PERANCANGAN PROGRAM PELATIHAN KOMPETENSI DIGITAL GURU SEKOLAH DASAR DI DAERAH ISTIMEWA YOGYAKARTA

DISERTASI

Diajukan untuk memenuhi sebagian syarat memperoleh gelar Doktor pada
Program Studi Pengembangan Kurikulum

Oleh
Isniatun Munawaroh
NIM 1907339

PROGRAM STUDI PENGEMBANGAN KURIKULUM
FAKULTAS ILMU PENDIDIKAN
UNIVERSITAS PENDIDIKAN INDONESIA
2024

Perancangan Program Pelatihan Kompetensi Digital Guru Sekolah Dasar di Daerah Istimewa Yogyakarta

Oleh
Isniatun Munawaroh

S.Pd. Universitas Negeri Yogyakarta, 2004
M.Pd. Universitas Pendidikan Indonesia, 2009

Sebuah Disertasi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Doktor
Pengembangan Kurikulum (Dr.) pada Fakultas Ilmu Pendidikan

HALAMAN PENGESAHAN DISERTASI

Isniatun Munawaroh

PERANCANGAN PROGRAM PELATIHAN KOMPETENSI DIGITAL GURU SEKOLAH DASAR DI DAERAH ISTIMEWA YOGYAKARTA

Disetujui dan disahkan oleh panitia disertasi

Promotor

Prof. Dr. H. Mohammad Ali, M.Pd., M.A
NIP. 195306031979031003

Ko-promotor

Prof. Dr. H. Asep Herry Hernawan, M.Pd
NIP. 196202071987031001

Penguji

Prof. Dr. H. Dinn Wahyudin, M.A.
NIP. 195402061978031003

Penguji

Dr. Rusman, M.Pd
NIP. 197205051998021001

Penguji

Prof. Dr. H. Rochmat Wahab, M.Pd, M.A.
NIP. 195701101984031002

Mengetahui,
Ketua Program Studi Pengembangan Kurikulum
Fakultas Ilmu Pendidikan
Universitas Pendidikan Indonesia

Dr. Laksmi Dewi, M.Pd.
NIP. 197706132001122001

i

ABSTRAK

Transformasi digital menuntut adanya integrasi teknologi digital dalam implementasi kurikulum sehingga menuntut peningkatan kompetensi digital guru melalui program pelatihan. Akan tetapi program pelatihan yang selama ini didapatkan kurang optimal, sehingga dibutuhkan program pelatihan yang efektif. Penelitian ini bertujuan menganalisis kondisi faktual tingkat kompetensi digital guru dan kebutuhan kompetensi digital guru SD dalam mengimplementasikan kurikulum, mengevaluasi kelayakan dan menganalisis keefektifan desain serta diseminasi desain program pelatihan kompetensi digital guru SD dalam mengimplementasikan kurikulum. Penelitian menggunakan pendekatan *Design and Development Research*. Tahap analisis kebutuhan dengan mengukur tingkat kompetensi digital guru (413 orang) dan kebutuhan kompetensi digital guru SD dalam mengimplementasikan kurikulum dengan melibatkan 100 orang guru SD dan 25 orang ahli kurikulum dan pembelajaran SD. Tahap desain dan pengembangan kurikulum pelatihan menggunakan model pengembangan kurikulum Tyler yang kemudian dilakukan uji kelayakan oleh pakar dengan metode *Delphi survey*. Tahap uji coba menggunakan metode kuasi eksperimen yang melibatkan 100 guru. Tahap diseminasi dilakukan kepada guru, Kepala Sekolah, Dinas Pendidikan dan berbagai pihak terkait. Hasil penelitian menunjukkan tingkat kompetensi digital guru SD berada dalam kategori rendah (42,9%). Terdapat perbedaan tingkat kompetensi digital guru berdasarkan gender dan jenjang kelas mengajar (*pvalue*< 0.005), hal tersebut menjadi sesuatu hal yang penting dalam mendesain program pelatihan. Hasil terkait kompetensi digital yang dibutuhkan guru SD dalam mengimplementasikan kurikulum berdasarkan hasil uji beda Mann-Whitney menunjukkan tidak terdapat perbedaan yang signifikan mengenai persepsi kompetensi digital guru SD dalam mengimplementasikan kurikulum antara guru SD dan pakar pembelajaran SD. Kebutuhan kompetensi digital dalam mengimplementasikan kurikulum mencakup 3 hal yaitu; perencanaan, pelaksanaan dan evaluasi. Pengembangan kurikulum pelatihan dengan menggunakan model pengembangan kurikulum Tyler menghasilkan *Whole school training* kompetensi digital guru dengan prisip Reflektif, berpikir kritis dan inovatif, kerja kolaboratif yang dinilai layak oleh pakar untuk dilakukan uji coba. Hasil uji coba menunjukkan bahwa desain program pelatihan kompetensi digital guru hasil pengembangan terbukti efektif meningkatkan kompetensi digital guru (*pvalue*<0.005). Diseminasi program pelatihan dilakukan secara *road show* ke dinas pendidikan kota dan kabupaten di DIY melalui forum diskusi ilmiah dan publikasi ilmiah melalui jurnal dan seminar internasional.

