

DAFTAR PUSTAKA

- Abubakar, A.B. & Arshad, M.Y. (2015). Self-Directed Learning and Skills of Problem-Based Learning: A Case of Nigerian Secondary Schools Chemistry Students. *International Education Studies*. Vol(8), No.(12). 70-78. doi : <http://dx.doi.org/10.5539/ies.v8n12p70>.
- Adam, W.K., Perkins, K.K., Podolefsky, N.S., Dubson, M., Finkelstein, N.D., & Wieman, C.E. (2006). New Instrument For Measuring Student Beliefs About Physics and Learning Physics; The Colorado Learning Attitude about Science Survey. *Physical Review Special Topics-Physical Education Research*, Vol 2, No.1, 010101, 2006. doi:10.1103/PhysRevSTPER.2.010101.
- Adesina, A.O. & Akinbobola, A.O. (2005). The attitude of students towards part-time degree programme of the faculty of education, Obafemi Awolowo University, Ile-Ife. *Journal of Research of Education*, 2(1), 1-4.
- Ajzen, I. & Fishbein, M. (2000). *Attitudes and the Attitude-Behavior Relation: Reasoned and Automatic Processes*. European Review of Social Psychology, (11), 1-33.
- Akinbobola, A.O. (2015). Enhancing Nigerian Physics Students' Attitude through the Use of Pictorial, Written and Verbal Advance Organizers. *Advances in Physics Theories and Applications*. ISSN 2224-719X Vol.40, 35-42.
- Akinbobola, A.O. (2009). Enhancing Students' Attitude Towards Nigerian Senior Secondary School Physics Through the Use of Cooperative, Competitive and Individualistic Learning Strategies. *Australian Journal of Teacher Education*. Vol(34), Issue(1), Article(1)
- Anderson, I.W., & Krathwohl, D.R. (2010). *Kerangka Landasan untuk Pembelajaran, Pengajaran dan Asesmen*. Yogyakarta : Pustaka Pelajar.
- Arandia, E., Zuza, K., & Guisasola, J. (2016). Attitudes and Motivations Towards Physics and Its Learning at Both high School and University. *International Journal of Education and Information Technologies*. Vol. 10. Pp 58-65
- Arends, R.I. (2012). *Learning to Teach*. New York: McGraw-Hill.
- Arief, S. Sadiman dkk. (1990). *Media Pendidikan : Pengertian, Pengembangan, dan Pemanfaatannya*. Jakarta : Rajawali
- Argaw, A.S. dkk. (2017). The Effect of Problem Based Learning (PBL) Instruction on Students' Motivation and Problem Solving Skills of Physics. *Eurasia Journal of Mathematics Science and Technology Education*. ISSN: 1305-8223(online) 1305-8215(print) 2017 13(3) : 857-871. DOI 10.12973/eurasia.2017.00647a.

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

- Aqib,Z.(2015). *Model-model, Media, dan strategi pembelajaran kontekstual (inovatif)*. Bandung : Yrama Widya.
- Aziz,M.S.,dkk (2014). The impact of PBL on Undergraduate Physics Students' Understanding of Thermodynamics. *International Journal of Academic Research in Economics and Management Sciences*, Vol. 3, No. 4, ISSN: 2226-3624.
- Azwar, S.(2015). *Sikap Manusia teori dan pengukurannya*. Edisi Kedua. Yogyakarta : Pustaka Pelajar.
- Bowe, B., dkk. (2003). Teaching Physics to Engineering Students Using Problem-Based Learning. *Int. J. Engng Ed.* Vol. 19, No. 5, pp. 742-746, 2003.
- Bruner, Jerome.S. (1966). *Toward a Theory of Instruction*. Cambridge : Harvard University.
- Boyuk,U.&Kaya,H.(2011). Attitude Towards Physics Lessons And Physical Experiments Of The High School Students. *European J of Physics Education* Vol.2, Issue 1, 2011, ISSN1309 7202.
- Chandra, D.T (2010). *Kajian Efektivitas Pembelajaran Fisika melalui Pendidikan Teknologi Dasar (PTD) di Sekolah Menengah Pertama (SMP)*. Makalah Pendidikan Fisika UPI : tidak diterbitkan.
- Cracker,D.E.(2006). Attitude towards Science of Students Enrolled in Introductory Level Science Courses at UW-La Crosse. *UW-L Journal of Undergraduate Research IX*. 1-6.
- Dale, E (1969). *Audiovisual Methos in Teaching*. (Third Edition).New York : The Dryden Press, Holt, Rinehart and Winston,Inc.
- Didem, I. & Ali, G. (2010). The Effect of Using Problem Based Learning in Science and Technology Teaching Upon Students's Academic Achievement and Levels of Structing Concepts. *Asia Pacific Forum on Science Learning and Teaching*, Vol. 11, Issue 2, Article 1, p.1.
- Demirel,M.&Dagyar,M.,(2016). Effects of Problem Based Learning on Attitude : A Meta Analysis Study. *Eurasia Journal of Mathematics, Science &Technology Education*. Vol.12, No.8, pp 2115-2137.
- Djojosoediro,W.(2011). *Hakikat IPA dan Pembelajaran IPA*. Diakses dari <http://pjjpgsd.dikti.go.id> pada tanggal 10 Desember 2017
- Dolmans, D.H.J.M,& Loyens, S.M.M., (2016). Deep and Surface Learning in Problem-Based Learning : A Review of The Literature. *Adv in Health Sci Educ (2016) 21:1087–1112*

