DAFTAR PUSTAKA

Ainsworth, S. (2006). A Conceptual Framework for Considering Learning with Multiple Representations. *Learning and Instruction,* 16. 183-198

Akaygun, S. & Jones, L. L. (2013). Words or picture: a comparsion of written pictorial explanations of physical and chemical equilibria. *International Journal of Science Education,* 37 (1)

Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K. & Walter, P. (2015). *Molecular Biology of The Cell 6 th Ed*. New York: Gerland Science, Taylor & Francis Group.

Ametller, J. & Pinto, R. (2002). Students' reading of innovative images of energy at secondary school level. *International Journal of Science Education,* 24 (3): 285-312.

Amprasto. (2006). Pembelajaran Anatomi Tumbuhan Teori-Praktek Terintegrasi Dengan Pendekatan Konstruktivisme. Prosiding Seminar Nasional Pendidikan IPA. Bandung: Program Studi Pendidikan IPA Sekolah Pascasarjana Universitas Pendidikan Indonesia

Anderson, R.C. & Pearson, P.D. (1984). *A schema-theoretic view of basic processes in reading comprehension.* New York: Longman.

Arentze, T., Dellaert, B.G.C. & Timmermans, H.J.P. (2008). *Modeling and Measuring Individuals' Mental Representations of Complex Spatio-Temporal Decision Problems*. Environment and Behavior, 40 (6), 843-869.

Arsyad, A. (2011). *Media Pembelajaran*. Jakarta: PT Raja Grafindo Persada

Arifin, M. (2003). *Strategi Belajar Mengajar*. Bandung: Jurusan Pendidikan Kimia FPMIPA UPI

Arikunto, S. (2010). *Prosedur Penelitian, Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta

Barber, J, Pearson, D. & Cervetti, G. (2006). *Seeds of science/roots of reading.* California: The Regents of the University of California.

Bergey, W., Cromley, G., Kirchgessner, L. & Newcombe, N. (2015). Using Diagrams Versus Text for Spaced Restudy: Effects on Learning in 10th Grade Biology Classes. *British Journal of Educational Psychology*, 85, 59-74

Bergey, W., Cromley, G. & Newcombe, N. (2015). Teaching high school Biology Students to Coordinate Text and Diagrams:Relation with Transfer, Effort,

and spatial Skill. *International Journal of Science Education, 37 (15), 2476-2502.*

Brunken, R., Seufert, T. & Paas, F., (2010). *Measuring Cognitive Load.* Cambridge University Press: New York.

Campbell, *et al*. (2008). *Biologi Edisi Kedelapan jilid 2*. Jakarta: Penerbit Erlangga

Campbell, Reece, Urry, Cain, Wasserman, Minoskry, & Jackson. (2014). *Biology Eighth edition*. Pearson Education Inc.

Carney, R.N. & Levin, J.R. (2002). Pictorial Illustrations Still Improve Students' Learning from Text. Educational Psychology Review, 14(1): 5–26

Cheng, M. & Gilbert, J.K. (2014). Students' Visualization of Metallic Bonding and the Malleability of Metals. International Journal of Science Education, 36(8), 1373-1407

Cheng, M. & Gilbert, J. (2015). Student's visualization of diagrams representing the human circulatory system. The use of spatial-isomorpishme and representation convention. *International Journal of Science Education,* 37 (1), 136-160.

Clark, J.M. & Paivio, A. (1991). Dual Coding Theory and Education. *Educational Psychology Review*, 3(3): 149-210

Clark, R. C. & Mayer, R. E. (2008). E-Learning and the Science of Instruction. Amerika: Pfeiffer.

Coolman, J.M., McTigue, E.M. & Smolkin, L.B. (2011). Elementary Teachers, Use of Graphical Representations in Science Teaching. *J Sci Teacher Educ*. 22:613-643

Constable, H., Campbell, B. & Brown, R. (1988). Sectional drawings from science textbooks: An experimental investigation into pupils' understanding. *British Journal of Educational Psychology*, 58(1): 89-102.

Cook, M.P. (2006). Visual Representations in Science Educational: The Influence of Prior Knowledge and Instructional Design Principles. *Science Education,* 90 (6).

