

**PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG,
MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS
MELALUI PELATIHAN BERBASIS VIDEO**

DISERTASI

Diajukan untuk Memenuhi Sebagian dari Syarat untuk Memperoleh Gelar Doktor
Pendidikan Ilmu Pengetahuan Alam



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UNIVERSITAS PENDIDIKAN INDONESIA**

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PERNYATAAN KEASLIAN DISERTASI

Dengan ini saya menyatakan bahwa disertasi yang berjudul “**Peningkatan Kompetensi Guru IPA dalam Merancang, Melaksanakan dan Menilai Keterampilan Berpikir Kritis Melalui Pelatihan Berbasis Video**” beserta seluruh isinya adalah benar-benar karya saya sendiri, dan saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan tersebut, saya siap menanggung resiko yang dijatuhkan kepada saya apabila dikemudian hari ditemukan adanya pelanggaran terhadap etika keilmuan dalam karya saya ini, atau ada klaim dari pihak lain terhadap karya saya ini.

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ABSTRAK

Tujuan kurikulum SMP menekankan pada pengembangan keterampilan berpikir kritis siswa. Namun keterampilan berpikir kritis siswa seperti mengajukan pertanyaan, mengungkapkan argumen dan membuat keputusan masih kurang dilatihkan, terutama dalam pembelajaran IPA. Hal ini disebabkan oleh kompetensi guru masih kurang dalam mengembangkan pembelajaran dan penilaian yang melatih keterampilan berpikir kritis siswa. Untuk itu, guru perlu meningkatkan kompetensinya dalam mengembangkan keterampilan ini. Penelitian ini bertujuan untuk meningkatkan kompetensi guru IPA dalam merancang, melaksanakan dan menilai pembelajaran berpikir kritis melalui kegiatan pelatihan berbasis video. Penelitian ini menggunakan desain *mixed methods* tipe *embedded experimental design*. Partisipan dalam penelitian ini berjumlah 10 orang Guru IPA yang berasal dari Provinsi Banten. Lima topik video yang dipelajari meliputi: (1) Taksonomi Bloom dalam pembelajaran dan penilaian, (2) Keterampilan berpikir kritis, (3) Merancang pembelajaran berpikir kritis, (4) Melaksanakan pembelajaran berpikir kritis, dan (5) Menilai keterampilan berpikir kritis. Video tersebut dipelajari secara bertahap oleh peserta selama 10 minggu dengan didampingi oleh *coach*. Data yang menjadi fokus kajian penelitian adalah dokumen RPP dan instrumen soal yang dirancang guru serta dokumen pelaksanaan pembelajaran yang dilakukan guru pada saat sebelum dan setelah mengikuti pelatihan. Analisis terhadap dokumen-dokumen tersebut dilakukan secara deskriptif. Pada awalnya, pembelajaran dan penilaian yang dilakukan guru belum ada yang mengembangkan delapan indikator keterampilan berpikir kritis. Setelah mengikuti pelatihan, kompetensi guru dalam merancang pembelajaran berpikir kritis semakin meningkat dari kategori baik pada RPP ke-1 menjadi kategori sangat baik pada RPP ke-2 dan ke-3. Sebanyak 80% guru memiliki kompetensi yang cukup baik dalam melaksanakan pembelajaran yang melatih keterampilan berpikir kritis. Kompetensi guru dalam menilai keterampilan berpikir kritis juga mengalami peningkatan menjadi kategori sangat baik sebanyak 50%, kategori baik 30% dan 20% cukup baik. Namun demikian, sebagian besar guru perlu lebih memperhatikan aspek kedalaman dalam melatih keterampilan berpikir kritis yang dituju. Hasil penelitian ini menunjukkan bahwa pelatihan berbasis video dapat menjadi alternatif kegiatan pengembangan profesionalisme untuk meningkatkan kompetensi guru dalam merancang, melaksanakan dan menilai pembelajaran berpikir kritis.

Kata-kata kunci: Keterampilan berpikir kritis, kompetensi guru, pelatihan berbasis video.

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**IMPROVING SCIENCE TEACHERS' COMPETENCY IN DESIGNING,
IMPLEMENTING AND ASSESSING CRITICAL THINKING
INSTRUCTION THROUGH VIDEO BASED TRAINING**

ABSTRACT

The objective of secondary school curriculum emphasizes on the development of students' critical thinking skills. However, students' critical thinking skills such as asking questions, analyzing arguments and decision making have been underdeveloped, especially in science instruction. This is due to the lack of teachers' competence on developing critical thinking instructions and assessments. Therefore, science teachers need to be improved their competency in developing the skills. This study aims to improve teacher competency in designing, implementing, and assessing critical thinking instruction through video-based training. This study used a mixed methods embedded experimental design. Participants in this study were 10 science teachers in Banten Province. Five material topics that should be studied consist of: (1) Bloom's Taxonomy in learning and assessing, (2) Critical thinking skills, (3) Designing critical thinking instruction, (4) Implementing critical thinking instruction, and (5) Assessing critical thinking skills; The video should be studied gradually by teachers for 10 weeks with guidance from a coach. Data analysis was focusing on teachers' lesson plan, test items and learning implementation documents, before and after the training. These documents were analyzed descriptively. Initially, teachers did not develop students' critical thinking skills in their teaching and assessment. After participating the training, teachers' competency in designing critical thinking instruction increased from good category in the first lesson plan become excellent category in the second and third lesson plan. There were 80% teachers who have moderate competency in implementing critical thinking instruction. Teachers' competency in assessing critical thinking skills were increased to excellent category by 50%, good category of 30% and 20% of moderate category. However, most teachers need to pay more attention to the depth aspect in practicing students' critical thinking skills. The results of this study indicate that video-based training can be an alternative way for teachers' professional development to improve teacher competency in designing, implementing, and assessing critical thinking instruction.

Key words: Critical thinking skills, teachers' competency, video-based training.

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DAFTAR PUSTAKA

- AAAS. (1990). *Science for all Americans _project 2061*. Oxford University Press.
- Abosalem, Y. (2015). Assessment techniques and students' higher-order thinking skills. *ICSIT 2018 - 9th International Conference on Society and Information Technologies, Proceedings*, 4(1), 61–66.
<https://doi.org/10.11648/j.ijsedu.20160401.11>
- Abrami, P. C., Bernard, R. M., Borokhovski, E., Waddington, D. I., Wade, C. A., & Persson, T. (2015). Strategies for Teaching Students to Think Critically: A Meta-Analysis. *Review of Educational Research*, 85(2), 275–314.
<https://doi.org/10.3102/0034654314551063>
- Acar, O., Turkmen, L., & Roychoudhury, A. (2010). Student difficulties in socio-scientific argumentation and decision-making research findings: Crossing the borders of two research lines. *International Journal of Science Education*, 32(9), 1191–1206. <https://doi.org/10.1080/09500690902991805>
- Adams, J. (2012). Make Learning Matter for the Multitasking Generation: Teachers Must Implement Strategies to Help Multitasking Teens Slow Down and Think Critically. *Middle School Journal*, 43(3), 6–12.
<https://doi.org/10.1080/00940771.2012.11461806>
- Agustini, F. (2017). Peningkatan Kemampuan Bertanya Dan Penguasaan Konsep Ipa Melalui Pendekatan Question Formulation Technique (Qft). *Jurnal Penelitian Pendidikan*, 17(1), 36–44.
<https://doi.org/10.17509/jpp.v17i1.6633>
- Ahtee, M., Juuti, K., Lavonen, J., & Suomela, L. (2011). Questions asked by primary student teachers about observations of a science demonstration. *European Journal of Teacher Education*, 34(3), 347–361.
<https://doi.org/10.1080/02619768.2011.565742>
- Akbar, M. R., Hakim, A. R., & Haris, A. (2020). Pelatihan Pembuatan Media Pembelajaran Video Dengan Videoscribe Untuk Mengoptimalisasi

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Pembelajaran Berbasis 4.0. *Darmabakti : Jurnal Pengabdian dan Pemberdayaan Masyarakat*, 1(2), 51–57.
<https://doi.org/10.31102/darmabakti.2020.1.2.51-57>

- Alexandre, M. P. J. (1994). Teaching evolution and natural selection: a look at textbooks and teachers. *Journal of Research in Science Teaching*, 31(5), 519–535. <https://doi.org/10.1002/tea.3660310507>
- Alexander, P. A., Jetton, T. L., Kulikowich, J. M., & Woehler, C. A. (1994). Contrasting instructional and structural importance: The seductive effect of teacher questions. *Journal of Literacy Research*, 26(1), 19–45. <https://doi.org/10.1080/10862969409547835>
- Aliakbari, M., & Sadeghdaghighi, A. (2013). Teachers' Perception of the Barriers to Critical Thinking. *Procedia - Social and Behavioral Sciences*, 70, 1–5. <https://doi.org/10.1016/j.sbspro.2013.01.031>
- Almeida, P., & Souza, F. N. de. (2010). Questioning profiles in secondary science classrooms. *International Journal of Learning and Change*, 4(3), 237. <https://doi.org/10.1504/ijlc.2010.035833>
- Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning teaching and assessing: A revision of Bloom's taxonomy of educational objectives*. Longman Publishing.
- Arnone, M. P. (2003). Using instructional design strategies to foster curiosity. ERIC Digest. In ERIC Clearinghouse on Information and Technology. *ERIC Digest*. In *ERIC Clearinghouse on Information and Technology*.
- Arslan, C., Göcmencelebi, S. I., & Tapan, M. S. (2009). Learning and reasoning styles of pre service teachers': inductive or deductive reasoning on science and mathematics related to their learning style. *Procedia - Social and Behavioral Sciences*, 1(1), 2460–2465. <https://doi.org/10.1016/j.sbspro.2009.01.432>
- Astuti, D., Masykuri, M., & Maridi, M. (2021). The students critical thinking skill profile on respiratory system material through natural disaster and COVID-19 pandemic. *AIP Conference Proceedings*, 2330(March). <https://doi.org/10.1063/5.0043402>
- Avargil, S., Herscovitz, O., & Dori, Y. J. (2012). Teaching Thinking Skills in Context-Based Learning: Teachers' Challenges and Assessment Knowledge. *Journal of Science Education and Technology*, 21(2), 207–225. <https://doi.org/10.1007/s10956-011-9302-7>
- Aydeniz, M., & Ozdilek, Z. (2015). Assessing Pre- Service Science Teachers' Understanding of Scientific Argumentation : What Do They Know About Argumentation After Four Years of College Science? *Science Education International*, 26(2), 217–239.