Kata kunci: Kompetensi digital guru, kurikulum program pelatihan, implementasi kurikulum SD.

ABSTRACT

Digital transformation demands the integration of digital technology in the implementation of the curriculum, thus requiring an increase in the digital competence of teachers through training programs. However, the training programs that have been obtained so far have been less than optimal, so an effective training program is needed. This study aims to analyze the factual conditions of the level of digital competence of teachers and the digital competence needs of primary school teachers in implementing the curriculum, evaluate the feasibility and analyze the effectiveness of the design and dissemination of the design of the digital competence training program for primary school teachers in implementing the curriculum. The Themethod used in this study was Design and Development Research approach. The needs analysis stage by measuring the level of digital competence of teachers (413 people) and the digital competence needs of primary school teachers in implementing the curriculum by involving 100 teachers and 25 primary school curriculum and learning experts. The design and development stage of the training curriculum used the Tyler curriculum development model which is then tested for feasibility by experts using the Delphi survey method. The trial stage used quasi-experimental method involving 100 teachers. The dissemination stage is carried out to teachers, Principals, the Education Office and various related parties. The results of the study showed that the level of digital competence of primary school teachers was in the low category (42.9%). There are differences in the level of digital competence of teachers based on gender and teaching class level (p-value <0.005), this is something important in designing training programs. The results related to the digital competence needed by primary school teachers in implementing the curriculum based on the results of the Mann-Whitney difference test showed that there was no significant difference in the perception of digital competence of primary school teachers in implementing the curriculum between teachers and learning experts. The need for digital competence in implementing the curriculum includes 3 things, namely, planning, implementation and evaluation. The development of the training curriculum using the Tyler curriculum development model resulted in Whole school training of digital competence of teachers with the principles of Reflective, critical and innovative thinking, collaborative work which were considered feasible by experts to be tested. The results of the trial showed that the design of the digital competence training program for teachers from the development was proven to be effective in improving digital competence of teachers (p-value <0.005). Dissemination of the training program was carried out through a road show to the city and district education offices in DIY through scientific discussion forums and scientific publications through international journals and seminars.

Keywords: Teacher digital competence, training program curriculum, implementation of the primary school curriculum.

DAFTAR ISI

DAFTAR TABEL

DAFTAR GAMBAR

DAFTAR LAMPIRAN

DAFTAR REFERENSI

Akhmadi, A. (2022). PJJ Pelatihan Jarak Jauh Era Covid-19. *Jurnal Kewidyaiswaraan*, *7*(1),229-236.

