

## DAFTAR PUSTAKA

- Abraham, M. R. dan Williamson, V. M. (1994). A cross-age study of the understanding of five chemistry concepts. *Journal of Research in Science Teaching*, 31 (2), hlm. 147-165.
- Arentze, T., Dellaert, B.G.C., dan Timmermans, H.J.P. (2008). *Modeling and measuring individuals' mental representations of complex spatio-temporal decision problems. Environment and Behavior*, 40 (6). hlm. 843-869.
- Arifin, Z. (2009). *Evaluasi pembelajaran: prinsip teknik prosedur*. Bandung: PT Remaja Rosdakarya.
- Arikunto, S. (2011). *Prosedur Penelitian, Satuan Pendekatan dan Praktek*. Jakarta: Rineka Cipta.
- Azevedo, R. dan Cromley, J. G. (2004). Does training on self-regulated learning facilitate students' learning with hypermedia?. *Journal of Educational Psychology*, 96 (3), hlm. 523–535, doi: 10.1037/0022-0663.96.3.523.
- Badan Pengembangan Sumber Daya Manusia Pendidikan dan Kebudayaan dan Penjaminan Mutu Pendidikan Kementerian Pendidikan dan Kebudayaan. (2014). *Materi pelatihan guru implementasi kurikulum 2013 tahun ajaran 2014/2015 mata pelajaran Biologi SMA/SMK*. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Bahar, W. (2003). Misconceptions in biology education and conceptual change strategies. *Educational Sciences: Theory dan Practice*, 3 (1), hlm. 55-64.
- Balas, B. dan Momsen, J. L. (2014). Attention “blinks” differently for plants and animals. *CBE—Life Sciences Education*, 13, hlm. 437–443.

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perpustakaan.upi.edu

- Bergey, W., Cromley, G., Kirchgessner, L., dan Newcombe, N. (2015). Using diagrams versus text for spaced restudy: effects on learning in 10<sup>th</sup> grade biology classes. *British Journal of Educational Psychology*, 85, hlm. 59–74.
- Bergey, W., Cromley, G., dan Newcombe, N. (2015). Teaching high school biology students to coordinate text and diagrams: relations with transfer, effort, and spatial skill. *International Journal of Science Education*, 37 (15), hlm. 2476-2502.
- Bidlack, J. dan Jansky, S. (2011). *Stern's Introductory Plant Biology Edisi Kedua Belas*. New York: McGraw-Hill Companies.
- Bokor, J. R., Landis, J. B., dan Crippen, K. J. (2014). High school students' learning and perceptions of phylogenetics of flowering plants. *CBE—Life Sciences Education*, 13, hlm. 653–665.
- Brandstetter, M., Sandmann A., dan Florian, C. (2017). Understanding pictorial information in biology: students' cognitive activities and visual reading strategies. *International Journal of Science Education*, doi: 10.1080/09500693.2017.1320454.
- Butcher, K. R. (2006). Learning from text with diagrams: Promoting mental model development and inference generation. *Journal of Educational Psychology*, 98, hlm. 182–197, doi:10.1037/0022-0663.98.1.182.
- Canham, M. dan Hegarty, M. (2010). Effects of knowledge and display design on comprehension of complex graphics. *Learning and instruction*, doi: 10.1016/j.learninstruc.2009.02.014.
- Cheng, W. dan Gilbert, K. (2014). Students' visualization of metallic bonding and the malleability of metals: the use of spatial isomorphism and representational conventions. *International Journal of Science Education*, 36 (8), hlm. 1373-1407, doi: 10.1080/09500693.2013.867089.

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perpustakaan.upi.edu

- Cheng, W. dan Gilbert, K. (2015). Students' visualization of diagrams representing the human circulatory system: the use of spatial isomorphism and representational conventions. *International Journal of Science Education*, 37 (1), hlm. 136-161, doi:10.1080/09500693.2014.969359.
- Cook, M., Wiebe, E., dan Carter, G. (2008). The influence of prior knowledge on viewing and interpreting graphics with macroscopic and molecular representations. *Wiley Inter Science*, doi: 10.1002/sce.20262.
- Costu, B. (2008). Learning science through the pdeode teaching strategy: helping students make sense of everyday situation. *Eurasia Journal of Mathematics, Science and Technology Education*, 2008, 4 (1), hlm. 3-9.
- Cromley, J. G. dan Azevedo, R. (2006). Self-report of reading comprehension strategies: what are we measuring?. *Metacognition Learning*, 1, hlm. 229–247, doi: 10.1007/s11409-006-9002-5.
- Cromley, G., Hogan, S., dan Dubas, L. (2010). Cognitive activities in complex science text and diagrams. *Contemporary Educational Psychology*, 35, hlm. 59-74.
- Cromley, G., Bergey, W., Fitzhugh, S., Newcombe, N., Will, W., Shipley, F., dan Tanaka, C. (2013). Effects of three diagram instruction methods on transfer of diagram comprehension skills: The critical role of inference while learning. *Learning and Instruction*, 26, hlm. 45-58.
- Depdikbud. (2003). *Kamus Besar Bahasa Indonesia*. Jakarta : Balai Pustaka.
- Diana, S. (2016). Pengaruh penerapan strategi *peer assisted learning* (PAL) terhadap kemampuan literasi sains mahasiswa dalam