Cook, M.P. (2008). Students' Comprehension of Science Concepts Depicted in Textbook Illustrations. *Electronic Journal of Science Education.* 12(1): 1-14

Cook, M.P. (2011). Teachers' use of visual representations in the science classroom. *Science Education International,* 22(3): 175-184

Cromley, G., Bergey, W., Fitzhugh, S., Newcombe, N., Will, W., Shipley, F. & 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, 45-58.

Cutler, F.D., Botha, T. & Stevenson, D. (2008). *Plant Anatomy an Applied Approach*. New York: Cambridge University Press

Dickison, C.W. (2000). *Integrative Plant Anatomy.* London : Academic Press

De jong, T. (2010). Cognitive Load Theory, Educational Research, and Instructional Design: Some Food for thought. Isdtr Sci 38, 105-134.

Eseryel, D. Ifenthaler, D. Ge, X. (2013) Validation study of a method for assessing complex ill-structured problem solving by using causal representations. *Education Tech Research Dev*, 61. 443-463

Evert, R. F. (2006). *Esau's Plant Anatomy*. Third Edition. John Willey, New York

Frek, V., Vrtacknik, M., Blejec, A. & Gril, A. (2003). Students understanding of mulecular structure representation. *International Journal of Science Education*, 25 (10), hlm 1227-1245.

Gilbert, J. K. (2005). Visualisation: A metacognitive skill in science and science education. Visualisation in science education. (pp. 9–28). Dordrecht: Springer.

Gilbert, J. K. (2008). Visualization:An emergent field of practice and enquiry in science education. Visualization: Theory and practice in science education. Dordrecht, Springer: 3-24.

Gilbert, J. K. (2010). The Role of Visual Representation in the Learning and Teaching of Science: An introduction. *International Journal of Science Education*, 11 (10),1-15

Guillot, A., Champelly. S., Batier, C., Thiriet, P. & Collet, C. (2006). Relationship between spatial abilities, mental rotation and functional anatomy learning. *Advances in Health Science Education*, 1-17.

Halverson, K.L. Friedrichsen, P. (2013). *Learning Tree Thingking: Developing a New Framework of Representational Competence, Multiple Representations in Biological Education, Models and Modeling in Science*.

Helle. L., Nivala, M., Kronqvist, P., Ericson, A. & Lehtinen, Erno. (2010). Do Prior Knowledge, Personality And Visual Perceptual Ability Predict Student

Performance In Microscopic Pathology?. *Journal of Medical Education*, 44, 621–629

Hindriana, A. F. (2014). *Pembelajaran Fisiologi Tumbuhan Terintegrasi Struktur Tumbuhan Berbasis Kerangka Intruksional Marzano Untuk Menurunkan Beban Kognitif Mahasiswa*. (Disertasi). Sekolah Pascasarjana, Universitas Pendidikan Indonesia, Bandung.

Hidayat, E.B. (1995). *Anatomi Tumbuhan Berbiji*. Bandung: ITB.

Jian, Y.C., Wu, C.J. & Albert, A. (2015). Using Eye Trcaking to Investigate Sematic and Spatial Representation of Scientific Diarams During Text-Diagram Integration. J Sci Educ Technol. 24:43-55

Kalyuga, S. (2010). Cognitive Load Theory: Schema Acquisition and Sources of Cognitive Load. *Cognitive Load Theory* (hlm. 48-64). Cambridge: Cambridge University Press.

Kania, D. (2016). Analisis Penggunaan Microcam Dan Mikroskop Cahaya Terhadap Keterampilan Proses Sains Dan Minat Belajar Siswa Mengenai Materi Struktur Jaringan Tumbuhan. (Skripsi). Univesitas Pendidikan Indonesia, Bandung: Tidak Diterbitkan.

Karp. G. (2013). *Cell and Molecular Biology, Concept and Experiment 7th Ed*. New Jersey: John Wiley & Sons, Inc.

Khan, F. & Masood, M. (2012). Effectiveness of Visual Animation-Narration Presentation on Student‟s Achievement in The Learning of Meiosis. *Social and Behavioral Sciences*, 46, 5666 – 5671.

Knapp, P. & Watkins, M. (2005). Genre Text, Grammar, Technology For Teaching and Assesing Writing. Sydney : University of New South Wales Press

Koentjaraningrat. (1990). *Metode-metode Penelitian Kemasyarakatan*. Jakarta: Gramedia Pustaka.

