

DAFTAR PUSTAKA

- Adesoji. (2008). "Managing Students' Attitude Towards Science Trough Problem-Solving Instructional Strategy". *Anthroplogies*. 10, (1), 21-24.
- Akinoglu, O. and Tandogan, R.O.(2007). "The Effect of Problem-Based Active Learning in Science Education on Students' Academic Achievement, Attitude and Concept Learning". *Eurasia Journal of Mathematics, Science and Technology Education*. 3, (1),71-81.
- Amir, R. and Tamir. (1994). "In Depth Analysis of Misconception as a Basis for Developing Research-Based Remedial Instruction: The Case of Photosynthesis". *The American Biology Teacher*. 56, (2), 94-100.
- Anderson, C.W., Sheldon, T.H., and Dubay, J. (1990). "The Effect of Instruction on College Non Majors' Conception of Respiration and Photosynthesis". *Journal of Research in Science Teaching*. 27, (8), 761-776.
- Araz, G. and Sungur, S. (2007). "Effectiveness of Problem-Based Learning on Academic Performance in Genetics". *The International Union of Biochemistry and Molecular Biology*. 35, (6), 448-451.
- Arends, R.I. (1997). *Classroom Instruction and Management*. USA: The McGraw-Hill Companies, Inc.
- Aryulina, D., Muslim, C., Manaf, S., dan Winarni, E.W. (2006). *Biologi SMA/MA Jilid 3*. Jakarta: Esis Erlangga.
- Barker, M. and Carr, M. (1989). "Teaching and Learning about Photosynthesis. Part 1: An Assessment in Terms of Student Prior Knowledge". *International Journal Science Education*. 11, (1), 49-56.
- Ben-Sasson, S.A. and Grover, N.B. (2003). "Osmosis: A Microscopic Phenomenon, A Microscopic View". *Advances in Physiology Education*. 27, (1), 15-19.
- Bidwell, R.G.S. (1979). *Plant Physiology*. New York: Macmillan Publishing Co., Inc.
- Borg, W. R and Gall, M. D. (1983). *Educational Research: An Introduction*. 4th Ed. New York: Longman, Inc.
- Brotosiswoyo, B.S. (2000). *Hakikat Pembelajaran MIPA (Fisika) di Perguruan Tinggi*. Jakarta: Proyek Pengembangan Universitas Terbuka Direktorat Jenderal Pendidikan Tinggi, Departemen Pendidikan Nasional.

- Brown, D.S. (2003). "High School Biology: A Group Approach to Concept Mapping". *The American Biology Teacher*. 65, (3), 192-197.
- Campbell, N.A., Reece, J.B. and Mitchell, L.G. (2002). *Biologi*. Jilid 1. Alih bahasa Manalu, W., dkk. Jakarta: Erlangga.
- Carin, A.A., and Sund, R.B. (1989). *Teaching Science Through Discovery*. Ohio: Charles E. Merrill Publishing.
- Centre for Teaching, Learning and Scholarship (CTLS), (2006). *Background of Problem-Based Learning*. [Online]. Tersedia pada http://www.samford.edu./ctls/pbl_process. [12 Maret 2008].
- Chin, C. and Chia, L-G. (2004). "Implementing Project Work in Biology Through Problem-Based Learning". *Journal of Biological Education*. 38, (2), 69-75.
- Chin, C. and Chia, L-G. (2005). "Problem-Based Learning: Using Ill Structured Problems in Biology Project Work". *Science Education*. 90, 44-67.
- Creswell, J.W. (1994). *Research Design: Qualitatif and Quantitatif Approaches*. California: Sage Publications, Inc.
- Dahar, R.W. (1996). *Teori-teori Belajar*. Jakarta: Erlangga.
- Dahar, R.W. (2006). "Dari Keterampilan Proses ke Keterampilan Generik". *Fasilitator*. 3, 14-18.
- Dasna, I.W. dan Sutrisno. (2007). *Pembelajaran Berbasis Masalah*. [Online]. Tersedia pada <http://www.lubisgrafura.wordpress.com/pembelajaran-berbasis-masalah>. [26 Maret 2008].
- Depdiknas. (2002). *Pengembangan Sistem Pendidikan Tenaga Kependidikan Abad ke-21 (SPTK-21)*. Jakarta: Departemen Pendidikan Nasional.
- Depdiknas. (2006). *Peraturan Pemerintah Nomor 22 Tahun 2006 tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah*. Jakarta: BSNP.
- Depdiknas. (2010). *Paradigma Pendidikan Nasional Abad XXI*. Jakarta: BSNP.
- Diana, S. *et al.* (2004). "Kegiatan Praktikum Fisiologi Tumbuhan Potensial Osmotis dan Imbibisi melalui Penugasan Metode Ilmiah di Jurusan Pendidikan Biologi FPMIPA UPI". *Laporan Penelitian*. Jurusan Pendidikan Biologi FPMIPA UPI. Bandung: tidak diterbitkan.