Alférez-Pastor, M., Collado-Soler, R., Lérida-Ayala, V., Manzano-León, A., Aguilar-Parra, J. M., & Trigueros, R. (2023). Training Digital Competencies in Future Primary School Teachers: A Systematic Review. *Education Sciences*, *13*(5), 461. doi: http://doi:10.3390/educsci13050461

Ali, M. (1984). *Pengembangan Kurikulum*. Bandung: Sinar Baru.

--------. (2014). *Memahami Riset Perilaku Dan Sosial*. Jakarta: Penerbit Bumi Aksara.

--------. (2017). *Curriculum Development for Sustainability Education*. Bandung: UPI Press.

--------. (2019). *Research Methods in Sustainnability Education*. Bandung: UPI Press.

--------. (2021). *Quality Education for Preparing Future Competencies*. London UK: Amazon Kindle Direct Publishing.

Ali, M., & Susilana, Rudi. (2021). *Perencanaan Kurikulum Mikro*. Depok: Rajawali Pers.

Arkiang, F. (2021). Analisis Pembelajaran Daring Selama Pandemi Covid-19 di Daerah 3T (Nusa Tenggara Timur). *Jurnal Pendidikan*. 12(1), 57–64. doi: http://dx.doi.org/10.31258/jp.12.1.57-64

Asad, M. M., Shah, S. S., Churi, P., Almusharraf, N., & Nayyar, A. (2024). Effect of Digital Competence and Pedagogies on Gender Orientation of Pedagogues: A Quantitative Study with Regression Modeling of Higher Education Institutions.

Athreya, B. H., & Mouza, C. (2016). *Thinking skills for the digital generation: The development of thinking and learning in the age of information*. Springer.

Auladi, K. (2020). Kendala Guru Dalam Pembelajaran Tematik Jarak Jauh Selama Masa Pandemi Covid-19 Di Madrasah Ibtidaiyah Nurul Ummah (Minu) Kotagede Yogyakarta. *As-Salam: Jurnal Studi Hukum Islam &*

Pendidikan, *9*(2), 163-188.

Ayuningtyas, A. E., Slameto, S., & Dwikurnaningsih, Y. (2017). Evaluasi Program Pelatihan In House Training (IHT) di Sekolah Dasar Swasta. *Kelola: Jurnal Manajemen Pendidikan*, *4*(2), 171-183.

Barbazette, J. (2006). *Training needs assessment: Methods, tools, and techniques*. John Wiley & Sons.

Bawden, D. (2001). Information and digital literacies: a review of concepts. *Journal of Documentation*, *57*(2), 218–259. doi: https://doi.org/10.1108/EUM0000000007083

Blau, I., & Shamir-Inbal, T. (2017). Digital competences and long-term ICT integration in school culture: The perspective of elementary school leaders. *Education and Information Technologies*, *22*(3), 769-787. doi: https://doi.org/10.1007/s10639-015-9456-7

Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu). *European Journal of Education*, *54*(3), 356-369. https://doi.org/10.1111/ejed.12345

Cabero-Almenara, J., Gutiérrez-Castillo, J. J., Palacios-Rodríguez, A., & Barroso-Osuna, J. (2020). Development of the teacher digital competence validation of DigCompEdu check-in questionnaire in the university context of Andalusia (Spain). *Sustainability*, *12*(15), 6094. https://doi.org/10.3390/su12156094

Caena, F., & Redecker, C. (2019). Aligning teacher competence frameworks to 21st century challenges: The case for the European Digital Competence Framework for Educators (Digcompedu). *European journal of education*, *54*(3), 356-369. https://doi.org/10.1111/ejed.12345

Chaudhary, G.K. (2015). Factors Affecting Curriculum Implementation for Students. *International Journal of Applied Research*, 1(2), 984-986. https://doi.org/10.1108/EUM0000000007083

Chen, W., Lim, C., & Tan, A. (2010). Pre-service teachers' ICT experiences and competencies: New generation of teachers in digital age. In *Proceedings of the 18th International Conference on Computers in Education* (pp. 631-

638).
https://lexitron.nectec.or.th/public/ICCE%202010%20Putrajaya%20Malaysia/ICCE2010%20Main%20Proceedings/c6/full%20paper/C6FP202.pdf

Cooper, J.D. 1993. *Literacy: Helping Children Construct Meaning*. Toronto: Hougton Miffin Company.