- Etherington, M.B.(2011). Investigative Primary Science : A Problem Based Learning Approach. *Australian Journal of Teacher Education*. Vol(36), Issue(9). <http://dx.doi.org/10.14221/ajte.2011v36n9.2>
- Etiubon,R.U.& Ugwu,A.N.(2016). Problem Based Learning and Students' Academic Achievement on Thermodynamics (A Case Study of University of Uyo, Akwa-Ibom State, Nigeria). *IOSR Journal of Research & Method in Education (IOSR-JRME)*. Vol(6),Issue(5),Ver(II). 36-41. DOI: 10.9790/7388-0605023641.
- Fisika SMA di Kabupaten Bondowoso. *Jurnal Pembelajaran Fisika*, Vol.5, No.4,pp 329-336.
- Folashadel and Akinbobola, A.O. (2009). Constructivist Problem Based Learning Technique and the Academic Achievement of Physics Students with Low Ability Level in Nigerian Secondary School. *Eurasian J. Phys. Chem. Educ. 1(1):45-51, 2009*.
- Galand,B., Frenay,M. and Raucent,B.(2012). Effectiveness of Problem-Based Learning In Engineering Education : A Comparative Study on Three Levels of Knowledge Structure. *International Jurnal of Engineering Education*, Vol.(28), No.(4), 939-947.
- Gautreau, R & Novemsky,L (1995). *Concepts first – A small group approach to physics learning. American Journal of Physics J.Phys., Vol.65, No.5, May 1997*
- Gerlach, V.G. dan Ely, D.P. (1971). *Teaching and Media. A systematic Approach*. Englewood Cliffs : Prentice-Hall, Inc.
- German, P. J. (1988). Development of The Attitude Towards Science in School Assessment and Its Use to Inverstigate The Relationship Between Science Achievement and Attitude Towards Science in School. *Journal of Research in Science Teaching*, Vol. 25, No.8,PP. 689-703.
- Haji,A.G., Safriana, Safitri,R. (2015). The Use Problem Based Learning to Increase Students' Learning Independent and to Investigate Students' Concept Understanding on Rotational Dynamic at Students of SMA Negeri 4 Banda Aceh. *Jurnal Pendidikan IPA Indonesia*.Vol 4, No.1, pp 67-72
- Hake, R.R. (1998). Interactive-engagement versuss traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics*, 66(1) 64-74.
- Heinich,R.,Molenda,M.,dan Russell,J.D.(1982). *Instructional Media and The New Technologies of Instruction*. New York : John Wiley & Sons.
- H.Eshach, *et al.* (2004). *Medical Students' Attitudes towards Physics*. GIREP 2004 Ostrava, 74-77.

Marlius, 2018

IMPLEMENTASI MODEL PROBLEM BASED LEARNING (PBL) BERBANTUAN MEDIA RELAI UNTUK MENINGKATKAN PEMAHAMAN KONSEP DIGITAL DAN ATTITUDE TOWARDS PHYSICS PESERTA DIDIK MADRASAH ALIYAH PADA MATERI TEKNOLOGI DIGITAL