- Dogru, M. (2008). "The Application of Problem Solving Method on Science Teacher Trainees on Solution of Environmental Problems". *Journal of Environmental & Science Education*. 3, (1), 9-18.
- Driver, R.H. (1982). "Children's Learning in Science". *Educational Analysis*. 4, (2), 69-79.
- Duch, B.J., Groh, S.E., and Allen, D.E. (2001). *The Power of Problem-Based Learning*. Virginia: Stylus Publishing, LLC.
- Dunford, S. (2006). *Syllabus-Plant Physiology*. Departement of Biology, University of Cincinnati. [Online]. Tersedia: <http://www.bioweb.advc.edu/course/syllabi/670-syllabus-dunford>. [19 November 2008].
- Education and Manpower Bureau (EMB). (2004). *What is to be Learnt in the School Curriculum: Generic Skills*. [online]. Tersedia: <http://www.Edb.gov.hk/index.aspx?nodeID>. [19 Maret 2008].
- Ehlert, M.A. (2004). *An Evaluation of Problem-Based Learning: Application in an Undergraduate Supply Chain Management Course*. [Online]. Tersedia: <http://www.iems.northwestern.edu/docs/undergraduate/honors/michelle-ehlert.pdf>. [21 Oktober 2011]
- Eisen, Y., and Stavy, R. (1988). "Students' Understanding of Photosynthesis". *The American Biology Teacher*. 50, (4), 208-212.
- Finley, F.N., Stewart, J. and Yarroch, W.L. (1992). "Teachers' Perception of Important and Difficult Science Content". *Science Education*. 66, (4), 531-538.
- Friedler, Y., Amir, R. and Tamir, P., (1987). "High Students' Difficulties in Understanding Osmosis". *International Journal of Science Education*. 9, 541-551.
- Gay, L.R. (1996). *Educational Research: Competencies for Analysis and Application*. New Jersey: Prentice Hall Inc.
- Gilbert, J.K., Osborn, R.J. and Fensham, P.J. (1982). "Children's Science and Consequences for Teaching". *Science Education*, 66, (4), 531-538.
- Glosh, S., and Dawka, V. (2000). "Combination of Didactic Lecture with Problem-Based Learning Sessions in Physiology Teaching in A Developing Medical College in Nepal". *Advances in Physiology Education*. 24, 8-12.