Corona, A. G. F., Martínez-Abad, F., & Rodríguez-Conde, M. J. (2017, October). Evaluation of digital competence in teacher training. In *Proceedings of the 5th International Conference on Technological Ecosystems for Enhancing Multiculturality* (pp. 1-5).

Covey, S. R., & Merrill, R. R. (2006). *The speed of trust: The one thing that changes everything*. Simon and Schuster.

Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mix methods approaches.* Los Angeles: Sage Publications.

Dalton, Bruce, and Lois Wright. (1999). Using Community Input for the Curriculum Review Process. *Journal of Social Work Educataion*. Vol.35. Issue: 2. https://doi.org/10.1080/10437797.1999.10778966

Dias-Trindade, S., Moreira, J. A., & Ferreira, A. G. (2021). Evaluation of the teachers' digital competences in primary and secondary education in Portugal with DigCompEdu CheckIn in pandemic times. *Acta Scientiarum-Technology*, *43*, e56383. https://10.4025/actascitechnol.v43i1.56383

Dingli, A., Seychell, D., Dingli, A., & Seychell, D. (2015). Who are the digital natives?. *The new digital natives: Cutting the chord*, 9-22.

Do Espírito Santo, E., Dias-Trindade, S., & dos Reis, R. S. (2022). Self-assessment of digital competence for educators: a Brazilian study with university professors. *Research, Society and Development*, *11*(9), e26311930725-e26311930725. https://doi.org/10.33448/rsd-v11i9.30725

Economou, A. (2023). Building Teachers' Digital Competence Through a Self-Reflection Process. In *Proceedings of the 17th International Conference of the Learning Sciences-ICLS 2023, pp. 1242-1245*. International Society of the Learning Sciences.

Ellis, T. J., & Levy, Y. (2010, June). A guide for novice researchers: Design and development research methods. In *Proceedings of Informing Science & IT*

Education Conference (InSITE) (Vol. 10, No. 10, pp. 107-117). Italy, Cassino.

ElSayary, A. (2023). The impact of a professional upskilling training programme on developing teachers' digital competence. *Journal of Computer Assisted Learning*, *39*(4), 1154-1166. https://doi: 10.1111/jcal.12788

Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of educational multimedia and hypermedia*, *13*(1), 93-106. https://doi.org/10.33448/rsd-v11i9.30725

Erstad, Ola. (2010). Educating The Digital Generation, Exploring Media Literacy for the 21st Century. *Nordic Journal of Digital Literacy*, p.85-102. ISSN online:1891-943X   https://doi.org/10.18261/ISSN1891-943X-2015Jubileumsnummer-07

Esteban-Navarro, M. Á., García-Madurga, M. Á., Morte-Nadal, T., & Nogales-Bocio, A. I. (2020, December). The rural digital divide in the face of the COVID-19 pandemic in Europe—recommendations from a scoping review. In *Informatics*.Vol. 7, No. 4, 54. https://doi.org/10.3390/informatics7040054

Esther, Garzón, Artacho., Tomás, Sola, Martínez., José, Luis, Ortega, Martín., José, Antonio, Marín, Marín., Gerardo, Gómez, García. (2020). Teacher Training in Lifelong Learning—The Importance of Digital Competence in the Encouragement of Teaching Innovation. *Sustainability*, 12(7):2852-. https://doi: 10.3390/SU12072852

European Commision. (2006). Recommendation on key competences for lifelong learning. Council of 18 December 2006 on key competences for lifelong learning, 2006/962/EC, L. 394/15.

Falloon, G. (2020). From digital literacy to digital competence: the teacher digital competency (TDC) framework. *Educational Technology Research and Development*, *68*(5), 2449-2472. https://doi.org/10.1007/s11423-020-09767-4

Febriana, R. (2021). *Kompetensi guru*. Bumi aksara.