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- Balitbangbuk. (2021). *Capaian pembelajaran IPA SMP*.
- Bao, L., Cai, T., Koenig, K., Fang, K., Han, J., Wang, J., Liu, Q., Ding, L., Cui, L., Luo, Y., Wang, Y., Li, E., & Wu, N. (2009). Learning and scientific reasoning. *Science*, *323*, 586–587. <https://doi.org/10.1126/science.1167740>
- Baron, J. B. (1987). Evaluating thinking skills in the classroom. In J. B. Baron & R. J. Sternberg (Ed.), *Teaching thinking: Theory and Practice* (hlm. 221–248). W.H Freeman and Company.
- Bartlett, J., & Miller, C. (2011). *Truth, lies, and the Internet: A report into young people's digital fluency*. Demos. <https://www.demos.co.uk/>
- Basen-Engquist, K., O'Hara-Tompkins, N., Lovato, C. Y., Lewis, M. J., Parcel, G. S., & Gingiss, P. (1994). The Effect of Two Types of Teacher Training on Implementation of Smart Choices: A Tobacco Prevention Curriculum. *Journal of School Health*, *64*(8), 334–339. <https://doi.org/10.1111/j.1746-1561.1994.tb03323.x>
- Basturk, S. (2010). First-year secondary school mathematics students' conceptions of mathematical proofs and proving. *Educational Studies*, *36*(3), 283–298. <https://doi.org/10.1080/03055690903424964>
- Bataineh, O., & Alazzi, K. (2009). Perceptions of Jordanian Secondary Schools Teachers towards Critical Thinking. *International Education*, *38*(2), 56–72.
- Behar-Horenstein, L. S., & Niu, L. (2011). Teaching Critical Thinking Skills In Higher Education: A Review Of The Literature. *Journal of College Teaching & Learning (TLC)*, *8*(2), 25–42. <https://doi.org/10.19030/tlc.v8i2.3554>
- Belland, B. R., Burdo, R., & Gu, J. (2015). A Blended Professional Development Program to Help a Teacher Learn to Provide One-to-One Scaffolding. *Journal of Science Teacher Education*, *26*(3), 263–289. <https://doi.org/10.1007/s10972-015-9419-2>
- Besoluk, S., & Onder, I. (2010). Investigation of teacher candidates' learning approaches, learning styles and critical thinking dispositions. *Elementary Education Online*, *9*(2), 679–693.
- Beyer, B. K. (1991). What philosophy offers to the teaching of thinking. In L. Costa (Ed.), *Developing minds: A resource book for teaching thinking* (Revised Ed, hlm. 72–76). Association for Supervision & Curriculum Development.
- Beyer, Bery K. (1987). Practice is not enough. In *Thinking Skills Instruction: Concept and Techniques* (hlm. 77–86). National Education Association.
- Beyer, C. J., & Davis, E. A. (2008). Fostering second graders' scientific explanations: A beginning elementary teacher's knowledge, beliefs, and practice. *Journal of the Learning Sciences*, *17*(3), 381–414.
- Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
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<https://doi.org/10.1080/10508400802222917>

- Biddulph, F., Symington, D., & Osborne, R. (1986). The Place of Children's Questions in Primary Science Education. *Research in Science & Technological Education*, 4(1), 77–88.
<https://doi.org/10.1080/0263514860040108>
- Biggs, J. B. (2003). Aligning teaching and assessing to course objectives. *Teaching and Learning in Higher Education: New trends and innovations*.
- Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2003). *Assessment for Learning: Putting it Into Practice*. Open University press.
<https://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=ED450842&site=ehost-live>
- Black, P. J. (1993). Formative and summative assessment by teachers. *Studies in Science Education*, 21(1), 49–97.
<https://doi.org/10.1080/03057269308560014>
- Black, T. R. (1980). An analysis of levels of thinking in Nigerian science teachers' examinations. *Journal of Research in Science Teaching*, 17(4), 301–306. <https://doi.org/10.1002/tea.3660170406>
- Bloom, B. S. (1956). *Taxonomy of educational objectives. Vol. 1: Cognitive domain*. David McKey.
- Bransky, J., Hadass, R., & Lubezky, A. (1992). Reasoning Fallacies in Preservice Elementary School Teachers. *Research in Science & Technological Education*, 10(1), 83–92. <https://doi.org/10.1080/0263514920100107>
- Brunvand, S. (2010). *Best Practices for Producing Video Content for Teacher Education – CITE Journal*. Contemporary Issues in Technology and Teacher Education. <http://www.citejournal.org/volume-10/issue-2-10/current-practice/best-practices-for-producing-video-content-for-teacher-education/>
- Burke, M. B. (1985). Unstated Premises. *Informal Logic*, 7(2).
<https://doi.org/10.22329/il.v7i2.2709>
- Buskist, W., & Irons, J. G. (2008). Simple strategies for teaching your students to think critically. In *Teaching Critical Thinking in Psychology: A Handbook of Best Practicessychology* (hlm. 49–57). Blackwell Publishing Ltd.
- Cantrell, S. C., & Hughes, H. K. (2008). Teacher efficacy and content literacy implementation: An exploration of the effects of extended professional development with coaching. *Journal of Literacy Research*, 40(1), 95–127.
<https://doi.org/10.1080/10862960802070442>
- Carlsen, W. S. (1993). Teacher knowledge and discourse control: Quantitative evidence from novice biology teachers' classrooms. *Journal of Research in Science Teaching*, 30(5), 471–481. <https://doi.org/10.1002/tea.3660300506>
- Carlsen, W. S. (1997). Never ask a question if you don't know the answer: The Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
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tension in teaching between modeling scientific argument and maintaining law and order. *Journal of Classroom Interaction*, 32, 14–23.

- Carmichael, C. (2006). *Exploration of critical thinking in environmental subjects (Thesis)*. University of technology, Sydney.
- Carrol, D. W., Keniston, A. H., & Peden, B. F. (2008). Integrating critical thinking with course content. In *Teaching critical thinking in Psychology: A handbook of best practices* (hlm. 101–115). Blackwell Publishing Ltd.
- Carter, K. (1984). Do Teachers Understand Principles for Writing Tests ? *Journal of Teacher Education*, 35(6), 57–60.
<https://doi.org/doi:10.1177/002248718403500613>
- Case, R. (2005). Moving critical thinking to the main stage. *Education Canada*, 45(2), 45–49.
- Cetin, P. S., Dogan, N., & Kutluca, A. Y. (2014). The Quality of Pre-service Science Teachers' Argumentation: Influence of Content Knowledge. *Journal of Science Teacher Education*, 25(3), 309–331.
<https://doi.org/10.1007/s10972-014-9378-z>
- Che, F. S. (2002). Teaching critical thinking skills in a Hong Kong secondary school. *Asia Pacific Education Review*, 3(1), 83–91.
<https://doi.org/10.1007/bf03024923>
- Chen, C. T., & She, H. C. (2015). the Effectiveness of Scientific Inquiry With/Without Integration of Scientific Reasoning. *International Journal of Science and Mathematics Education*, 13(1), 1–20.
<https://doi.org/10.1007/s10763-013-9508-7>
- Chen, X., Jiang, M., Cai, L., Liang, L. L., Du, J., & Zhou, Y. (2017). Alignment Between the National Science Curriculum Standards and Standardized Exams at Secondary School Gateways. *Contemporary Trends and Issues in Science Education*, 45, 235–257. https://doi.org/10.1007/978-94-017-9864-8_10
- Cheng, P.-Y., Huang, Y.-M., Shadiey, R., Hsu, C.-W., & Chu, S.-T. (2014). Investigating the Effectiveness of Video Segmentation on Decreasing Learners' Cognitive Load in Mobile Learning. *International Conference on Web-Based Learning*, 8699, 122–129. <https://doi.org/10.1007/978-3-319-13296-9>
- Chin, C. (2007). Teacher questioning in science classrooms: Approaches that stimulate productive thinking. *Journal of Research in Science Teaching*, 44(6), 815–843. <https://doi.org/10.1002/tea.20171>
- Chin, C., Goh, N.-K., Chia, L.-S., Lee, K.-W. L., & Soh, K.-C. (1994). Pre-service teacher use of problem solving in primary science. *Research in*

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

Science Education, 24, 41–50.

Chin, C., Goh, N. K., Chia, L. S., Lucille Lee, K. W., & Soh, K. C. (1994). Pre-service teachers' use of problem-solving in primary science. *Research in Science Education*, 24(1), 41–50. <https://doi.org/10.1007/BF02356327>

Chin, C., & Osborne, J. (2010). Students' questions and discursive interaction: Their impact on argumentation during collaborative group discussions in science. *Journal of Research in Science Teaching*, 47(7), 883–908. <https://doi.org/10.1002/tea.20385>

Chizhik, E. W., & Chizhik, A. W. (2018). Using Activity Theory to Examine How Teachers' Lesson Plans Meet Students' Learning Needs. *Teacher Educator*, 53(1), 67–85. <https://doi.org/10.1080/08878730.2017.1296913>

Choi, H. J., & Johnson, S. D. (2005). The Effect of Context-Based Video Instruction on Learning and Motivation in Online Courses. *International Journal of Phytoremediation*, 21(1), 215–227. https://doi.org/10.1207/s15389286ajde1904_3

Choy, C. S., & Cheah, P. K. (2009). Teacher Perceptions of Critical Thinking Among Students and its Influence on Higher Education. *International Journal of Teaching and Learning in Higher Education*, 20(2), 198–206. <http://www.isetl.org/ijtlhe/>

Christenbury, L., & Kelly, P. (1983). Questioning: A Path to Critical Thinking. *ERIC information analysis*. <http://files.eric.ed.gov/fulltext/ED226372.pdf>

Clark, R. C. (2008). *Building expertise: Cognitive methods for training and performance improvement*. Pfeiffer. <https://doi.org/10.1002/pfi.4140390213>

Cooper, J. L. (1995). Cooperative Learning and Critical Thinking. *Teaching of Psychology*, 22(1), 7–9. https://doi.org/10.1207/s15328023top2201_2

Corcoran, T., McVay, S., & Riordan, K. (2003). *Getting it Right: The MISE Approach to Professional Development* (Nomor CPRE Research Reports). https://repository.upenn.edu/cpre_researchreports/42

Cottrell, S. (2005). *Critical Thinking: Developing effective analysis and argument*. Palgrave Macmillan.

Courey, S. J., Tappe, P., Siker, J., & LePage, P. (2013). Improved Lesson Planning With Universal Design for Learning (UDL). *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 36(1), 7–27. <https://doi.org/10.1177/0888406412446178>

Cross, R. T., & Price, R. F. (1996). Science Teachers' Social Conscience and the Role of Controversial Issues in the Teaching of Science. *Journal of Research in Science Teaching*, 33(3), 319–333. [https://doi.org/10.1002/\(SICI\)1098-](https://doi.org/10.1002/(SICI)1098-)

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

2736(199603)33:3<319::AID-TEA5>3.0.CO;2-W

- Cummings, K. M. (2020). *A mixed methods case study of the effects of question formulation technique on classroom engagement in a secondary earth science classroom and teachers' perceptions of this shift*. St. John's University.
- Darling-hammond, L. (1995). Changing Conceptions of Teaching and Teacher Development Teacher Conceptions of Teaching Development. *Teacher Education Quartely*, 22(4), 9–26. www.jstor.org/stable/23475817
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective Teacher Professional Development (research brief). In *Learning Policy Institute*.
- Darling-Hammond, Linda, & Richardson, N. (2009). Research Review / Teacher Learning: What Matters? *How Teachers Learn Pages*, 66(5), 46–53.
- Davies, W. M. (2008). “Not quite right”: Helping students to make better arguments. *Teaching in Higher Education*, 13(3), 327–340. <https://doi.org/10.1080/13562510802045352>
- Davis, E., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher*, 34(3), 3–14.
- Dawson, V. M., & Venville, G. (2010). Teaching strategies for developing students' argumentation skills about socioscientific issues in high school genetics. *Research in Science Education*, 40(2), 133–148. <https://doi.org/10.1007/s11165-008-9104-y>
- De Koning, E., Hamers, J. H. M., Sijtsma, K., & Vermeer, A. (2002). Teaching inductive reasoning in primary education. *Developmental Review*, 22(2), 211–241. <https://doi.org/10.1006/drev.2002.0548>
- de Sá Ibraim, S., & Justi, R. (2016). Teachers' knowledge in argumentation: contributions from an explicit teaching in an initial teacher education programme. *International Journal of Science Education*, 38(12), 1996–2025. <https://doi.org/10.1080/09500693.2016.1221546>
- Dede, C., Ketelhut, D. J., Whitehouse, P., Breit, L., & McCloskey, E. M. (2009). A research agenda for online teacher professional development. *Journal of Teacher Education*, 60(1), 8–19. <https://doi.org/10.1177/0022487108327554>
- Desimone, L. M., & Pak, K. (2017). Instructional Coaching as High-Quality Professional Development. *Theory into Practice*, 56(1), 3–12. <https://doi.org/10.1080/00405841.2016.1241947>
- Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24(2), 81–112. <https://doi.org/10.3102/01623737024002081>
- Dewey, J., & Bento, J. (2009). Activating children's thinking skills (ACTS): The Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

effects of an infusion approach to teaching thinking in primary schools. *British Journal of Educational Psychology*, 79(2), 329–351. <https://doi.org/10.1348/000709908X344754>