- Hamidah, D., Rustaman, N.Y., Adi, S.D., dan Mariane, I.M.A. (2009). "Profil Tingkat Kesulitan Materi Biologi SMA Menurut Guru". Makalah pada Seminar Nasional Pendidikan di Universitas Lampung (UNILA).
- Hamidah, D., dan Rustaman, N.Y. (2008). "Analisis Kebutuhan Pengembangan Professional Guru Biologi SMA". Makalah pada Seminar Nasional Pendidikan di Universitas Negeri Surabaya (Unesa).
- Harley, S. (2008). *Botany 3204- Plant Physiology Sillabus*. Departemen of Botany, Weber State University. [Online]. Tersedia: <http://faculty.weber.edu/Sharley/3204/syllabus.html>. [19 November 2008].
- Hartono. (2006). *Pembelajaran Fisika Modern Bagi Mahasiswa Calon Guru*. Disertasi Doktor pada Pendidikan IPA Sekolah Pascasarjana UPI. Bandung: tidak diterbitkan.
- Haryani, S. (2011). *Pengembangan Model Praktikum Kimia Analitik Instrumen Berbasis Masalah untuk Meningkatkan Metakognisi Mahasiswa Calon Guru*. Disertasi Doktor pada Pendidikan IPA Sekolah Pascasarjana UPI Bandung: tidak diterbitkan.
- Haslam, F. and Treagust, D.F. (1987). "Diagnosing Secondary Students' Misconception of Photosynthesis and Respiration in Plants Using a Two-tier Multiple Choice Instrument". *Journal of Biological Education*. 21, (3), 203-210.
- Hinduan, A.A. (2003). "Meningkatkan Kualitas SDM Melalui Pendidikan IPA". Makalah pada Seminar Himpunan Sarjana Pendidikan IPA Indonesia, di Jurusan Pendidikan Fisika FMIPA UPI Bandung tanggal 1-2 Agustus 2003.
- Jhonson, E., Herd, S. & Tisdall, J. (2002). "Encouraging Generic Skills in Science Courses". *Electronic Journal of Biotechnology*. 5, (2), 1-5.
- Jhonstone, A.H. & Mahmood, N.A. (1980). "Isolating Topics of High Perceived Difficulty in School Biology". *Journal of Biological Education*. 14, (3) 163-166.
- Jurusan Pendidikan Biologi. (2007). *Silabus Mata Kuliah Fisiologi Tumbuhan*. Bandung: Jurusan Biologi FPMIPA Universitas Pendidikan Indonesia.
- Kamsah, M.Z. (2005). *Developing Generic Skills in Classroom Environment: Engineering Students' Perspective*. [online]. Tersedia: <http://www.ch.utm.my/research/pdf>. [24 Maret 2008].

- Koning, R. (2004). *Plant Physiology Syllabus*. Departement of Biology-Eastern Connecticut State University. [Online]. Tersedia: <http://www.plantphy.info/plantphysiology/syllabus.SO4/html>. [19 November 2008].
- Lang H.R. dan Evans, D.N. (2006). *Models, Strategies, and Methods for Effective Teaching*. 1st edition. New York: Pearson Educatin, Inc.
- Lawson, A.E. (1995). *Science Teaching and Development of Thinking*. Belmont, California: Wadworth Publishing Company.
- Liliasari. (2007). Scientific Concepts and Generic Skills Relationship in the 21st Century Science Education. *Seminar Proceeding of the First International Seminar of Science Education*. Bandung: Science Education Program Graduate School, Indonesia University of Education.
- Liliasari, Setiawan, A., dan Widodo, A. (2007). Model-model Pembelajaran Berbasis Teknologi Informasi untuk mengembangkan Keterampilan Generik Sains dan Berpikir Tingkat Tinggi Pebelajar. *Laporan Penelitian HPTP*. Bandung: Sekolah Pasca Sarjana - UPI.
- Loeblich, A.R. (2003). *Biology 3445-Plant Physiology Syllabus*. Departemen Biology, University of Houston. [Online]. Tersedia: <http://www.edu/sibs/faculty/loeblich/index.htm>. [19 November 2008].
- Lublin, J. (2003). *Generic Objective and Transferable Skill*. [online] Tersedia: [http://ww.ucd.ie/teaching/printable_docs/goods%20practice%/generic_obj&transfer skill](http://ww.ucd.ie/teaching/printable_docs/goods%20practice%/generic_obj&transfer_skill). [24 Maret 2008].
- Marek, E. (1986). "Understanding and Misunderstanding of Biology Concepts". *The American Biology Teacher*. 48, (1), 37-40.
- Martin, M.O., Mullis, I.V.S., Gonzales, E.J., Gregory, K.D., Smith, T.A., Chrostowski, S.J., Garde, R.A., & O'Connor (2000). *TIMSS 1999 International Science Report*. Boston: Boston University.
- McDermott, L.C.(1990). "A Perspective on Teacher Preparation in Physic and Other Sciences: the Need for Special Science Course for Teacher". *American Journal Physic*. 58, (8), 734-742.
- Meltzer, D.E. (2002). "The Relationship between Mathematics Preparation and Conceptual Learning Gain in Physics: A Possible Hidden Variable in Diagnostic Pretest Score". *Am.J.Phys*. 70, (2), 1259-1267.
- Michael, J. (2007). "What Makes Phisiology Hard for Student to Learn? Result of A Faculty Survey". *Advance Physiology Education*, 31, 34-40.