Ferrari, A. (2013). DIGCOMP: A framework for developing and understanding digital competence in Europe (Report EUR 26035 EN). JRC Technical

Reports. Seville: Institute for Prospective Technological Studies, European Union.

Fessl, A., Maitz, K., Paleczek, L., Köhler, T., Irnleitner, S., & Divitini, M. (2022, October). Designing a curriculum for digital competencies towards teaching and learning. In *European Conference on e-Learning* (Vol. 21, No. 1, pp. 469-471). https://doi:10.34190/ecel.21.1.723

Fitriansyah, F. (2018). Diklat sebagai organisasi belajar dalam teknologi kinerja. *Cakrawala-Jurnal Humaniora*, *18*(1), 43-49. https://doi.org/10.31294/jc.v18i1.3596

Fullan, M., & Pomfret, A. (1997). Research on Curriculum and Instruction Implementastion. *Review of Educational Research,* 47(2), 355-397. https://doi.org/10.3102/00346543047002335

Gabarda Méndez, V., Marín-Suelves, D., Vidal-Esteve, M. I., & Ramón-Llin, J. (2023). Digital competence of training teachers: Results of a teaching innovation project. *Education Sciences*, *13*(2), 162. https://doi:10.3390/educsci13020162

Gabriela, Barbosa., Ana, Raquel, Aguiar. (2018). Challenges of digital and teacher training. doi: 10.31014/AIOR.1993.01.01.14

Gerlach & Ely. (1980). *Teaching and Media: A Systematic Approach*. Priceton,NJ: Prentice Hall Inc.

Ghufron, A. (2017). *Desain dan Model Pengembangan Kurikulum*. UNY Press.

Ghomi, M., & Redecker, C. (2019, May). Digital Competence of Educators (DigCompEdu): Development and Evaluation of a Self-assessment Instrument for Teachers' Digital Competence. In *CSEDU (1)* (pp. 541-548).

Giarti, S., & Astuti, S. (2016). Implementasi TQM melalui pelatihan model in house training untuk meningkatkan kompetensi pedagogik guru SD. *Scholaria: Jurnal pendidikan dan kebudayaan*, *6*(2), 80-91.

Girdzijauskienė, R., Rupšienė, L., & Pranckūnienė, E. (2022). Usage Of Digital Learning Tools to Engage Primary School Students In Learning. *Human, Technologies and Quality Of Education*, 281. https://doi:10.22364/htqe.2022.20

Gilster, P., & Glister, P. (1997). *Digital literacy*. New York: Wiley Computer Pub.

Gruszczynska, A., Merchant, G., & Pountney, R. (2013). " Digital Futures in Teacher Education": Exploring Open Approaches towards Digital Literacy. *Electronic Journal of e-Learning*, *11*(3), 193-206. https://academic-publishing.org/index.php/ejel/article/view/1669/1632

Guallichico, G., Ocaña, M., Tejada, C., & Bautista, C. (2022, November). Assessing Digital Competence Through Teacher Training in Early Education Teachers. In *International Conference on Applied Technologies* (pp. 55-68). Cham: Springer Nature Switzerland.

Gudmundsdottir, G. B., & Hatlevik, O. E. (2018). Newly qualified teachers' professional digital competence: implications for teacher education. *European Journal of Teacher Education*, *41*(2), 214-231. https://doi.org/10.1080/02619768.2017.1416085

Gutiérrez-Castillo, J. J., Palacios-Rodríguez, A., Martín-Párraga, L., & Serrano-Hidalgo, M. (2023). Development of Digital Teaching Competence: Pilot Experience and Validation through Expert Judgment. *Education Sciences*, *13*(1), 52. https://doi:10.3390/educsci13010052

Gümüş, M. M., & Kukul, V. (2023). Developing a digital competence scale for teachers: validity and reliability study. *Education and Information Technologies*, *28*(3), 2747-2765.