- Dietz-Uhler, B. (2008). Effectiveness of a Web-Based Critical Thinking Module. In *Teaching Critical Thinking in Psychology: A Handbook of Best Practices* (hlm. 272–276). Blackwell Publishing Ltd.
- Dockrell, B. (1991). The effects of system wide testing: Issues raised by a case study in a developing country. *Studies in Educational Evaluation*, 17(1), 41–49. [https://doi.org/10.1016/S0191-491X\(05\)80108-7](https://doi.org/10.1016/S0191-491X(05)80108-7)
- Domine, V. (2011). Building 21st-Century Teachers: An Intentional Pedagogy of Media Literacy Education. *Action in Teacher Education*, 33(2), 194–205. <https://doi.org/10.1080/01626620.2011.569457>
- Dresner, M., De Rivera, C., Fuccillo, K. K., & Chang, H. (2014). Improving higher-order thinking and knowledge retention in environmental science teaching. *BioScience*, 64(1), 40–48. <https://doi.org/10.1093/biosci/bit005>
- Driver, R., Newton, P., & Osborne, J. (2000). Establishing the norms of scientific argumentation in classrooms. *Science Education*, 84(3), 287–312. [https://doi.org/10.1002/\(sici\)1098-237x\(200005\)84:3<287::aid-sce1>3.0.co;2-a](https://doi.org/10.1002/(sici)1098-237x(200005)84:3<287::aid-sce1>3.0.co;2-a)
- Drost, B. R., & Levine, A. C. (2015). An Analysis of Strategies for Teaching Standards-Based Lesson Plan Alignment to Preservice Teachers. *Journal of Education*, 195(2), 37–47. <https://doi.org/10.1177/002205741519500206>
- Duschl, R. A., & Gitomer, D. H. (1997). Strategies and challenges to changing the focus of assessment and instruction in science classrooms. *International Journal of Phytoremediation*, 21(1), 37–73. https://doi.org/10.1207/s15326977ea0401_2
- Effendi, H., Effendi, H., Irfan, D., & Hendriyani, Y. (2019). Pendapat Guru Pasca Pelatihan Learning Management System Berbasis Video Menggunakan Moodlecloud. *JJTEV (JURNAL TEKNIK ELEKTRO DAN VOKASIONAL)*, 05(02), 52–58. <http://ejournal.unp.ac.id/index.php/jtev/article/view/106609>
- Elder, L. (2003). *Teacher's Manual: The Miniature Guide to Critical Thinking for Children*. Foundation for Critical Thinking.
- Elliott, P. (2006). Reviewing newspaper articles as a technique for enhancing the scientific literacy of student-teachers. *International Journal of Science Education*, 28(11), 1245–1265. <https://doi.org/10.1080/10670560500438420>
- Ennis, R. H. (1987a). A taxonomy of critical thinking and disposition and abilities. In *Teaching thinking: Theory and Practice* (hlm. 9–26). W.H Freeman and Company.
- Ennis, R. H. (1987b). A Taxonomy of Critical Thinking Disposition and Abilities.

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

In *Teaching Thinking Skills : Theory and Practice* (hlm. 9–26). W.H. Freeman and Company.

- Ennis, R. H. (1989). Critical Thinking and Subject Specificity: Clarification and Needed Research. *Educational Researcher*, 18(3), 4–10. <https://doi.org/10.3102/0013189X018003004>
- Ennis, R. H. (1991). Goals for a critical thinking. In A. L. Costa (Ed.), *Developing minds: A resource book for teaching thinking* (Revised Ed, hlm. 68–71). Association for Supervision & Curriculum Development.
- Ennis, R. H. (1993). Critical thinking assessment. *Theory Into Practice*, 32(3), 179–186. <https://doi.org/10.1080/00405849309543594>
- Ennis, R. H. (1996). *Critical thinking*. Prentice-Hall, Inc.
- Evagorou, M., & Dillon, J. (2011). Argumentation in the teaching of science. In *The Professional Knowledge Base of Science Teaching* (hlm. 189–203). <https://doi.org/10.1007/978-90-481-3927-9>
- Evans, D., Flora, C., Goodpastor, G., Shepherd, P., & Tolo, K. (2009). Teacher Education and Professional Development in Indonesia: Gap Analysis. In *Task Order 25 of the Global Evaluation and Monitoring* (Nomor August).
- Facione, P. (1990). *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction. Research Findings and Recommendations*.
- Facione, P. A., Sanchez, C., Facione, N., & Gainen, J. (1995). The disposition toward critical thinking. *Journal of General Education*, 44(1), 1–25.
- Fauzi, A. (2019). Profile of Junior High School Students' Critical Thinking Skills in Answering Questions Related to Biological Concepts. *Scientiae Educatia*, 8(1), 51. <https://doi.org/10.24235/sc.educatia.v8i1.4081>
- Fisher, A. (2011). Evaluating inferences: deductive validity and other grounds. In *Critical Thinking An Introduction Second edition* (hlm. 114–132). Cambridge University Press.
- Fisher, J. B., Schumaker, J. B., Culbertson, J., & Deshler, D. D. (2010). Effects of a Computerized Professional Development Program on Teacher and Student Outcomes. *Journal of Teacher Education*, 61(4), 302–312. <https://doi.org/10.1177/0022487110369556>
- Fisher, R. (2001). Philosophy in Primary Schools: Fostering Thinking Skills and Literacy. *Reading*, 35(2), 67–73. <https://doi.org/10.1111/1467-9345.00164>
- Fishman, B., Konstantopoulos, S., Kubitskey, B. W., Vath, R., Park, G., Johnson, H., & Edelson, D. C. (2013). Comparing the Impact of Online and Face-to-Face Professional Development in the Context of Curriculum

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

Implementation. *Journal of Teacher Education*, 64(5), 426–438.
<https://doi.org/10.1177/0022487113494413>

- FitzPatrick, B., & Schulz, H. (2015). Do Curriculum Outcomes and Assessment Activities in Science Encourage Higher Order Thinking? *Canadian Journal of Science, Mathematics and Technology Education*, 15(2), 136–154.
<https://doi.org/10.1080/14926156.2015.1014074>
- Fleming, M., & Chambers, B. (1983). Teacher-made tests: Windows on the classroom. *New Directions for Testing & Measurement*, 19, 29–38.
- Fogg, B. J., Hall, C., Soohoo, C., Danielson, D. R., Tauber, E. R., Design, S. B., View, M., Stanford, J., Marable, L., & Webwatch, C. (2003). How Do Users Evaluate the Credibility of Web Sites? A Study with Over 2,500 Participants. *Proceedings of the 2003 Conference on Designing for User Experiences (DUX '03)*, 1–15.
- Forzani, E., & Maykel, C. (2013). Evaluating A Representative State Sample of Connecticut Seventh-grade Students' Ability to Critically Evaluate Online Information. *CARR Reader*, 10, 23–37. <http://newliteracieswp.uconn.edu/wp-content/uploads/sites/448/2014/07/Forzani-E.-Makel-2013.pdf>
- Francke, H., & Sundin, O. (2012). Negotiating the role of sources: Educators' conceptions of credibility in participatory media. *Library and Information Science Research*, 34(3), 169–175. <https://doi.org/10.1016/j.lisr.2011.12.004>
- Franks, B. A. (1998). Logical inference skills in adult reading comprehension: Effects of age and formal education. *Educational Gerontology*, 24(1), 47–68.
<https://doi.org/10.1080/0360127980240104>
- Gardner, P., & Johnson, S. (2015). Teaching the Pursuit of Assumptions. *Journal of Philosophy of Education*, 49(4), 557–570. <https://doi.org/10.1111/1467-9752.12125>
- Gareis, C. R., & Grant, L. W. (2015). *Teacher-made assessment: How to connect curriculum, instruction and student learning* (Second Edi). Routledge.
- Garet, M. S., Porter, A. C., Desimone, L., & Birman, B. F. (2001a). *of Teachers*. 38(4), 915–945.
- Garet, M. S., Porter, A. C., Desimone, L., & Birman, B. F. (2001b). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915–945.
- Gargus, G. . (2006). *Teachers' professional development needs and current practices at the Alexander Science Center School*. University of Southern California.
- Gelder, T. van. (2005). Teaching Critical Thinking: Some Lessons From Cognitive Science. *College Teaching*, 53(1), 41–48.
<https://doi.org/10.3200/CTCH.53.1.41-48>

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Gierlach, P., & Washburn, E. K. (2018). Teaching a Cognitive Strategy for Argument-based Writing in Middle School Social Studies. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 91(4–5), 147–154. <https://doi.org/10.1080/00098655.2018.1436821>
- Glaser, R. (1984). Education and thinking: The role of knowledge. *American Psychologist*, 39(2), 93–104. <https://doi.org/10.1037/0003-066X.39.2.93>
- Glatthorn, A. A., & Baron, J. (1991). The good thinker. In L. Costa (Ed.), *Developing minds: A resource book for teaching thinking* (Revised Ed, hlm. 63–67). Association for Supervision & Curriculum Development.
- Goldman, S. R., & Bisanz, G. L. (2002). Toward a functional analysis of scientific genres: Implications for understanding and learning processes. In J. Otero, J. A. Le on, & A. C. Graesser (Ed.), *The psychology of science text comprehension* (hlm. 19–50). Mahwah, NJ.
- Goldman, S. R., Braasch, J. L. G., Wiley, J., Graesser, A. C., & Brodowinska, K. (2012). Comprehending and learning from internet sources: Processing patterns of better and poorer learners. *Reading Research Quarterly*, 47(4), 356–381. <https://doi.org/10.1002/RRQ.027>
- Gotch, C. M., & French, B. F. (2014). A systematic review of assessment literacy measures. *Educational Measurement: Issues and Practice*, 33(2), 14–18. <https://doi.org/10.1111/emip.12030>
- Grossman, R., & Salas, E. (2011). The transfer of training: What really matters. *International Journal of Training and Development*, 15(2), 103–120. <https://doi.org/10.1111/j.1468-2419.2011.00373.x>
- Gul, R., Cassum, S., Ahmad, A., Khan, S., Saeed, T., & Parpio, Y. (2010). Enhancement of critical thinking in curriculum design and delivery: A randomized controlled trial for educators. *Procedia - Social and Behavioral Sciences*, 2(2), 3219–3225. <https://doi.org/10.1016/j.sbspro.2010.03.491>
- Hadi, S., Retnawati, H., Munadi, S., Apino, E., & Wulandari, N. F. (2018). The Difficulties Of High School Students In Solving HOTS Problems. *Problems of Education in the 21st Century*, 76(4), 97–106.
- Haladyna, T. M. (2004). *Developing and validating multiple choice test items* (3rd Editio). Lawrence Erlbaum Associates, Inc.
- Hall, P. (2002). Not all sources are created equal: Student research, source equivalence. *Internet Reference Services Quarterly*, 7(4), 13–21. https://doi.org/10.1300/J136v07n04_02
- Halpern, D. (2001). Assessing the Effectiveness of Critical Thinking Instruction. *The Journal of General Education*, 50(4), 270–286. <https://doi.org/10.1353/jge.2001.0024>
- Halpern, D. (2003). *Thought & Knowledge: An Introduction to Critical Thinking*.