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Universitas Pendidikan Indonesia | repository.upi.edu |  
perpustakaan.upi.edu

- perkuliahan morfologi tumbuhan. *Jurnal Pengajaran MIPA*, 21, (1), hlm. 82-91.
- Diana, S. (2014). Penerapan strategi *peer assisted learning* (PAL) untuk meningkatkan penguasaan konsep dalam perkuliahan embriologi tumbuhan. *Prosiding Mathematics and Sciences Forum*, ISSN 978-602-0960-00-5, hlm, 417 – 422.
- Eilam, B. (2013). Possible Constraints of Visualization in Biology: Challenges in Learning with Multiple Representations. Dalam Treagust, D. F dan Tsui, C. (penyunting), *Multiple Representations in biological Education, Models and Modeling in Science Education 7*. New York: Springer.
- Ericson, K. A. dan Simon, H. A. (1980). Verbal report as data. *Psychological review*, 87 (3).
- Ericsson, K. A. dan Simon, H. A. (1993). *Protocol analysis: Verbal reports as data revised edition*. Cambridge, MA: Bradford
- Griffard, P. B. (2013). Deconstructing and decoding complex process diagrams in university biology. Dalam Treagust, D. F dan Tsui, C. (penyunting), *Multiple Representations in biological Education, Models and Modeling in Science Education 7*. New York: Springer.
- Hersey, D. R. (2004) Avoid misconceptions when teaching about Plants. *An Action Bioscience*.
- Ifenthaler, D. (2010). Relational, structural, and semantic analysis of graphical representations and concept maps *Education Tech Research Dev*, 58, hlm. 81–97. doi: 10.1007/s11423-008-9087-4.

**Mohammad Rahdian Raksabrata, 2018**

**HUBUNGAN PENGETAHUAN, AKTIVITAS KOGNITIF DAN KEMAMPUAN REPRESENTASI MENTAL MAHASISWA DALAM MEMPELAJARI DIAGRAM SIKLUS HIDUP TUMBUHAN**

Universitas Pendidikan Indonesia | repository.upi.edu |  
perpustakaan.upi.edu

- Ito, S. (2016). *Bayesian networks and causal networks, information thermodynamics on causal networks and its application to biochemical signal transduction*. (Theses). Singapore: Springer.
- Jalmo, T. dan Suwandi, T. (2018). Biology education students' mental models on genetic concepts. *Journal of Baltic Science Education*, 17 (3), hlm. 474-485
- Karthwohl, D. R. dan Anderson, L. W. (2014). *Kerangka landasan untuk pembelajaran, pengajaran dan asesmen Revisi taksonomi pendidikan Bloom*. Yogyakarta: Pustaka pelajar.
- Keys, W. C. (2000). Investigating the thinking processes of eighth grade writers during the composition of a scientific laboratory report. *Journal of Research In Science Teaching*, 37 (7), hlm. 676– 690.
- Kementerian Riset, Teknologi dan Pendidikan Tinggi Direktorat Jenderal Pembelajaran dan Kemahasiswaan Direktorat Pembelajaran. (2016). *Panduan penyusunan kurikulum pendidikan tinggi*. Jakarta: Kementerian Riset, Teknologi dan Pendidikan Tinggi Direktorat Jenderal Pembelajaran dan Kemahasiswaan Direktorat Pembelajaran.
- Khan, F. dan Masood, M. (2012). Effectiveness of visual animation-narration presentation on student's achievement in the learning of meiosis. *Social and Behavioral Sciences*, 46, hlm. 5666 – 5671.
- Kinchin, I. M. (1999). Investigating secondary-school girls' preferences for animals or plants: A simple 'head-to-head' comparison using two unfamiliar organisms. *Journal of Biological Education*, 3 (2), hlm. 95-99.
- Kragten, M., Admiral, W., dan Rijlaarsdam, G. (2014). Students' ability to solve process-diagram problems in secondary biology education. *Journal of Biological Education*, 49 (1), hlm. 91–103.