Kragten, M., Admiral, W. & Rijlaarsdam, G. (2015). Student learning activities while studying biological. *International Journal of Science Education*, 37 (12). hlm 1915-1937.

Kurnadi, K. (2009). Dasar-dasar Anatomi dan Fisiologi Tubuh Manusia. *Bandung: Jurusan Pendidikan Biologi FPMIPA UPI.*

Ladue, N.D., Libarkin, J.C. & Thomas, S. (2015). Visual Representation on High School Biology, Chemistry, Eart Science, and Physics Assessments. J Sci Educ Technol. 24:818-834

Legiman. (2012). *Strategi Pemanfaatan Laboratorium IPA Di Sekolah*. Yogyakarta: Widyaiswara Muda

Levie, H. & Lentz, R., (1982). Effects of Text Illustrations: A Review of Research. *Educational Communication and Technology Journal. 30(4), 195-232.*

Lutz, K. & Lutz, R. (1977). Effects of Interactive Imagery on Learning: Application to Advertising. Journal of Applied Psychology, 62, 493-98.

Marzano, R. J., Pickering & Mc, Righe. (1993). *Assessing Student Outcomes. Performance Assesment Using the dimension of Learning Model.* ASCD: USA.

Maurice, M., Cheng, W. & Gilbert, K. (2014). Students Visualization of Diagrams Representing the Human Circulatory System: The Use of Spasial Isomorphism and Representational Conventions. *International Journal of Science Education, 37 (1), 136-161.*

Maurice, M., Cheng, W. & Gilbert, K. (2015). Students Learning Activities While Studying Biological Process Diagrams. *International Journal of Science Education. Doi: 10.1080/09500693.2015.1057775*

Mayer, R.E. & Gallini, J. K. (1990). When is an illustration worth ten thousand words? *J. Educ. Psychol*, 82: 715–726.

Mayer, R.E., Bove, W., Bryman, A., Mars, R. & Tapangco, L. (1996). Why less is more: meaningful learning from visual and verbal summaries of science textbook lessons. *Journal of Educational Psychology*, 88 (1): 64-73.

Mayer, R. E. & Moreno, R. (2003). "Nine Ways to Reduce Cognitive Load in Multimedia Learning. *Educational Psychologist*. 38, (1), 43-52.

Mayer, R. E. & Clark, R.C. (2008). Learning by Viewing Versus Learning by Doing: Evidence-Based Guidelines for Principled Learning Environments. *International Society for Performance Improvement*. 47 (9).

McCrimmon & James, M. (1984). *Writing With a Purpose*. Boston : Houghton Miffin Company

McMillan, J. H. & Schumacher, S. (2001). *Research in Education*. Fifth Edition. New York: Longman.

Meissner, B. & Bogner, F.X. (2013). Towards Cognitive Load Theory as Guideline for Instructional Design in Science Education. *World of Journal Education.* 3 (2), 24-37.

Miriam, B., Angela, S. & Christine, F. (2017). Understanding Pictorial Information in Biology : Students' Cognitive Activities and Visual reading Strategies. *International Journal of Science Education.*

Moreno, R. (2006). When Worked Examples Don't Work: Is Cognitive Load Theory At An impase? *Learning and Instruction*, 16(2), 170-181

Moreno, R. & Park, B. (2010). Cognitife Load Theory. Historical Development and Relation to Other Theories. Cambridge : Cambride University Press

Mulyani, S. (2006). *Anatomi Tumbuhan.* Yogyakarta: Kanisius.

Novick, L. & Catley, K. (2014). When Relationships Depicted Diagrammatically Conflict With Prior Knowledge: An Investigation of Students' Interpretations of Evolutionary Trees. *Science Education*, 98 (2), 269-304.

Nuraeni, E. (2016). Program Perkuliahan Anatomi Tumbuhan Berbasis Kerangka Instruksional Dimensi Belajar Marzano Untuk Mengembangkan Literasi Kuantitatif Mahasiswa. (Disertasi). Sekolah Pascasarjana, Universitas Pendidikan Indonesia, Bandung.