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

In *Igarss 2014* (Nomor 1).

- Han, I., Eom, M., & Shin, W. S. (2013). Multimedia case-based learning to enhance pre-service teachers' knowledge integration for teaching with technologies. *Teaching and Teacher Education*, 34, 122–129. <https://doi.org/10.1016/j.tate.2013.03.006>
- Hargittai, E., Fullerton, L., Menchen-Trevino, E., & Thomas, K. Y. (2010). Trust Online: Young Adults' Evaluation of Web Content. *International Journal of Communication*, 4(0), 27.
- Harlen, W., & James, M. (1997). Assessment and learning: Differences and relationships between formative and summative assessment. *International Journal of Phytoremediation*, 21(1), 365–379. <https://doi.org/10.1080/0969594970040304>
- Harrell, M., & Wetzel, D. (2015). Using argument diagramming to teach critical thinking in a first-year writing course. In M. Davies & R. Barnett (Ed.), *The Palgrave handbook of critical thinking in higher education* (hlm. 213–232). Palgrave Macmillan.
- Harris, R. (1997). Evaluating Internet Research Sources. *Virtual Salt*, 17(1), 1–10. www.virtualsalt.com/evalu8it.htm
- Hiebert, J., Gallimore, R., & Stigler, J. W. (2002). A Knowledge Base for the Teaching Profession: What Would It Look Like and How Can We Get One? *Educational Researcher*, 31(5), 3–15. <https://doi.org/10.3102/0013189X031005003>
- Hindrasti, N. E., Sabekti, A. W., & Sarkiti, D. (2021). Pelatihan menyusun soal kemampuan berpikir kritis dan analisis menggunakan Model Rasch bagi guru IPA. *Reswara Jurnal Pengabdian Kepada Masyarakat*, 2(2). <https://doi.org/https://doi.org/10.46576/rjpkm.v2i2.1066>
- Hirsch, S. E., Kennedy, M. J., Haines, S. J., Thomas, C. N., & Alves, K. D. (2015). Improving preservice teachers' knowledge and application of functional behavioral assessments using multimedia. *Behavioral Disorders*, 41(1), 38–50. <https://doi.org/10.17988/0198-7429-41.1.38>
- Hmelo, C. E., Nagarajan, A., & Day, R. S. (2000). Effects of high and low prior knowledge on construction of a joint problem space. *Journal of Experimental Education*, 69(1), 36–56. <https://doi.org/10.1080/00220970009600648>
- Hoekstra, A., & Korthagen, F. (2011). Teacher learning in a context of educational change: Informal learning versus systematically supported learning. *Journal of Teacher Education*, 62(1), 76–92. <https://doi.org/10.1177/0022487110382917>
- Hogan, K., & Maglienti, M. (2001). Comparing the epistemological
- Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- underpinnings of students' and scientists' reasoning about conclusions. *Journal of Research in Science Teaching*, 38(6), 663–687. <https://doi.org/10.1002/tea.1025>
- Holmes, N. G., Wieman, C. E., & Bonn, D. A. (2015). Teaching critical thinking. *Proceedings of the National Academy of Sciences of the United States of America*, 112(36), 11199–11204. <https://doi.org/10.1073/pnas.1505329112>
- Howse, R. B., Best, D. L., & Stone, E. R. (2003). Children's decision making: The effects of training, reinforcement, and memory aids. *Cognitive Development*, 18(2), 247–268. [https://doi.org/10.1016/S0885-2014\(03\)00023-6](https://doi.org/10.1016/S0885-2014(03)00023-6)
- Huffman, K., Carson, C., & Simonds, C. (2000). Critical Thinking Assessment: The Link Between Critical Thinking and Student Application in the Basic Course. *Basic Communication Course Annual*, 12(1), 7.
- Hugerat, M., & Kortam, N. (2014). Improving higher order thinking skills among freshmen by teaching science through inquiry. *Eurasia Journal of Mathematics, Science and Technology Education*, 10(5), 447–454. <https://doi.org/10.12973/eurasia.2014.1107a>
- Hughes, G. (2000). Marginalization of Socioscientific Material in Science–Technology–Society Science Curricula: Some Implications for Gender Inclusivity and Curriculum Reform. *Journal of Research in Science Teaching*, 37(5), 426–440. [https://doi.org/10.1002/\(sici\)1098-2736\(200005\)37:5<426::aid-tea3>3.3.co;2-1](https://doi.org/10.1002/(sici)1098-2736(200005)37:5<426::aid-tea3>3.3.co;2-1)
- Huitt, W. (1998). *Critical thinking: An overview*. *Educational Psychology Interactive*. Critical Thinking Conference sponsored by Gordon College, Barnesville, GA, March, 1993. <http://www.edpsycinteractive.org/topics/cogsys/critthnk.html>
- Hummel, J., & Huitt, W. (1994). *What you measure is what you get*. ASCD Newsletter: The Reporter.
- I Gede Mertha, Satutik Rahayu, N. L. (2019). Workshop Teknik Pembuatan Video Pembelajaran Pada Guru-Guru SMPN 1 Gunungsari Lombok Barat. *Pendidikan dan Pengabdian Masyarakat*, 2(1), 1–5.
- Iding, M., & Klemm, E. B. (2005). Pre-Service Teachers Critically Evaluate Scientific Information on the World Wide Web. *Computers in the Schools*, 22(1–2), 7–18. <https://doi.org/10.1300/J025v22n01>
- Inch, E. S., & Tudor, K. H. (2014). *Critical thinking and communication: The use of reason in argument* (Seventh Ed). Pearson Education Inc. http://www.findarticles.com/p/articles/mi_qa3673/is_200404/ai_n9345203
- Ingvarson, L., Meiers, M., & Beavis, A. (2005). Factors affecting the impact of

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

professional development programs on teachers' knowledge, practice, student outcomes & efficacy. *Education Policy Analysis Archives*, 13, 1–28. <https://doi.org/10.14507/epaa.v13n10.2005>

Irons, A. (2008). Enhancing learning through formative assessment and feedback. In *Distance Education* (Vol. 19, Nomor 2). Routledge.

Janssen, E. M., Mainhard, T., Buisman, R. S. M., Verkoeijen, P. P. J. L., Heijltjes, A. E. G., van Peppen, L. M., & van Gog, T. (2019). Training higher education teachers' critical thinking and attitudes towards teaching it. *Contemporary Educational Psychology*, 58(March), 310–322. <https://doi.org/10.1016/j.cedpsych.2019.03.007>

Jarman, R., & McClune, B. (2001). Use the news: A study of secondary teachers' use of newspapers in the science classroom. *Journal of Biological Education*, 35(2), 69–74. <https://doi.org/10.1080/00219266.2000.9655745>

Jarman, R., & McClune, B. (2002). A survey of the use of newspapers in science instruction by secondary teachers in Northern Ireland. *International Journal of Science Education*, 24(10), 997–1020. <https://doi.org/10.1080/09500690210095311>

Jensen, J. L., McDaniel, M. A., Woodard, S. M., & Kummer, T. A. (2014). Teaching to the Test...or Testing to Teach: Exams Requiring Higher Order Thinking Skills Encourage Greater Conceptual Understanding. *Educational Psychology Review*, 26(2), 307–329. <https://doi.org/10.1007/s10648-013-9248-9>

Jimenez-Aleixandre, M. P., & Bugallo-Rodriguez, A. (1997). *Argument in High School Genetics*. http://eric.ed.gov/?q=%22analysis+of+argument*%22+AND+classroom*+NOT+debate*&id=ED409167

Jonassen, D. H. (1995). Computers as cognitive tools: Learning with technology, not from technology. *Journal of Computing in Higher Education*, 6(2), 40–73. <https://doi.org/10.1007/BF02941038>

Jones, K. O., Harland, J., Reid, J. M. V., & Bartlett, R. (2009). Relationship between examination questions and bloom's taxonomy. *Proceedings - Frontiers in Education Conference, FIE*. <https://doi.org/10.1109/FIE.2009.5350598>

Jones, & Moreland. (2005). The importance of pedagogical content knowledge in assessment for learning practices: A case-study of a whole-school approach. *Curriculum Journal*, 16(2), 193–206. <https://doi.org/10.1080/09585170500136044>

Joyce, B., & Shower, B. (1981). Transfer of training: The contribution of “coaching.” *Journal of Education*, 163(2), 163–172.

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

- Joyce, B., & Showers, B. (1980). Improving inservice training: The messages of research. *Educational Leadership*, 37(5), 379–385.
- Jufri, A. W., Ramdani, A., Gunawan, G., Bachtiar, I., & Wildan, W. (2018). Peningkatan Kompetensi Guru IPA Kota Mataram dalam Memfasilitasi Penguasaan Keterampilan Abad Ke 21 Siswa SMP. *Jurnal Pengabdian Magister Pendidikan IPA*, 1(1), 1–6. <https://doi.org/10.29303/jpmpi.v1i1.207>
- Julien, H., & Barker, S. (2009). How high-school students find and evaluate scientific information: A basis for information literacy skills development. *Library and Information Science Research*, 31(1), 12–17. <https://doi.org/10.1016/j.lisr.2008.10.008>
- Kachan, M. R., Guilbert, S. M., & Bisanz, G. L. (2006). Do teachers ask students to read news in secondary science?: Evidence from the Canadian context. *Science Education*, 90(3), 496–521. <https://doi.org/10.1002/sc.20113>
- Kambeyo, L., & Csapo, B. (2018). Scientific reasoning skills: A theoretical background on science education. *Reform Forum*, 26(1), 27–36. https://www.researchgate.net/publication/329196813_scientific_reasoning_skills_a_theoretical_background_on_science_education
- Kamii, C. (1991). Toward Autonomy: The Importance of Critical Thinking and Choice Making. *School Psychology Review*, 20(3), 382–388. <https://doi.org/10.1080/02796015.1991.12085561>
- Karimatulhadj, H., Putri, P. H., & ... (2021). Pelatihan Pembuatan Media Video Interaktif bertema “Tanaman Berkhasiat Obat” sebagai Ilmu Dasar Farmasi bagi Siswa SMP menuju Jenjang SMK Farmasi *Jurnal Pengabdian Magister Pendidikan IPA*, 4(3), 334–338. <http://jppipa.unram.ac.id/index.php/jpmpi/article/view/801>
- Kasi, Y. F., Widodo, A., Samsudin, A., & Riandi, R. (2020). Teacher professional development program to improving pedagogical content knowledge : a review of empirical. *International Conference on Mathematics and Science Education*, 5, 20–26.
- Kay, R., & Kletschin, I. (2012). Evaluating the use of problem-based video podcasts to teach mathematics in higher education. *Computers and Education*, 59(2), 619–627. <https://doi.org/10.1016/j.compedu.2012.03.007>
- Kemdikbud. (2016). *Permendikbud Nomor 20 Tahun 2016 tentang Standar Kompetensi Lulusan*.
- Khan, W. B., & Inamullah, H. M. (2011). A study of lower-order and higher-order questions at secondary level. *Asian Social Science*, 7(9), 149–152. <https://doi.org/10.5539/ass.v7n9p149>
- Kiili, C., Laurinen, L., & Marttunen, M. (2008). Students evaluating internet