**Mohammad Rahdian Raksabrata, 2018**

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Universitas Pendidikan Indonesia | repository.upi.edu |  
perpustakaan.upi.edu

- Kragten, M., Admiral, W., dan Rijlaarsdam, G. (2015a). Students' learning activities while studying biological process diagrams. *International Journal of Science Education*, doi: 10.1080/09500693.2015.1057775.
- Kragten, M. (2015b). *Comprehending process diagrams in Biology education*. University of Amsterdam : UvA-DARE (Digital Academic Repository).
- Kubiatko, M. dan Prokop, P. (2009). Pupils' understanding of mammals: an investigation of a cognitive dimension of misconception. *Orbis Scholae*, 3, hlm. 97-112.
- Kurt, H., Gülay, E., dan Aksu, Ö. (2013). Determining cognitive structures and alternative conceptions on the concept of reproduction. *Creative education*, 4 (9), hlm. 572-587.
- Levie, H. dan Lentz, R., (1982). Effects of text illustrations: a review of research. *Educational Communication and Technology Journal*, 30 (4), hlm.195-232.
- Lowe, R. K. (1996). Background knowledge and the construction of a situational representation from a diagram. *European Journal of Psychology of Education*, 11, hlm. 377-397, doi:10.1007/bf03173279.
- Lowe, R. K. dan Boucheix, J. (2016). Principled animation design improves comprehension of complex dynamics. *learning and instruction*, 45, hlm. 72-84.
- Lowe, R. dan Ploetzner, R. (2017) *Learning from dynamic visualization*. Cham: Springer.
- Lowe, R., Boucheix, J., dan Menant, M. (2018). Perceptual processing and the comprehension of relational information in dynamic diagrams. Dalam Chapman P., Stapleton G., Moktefi

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**HUBUNGAN PENGETAHUAN, AKTIVITAS KOGNITIF DAN KEMAMPUAN REPRESENTASI MENTAL MAHASISWA DALAM MEMPELAJARI DIAGRAM SIKLUS HIDUP TUMBUHAN**

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perpustakaan.upi.edu

- A., Perez-Kriz S., Bellucci F. (eds) Diagrammatic representation and inference. diagrams 2018. *Lecture Notes in Computer Science, 10871*. Cham: Springer.
- Mason, L., Pluchino, P., Tornatora, M. C. dan Ariasi, N. (2013). An eye-tracking study of learning from science text with concrete and abstract illustrations. *The Journal of Experimental Education, 81* (3), hlm. 356-384, doi: 10.1080/00220973.2012.727885.
- Mayer, E. R. dan Moreno, R. (2003). Nine ways to reduce cognitive load in multimedia learning. *Educational Psychologist, 38* (1), hlm. 43-52.
- Mayer, R. E. (2009). *Multimedia Learning*, edisi kedua. New York: Cambridge University Press.
- Mayer, E, R. dan Moreno, R. (2010). Techniques that reduce extraneous cognitive load and manage intrinsic cognitive load during multimedia learning. Dalam Plas, J. L., Moreno, R., dan Brunken, R. (penyunting), *Cognitive Load Theory*. Cambridge: Cambridge University Press.
- Meijer, J., Veenman, M. V. J., dan Van Hout-Wolters, B. H. A. M. (2006). Metacognitive activities in text-studying and problem-solving: Development of a taxonomy. *Educational Research and Evaluation, 12*, hlm. 209–237, doi:10.1080/13803610500479991.
- Moreno, R. dan Park, B. (2010) . Cognitive load theory: historical development and relation to other theories. Dalam Plas, J. L., Moreno, R., dan Brunken, R. (penyunting), *Cognitive Load Theory*. Cambridge: Cambridge University Press.
- Otero, V. K. dan Nathan, M. J. (2007). Preservice elementary teachers' views of their students' prior knowledge of science. *Journal Of Research In Science Teaching, 45* (4), hlm. 497-523.

**Mohammad Rahdian Raksabrata, 2018**

**HUBUNGAN PENGETAHUAN, AKTIVITAS KOGNITIF DAN KEMAMPUAN REPRESENTASI MENTAL MAHASISWA DALAM MEMPELAJARI DIAGRAM SIKLUS HIDUP TUMBUHAN**