Guzman, A., & Nussbaum, M. (2009). Teaching competencies for technology integration in the classroom. *Journal of computer Assisted learning*, *25*(5), 453-469. https://doi.org/10.1111/j.1365-2729.2009.00322.x

Hamdani, A. R., & Priatna, A. (2020). Efektifitas implementasi pembelajaran daring (full online) dimasa pandemi Covid-19 pada jenjang Sekolah Dasar di Kabupaten Subang. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, *6*(1), 1-9. https://doi.org/10.36989/didaktik.v6i1.120

Hatlevik, O. E., Throndsen, I., Loi, M., & Gudmundsdottir, G. B. (2018). Students' ICT self-efficacy and computer and information literacy: Determinants and relationships. *Computers & Education*, *118*, 107-119. https://doi.org/10.1016/j.compedu.2017.11.011

Hasan, S.H. (2007). *Pengembangan Kurikulum Sekolah dalam Ilmu dan Aplikasi Pendidikan*. Bandung: Pedagogiana.

Hasan, S. H. (2008). Evaluasi Pengembangan KTSP: Suatu Kajian Konseptual. *Inovasi Kurikulum*, *6*(2), 1-29. https://ejournal.upi.edu/index.php/JIK/article/view/35697/15174

Haşlaman, T., Atman Uslu, N., & Mumcu, F. (2024). Development and in-depth investigation of pre-service teachers' digital competencies based on DigCompEdu: a case study. *Quality & Quantity*, *58*(1), 961-986. https://doi:10.1007/s11135-023-01674-z

Hernawan, A. H., Susilana, R., & Julaeha, S. (2014). Pengembangan Kurikulum dan pembelajaran di SD. *Tangerang Selatan: Universitas Terbuka*.

Hui, D. (2018). Learning from New Literacies. *Nordic Journal of Digital Literacy*, *13*(02), 71-93. https://doi.org/10.18261/issn.1891-943x-2018-02-02

Ilomäki, L., Paavola, S., Lakkala, M., & Kantosalo, A. (2016). Digital competence–an emergent boundary concept for policy and educational research. *Education and Information Technologies*, *21*(3), 655-679. https://doi.org/10.1007/s10639-014-9346-4

Instefjord, E., & Munthe, E. (2016). Preparing pre-service teachers to integrate technology: an analysis of the emphasis on digital competence in teacher education curricula. *European Journal of Teacher Education*, *39*(1), 77-93. https://doi.org/10.1080/02619768.2015.1100602

Iordache, C., Mariën, I., & Baelden, D. (2017). Developing digital skills and competences: A quick-scan analysis of 13 digital literacy models. *Italian Journal of Sociology of Education*, *9*(1). https://doi: 10.14658/PUPJ-IJSE-2017-1-2

Kakeeto, D., Mugagga, A. M., & Bisaso, R. (2020). Curriculum Design and Teacher Educators' Digital Competence: Promoting Learner-Centered Teaching Approach in Higher Institutions of Learning. *Britain International of Linguistics Arts and Education (BIoLAE) Journal*, *2*(3), 838-844. https://doi:10.33258/BIOLAE.V213.344

Keller, J. M., & Keller, J. M. (2010). The Arcs model of motivational design. *Motivational design for learning and performance: The ARCS model approach*, 43-74.

Kesharwani, A. (2020). Do (how) digital natives adopt a new technology differently than digital immigrants? A longitudinal study. *Information & management*, *57*(2), 103170.

Kirk, C., & Pitches, J. (2013). Digital reflection: Using digital technologies to enhance and embed creative processes. *Technology, Pedagogy and Education*, *22*(2), 213-230. https://doi.org/10.1080/1475939X.2013.768390

Klomim, K., & Kuayngern, B. (2023). Development of Competency-Based Learning Management Training Curriculum to Enhance Teachers' Competency. *Rajabhat Chiang Mai Research Journal*, *24*(2), 56-70. https://doi:10.57260/rcmrj.2023.262621

Kominfo. (2020). Status Literasi Digital Indonesia 2020 Hasil Survei di 34 Provinsi. Jakarta: Kementerian Komunikasi dan Informatika.