- Nolan, W.F. (1990). "A Problem-Solving Approach to Teaching Electrochemical Driving Force to Undergraduates". *Advance Physiology Education*. 4, 51-53.
- Novak, J.D. and Gowin, D.B. (1996). *Learning How to Learn*. Cambridge, England: Cambridge University Press.
- Odom, A.L. (1995). "Secondary and College Biology Students' Misconception About Diffusion and Osmosis". *The American Biology Teacher*. 57, (7), 409-415.
- Odom, A.L. and Kelly, P.C. (2001). "Integrating Concept Mapping and the Learning Cycle to Teach Diffusion and Osmosis Concepts to High School Biology Students". *Science Education*. 85, 615-635.
- OECD. 2007. *PISA 2006: Science Competencies for Tomorrow's World Executive Summary*. [Online]. Tersedia: <http://dx.doi.org/10.1787/888932343342>. [19 November 2011].
- OECD. 2010. *PISA 2009 Result: Executive Summary*. [Online]. Tersedia: <http://dx.doi.org/10.1787/888932343342>. [19 November 2011].
- Ommundsen, P. (2001). *Problem-Based Learning in Biology (with 20 case examples)*. [Online]. Tersedia pada <http://www.saltspring.com/capewest/pbl-hm>. [24 Maret 2008].
- Ornstein, A.C. (1990). *Strategies for Effective Teaching*. Chicago: Harper Collins Publisher.
- Poejiadi, A. (2001). *Pengantar Filsafat Ilmu bagi Pendidik*. Bandung: Yayasan Cendrawasih.
- Posner, G.J., Strike, K.A., Hewson, P.W. and Gertzog, W.A. (1982). "Acomodation of a Scientific Conception: Toward a Theory of Conceptual Change". *Science Education*, 66, (2), 211-227.
- Rahman, T. (2008). *Pengembangan Program Pembelajaran Praktikum untuk Meningkatkan Kemampuan Generik Calon Guru Biologi*. Disertasi Doktor pada Pendidikan IPA Sekolah Pascasarjana UPI, Bandung: tidak diterbitkan.
- Redhana, I.W. (2009). *Pengembangan Program Pembelajaran Berbasis Masalah Terbimbing untuk Meningkatkan Keterampilan Berpikir Kritis Siswa pada Mata Pelajaran Kimia SMA*. Disertasi Doktor pada Pendidikan IPA Sekolah Pascasarjana UPI. Bandung: tidak diterbitkan.

- Rustaman, N.Y., Dirdjosoemarto, S., Ahmad, Y., Yudianto, S.A., Rochintaniawati, D., Nurjhani, K.M., dan Subekti, R. (2005). *Strategi Belajar Mengajar Biologi*. Bandung: Jurusan Pendidikan Biologi FPMIPA UPI.
- Salisbury, F.B. and C.W. Ross. (1995). *Fisiologi Tumbuhan*. (terjemahan Diah R.L dan Sumaryono). Bandung: ITB.
- Salpeter (2001). *Century skill: Have Student Ready*. [Online]. Tersedia: <http://www.21stCenturySkill.org>. [19 September 2008].
- Sanger, M.J., Brecheisen, D.M., and Hynek, B.M. (2001). Can Computer Animations Affect College Biology Students' Conceptions about Diffusion & Osmosis? *The American Biology Teacher*. 63, (2), 104-109.
- Santyasa, I.W. (2008). "Pembelajaran Berbasis Masalah dan Pembelajaran Kooperatif". Makalah pada Pelatihan tentang Pembelajaran dan Asesmen Inovatif bagi Guru-Guru Sekolah Menengah di Kecamatan Nusa Penida, Bali.
- Sasmitamihardja, D. dan Siregar, A. (1994). *Dasar-dasar Fisiologi Tumbuhan*. Bandung: Fakultas Matematika dan Ilmu Pengetahuan Alam, ITB.
- Sefton, A.J. (2005). "Charting Global Future for Education in Physiology". *Advance Physiology Education*, 29, 189-193.
- Simpson, M. and Arnold, B. (1982). "Availability of Prerequisite Concepts for Learning Biology at Certificate Level". *Journal of Biological Education*. 16, (1), 65-72.
- Slavin, R.E. (1994). *Educational Psychology: Theories and Practice*. Fourth Edition. Massachusetts: Allyn and Bacon Publisher.
- Starr, C. (1991). *Biology: Concept and Application*. California: Wadsworth Publishing Company.
- Smart, L. (2007). *EFB530-Plant Physiology Syllabus*. Departemen of Biology State University of Newyork. [Online]. Tersedia: <http://www.esf.edu/efb/course/ef530/syllabus.htm>. [19 November 2008].
- Sudarmin. (2007). *Pengembangan Model Pembelajaran Kimia Organik dan Keterampilan Generik Sains (MPKOKG) bagi Calon Guru Kimia*. Disertasi Doktor pada Pendidikan IPA Sekolah Pascasarjana UPI. Bandung: tidak Diterbitkan.
- Sugiyono. (2006). *Metode Penelitian Pendidikan: Pendekatan Kuantitatif, Kualitatif, dan R & D*. Bandung: Alfabeta.