Universitas Pendidikan Indonesia | repository.upi.edu |  
perpustakaan.upi.edu

- Paivio, A. (1990). *Representation a dual coding approach*. New York: Oxford University Press.
- Pintó, R. dan Ametller, J. (2002). Students' difficulties in reading images. comparing results from four national research groups. *International Journal of Science Education*, 24 (3), hlm. 333-341.
- Plas, J. L., Moreno, R., dan Brunken, R. (2010). *Cognitive load theory*. Cambridge: Cambride University Press.
- Departemen Pendidikan Biologi Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam Universitas Pendidikan Indonesia. (2016). Rencana Pembelajaran Semester (RPS) perkembangan tumbuhan. Bandung: Departemen Pendidikan Biologi Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam Universitas Pendidikan Indonesia.
- Prokop, P., Majerčíková, D., dan Vyoralová, Z. (2016) The use of realia versus powerpoint presentation on botany leassons. *Journal of Baltic Science Education*, 15(1).
- Rahmat, A., Soesilawaty, A. S., dan Nuraeni, E. (2017). *Studi beban kognitif siswa SMA dalam pembelajaran Biologi: representasi mental siswa ketika dihadapkan pada diagram isomorfisme-spasial dan representasi konvensi*. Laporan Penellitian Penguatan Kompetensi. Universitas Pendidikan Indonesia, Bandung.
- Reed, S. K. (2007). *Kognisi: teori dan aplikasi Edisi ke tujuh*. Jakarta: Salemba Humanika.
- Reece, J. B. dan Chain, M. L. (2004). *Biologi Edisi Kelima Jilid 3*. Jakarta: Erlangga.

**Mohammad Rahdian Raksabrata, 2018**

**HUBUNGAN PENGETAHUAN, AKTIVITAS KOGNITIF DAN KEMAMPUAN REPRESENTASI MENTAL MAHASISWA DALAM MEMPELAJARI DIAGRAM SIKLUS HIDUP TUMBUHAN**

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- Reece, J. B., Urry, L. A., Cain, M. L., Wasserman, S. A. Minorsky, P. V. dan Jackson. R. B. (2010). *Campbell Biology*. 9<sup>th</sup> edition. San Francisco: Pearson Education.
- Rustaman, N. (2000). Konstruktivisme dan Pembelajaran IPA/Biologi. Makalah, Seminar/Lokakarya Guru-guru IPA SLTP Sekolah Swasta di Bandung, FPMIPA Universitas Pendidikan Indonesia.
- Sampurno, A. W., Rahmat, A., dan Diana, S. (2017). Students mental representation of biology diagrams/pictures conventions based on formation of causal network. *Journal of Physics: Conference Series*, doi :10.1088/1742-6596/895/1/012129.
- Santoso, Singgih. (2003). Buku latihan SPSS Statistik Multivariat. Edisi ke-2. Jakarta: PT. Elex Media Komputindo.
- Schussler, E. E. (2008). From flowers to fruits: how children's books represent plant reproduction. *International Journal of Science Education*, 30 (12), hlm. 1677-1696, doi:10.1080/09500690701570248.
- Schnotz, W., Ludewig, U., Ullrich, M., Horz, H., McElvany, N., dan Baumert, J. (2014). Strategy shifts during learning from texts and pictures. *Journal of Educational Psychology*, 106 (24), hlm. 974-989, doi: <http://dx.doi.org/10.1037/a0037054>.
- Schnotz, W. dan Bannert, M. (2003). Construction and interference in learning from multiple representation. *Learning and Instruction*, 13, hlm. 141–156.
- Someren, M. W., Barnard, Y. F., dan Sandberg, J. A. C. (1994). *The think aloud method: a practical approach to modelling cognitive processes*. London: Academic Press.
- Sudjana. (2005). *Metoda statistika*. Bandung: Penerbit PT. Tarsito.

**Mohammad Rahdian Raksabrata, 2018**

**HUBUNGAN PENGETAHUAN, AKTIVITAS KOGNITIF DAN KEMAMPUAN REPRESENTASI MENTAL MAHASISWA DALAM MEMPELAJARI DIAGRAM SIKLUS HIDUP TUMBUHAN**

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- Sugiyono. (2009). *Metode Penelitian Kuantitatif, Kualitatif dan R dan D*. Bandung: Alfabeta.
- Surya, M. (2015). *Strategi kognitif dalam proses pembelajaran*. Bandung: Alfabeta.
- Sternberg, J. R. dan Sternberg, K. (2008). *Cognitive Psychology Edisi Keenam*. United States of America: Wadsworth, Cengage Learning.
- Tippett, D. (2016). What recent research on diagrams suggests about learning with rather than learning from visual representations in science. *International Journal of Science Education*, doi: 10.1080/09500693.2016.1158435.
- Treagust, D. F. dan Tsui, C. Y. (2013). Multiple representations in biological education, *Models and Modeling in Science Education* 7. New York: Springer.
- Vosniadou, S. (2008). *International handbook of research on conceptual change*. New York: Routledge.
- Wilhelm, J. D. (2001). *Improving comprehension with think aloud strategies*. New York: Scholastic. Inc.
- Winn, W. D. (1993). An account of how readers search for information in diagram. *Contemporary Educational Psychology*, 18, hlm. 162–185, doi:10.1006/ceps.1993.1016.
- Yarden, A. dan Yarden, A. (2013). Multiple representations in biological education. *Models and Modeling in Science Education*. New York: Springer.

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