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

- sources: From versatile evaluators to uncritical readers. *Journal of Educational Computing Research*, 39(1), 75–95.
<https://doi.org/10.2190/EC.39.1.e>
- King, A. (1992). Facilitating Elaborative Learning Through Guided Student-Generated Questioning. *Educational Psychologist*, 27(1), 111–126.
https://doi.org/10.1207/s15326985ep2701_8
- King, A. (1995). Designing the Instructional Process to Enhance Critical Thinking across the Curriculum: Inquiring Minds Really Do Want to Know: Using Questioning to Teach Critical Thinking. *Teaching of Psychology*, 22(1), 13–17. https://doi.org/10.1207/s15328023top2201_5
- King, K. P. (2002). Identifying success in online teacher education and professional development. *Internet and Higher Education*, 5(3), 231–246.
[https://doi.org/10.1016/S1096-7516\(02\)00104-5](https://doi.org/10.1016/S1096-7516(02)00104-5)
- Klauer, K. J., & Phye, G. D. (2008). Inductive reasoning: A training approach. *Review of Educational Research*, 78(1), 85–123.
<https://doi.org/10.3102/0034654307313402>
- Klingner, J. K., Vaughn, S., Hughes, M. T., & Arguelles, M. E. (1999). Sustaining research-based practices in reading: A 3-year follow-up. *Remedial and Special Education*, 20(5), 263–274.
<https://doi.org/10.1177/074193259902000502>
- Klosterman, M. L., Sadler, T. D., & Brown, J. (2012). Science Teachers' Use of Mass Media to Address Socio-Scientific and Sustainability Issues. *Research in Science Education*, 42(1), 51–74. <https://doi.org/10.1007/s11165-011-9256-z>
- Knight, D., Hock, M., Skrtic, T. M., Bradley, B. A., & Knight, J. (2018). Evaluation of Video-Based Instructional Coaching for Middle School Teachers: Evidence from a Multiple Baseline Study. *Educational Forum*, 82(4), 425–442. <https://doi.org/10.1080/00131725.2018.1474985>
- Knight, J. (2007). *Instructional coaching: A Partnership approach to improving instruction*. Corwin Press.
- Kocakaya, S., & Gönen, S. (2010). Analysis of Turkish high-school physics-examination questions according to Bloom's taxonomy. *Asia-Pacific Forum on Science Learning and Teaching*, 11(1), 1–14.
<https://doi.org/10.1039/b2rp90034c>
- Koh, J. H. L., & Chai, C. S. (2014). Teacher clusters and their perceptions of technological pedagogical content knowledge (TPACK) development through ICT lesson design. *Computers and Education*, 70, 222–232.
<https://doi.org/10.1016/j.compedu.2013.08.017>

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
 Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Köksal, D., & Ulum, Ö. G. (2018). Language assessment through Bloom's Taxonomy. *Journal of language and linguistic studies*, 14(2), 76–88.
- Komba, W., & Nkumbi, E. (2008). Teacher Professional Development in Tanzania. *Journal of International Cooperation in Education*, 11(3), 67–84.
- Korpan, C. A., Bisanz, G. L., Bisanz, J., & Henderson, J. M. (1997). Assessing literacy in science: Evaluation of scientific news briefs. *Science Education*, 81(5), 515–532. [https://doi.org/10.1002/\(SICI\)1098-237X\(199709\)81:5<515::AID-SCE2>3.0.CO;2-D](https://doi.org/10.1002/(SICI)1098-237X(199709)81:5<515::AID-SCE2>3.0.CO;2-D)
- Korthagen, F., Loughran, J., & Russell, T. (2006). Developing fundamental principles for teacher education programs and practices. *Teaching and Teacher Education*, 22(8), 1020–1041. <https://doi.org/10.1016/j.tate.2006.04.022>
- Kortland, K. (1996). An STS case study about students' decision making on the waste issue. *Science Education*, 80(6), 673–689. [https://doi.org/10.1002/\(SICI\)1098-237X\(199611\)80:6<673::AID-SCE3>3.0.CO;2-G](https://doi.org/10.1002/(SICI)1098-237X(199611)80:6<673::AID-SCE3>3.0.CO;2-G)
- Koufetta-Menicou, C., & Scaife, J. (2000). Teachers' questions-types and significance in science education. *School Science Review*, 81, 79–84.
- Kretlow, A. G., & Bartholomew, C. C. (2010). Using Coaching to Improve the Fidelity of Evidence-Based Practices: A Review of Studies. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 33(4), 279–299. <https://doi.org/10.1177/0888406410371643>
- Kuebli, J. E., Harvey, R. D., & Korn, J. H. (2008). Critical thinking in critical courses: Principles and applications. In *Teaching Critical Thinking in Psychology: A Handbook of Best Practices* (hlm. 136–148). Blackwell Publishing Ltd.
- Kuhn, D. (2001). How do people know? *Psychological Science*, 12(1), 1–8. <https://doi.org/10.1111/1467-9280.00302>
- Kuhn, Deanna. (1992). Thinking as argument. *Harvard Educational Review*, 62(2), 155–179. https://doi.org/10.4324/9780203435854_chapter_7
- Kuhn, L., & Reiser, B. (2004). Students Constructing and Defending Evidence-Based Scientific Explanations. In *Annual meeting of the National Association for Research in Science Teaching*.
- Landrum, T. J., Cook, B. G., Tankersley, M., & Fitzgerald, S. (2012). Teacher Perceptions of the Trustworthiness, Usability, and Accessibility of Information From Different Sources. *Remedial and Special Education*, 23(1),

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

42–48.

- Lawrenz, F. (1990). Science teaching techniques associated with higher-order thinking skills. *Journal of Research in Science Teaching*, 27(9), 835–847. <https://doi.org/10.1002/tea.3660270904>
- Lawson, A. E. (2010). Basic inferences of scientific reasoning, argumentation, and discovery. *Science Education*, 94(2), 336–364. <https://doi.org/10.1002/sce.20357>
- LeBlanc, H. J., Nepal, K., & Mowry, G. S. (2017). Stimulating curiosity and the ability to formulate technical questions in an electric circuits course using the Question Formulation Technique (QFT). *Proceedings - Frontiers in Education Conference, FIE, 2017-October*, 1–6. <https://doi.org/10.1109/FIE.2017.8190460>
- Lee, H. S., & Park, J. (2013). Deductive reasoning to teach Newton's Law in motion. *International Journal of Science and Mathematics Education*, 11(6), 1391–1414. <https://link.springer.com/content/pdf/10.1007%2Fs10763-012-9386-4.pdf>
- Lee, K. L., Tan, L., Goh, N., Chia, L.-S., & Chin, C. (2013). Science Teachers and Problem Solving in Elementary Schools in Singapore. *Research in Science & Technological Education*, 18(1), 113–126.
- Lee, V., & Lo, A. (2014). From theory to practice: Teaching management using films through deductive and inductive processes. *International Journal of Management Education*, 12(1), 44–54. <https://doi.org/10.1016/j.ijme.2013.05.001>
- Lee, Y. C. (2007). Developing decision-making skills for socio-scientific issues. *Journal of Biological Education*, 41(4), 170–177. <https://doi.org/10.1080/00219266.2007.9656093>
- Lehman, D. R., & Nisbett, R. E. (1990). A longitudinal study of the effects of undergraduate training on reasoning. *Developmental Psychology*, 26(6), 952–960.
- Leighton, J. P. (2006). Teaching and assessing deductive reasoning skills. *Journal of Experimental Education*, 74(2), 107–136. <https://doi.org/10.3200/JEXE.74.2.107-136>
- Lenhart, A., Maya, S., & Graziano, M. (2001). *The Internet and Education : Findings of the Pew Internet & American Life Project*. <http://files.eric.ed.gov/fulltext/ED457849.pdf>
- Lestari, H., Sopandi, W., Sa'ud, U. S., Musthafa, B., Budimansyah, D., & Sukardi, R. R. (2021). The impact of online mentoring in implementing Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

radec learning to the elementary school teachers' competence in training students' critical thinking skills: A case study during covid-19 pandemic. *Jurnal Pendidikan IPA Indonesia*, 10(3), 346–356.
<https://doi.org/10.15294/JPII.V10I3.28655>

- Limberg, L., & Sundin, O. (2006). Teaching information seeking: relating information literacy education to theories of information behaviour. *Information Research: An International Electronic Journal*, 12(1), n1.
- Lizotte, D. J., McNeill, K. L., & Krajcik, J. (2004). Teacher practices that support students' construction of scientific explanations in middle school classrooms. *Embracing diversity in the learning sciences: Proceedings of the sixth international conference of the learning sciences*, 310–317.
- Loucks-Horsley, S., Stiles, K. E., Mundry, S. E., Love, N. B., & Hewson, P. W. (2010). *Designing Professional Development for Teachers of Science and Mathematics* (3rd ed.). Corwin Press. <http://www.amazon.com/Designing-Professional-Development-Teachers-Mathematics/dp/1412974143>
- Lytzerinou, E., & Iordanou, K. (2020). Teachers' ability to construct arguments, but not their perceived self-efficacy of teaching, predicts their ability to evaluate arguments. *International Journal of Science Education*, 42(4), 617–634. <https://doi.org/10.1080/09500693.2020.1722864>
- Macagno, F., & Konstantinidou, A. (2013). What Students' Arguments Can Tell Us: Using Argumentation Schemes in Science Education. *Argumentation*, 27(3), 225–243. <https://doi.org/10.2139/ssrn.2185945>
- Major, L., & Watson, S. (2018). Using video to support in-service teacher professional development: the state of the field, limitations and possibilities. *Technology, Pedagogy and Education*, 27(1), 49–68.
<https://doi.org/10.1080/1475939X.2017.1361469>
- Mandernach, B. J., Forrest, K. D., Babutzke, J. L., & Manker, L. R. (2009). The role of instructor interactivity in promoting critical thinking in online and face-to-face classrooms. *MERLOT Journal of Online Learning and Teaching*, 5(1), 49–62.
- Marbach-Ad, G., & Sokolove, P. G. (2000). Good science begins with good questions. *Journal of College Science Teaching*, 30(3), 192–195.
<https://www.proquest.com/scholarly-journals/good-science-begins-with-questions/docview/200359836/se-2?accountid=25704>
- Marlina, L., Liliyasi, Tjasyono, B., & Hendayana, S. (2017). Pelatihan Guru IPA dalam Mendesain Instruksional Ilmu Pengetahuan Bumi dan Antariksa (IPBA) untuk Meningkatkan Keterampilan Berpikir Kritis Siswa SMP. *Prosiding Seminar Nasional Pendidikan IPA 2017*, 716–721.
- Marso, R. N., & Pigge, F. L. (1991). An analysis of teacher-made tests: Item types, cognitive demands, and item construction errors. *Contemporary*

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

Educational Psychology, 16(3), 279–286. [https://doi.org/10.1016/0361-476X\(91\)90027-I](https://doi.org/10.1016/0361-476X(91)90027-I)