- Sukmadinata, N.S. (2007). *Metode Penelitian Pendidikan*. Bandung: Remaja Rosdakarya.
- Sund, R.B. and Trowbridge, L.W. (1973). *Teaching Science by Inquiry in the Secondary School*. Second edition. New York: Bell & Howell Company.
- Suparno, P. (1997). *Filsafat Konstruktivisme dalam Pendidikan*. Yogyakarta: Penerbit Kanisius.
- Susanti, R. (2006). Silabus mata kuliah Fisiologi Tumbuhan. Program Studi Pendidikan Biologi, Jurusan PMIPA FKIP Unsri- Inderalaya Ogan Ilir.
- Suyanti, R.D. (2006). *Pembekalan Kemampuan Generik Bagi Calon Guru Melalui Pembelajaran Kimia Organik Berbasis Multimedia Komputer*. Disertasi Doktor pada Pendidikan IPA Sekolah Pascasarjana UPI. Bandung: tidak diterbitkan.
- Tsai, C-C. and Huang, C-M. (2003). "Exploring Students' Coginitiv Structure in Learning Science: A Review of Relevant Methods". *Journal of Biological Eductaion*. 36, (4), 163-169.
- West, L.H.T. and Pines, A.L. (1985). *Cognitive Structure and Conceptual Change*. London: Academic Press Inc.
- Williamson, P.S. (2005). *Biology 3465-Plant Physiology Sillabus*. Department of Biology, Texas State University. [Online]. Tersedia: <http://www.bio.txtstate.edu/~pwilliam/bio3465-syllabusF2005>. [19 November 2008].
- Woods, D. (2003). *Problem Based Learning: ABC of Learning and Teaching in Medicine*. [Online]. Tersedia pada <http://www.bmj.com/cgi/content/full/326/7384/328>. [12 Maret 2008].
- Woods, D. (2005). Problem-Based Learning, Especially in the Context of Large Classes. [Online]. Tersedia: <http://chemeng.mcmaster.ca/pbl/pbl.htm>. [12 Maret 2008].
- Wright, A.W. and Bilica, K. (2007). "Instructional Tools: To Probe Biology Students' Prior Understanding". *The American Biology Teacher. Online Publication*. Januari 2007.
- Xiaoyan, W. (2003). "Integration of Modern and Traditional Strategies in Plant Physiology" dalam M. Peat (ed.) *The China Papers: Tertiary Science and Mathematics Teaching for the 21st Century*, 2, 53-57. [Online]. Tersedia: science.uniserve.edu.au/pubs/china/vol2/wengxiaoyan. [2 Januari 2009].

Yager, R.E. (1995). *Constructivism and Learning of Science*. In Glynn, S.M. & Duit, R. (editor) *Learning Science in the School: Research Reforming Practice*. New Jersey: Lawrence Erlbaum Ass.Publisher

Zacker, M.J., Brecheisen, D.M. & Heynek, B.M. (2001). "Can Computer Animation Affect College Biology Students Conception about Diffusion & Osmosis?" *The American Biology Teacher*. 63, (2), 104-109.

Zuckerman, T.T. (1994). "Problem Solvers' Conception about Osmosis". *The American Biology Teacher*. 56, 22-25.