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

- Hirca,N.(2011). Impact of Problem-based Learning to Students and Teachers. *Asia-Pacific Forum on Science Learning and Teaching*. Vol(12),Issue(1),Article(7). 1-19
- Inel, D.,Balim,A. (2010). The Effect of Using Problem Based Learning in Science and Technology Teaching Upon Students's Academic Achievement and Levels of Structing Concepts. *Asia Pacific Forum on Science Learning and Teaching*, Vol. 11, Issue 2, Article 1, p.1.
- Jordana, J.& Robert, F.J.,(2015). A Course on Digital Electronics Based on Solving Design-Oriented Exercises by Means of a PBL Strategy. *International Journal of Engineering Education*. Vol.(31),No.(1)(B), 238-247.
- Kind, P.M., Jones, K., & Barmby, P. (2007). Developing attitudes towards science measures. *International Journal of Science Education*, 29 (7), 871-893.
- Kanginan, M. (2013). *Fisika 3 untuk SMA/MA Kelas XII*. Jakarta : Erlangga
- Kaniawati,I.,dkk.(2016). The Influence of Using Momentum and Impulse Computer Simulation to Senior High School Students' Concept Mastery. *J.Physics : Conf.Ser 738 012060*
- Kaur, D., Zhao, Y. (2017). Development of Physics Attitude Scale (PAS): An Istrument to Measure Students' Attitudes Towards Physics. *The Asia-Pacific Education Researcher (TAPER)is an International Refereed Journal of Original and Innovative Research in Education*. Vol. 26, Issue 5, pp 291-304.
- Permendikbud No.24 Tahun 2016. *Kompetensi Inti dan Kompetensi Dasar Pelajaran pada Kurikulum 2013*. Jakarta : Diknas.
- Permendiknas No. 16 Tahun 2007. Standar Kualifikasi akademik dan kompetensi guru. Jakarta : Diknas.
- Lei, C.U. (2010). Applying the Problem-Based Learning Approach in Teaching Digital Integrated Circuit Design. *In Proc. ICELEHE*, Doc. 2010.
- Malan, S.B. and Ndlovu, M. (2014). Introducing Problem-Based Learning (PBL) into a Foundation Programme to Develop Self-Directed Learning Skills. *South African Journal of Education*; 34(1).
- Merritt, J.,dkk (2017). Problem-Based Learning in K–8 Mathematics and Science Education: A Literature Review. *The Interdisciplinary Journal of Problem-based Learning*, Volume 11 | Issue 2 Article 3.
- Muis, S (2012). *Teknik Digital Dasar*. Yogyakarta : Graha Ilmu. Bandung : Portal Jurnal Universitas Pendidikan Indonesia.

Marlius, 2018

IMPLEMENTASI MODEL PROBLEM BASED LEARNING (PBL) BERBANTUAN MEDIA RELAI UNTUK MENINGKATKAN PEMAHAMAN KONSEP DIGITAL DAN ATTITUDE TOWARDS PHYSICS PESERTA DIDIK MADRASAH ALIYAH PADA MATERI TEKNOLOGI DIGITAL

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

- Mulhall, P.,McKittrick,B.,& Gunstone,R.(2001). A Perspective on the Resolution of Confusions in the Teaching of Electricity. *Research in Science Education*, 31, 575-587.
- National Research Council. (1996). *National Science Education Standards*. Washington DC: National Academy Press.
- Nurdin, S. & Setiawan, W. (2016). Improving Students's Cognitive Abilities And Creative Thinking Skills On Temperature And Heat Concepts Through An Exelearning-Assisted Problem Based Learning.*International Journal of Scientific & Technology Research*. Vol.5,Issue 12.
- Nordin, A. & Ling, L.H., 2011. Hubungan Sikap Terhadap Mata Pelajaran Sains Dengan Penguasaan Konsep Asas Sains Pelajar Tingkatan Dua. *Journal of Science & Mathematics Educational*, Vol(2) , 89-101 / ISSN: 2231-7368. Universitas Teknologi Malaysia. Malaysia.
- Raine,D.&Symons,S.(2005). Possibilites: A Practice Guide to Problem-based Learning in Physics and Astronomy. *The Higher Education Academy Physical Sciences Centre Department of Chemistry University of Hull*. ISBN 1-903815-14-2
- Romadhoni,I.,Mahardika,I.K., & Harijanto,A.(2017). Penerapan Model Pembelajaran *Problem Based Learning*(PBL) Disertai Media CD Interaktif Terhadap Hasil Belajar dan Aktivitas Belajar Siswa pada Pembelajaran
- Sada, A.M. *ets all*.(2016). Prospects of Problem-Based Learning in Building Critical Thinking Skills among Technical College Students in Nigeria. *Mediterranean Journal of Social Sciences MCSER Publishing, rome-Italy*.Vol(7), No.(3). 356-365. DOI: 10.5901/mjss.2016.v7n3p356.
- Sagala,N.L.,Rahmatsyah and Simanjuntak,M.P.(2017). The Influence of Problem Based Learning Model on Scientific Process Skill and Problem Solving Ability of Student. *IOSR Journal of Research & Method in Education(IOSR-JRME)*. Vol.7,Issue 4, Ver.IV,pp 01-09.
- Sahin, M. (2010). Effects of Problem-Based Learning on University Students' Epistemological Beliefs About Physics and Physics Learning and Conceptual Understanding of Newtonian Mechanics. *J Sci Educ Technol* (2010) 19:266–275
- Sahin, M. and Yorek, N. (2009). A Comparison of Problem-Based Learning and Traditional Lecture Students' Expectations and Course Grades in an Introductory Physics Classroom. *Scientific Research and Essay*. Vol.4 (8), pp. 753-762.