Kominfo. (2022). Budaya Digital Membaik, Indeks Literasi Digital Indonesia Meningkat - Siaran Pers No. 15/HM/KOMINFO/01/2022. Jakarta.

Kontkanen, S., Pöntinen, S., Kewalramani, S., Veresov, N., & Havu-Nuutinen, S. (2023). Children's digital competence in early childhood education: A comparative analysis of curricula. *Eurasia Journal of Mathematics, Science and Technology Education*, *19*(1), em2215. https://doi.org/10.29333/ejmste/12798

Kruppe, T., & Lang, J. (2023). Further training in the context of the digital transformation. In *Research Handbook on Digital Sociology* (pp. 433-445). Edward Elgar Publishing.

Kwatizhe, S. (2015). Factors affecting curriculum implementation for students. *IJAR*, *1*(12), 984-986.

Krumsvik, R. J. (2008). Situated learning and teachers' digital competence. *Education and information technologies*, *13*(4), 279-290. https://doi.org/10.1007/s10639-008-9069-5

Lanham, R. (1995), Digital Literacy. Scientifif American, 273 (3): 160-161.

Larisa, Rezvanovna, Elbieva., Laura, Khamzatovna, Dzhabrailova., Narima, Urudzhevna, Urudzheva. (2022). The structure and content of digital competencies of a teacher as an ethical and pedagogical problem. Žurnal

prikladnyh issledovanij, 1(7):66-71. https://doi:10.47576/2712-7516_2022_7_1_66

Lawrence, J. E., & Tar, U. A. (2018). Factors that influence teachers' adoption and integration of ICT in teaching/learning process. *Educational Media International*, *55*(1), 79-105. https://doi.org/10.1080/09523987.2018.1439712

Leaning, M. (2019). An approach to digital literacy through the integration of media and Information literacy. *Media and Communication*, *7*(2), 4-13. https://doi.org/10.17645/mac.v7i2.1931

Lee, J., & Hsu, Y. C. (2002). Web Navigation: The Role of Metaphor, Concept map, and Individual Differences. In *EdMedia+ Innovate Learning* (pp. 1100-1101). Association for the Advancement of Computing in Education (AACE).

Losada Cárdenas, M. Á., & Peña Estrada, C. C. (2022). Instructional design and technological resources in the improvement of teachers' digital competencies. *Apertura (Guadalajara, Jal.)*, *14*(2), 40-61. https://doi:1032870/ap.v14n2.2241

Lucas, M., Bem-haja, P., Santos, S., Figueiredo, H., Ferreira Dias, M., & Amorim, M. (2022). Digital proficiency: Sorting real gaps from myths among higher education students. *British journal of educational technology*, *53*(6), 1885-1914. https://doi.org/10.1111/bjet.13220

Lund, A., & Eriksen, T. M. (2016). Teacher education as transformation: Some lessons learned from a center for excellence in education. *Acta Didactica Norge*, *10*(2), 53-72. https://doi.org/10.5617/adno.2483

Mahlo, L., & Waghid, Z. (2023). Exploring information and communication technology integration among teachers in township public primary schools. *South African Journal of Education*, *43*(1). https://doi:10.15700/saje.v43n1a2160

Martin, A., & Grudziecki, J. (2006). DigEuLit: Concepts and tools for digital literacy development. *Innovation in Teaching and Learning in Information and Computer Sciences*, *5*(4), 249-267. https://doi.org/10.11120/ital.2006.05040249

Matúšová, S. (2022). Digital Competencies in Online Education: Challenges for

Now. In *Innovative Strategic Planning and International Collaboration for the Mitigation of Global Crises* (pp. 52-74). IGI Global. https://doi:10.4018/978-1-7998-8339-5.ch004

Méndez, D., Méndez, M., & Anguita, J. M. (2022). Digital teaching competence in teacher training as an element to attain sdg 4 of the 2030 agenda. *Sustainability*, *14*(18), 11387.

