in School: First Steps Towards New Forms of Formative Assessments. *OECD Education Working Papers*. OECD Publishing.
- Maria, R. A. (2015). *Komparasi Pembelajaran Praktikum Virtual dan Praktikum Riil dalam Membangun Lingkungan Pembelajaran, Kemampuan Berpikir Kreatif dan Penguasaan Konsep Siswa*. Tesis Prodi IPA SPs UPI. Tidak Diterbitkan.
- Marulcu, I. B. (2013). Fifth Graders' Learning About Simple Machines Through Engineering Design-Based Instruction Using LEGO Materials. *Research Science Education* , 1825-1850.

- Marulcu, I. (2014). Teaching Habitat and Animal Classification to Fourth Graders Using an Engineering-Design Model. *Research in Science and Technology Education*, 32, 135-161.
- Modi, K., Schoenberg, J., & Salmond, K. (2012). *Generation STEM: What Girls Say about Science, Technology, Engineering, and Math*. USA: Girl Scouts.
- Munandar, U. (1985). *Mengembangkan Bakat dan Kreativitas Anak Berbakat*. Jakarta: Gramedia.
- Munandar, U. (2009). *Pengembangan Kreativitas Anak Berbakat*. Jakarta: Rineka Cipta.
- Muntaha, Kurnia. (2013). *Penerapan Metode Ekspositori untuk Meningkatkan Hasil Belajar dalam Pembelajaran Tentang Materi Ciri-ciri Makhluk Hidup*. Tesis SPs UPI. Tidak Diterbitkan.
- Nugraha, Budhi. (2015). *Pengaruh Pembelajaran Problem Based Learning Terhadap Pemahaman Konsep, Keterampilan Berpikir Kreatif dan Self-Efficacy Siswa Pada Proses Penjernihan Air*. Tesis SPs UPI. Tidak Diterbitkan.
- Nur'aini, Reska. (2013). *Penerapan Metode Eksperimen untuk Meningkatkan Hasil Belajar pada Mata Pelajaran IPA Tentang Ciri-ciri Makhluk Hidup*. Tesis SPs UPI. Tidak Diterbitkan.
- Palinscar, A. S. (1998). Social Constructivist Perspectives on Teaching and Learning. *Annual Review of Psychology*, 49, 345–375.
- Perkins, D. N. (1997). Creativity's Camel: The Role of Analogy in Invention dalam *Creative Thought*, Thomas Ward, Steven Smith, and Jyotsna Vaid, eds. Washington, DC: American Psychological Association.
- 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), 83–97.
- Pulmone, R. (2009). Learning Chemistry in Metacognitive Environment. *The Asia-Pacific Education Researcher*.
- Riduwan. (2010). *Dasar-dasar Statistika*. Bandung: Alfabeta.
- Sadler, P. M., Coyle, H. P., & Schwartz, M. (2000). Engineering Competitions in The Middle School Classroom: Key Elements in Developing Effective Design Challenges. *Journal Of The Learning Sciences*, 9, 299–327.
- Sanders, M. (2009). Integrative STEM Education as “Best Practice”. In *Proceedings of the 7th Biennial International Conference on Technology Education Research*.

- Santrock, J. W. (2010). *Psikologi Pendidikan*. Jakarta: Kencana.
- Schnittka, C. B. (2011). Engineering Design and Conceptual Change in Science: Addressing thermal energy and heat transfer in eight grade. *International Journal of Science Education*, 33, 1861-1887.
- Schnittka, C. G. (2015). After-School Spaces: Looking for Learning in All the Right Places. *Research Science Education*.
- Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promoting Self-regulating in Science Education: Metacognition as Part of a Broader Perspective on Learning. *Research in Science Education*.
- Shaughnessy, M. F. (1998). An Interview with E. Paul Torrance: About Creativity. *Educational Psychology Review*, 10(4), 441-452.
- Sidharta, Arief. (2005). *Keterampilan Berpikir*. Bandung: Pusat Pengembangan dan Penataran Guru Ilmu Pengetahuan Alam.
- Srinivasan, V., Lovejoy, W. S., & Beach, D. (1997). Integrated Product Design for Marketability and Manufacturing. *Journal of Marketing Research*.
- Sternberg, R. J. (1986). A triangular theory of love. *Psychological Review*, 93, 119–135.
- Sugiyono. (2007). *Statistika untuk Penelitian*. Bandung: Alfabeta.
- Torrance, E. P. (1977). *Creativity in the Classroom*. Washington: National Education Association.
- Torrance, E. P. (1990). *The Torrance Tests of Creative Thinking Norms – Technical Manual Figural (Streamlined) Forms A & B*. Bensenville, IL: Scholastic Testing Service, Inc.
- Trefil, J. (2008). *Why Science?*. New York: Teachers College Press.
- Ulrich, K. T. & Eppinger, S. D. (2000). *Product Design and Development*. New York: McGraw-Hill.
- van Zee, E. H., & Minstrell, J. (1997). Reflective Discourse: Developing Shared Understandings in A Physics Classroom. *International Journal of Science Education*, 19(2), 209–228.
- Vygotsky, L. S. (2004). Imagination and Creativity in Childhood (M. E. Sharpe, Inc., Trans.). *Journal of Russian and East European Psychology*, 42, 7–97.
- Wendell, K. B.-S. (2010). Elementary Students' Learning of Materials Science Practices Through Instruction Based on Engineering Design Task. *Journal Science Education Technology*, 580-601.

- White, D. W. (2014). What is STEM Education and Why is It Important?. *Florida Association of Teacher Education Journal*.
- Widodo, A. (2015). Mengembangkan Keterampilan Berpikir Siswa. In *Proceedings of Seminar Nasional Pendidikan MIPA 2015*. Bandarlampung.
- Widodo, W. (2014). Ilmu Pengetahuan Alam Kelas VII. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Wright, P. H. (2005). *Pengantar Engineering* (Edisi Ketiga). (L. Simarmata, Ed., & Harinaldi, Trans.) Jakarta: Erlangga.
- Yuanita. (2013). *Model Pembelajaran Berbasis Masalah untuk Meningkatkan Literasi Sains dan Kreativitas Siswa SMA pada Materi Pencemaran Lingkungan: Studi Kasus Penanganan Limbah Kelapa Sawit Propinsi Bangka Belitung*. Tesis SPs UPI. Tidak Diterbitkan.