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IMPLEMENTASI MODEL PROBLEM BASED LEARNING (PBL) BERBANTUAN MEDIA RELAI UNTUK MENINGKATKAN PEMAHAMAN KONSEP DIGITAL DAN ATTITUDE TOWARDS PHYSICS PESERTA DIDIK MADRASAH ALIYAH PADA MATERI TEKNOLOGI DIGITAL

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

- Selcuk,G.M.(2013). A Comparison of Achievement in Problem Based, Strategic and Traditional Learning Classes in Physics. *International Journal on New Trends in Education and Their Implications(ijonte)*. Vol.4, Issue.1, No(1).
- Selcuk,G.M.(2010). The Effects of Problem Based Learning on Pre-Service Teachers' Achievement, Approaches and Attitudes Towards Learning Physics. *International Journal of The Physical Sciences*. Vol.5, No.6, pp.711-723.
- Selcuk, G.M.,Sahin,M.,& Acikgoz,K.U.(2009). The Effects of Learning Strategy Instruction on Achievement, Attitude, and Achievement Motivation in a Physics Course. *Springer Science, Research Science Education*. 41. 39-62. DOI : 10.1007/s11165-009-9145-x.
- Sitotaw, B& Tadele, K.(2016). Student Attitude Toward Physics in Primary and secondary Schools of Dire Dawa City Administration, Ethiopia. *Word Journal of Educational Research and Reviews*, Vol.(2)(2), 014-021.
- Soomro, A.Q.,Qaisrani,M.N.&Uqaili,M.A.(2011). *Measuring Students' Attitudes Towards Learning Physics: Experimental Research*. Australian Journal of Basic and Applied Sciences, 5(11): 2282-2288, 2011, ISSN 1991-8178.
- Suhandi, A. dkk.(2009). Efektivitas Penggunaan Media Simulasi Virtual pada Pendekatan Pembelajaran Konseptual Interaktif dalam Meningkatkan Pemahaman Konsep dan Meminimalkan Miskonsepsi. Bandung : Jurnal Pengajaran MIPA
- Sunardi (2016). Fisika untuk Siswa SMA/MA Kelas XII. Yogyakarta : Yama Widya.
- Sutria, Y., Sahyar. & Derlina. (2017). Using Problem Based Learning Model Assisted Visual Media to Improve High Conceptual Knowledge and Critical Thinking Ability in Senior High School. *American Journal of Educational Research*. Vol. 5, No. 6, pp 639-644
- Tasoglu, A.K. & Bakac, M. (2014). The Effect of Problem Based Learning Approach on Conceptual Understanding in Teaching of Magnetism Topics. *Eurasian Journal of Physics and Chemistry Education*. Vol.2, Issue 2, pp 110-122.
- Tasoglu, A.K. & Bakac, M. (2010). The Effect of Problem Based Learning and Traditional Teaching Methode on Students Academic Achievements, Conceptual Developments and Scientific Process Skills According to Their Graduated High School Types. *Procedia Social and Behavioral Sciences* 2. (2010)2409-2413.
- Wentworth, J.W.(1977). Digital Electronics Fundamentals for The User. *SMPTE Journal, IEEE Xplore*. Vol.86

Marlius, 2018

IMPLEMENTASI MODEL PROBLEM BASED LEARNING (PBL) BERBANTUAN MEDIA RELAI UNTUK MENINGKATKAN PEMAHAMAN KONSEP DIGITAL DAN ATTITUDE TOWARDS PHYSICS PESERTA DIDIK MADRASAH ALIYAH PADA MATERI TEKNOLOGI DIGITAL

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

- Wilson, V. L., Ackerman, C. & Malave, C. (2000). *Cross-time Attitudes Concept Formation and Achievement in College Freshman Physics*. *Journal of Research in Science Teaching*, 37(10), 1112-1120.
- Yalcin, B.M., dkk. (2006). Short-term Effects of Problem-based Learning Curriculum on Students' Self directed Skills Development. *Croat Med J.* 2006;47:491-8
- Zhai, G & Wang, Y., Li, L., Miao, H. (2012). Development of Power System Relay Protection Experiment in E-Learning. *Procedia Engineering* 29 (2012) 2975 – 2979