Nuraeni, E. & Rahmat, A. (2017). *Anatomi TumbuhanTeori dan Praktikum (Mengembangkan Literasi Kuantitatif).* Bandung: Jurusan Pendidikan Biologi FPMIPA UPI.

Nuraeni, E. Rahmat, A., Redjeki, S. & Riandi. (2015). The Role of Peer Tutor In Plant Anatomy Course For Enhacing Student Quantitative Literacy. Proceeeding of International Conference on Educational Research and Innovation (ICERI 2015) (Hal 105-110: Yogyakarta)

Nuraeni, E. & Rahmat, A. (2018). Connecting Qualitative Observation And Quantitative Measurement For Enhancing Quantitative Literacy In Plant Anatomy Course. Proceedings of Internasional Seminar on Mathematics, Science and Computer Science Education (ICMScCE 2018)

Ollerenshaw, A., Aidman, E. & Kidd, G. (1997). Is an illustration always worth ten thousand words? Effects of prior knowledge, learning style, and multimedia illustrations on text comprehension. *Int. J. Instruct. Media*, 24: 227–238.

Paivio, A. & Harshman, R.A. (1969). *Factor Analysis of a Question On Imagery And Verbal Habits And Skills. Canadian Journal Of Psycology*, 37.

Paivio, A. (1971). *Imagery and Verbal Processes*. New York: Holt, Rinehart & Winston

Paivio, A. & Csapo, K. (1973). Picture Superiority in Free Recall: Imagery or Dual Coding?. *Cognitive Psychology*. 5, 176-206.

Paivio, A. (1975). Coding distinctions and repetition effect in memory. In G. H. Bower (Ed), Psychology of learning and motivation. Orando, FL: Academic Press

Paivio, A. (1986). *Mental representations. A dual coding approach*. New York: Oxford University Press; Clarendon Press.

Paivio, A. (1990). *Mental Representation: A Dual Coding Approach*. (edisi kesembilan). New York: Oxford University Press, Inc.

Paivio, A. (2006). *Dual Coding Theory and Education*. Draft chapter for the conference on "Pathways to Literacy Achievement for High Poverty Children," The University of Michigan School of Education.

Paivio, A. (2007). Mind and its evolution: A dual coding theoretical approach. Mahwah, NJ: Lawrence Erlbaum Associates.

Patrick, M. D., Carter, G. & Wiebe, E. N. (2005). Visual representations of DNA replication: Middle grades students' perceptions and interpretations. *Journal of Science Education And Technology*, 14: 353–365.

Pelczar, M.J & Chan, E.C.S. (1986) *Dasar-Dasar Mikrobiologi.* McGraw-Hill Book Company

Purwanto, N. (2008). *Prinsip-prinsip dan Teknik Evaluasi Pengajaran*. Bandung: PT. Remaja Rosdakarya

Quilli, K. & Thomas, S. (2015). Drawing-to-learn: A Framework for Using Drawings to Promote Mode-Based Reasoning in Biology. *CBE-life Sciences Education. Vol.*14, 1-16, *Spring*.

Rahadi, A. (2003). *Media Pembelajaran.* Jakarta: Dikjen Dikti Depdikbud

Rahayuningsih, E. & Dwiyanto, D. (2005). *Pembelajaran di Laboratorium*. Yogyakarta: Pusat Pengembangan Pendidikan UGM

Reed, S. K. (2011). *Cognition Theory and Applications*. Jakarta: Salemba Humanika

Respati, S.M. (2008). *Macam-Macam Mikroskop dan Cara Penggunaan*. Momentun 4(2) hal: 42-44.

Rohani, A. (2000). *Media Instruksional Edukatif*. Bandung: Rineka Cipta

Rogers, E.M. (2006). Communication Technology: The New Media in Society. London : The Free Press

Rogers, K. (2006). Panduan Lengkap Mikroskop. Jakarta: Erlangga

Rustaman, N.Y. (2005). *Strategi Belajar Mengajar Biologi*. Bandung: Jurusan Pendidikan Biologi FPMIPA UPI.

Rustaman, N.Y. (2007). *Belajar IPA melalui keterampilan proses sains*. Bandung: Sekolah Pascasarjana, Universitas Pendidikan Indonesia.