- Martin, F. (2011). Instructional Design and the Importance of Instructional Alignment. *Community College Journal of Research and Practice*, 35(12), 955–972. <https://doi.org/10.1080/10668920802466483>
- Marzano, R. J., Brandt, R. S., Hughes, C. S., Jones, B. F., Presseisen, B. Z., Rankin, S. C., & Suhor, C. (1991). Dimension of thinking: A framework for curriculum and instruction. In L. Costa (Ed.), *Developing minds: A resource book for teaching thinking* (Revised Ed, hlm. 89–93). Association for Supervision & Curriculum Development.
- Mayer, R. E., & Wittrock, M. C. (1996). Problem-solving transfer. In D. Berliner & R. Calfee (Ed.), *Handbook of educational psychology* (hlm. 45–61). Mcmillan.
- Mayer, R. E. (2009). *Multimedia Learning* (Second Edi). Cambridge University Press.
- Mayer, R. E., & Chandler, P. (2001). When learning is just a click away: Does simple user interaction foster deeper understanding of multimedia messages? *Journal of Educational Psychology*, 93(2), 390–793.
- Mayer, Richard E. (1999). Multimedia aids to problem-solving transfer. *International Journal of Educational Research*, 31(7), 611–623. [https://doi.org/10.1016/S0883-0355\(99\)00027-0](https://doi.org/10.1016/S0883-0355(99)00027-0)
- Mayer, Richard E., & Moreno, R. (2003). Nine Ways to Reduce Cognitive Load in Multimedia Learning. *Educational Psychologist*, 38(1), 43–52.
- Mayer, Richard E., Moreno, R., Boire, M., & Vagge, S. (1999). Maximizing Constructivist Learning from Multimedia Communications by Minimizing Cognitive Load. *Journal of Educational Psychology*, 91(4), 638–643. <https://doi.org/10.1037/0022-0663.91.4.638>
- McGrew, S., Breakstone, J., Ortega, T., Smith, M., & Wineburg, S. (2018). Can Students Evaluate Online Sources? Learning From Assessments of Civic Online Reasoning. *Theory and Research in Social Education*, 46(2), 165–193. <https://doi.org/10.1080/00933104.2017.1416320>
- McGuinness, C. (2005). Teaching thinking: Theory and Practice. *British Journal of Educational Psychology Monograph Series II: Pedagogy - Teaching for Learning*, 3, 107–126. <https://doi.org/https://doi.org/10.1348/000709905X61003>
- McNeill, K. L. (2009). Teachers' use of curriculum to support students in writing scientific arguments to explain phenomena. *Science Education*, 93(2), 233–268. <https://doi.org/10.1002/sce.20294>
- McNeill, K. L., & Knight, A. M. (2013). Teachers' pedagogical content

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

knowledge of scientific argumentation: The impact of professional development on K-12 teachers. *Science Education*, 97(6), 936–972. <https://doi.org/10.1002/sce.21081>

McNeill, K. L., & Krajcik, J. (2007). Middle school students' use of appropriate and inappropriate evidence in writing scientific explanations. In M. Lovett & P. Shah (Ed.), *Thinking with Data: the Proceedings of the 33rd Carnegie Symposium on Cognition*. Lawrence Erlbaum Associates, Inc. <https://doi.org/10.4324/9780203810057>

McNeill, K. L., Lizotte, D. J., Krajcik, J., & Marx, R. W. (2006). Supporting students' construction of scientific explanations by fading scaffolds in instructional materials. *Journal of the Learning Sciences*, 15(2), 153–191. https://doi.org/10.1207/s15327809jls1502_1

McNeill, K. L., & Martin, D. M. (2011). Claims, evidence and reasoning. *Science and Children*, 48(8), 52–56. <http://searkscience.pbworks.com/w/file/fetch/70117336/2-Claimsevidence.pdf>

McPeck, J. (1981). *Critical thinking and education*. Oxford University Press.

Mertler, C. A. (2009). Teachers' assessment knowledge and their perceptions of the impact of classroom assessment professional development. *Improving Schools*, 12(2), 101–113. <https://doi.org/10.1177/1365480209105575>

Mettas, A. C., & Constantinou, C. (2006). The development of optimisation decision-making skills within the area of technology education through a technology fair. *Design and Technology Association (DATA) Annual International Research Conference*, 79–88.

Mettas, A. C., & Norman, E. W. (2011). A grounded theory approach to the development of a framework for researching children's decision-making skills within design and technology education. *Design and Technology Education*, 16(2), 8–19.

Miller, S. P., Harris, C., & Watanabe, A. (1991). Professional coaching: A method for increasing effective and decreasing ineffective behaviors. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 14(3), 183–191.

Miri, B., David, B. C., & Uri, Z. (2007). Purposely teaching for the promotion of higher-order thinking skills: A case of critical thinking. *Research in Science Education*, 37(4), 353–369. <https://doi.org/10.1007/s11165-006-9029-2>

Miyake, N., & Norman, D. A. (1979). To ask a question, one must know enough to know what is not known. *Journal of verbal learning and verbal behavior*, 18(3), 357–364.

Mohd Hisham, M. H., Saud, M. S., & Kamin, Y. (2017). Meta-Analysis Study of Teacher Issues on Higher Order Thinking Skills in Malaysia. *World Applied*

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

Sciences Journal, 35(12), 2520–2523.
<https://doi.org/10.5829/idosi.wasj.2017.2520.2523>

Molnár, G., Greiff, S., & Csapó, B. (2013). Inductive reasoning, domain specific and complex problem solving: Relations and development. *Thinking Skills and Creativity*, 9, 35–45. <https://doi.org/10.1016/j.tsc.2013.03.002>

Moore, M. G. (1989). Editorial: Three Types of Interaction. *American Journal of Distance Education*, 3(2), 1–7. <https://doi.org/10.1080/08923648909526659>

Moreno, R. (2007). Optimising learning from animations by minimising cognitive load: cognitive and affective consequences of signalling and segmentation methods. *Applied Cognitive Psychology*, 21(6), 765–781.
<https://doi.org/10.1002/acp.1348>

Moreno, Roxana, & Valdez, A. (2007). Immediate and delayed effects of using a classroom case exemplar in teacher education: The role of presentation format. *Journal of Educational Psychology*, 99(1), 194–206.
<https://doi.org/10.1037/0022-0663.99.1.194>

Mulnix, J. W. (2012). Thinking Critically about Critical Thinking. *Educational Philosophy and Theory*, 44(5), 464–479. <https://doi.org/10.1111/j.1469-5812.2010.00673.x>

Nalova, E. M., & Shalanyuy, K. R. (2017). Teaching Practices and The Development of Higher Order Thinking skills in Secondary School Students in The North West Region of Cameroon. *European Journal of Education Studies*, 148–160. <https://doi.org/10.5281/zenodo.345421>

National Research Council. (1996). *National Science Education Standards*. National Academies Press. <https://doi.org/10.17226/9596>

Newton, P., Driver, R., & Osborne, J. (1999). The place of argumentation in the pedagogy of school science. *International Journal of Science Education*, 21(5), 553–576. <https://doi.org/10.1080/095006999290570>

Nitko, A. J., & Brookhart, S. M. (2007). *Educational assessment of students*. Pearson Education Inc.

NRC. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. The National Academic Press.

Nugraha, I., Widodo, A., & Riandi, R. (2020). Refleksi Diri dan Pengetahuan Pedagogi Konten Guru Biologi SMP melalui Analisis Rekaman Video Pembelajaran. *Jurnal Pendidikan Sains Indonesia*, 8(1), 10–26.
<https://doi.org/10.24815/jpsi.v8i1.15317>

Nygren, T., & Guath, M. (2021). Students Evaluating and Corroborating Digital News. *Scandinavian Journal of Educational Research*, 1–17.

O'Reilly, K. (1991). Infusing critical thinking into United States history. In L. Costa (Ed.), *Developing minds: A resource book for teaching thinking*

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

(Revised Ed, hlm. 164–168). Association for Supervision & Curriculum Development.

- Oehrtman, M., & Lawson, A. E. (2007). Connecting science and mathematics : The nature of proof and disproof in science and mathematics. *International Journal of Science and Mathematics Education*, 6(2), 377–403.
- Ornstein, A. C., & Hunkins, F. P. (1998). *Curriculum: Foundations, principles, and issues (Third Edition)*. Allyn & Bacon.
- Osborne, J., & Dillon, J. (2008). Science education in Europe: Critical reflections. In *London: Nuffield Foundation* (Nomor January).
- Osborne, Jonathan, Erduran, S., & Simon, S. (2004). Enhancing the quality of argument in school science. *Journal of Research in Science Education*, 41(10), 994–1020.
- Papadakis, S., & Ghiglione, E. (2009). Facilitating teacher/learning designer to formulate Learning Objectives (LO) using a Cognitive Skills based LO-Wizard in LAMS. *AIED 2009: 14 th International Conference on Artificial Intelligence in Education Workshop Preceedings*, 11–16.
- Park, J., & Han, S. (2002). Using deductive reasoning to promote the change of students' conceptions about force and motion. *International Journal of Science Education*, 24(6), 593–609.
<https://doi.org/10.1080/09500690110074026>
- Patronis, T., & Spiliotopoulou, V. (1999). Students' argumentation in decision-making on a socio-scientific issue: Implications for teaching. *International Journal of Science Education*, 21(7), 745–754.
<https://doi.org/10.1080/095006999290408>
- Paul, R. (2005). The state of critical thinking today. *New Directions for Community Colleges*, 2005(130), 27–38. <https://doi.org/10.1002/cc.193>
- Paul, R., & Elder, L. (2000). Critical Thinking: Nine Strategies for Everyday Life, Part I. *Journal of Developmental Education*, 24(2), 38–39.
- Paul, R., & Elder, L. (2005). Guide for educators to critical thinking competency standards: Standards, principles, performance indicators, and outcomes with a critical thinking master rubric. *Foundation for Critical Thinking.*, 1–66.
www.criticalthinking.org
- Paul, R., & Elder, L. (2006). *Critical thinking : learn the tools the best thinkers use*.
- Paul, R., Elder, L., & Bartell, T. (1997). *California Teacher Preparation for Instruction in Critical Thinking: Research Findings and Policy*

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

Recommendations. <http://files.eric.ed.gov/fulltext/ED437379.pdf>

- Pedretti, E. (2003). Teaching science, technology, society and environment (STSE) education: Preservice teachers' philosophical and pedagogical landscapes. In D. . Zeidler (Ed.), *The Role of Moral Reasoning and Socioscientific Discourse in Science Education* (hlm. 219–239). Kluwer Academic Publishers. https://doi.org/10.1007/1-4020-4996-x_12
- Pedretti, E. G., Bencze, L., Hewitt, J., Romkey, L., & Jivraj, A. (2008). Promoting issues-based STSE perspectives in science teacher education: Problems of identity and ideology. *Science and Education*, 17(8–9), 941–960. <https://doi.org/10.1007/s11191-006-9060-8>
- Peña-López, I. (2009). *Creating Effective Teaching and Learning Environments First Results from TALIS*. OECD. <http://www.oecd.org/dataoecd/17/51/43023606.pdf>
- Perkins, D. N., Jay, E., & Tishman, S. (1993). Beyond abilities: A dispositional theory of thinking. *Merrill-Palmer Quarterly*, 39(1), 1–21.
- Petek, E., & Bedir, H. (2018). An adaptable teacher education framework for critical thinking in language teaching. *Thinking Skills and Creativity*, 28, 56–72. <https://doi.org/10.1016/j.tsc.2018.02.008>
- Pham, L. N. K., & Hamid, M. O. (2013). Beginning EFL teachers' beliefs about quality questions and their questioning practices. *Teacher Development*, 17(2), 246–264. <https://doi.org/10.1080/13664530.2012.753947>
- Poole, A. (2016). 'Complex teaching realities' and 'deep rooted cultural traditions': Barriers to the implementation and internalisation of formative assessment in China. *Cogent Education*, 3(1). <https://doi.org/10.1080/2331186X.2016.1156242>
- Popham, W. J. (2003). Seeking redemption for our psychometric sins. *Educational Measurement: Issues and Practice*, 22(1), 45–48. <https://doi.org/10.1111/j.1745-3992.2003.tb00117.x>
- Prihastuti, I., & Widodo, A. (2019). Teachers understanding about cognitive level on science test items. *Journal of Physics: Conference Series*, 1157(2). <https://doi.org/10.1088/1742-6596/1157/2/022054>
- Prihastuti, I., Widodo, A., . L., & . R. (2021). Belajar melalui Video untuk Melatih Keterampilan Berpikir Kritis Guru IPA. *BIOSFER : Jurnal Biologi dan Pendidikan Biologi*, 6(1). <https://doi.org/10.23969/biosfer.v6i1.4210>
- Prihastuti, I., Widodo, A., & Liliyasi. (2020). Cognitive level analysis of science item tests on secondary school assessment. *Journal of Physics: Conference Series*, 1521(4). <https://doi.org/10.1088/1742-6596/1521/4/042106>
- Prihastuti, I., Widodo, A., Liliyasi, & Riandi, R. (2020). Profil Kompetensi Guru Dalam Merancang, Melaksanakan Dan Menilai Pembelajaran Berpikir Kritis.