Sadiman, S.A. (2003). *Media Pendidikan. Jakarta: PT. Raja Grafindo Persada*

Sanaky, H.A.H. (2011). *Media Pembelajaran. Yogyakarta : Kaukaba.*

Savinainen, A., Makynen, A., Nieminen, P. & Viiri, J. (2015). The Effect of Using a Visual Representation Tool in a Teaching-Learning Sequence for Teaching Newton's Third Law. *Res Sci Educ*, Vol. 1, 1-17

Schnotz, W. & Kurschner, C. (2007). A Reconsideration of Cognitive Load Theory. *Journal of Educational Psychologist*, 19.

Slameto. (2003). *Belajar dan faktor-faktor yang mempengaruhinya*. Jakarta: Rieneka cipta.

Smaldino. 2008. *Instructional Technology and Media for Learning*. Ohio: Pearson Merrill Prentice Hall.

Soewolo., Basoeki, S. & Yudani, T. (1999). Fisiologi Manusia. Malang: IMSTEP-JICA FPMIPA IKIP Malang

Solso, R., Otto H., Maclin, M. & Kimberly, M. (2008). *Cognitive Psychology*. Jakarta: Erlangga.

Sugiyono. (2011). *Statistika Untuk Penelitian*. Bandung: Alfabeta.

Sugiyono. (2014). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif Dan R&D.* Bandung: Alfabeta.

Sukmadinata, N.S. (2005). *Metode Penelitian Pendidikan.* Bandung : Rosdakarya.

Suprapto, P. K. (2012). Pengembangan Program Perkuliahan Anatomi Tumbuhan Berbasis Visuospatial melalui Representasi Mikroskopis Sistem Jaringan Tumbuhan untuk Meningkatkan Penalaran dan Penguasaan Konsep Calon Guru Biologi. (Disertasi). Sekolah Pascasarjana, Universitas Pendidikan Indonesia, Bandung.

Sundayana, R. (2014). *Statistika Penelitian Pendidikan.* Bandung: Alfabeta.

Sutrian, Y. (2011). Pengantar Anatomi Tumbuh-Tumbuhan edisi revisi. Jakarta. Rineka Cipta.

Stenberg, R.J. (2008). *Psikologi Kognitif.* Yogyakarta: Pustaka Pelajar

Steeves, A.T. & Sawhney, K.V. (2017). *Essentials of Developmental Plant Anatomy*. England: Oxford University Press

Sweller, J. (1994). Cognitive Load Theory, Learning Difficulty and Instructional Design. *Sydney University of NSW.*

Sweller, J. (1988). Cognitive Load During Problem Solving: Effects on Learning. *Cognitive Science,* 12 (2), 257-285.

Sweller, J. (2010). Cognitive Load Theory: Recent Theoritical Advances. Dalam Plass J.L., Moreno R., & Brunken, R. (eds.), *Cognitive Load Theory* (hlm. 29 – 47). Cambridge: Cambride University Press.

Wandersee, J. H., Mintzes, J. J. & Novak, J. D. (1994). *Research on alternative conceptions in science.* New York: Simon & Schuster and Prentice Hall International.

Weeks, A. (2013). Making Microscopy Motivating, Memorable, and Manageable for Undergraduate Students with Digital Imaging Laboratories. *The American Biology Teacher*, 75 (8), 578-581

Widodo, A. (2007). *Konstruktivisme dan Pembelajaran Sains.* Jurnal Pendidikan dan Kebudayaan, 64, (13), 91-103

Wiyanto. 2008. *Menyiapkan Guru Sains Mengembangkan Kompetensi Laboratorium*. Semarang: Universitas Negeri Semarang Press.

Won, M., Yoon, H. & Treagust, D.F. (2014). Student's Learning Strategies with Multiple Representation: Explanation of the Human Breathing Mechanism. *Science Education.* 99 (5). 840-866

Wu, H.K. & Shah, P. (2004). Exploring visuospatial thinking in chemistry learning. *Science Education,* 88(3): 465–492.

Zumeri, S. (2016). *Analisis Hubungan Motivasi Belajar dengan Aktivitas Belajar dan Dampaknya terhadap Keterampilan Problem Solving Mahasiswa pada Perkuliahan Morfologi Tumbuhan.* (Tesis). Sekolah Pascasarjana, Universitas Pendidikan Indonesia, Bandung.