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

Prosiding Seminar Nasional Pendidikan, 667–679.

<https://mail.prosiding.unma.ac.id/index.php/semnasfkip/article/download/379/362>

Pryor, C. R., & Bitter, G. G. (2008). Using multimedia to teach inservice teachers: Impacts on learning, application, and retention. *Computers in Human Behavior*, 24(6), 2668–2681. <https://doi.org/10.1016/j.chb.2008.03.007>

Putra, A., & Yurnetti. (2020). Pembuatan Video Pembelajaran Untuk Menciptakan Pembelajaran Kontekstual IPA SMP dan MTs Kota Payakumbuh Di Masa Pandemi Covid-19. *Bina Tambang UNP*, 5(5), 111–119.

Rahman, A. (2016). Teacher professional development in Indonesia: The influences of learning activities, teacher characteristics and school conditions. In *University of Wollongong Thesis Collections*.

Ratcliffe, M. (1997). Pupil decision-making about socio-scientific issues within the science curriculum. *International Journal of Science Education*, 19(2), 167–182. <https://doi.org/10.1080/0950069970190203>

Ratcliffe, M. (1999). Evaluation of abilities in interpreting media reports of scientific research. *International Journal of Science Education*, 21(10), 1085–1099. <https://doi.org/10.1080/095006999290200>

Raths, J. (2002). Improving instruction. *Theory into Practice*, 41(4), 233–237. https://doi.org/10.1207/s15430421tip4104_5

Rati, N. W., Subamia, I. D. P., Lasia, I. K., & Widiasih, N. N. (2021). Pengembangan Video Praktikum Ipa Terintegrasi Berorientasi Lingkungan Sebagai Penunjang. *Proceeding Senadimas Undiksha 2021*, 863–872.

Reiner, C. M., Bothell, T. W., & Sudweeks, R. R. (2003). *Preparing effective essay questions: A self-directed workbook for educators*. New Forums Press. <https://testing.byu.edu/handbooks/WritingEffectiveEssayQuestions.pdf>

Rogers, M. A. P. (2009). Elementary preservice teachers' experience with inquiry: Connecting evidence to explanation. *Journal of Elementary Science Education*, 21(3), 47–61. <https://doi.org/10.1007/bf03174722>

Rosyidi, A. H., & Kohar, A. W. (2018). Student Teachers' Proof Schemes on Proof Tasks Involving Inequality: Deductive or Inductive? *Journal of Physics: Conference Series*, 947(1), 0–9. <https://doi.org/10.1088/1742-6596/947/1/012028>

Sadler, D. . (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18(2), 119–144. [http://michiganassessmentconsortium.org/sites/default/files/Formative Assessment and Design of Instructional Systems.pdf](http://michiganassessmentconsortium.org/sites/default/files/Formative%20Assessment%20and%20Design%20of%20Instructional%20Systems.pdf)

Sadler, T. D. (2006). Promoting discourse and argumentation in science teacher

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

education. *Journal of Science Teacher Education*, 17(4), 323–346.
<https://doi.org/10.1007/s10972-006-9025-4>

Sadler, T. D., & Zeidler, D. L. (2005). The significance of content knowledge for informal reasoning regarding socioscientific issues: Applying genetics knowledge to genetic engineering issues. *Science Education*, 89(1), 71–93.
<https://doi.org/10.1002/sce.20023>

Sampson, V., & Blanchard, M. R. (2012). Science teachers and scientific argumentation: Trends in views and practice. *Journal of Research in Science Teaching*, 49(9), 1122–1148. <https://doi.org/10.1002/tea.21037>

Sampson, V., & Clark, D. B. (2009). A Comparison of the Collaborative Scientific Argumentation Practices of Two High and Two Low Performing Groups. *Research in Science Education*, 41(1), 63–97.
<https://doi.org/10.1007/s11165-009-9146-9>

Sampson, V., Grooms, J., & Walker, J. P. (2010). Argument-Driven Inquiry as a way to help students learn how to participate in scientific argumentation and craft written arguments: An exploratory study. *Science Education*, 95(2), 217–257. <https://doi.org/10.1002/sce.20421>

Sandlin, B., Harshman, J., & Yeziarski, E. (2015). Formative Assessment in High School Chemistry Teaching: Investigating the Alignment of Teachers' Goals with Their Items. *Journal of Chemical Education*, 92(10), 1619–1625.
<https://doi.org/10.1021/acs.jchemed.5b00163>

Saprudin, S., Liliyasi, S., Prihatmanto, A. S., & Setiawan, A. (2019). Pre-service physics teachers' thinking styles and its relationship with critical thinking skills on learning interference and diffraction. *Journal of Physics: Conference Series*, 1157(3). <https://doi.org/10.1088/1742-6596/1157/3/032029>

Schulz, H., & FitzPatrick, B. (2016). Teachers' understandings of critical and higher order thinking and what this means for their teaching and assessments. *Alberta Journal of Educational Research*, 62(1), 61–86.

Seliger, H. W. (1975). Inductive method and deductive method in language teaching: A re-examination. *International Review of Applied Linguistic in Language Teaching*, 13(1), 1–18.

Setiati, N., Indriyanti, D. R., Rudyatmi, E., Subekti, N., Dewi, P., Sriyadi, Auliya, R., Qonita, N. T., & Arditama, P. (2021). Pengembangan Media Pembelajaran Daring melalui Video Pembuatan Berbagai Awetan Hewan bagi Guru IPA-Biologi Sekecamatan Gunungpati Kota Semarang. *Journal of Community Empowerment*, 1(1), 12–18.
<https://journal.unnes.ac.id/sju/index.php/JCE/article/view/48835>

Setiawati, I., & Nurlaelah, I. (2017). Analisis Profil Kemampuan Berargumentasi Guru Dan Mahasiswa Calon Guru Dalam Pembelajaran Biologi

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

Menggunakan Model Toulmin's Argumen Pattern (TAP) Dan Upaya Perbaikannya. *Quagga: Jurnal Pendidikan dan Biologi*, 9(1), 7–17. <https://journal.uniku.ac.id/index.php/quagga/article/view/512>

- Sever, I., & Ersoy, A. (2019). Investigation of decision-making skills of fourth grade students according to student and teacher opinions. *International Electronic Journal of Elementary Education*, 12(2), 167–182. <https://doi.org/10.26822/iejee.2019257664>
- Sever, S., Oguz-Unver, A., & Yurumezoglu, K. (2013). The effective presentation of inquiry-based classroom experiments using teaching strategies that employ video and demonstration methods. *Australasian Journal of Educational Technology*, 29(3), 450–463. <https://doi.org/10.14742/ajet.229>
- Share, J., Mamikonyan, T., & Lopez, E. (2019). Critical Media Literacy in Teacher Education, Theory, and Practice. In *Oxford Research Encyclopedia of Education*. <https://doi.org/10.1093/acrefore/9780190264093.013.1404>
- Sherin, M. G., & Han, S. Y. (2004). Teacher learning in the context of a video club. *Teaching and Teacher Education*, 20(2), 163–183. <https://doi.org/10.1016/j.tate.2003.08.001>
- Simon, S., Erduran, S., & Osborne, J. (2006). Learning to teach argumentation: Research and development in the science classroom. *International Journal of Science Education*, 28(2–3), 235–260. <https://doi.org/10.1080/09500690500336957>
- Sinatra, G. M., & Lombardi, D. (2020). Evaluating sources of scientific evidence and claims in the post-truth era may require reappraising plausibility judgments. *Educational Psychologist*, 55(3), 120–131. <https://doi.org/10.1080/00461520.2020.1730181>
- Siry, C., & Martin, S. N. (2014). Facilitating reflexivity in preservice science teacher education using video analysis and cogenerative dialogue in field-based methods courses. *Eurasia Journal of Mathematics, Science and Technology Education*, 10(5), 481–508. <https://doi.org/10.12973/eurasia.2014.1201a>
- Smith, P. S., Hounshell, P. B., Copolo, C., & Wilkerson, S. (1992). The impact of end-of-course testing in chemistry on curriculum and instruction. *Science Education*, 76(5), 523–530. <https://doi.org/10.1002/sc.3730760506>
- Smith, V. G., & Szymanski, A. (2013). Critical Thinking : More Than Test Scores. *NCPEA International Journal of Educational Leadership Preparation*, 8(2), 16–26.
- Sorenson, M. E. (2016). Beyond the Google search bar: Evaluating source credibility in contemporary research. *Communication Teacher*, 30(2), 82–86. <https://doi.org/10.1080/17404622.2016.1139150>
- Spicer, K.-L., & Hanks, W. E. (1995). Multiple measures of critical thinking skills

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

an predisposition in assessment of critical thinking. *Annual meeting of the Speech Communication Association*.

- Stanford History Education Group. (2016). Evaluating information: The cornerstone of civic online reasoning. In *Stanford Digital Repository*. <http://purl.stanford.edu/fv751yt5934>
- Starkey, L. B. (2010a). Deductive reasoning. In *Critical thinking skills success in 20 minutes a day* (Revision E, hlm. 91–96). Learning Express.
- Starkey, L. B. (2010b). Inductive reasoning. In *Critical thinking skills success in 20 minutes a day* (2nd Editio, hlm. 103–107). Learning Express.
- Stiggins, R. J. (1991). Relevant Classroom Assessment Training for Teachers. *Educational Measurement: Issues and Practice*, 10(1), 7–12. <https://doi.org/10.1111/j.1745-3992.1991.tb00171.x>
- Stiggins, R. J., Conklin, & Faires, N. (1988). Teacher training in assessment. In *Journal of Chemical Information and Modeling*. <https://files.eric.ed.gov/fulltext/ED303439.pdf>
- Stiggins, R. J., Griswold, M. M., & Wiklund, K. R. (1989). Measuring Thinking Skills Through Classroom Assessment. *Journal of Educational Measurement*, 26(3), 233–246. <https://doi.org/10.1111/j.1745-3984.1989.tb00330.x>
- Stott, A., & Hobden, P. (2019). Implementation challenges influencing the efficacy of group-work tasks that require inductive or deductive reasoning during physical sciences lessons. *Journal of Education*, 77. <https://doi.org/10.17159/2520-9868/i77a02>
- Sudibyo, E., Nurita, T., Qosyim, A., & Sabtiawan, W. B. (2020). Pendampingan pengembangan instrumen penilaian berstandar nasional bagi guru IPA SMP Kabupaten Kediri. *Abdi*, 5(2), 127–133. <https://journal.unesa.ac.id/index.php/abdi/article/view/6377/3459>
- Supon, V. (1998). Penetrating the Barriers to Teaching Higher Thinking. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 71(5), 294–296. <https://doi.org/10.1080/00098659809602728>
- Swartz, R. J. (1991). Infusing the teaching of critical thinking into content instruction. In L. Costa (Ed.), *Developing minds: A resource book for teaching thinking* (Revised Ed, hlm. 177–183).
- Tama, M. C. (1989). Critical Thinking : Promoting It in the Classroom. In *ERIC Clearinghouse*.
- Tekumru-Kisa, M., Stein, M. K., & Coker, R. (2018). Teachers' learning to facilitate high-level student thinking: Impact of a video-based professional development. *Journal of Research in Science Teaching*, 55(4), 479–502.
- Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

<https://doi.org/10.1002/tea.21427>

- The Right Question Institute. (2011). *Teaching students to ask their own questions*. <https://rightquestion.org/>
- Tiede, J., Grafe, S., & Hobbs, R. (2015). Pedagogical Media Competencies of Preservice Teachers in Germany and the United States: A Comparative Analysis of Theory and Practice. *Peabody Journal of Education*, 90(4), 533–545. <https://doi.org/10.1080/0161956X.2015.1068083>
- Trilling, B., & Fadel, C. (2009). *21st Century Skills: Learning for Life in Our Times*. John Wiley & Sons, Inc.
- Tripp, T., & Rich, P. (2012). Using video to analyze one's own teaching. *British Journal of Educational Technology*, 43(4), 678–704. <https://doi.org/10.1111/j.1467-8535.2011.01234.x>
- Truesdale, W. . (2003). *The implementation of peer coaching on the transferability of staff development to classroom practice in two selected Chicago public elementary schools*. Micro LMS.
- Tyler, R. (1949). *Basic principles of curriculum and instruction*. Chicago, IL: University of Chicago. University of Chicago.
- Van den Brink-Budgen, R. (2000). *Critical thinking for students: Learn the skills of critical assessment and effective argument*. How to Books.
- Van Driel, J. H., Beijaard, D., & Verloop, N. (2001). Professional development and reform in science education: The role of teachers' practical knowledge. *Journal of Research in Science Teaching*, 38(2), 137–158.
- van Eemeren, F. H., de Glopper, K., Grootendorst, R., & Oostdam, R. (1995). Identification of Unexpressed Premises and Argumentation Schemes by Students in Secondary School. *Argumentation and Advocacy*, 31(3), 151–162. <https://doi.org/10.1080/00028533.1995.11951608>
- Vong, S. A., & Kaewurai, W. (2017). Instructional model development to enhance critical thinking and critical thinking teaching ability of trainee students at regional teaching training center in Takeo province, Cambodia. *Kasetsart Journal of Social Sciences*, 38(1), 88–95. <https://doi.org/10.1016/j.kjss.2016.05.002>
- Walsh, D., & Paul, R. W. (1986). *The goal of critical thinking: From educational ideal to educational reality*. 68. <https://files.eric.ed.gov/fulltext/ED295916.pdf>
- Walsh, J. A., & Sattes, B. (2015). *Questioning for classroom discussion*. Association for Supervision and Curriculum Development.
- Wati, M., Zainuddin, Z., Misbah, M., Salam, A., Hartini, S., & Dewantara, D.

Indrie Prihastuti, 2022

PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO

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

- (2019). Pelatihan Pembuatan Media Interaktif White Board Animation untuk Guru Fisika. *Bubungan Tinggi: Jurnal Pengabdian Masyarakat*, 1(1), 21–28. <https://doi.org/10.20527/btjpm.v1i1.1782>
- Watson, J. R., Swain, J. R. L., & McRobbie, C. (2004). Students' discussions in practical scientific inquiries. *International Journal of Science Education*, 26(1), 25–45. <https://doi.org/10.1080/0950069032000072764>
- Webb, N. L. (2002). *Alignment study in language arts, mathematics, science, and social studies of state standards and assessments for four states*. Washington, DC: Council of Chief State School Officers Council of Chief State School Officers Criteria for Al.
- Wei, R. C., Darling-hammond, & Adamson, F. (2010). *in the United States : Trends and Challenges Technical Report*.
- Weiss, I. R. (1997). The Status of Science Teaching in the Elementary Schools of the United States. *Nise Brief*, 1(3). <https://doi.org/10.1086/454238>
- Widodo, A. (2006). Profil Pertanyaan Guru dan Siswa dalam Pembelajaran Sains (The feature of Teachers ' and Students ' Questions in S ... *Jurnal Pendidikan dan Pembelajaran*, 4(2), 139–148.
- Widodo, A. (2017). Teacher Pedagogical Content Knowledge (PCK) and students' reasoning and wellbeing. *Journal of Physics: Conference Series*, 812(1), 1–7. <https://doi.org/10.1088/1742-6596/812/1/012119>
- Widodo, A., Sumiati, Y., & Setiawati, C. (2006). Peningkatan Kemampuan Siswa SD untuk Mengajukan Pertanyaan Produktif. *Jurnal Pendidikan dan Pembelajaran*, 4(1), 1–12.
- Widodo, A., Waldrip, B., & Herawati, D. (2016). Students argumentation in science lessons: A story of two research projects. *Jurnal Pendidikan IPA Indonesia*, 5(2), 199–208. <https://doi.org/10.15294/jpii.v5i2.5949>
- Widodo, A. (2021). Pembelajaran IPA dan berpikir. In *Pembelajaran dan ilmu pengetahuan alam: dasar-dasar untuk praktik* (hlm. 86–116). UPI Press.
- Widodo, Ari, & Riandi. (2013). Dual-mode teacher professional development: challenges and re-visioning future TPD in Indonesia. *Teacher Development*, 17(3), 380–392. <https://doi.org/10.1080/13664530.2013.813757>
- Wiggins, G., & McTighe, J. (2011). The Understanding by Design Guide to Creating High-Quality Units. In *The Understanding by Design Guide to Creating High-Quality Units*.
- Wiley, J., Goldman, S. R., Graesser, A. C., Sanchez, C. A., Ash, I. K., & Hemmerich, J. A. (2009). Source evaluation, comprehension, and learning in internet science inquiry tasks. *American Educational Research Journal*, 46(4), 1060–1106. <https://doi.org/10.3102/0002831209333183>
- William, W. (1982). *Questioning skills for teachers: What research says to*
- Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
 Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

teachers. National Education Association.

- Williams, D. A., & Wavell, C. (2006). *Information literacy in the classroom: secondary school teachers' conceptions*.
- Williams, R. L. (2005). Targeting critical thinking within teacher education: The potential impact on society. *Teacher Educator*, 40(3), 163–187.
<https://doi.org/10.1080/08878730509555359>
- Willingham, D. T. (2007). Critical Thinking: Why Is It So Hard to Teach? *American federation of teachers summer 2007*, 8–19.
<https://doi.org/10.3200/AEPR.109.4.21-32>
- Willingham, D. T. (2008). Critical Thinking: Why Is It So Hard to Teach? *Arts Education Policy Review*, 109(4), 21–32.
<https://doi.org/10.3200/AEPR.109.4.21-32>
- Yang, S. C., & Chung, T. Y. (2009). Experimental study of teaching critical thinking in civic education in Taiwanese junior high school. *British Journal of Educational Psychology*, 79(1), 29–55.
<https://doi.org/10.1348/000709907X238771>
- Yang, S. C., & Liu, S. F. (2004). Case study of online workshop for the professional development of teachers. *Computers in Human Behavior*, 20(6), 733–761. <https://doi.org/10.1016/j.chb.2004.02.005>
- Yang, W. T., Lin, Y. R., She, H. C., & Huang, K. Y. (2015). The Effects of Prior-knowledge and Online Learning Approaches on Students' Inquiry and Argumentation Abilities. *International Journal of Science Education*, 37(10), 1564–1589. <https://doi.org/10.1080/09500693.2015.1045957>
- Yang, Y. C. (2012). Cultivating critical thinkers: Exploring transfer of learning from pre-service teacher training to classroom practice. *Teaching and Teacher Education*, 28(8), 1116–1130.
<https://doi.org/10.1016/j.tate.2012.06.007>
- Yang, Y. T. C., Chuang, Y. C., Li, L. Y., & Tseng, S. S. (2013). A blended learning environment for individualized English listening and speaking integrating critical thinking. *Computers and Education*, 63, 285–305.
<https://doi.org/10.1016/j.compedu.2012.12.012>
- Yeh, Y. C. (2004). Nurturing reflective teaching during critical-thinking instruction in a computer simulation program. *Computers and Education*, 42(2), 181–194. [https://doi.org/10.1016/S0360-1315\(03\)00071-X](https://doi.org/10.1016/S0360-1315(03)00071-X)
- Yildirim, A. (1993). *Promoting student thinking from the practitioner's point of view: Teachers' conceptions, attitudes and activities*.
- Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. L. (2007). Reviewing the evidence on how teacher professional development affects
- Indrie Prihastuti, 2022
PENINGKATAN KOMPETENSI GURU IPA DALAM MERANCANG, MELAKSANAKAN DAN MENILAI PEMBELAJARAN BERPIKIR KRITIS MELALUI PELATIHAN BERBASIS VIDEO
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student achievement Reviewing the evidence on how teacher professional development. In *American Educational Research Journal* (REL 2007–No. 033). <http://ies.ed.gov/ncee/edlabs>

- Zhang, P. (2018). Teaching social inequality through analysis of hidden assumptions in non-academic publications. *Teaching Economic Inequality and Capitalism in Contemporary America*, 157–167. https://doi.org/10.1007/978-3-319-71141-6_14
- Zhang, S., & Duke, N. K. (2011). The impact of instruction in the WWWDOT framework on students' disposition and ability to evaluate web sites as sources of information. *The Elementary School Journal*, 112(1), 132–154. <https://doi.org/10.1086/660687>
- Zohar, A. (1999). Teachers' metacognitive knowledge and the instruction of higher order thinking. *Teaching and Teacher Education*, 15(4), 413–429. [https://doi.org/10.1016/S0742-051X\(98\)00063-8](https://doi.org/10.1016/S0742-051X(98)00063-8)
- Zohar, A. (2007). Science Teacher Education and Professional Development in Argumentation. In *Argumentation in Science Education* (hlm. 245–268). Springer, Dordrecht.
- Zohar, A., & Agmon, V. A. (2018). Raising test scores vs. teaching higher order thinking (HOT): senior science teachers' views on how several concurrent policies affect classroom practices. *Research in Science and Technological Education*, 36(2), 243–260. <https://doi.org/10.1080/02635143.2017.1395332>
- Zohar, A., & Schwartz, N. (2005). Assessing teachers' pedagogical knowledge in the context of teaching higher-order thinking. *International Journal of Science Education*, 27(13), 1595–1620. <https://doi.org/10.1080/09500690500186592>
- Zohar, A., Weinberger, Y., & Tamir, P. (1994). The effect of the biology critical thinking project on the development of critical thinking. *Journal of Research in Science Teaching*, 31(2), 183–196. <https://doi.org/10.1002/tea.3660310208>
- Zulaikha, F. I., & Setyowati, S. (2021). Pelatihan Pengembangan Kemampuan Berpikir Kritis melalui Teknik Debat Bahasa Inggris bagi Guru SMA Bahasa Inggris Kabupaten Ciamis. *E-Dimas: Jurnal Pengabdian kepada Masyarakat*, 12(2), 236–241. <https://doi.org/10.26877/e-dimas.v12i2.5509>