Miles, M. B. & Huberman, A. M. (1999). *Qualitative data analysis*. California: Sage Publications.

Miller, J. P., & Seller, W. (1985). *Curriculum Perspectives and Practice*. Longman Inc., 95 Church Street, White Plains, NY 10601.

Mohammad Fakry Gaffar. (2020). *Sistem Pendidikan Guru Terpadu: Solusi Terhadap Permasalahan Pendidikan Guru untuk Masa Depan Indonesia, dalam Pendidikan Menuju Indonesia Emas*. UPI Press.

Moorhouse, B. L. (2023). Teachers' digital technology use after a period of online teaching. *ELT Journal*, *77*(4), 445-457. https://doi.org/10.1093/elt/ccac050

Musfah, J. (2011). *Peningkatan Kompetensi Guru Melalui Pelatihan dan Sumber Belajar dan Praktik*. Jakarta: Kencana.

Ng, W. (2012). Education in a Competitive and Globalizing World: Empowering Scientific Literacy through Digital Literacy and Multiliteracies. *Hauppauge: Nova Science Publishers*.

Ng, W., & Gunstone, R. (2003). Science and computer-based technologies in Victorian Government schools: attitudes of secondary science teachers. *Journal of Research in Science and Technology Education*, 21(2), 243–264. https://doi.org/10.1080/0263514032000127266

Ng, W. (2012). Can we teach digital natives' digital literacy? *Computers & education*, *59*(3), 1065-1078. https://doi.org/10.1016/j.compedu.2012.04.016

Ornstein, A.C. & Hunkins, F.P. (2018). *Curriculum: Foundations, Principles, and Issues (Seventh ed)*. England: Pearson Education.

Ottestad, G., Kelentrić, M., & Guðmundsdóttir, G. B. (2014). Professional digital competence in teacher education. *Nordic Journal of Digital Literacy*, *9*(04), 243-249. https://doi.org/10.18261/ISSN1891-943X-2014-04-02

Pangestu, F. P., Rahmadianti, N. S., Hardiyanti, N. T., & Yusida, E. (2021). Ekonomi Pancasila Sebagai Pedoman Dalam Tujuan Pembangunan Berkelanjutan SDGs (Sustainable Development Goals) 2030. In *Prosiding Seminar Nasional Ekonomi Pembangunan* (Vol. 1, No. 3, pp. 210-219).

Patandean, Y. R., & Indrajit, R. E. (2021). *Flipped classroom: Membuat peserta didik berpikir kritis, kreatif, mandiri, dan mampu berkolaborasi dalam pembelajaran yang responsif*. Penerbit Andi.

Pettersson, F. (2018). On the issues of digital competence in educational contexts–a review of literature. *Education and information technologies*, *23*(3), 1005-1021.https://doi.org/10.1007/s10639-017-9649-3

Pozos-Pérez, K., Herrera-Urizar, G., Rivera-Vargas, P., & Alonso-Cano, C. (2022). Use of Mobile Phones in Classrooms and Digitalisation of Educational Centres in Barcelona. *Education Sciences*, *13*(1), 21. https://doi.org/10.3390/educsci13010021

Prawiradilaga, D. S. (2018). *Modul Hypercontent: Teknologi Kinerja (Performance Technology)-Edisi Pertama*. Prenada Media.

Prensky, M. (2001). Digital natives, digital immigrants. From On the Horizon. *MCB University Press*, *9*(5), 1-6

-------------. (2009). H. sapiens digital: From digital immigrants and digital natives to digital wisdom. *Innovate: journal of online education*, *5*(3). https://www.learntechlib.org/p/104264/.

Pribadi, B. A. (2016). *Desain dan pengembangan program pelatihan berbasis kompetensi implementasi model ADDIE*. Kencana.

Print, Murray. (1988). *Curriculum Development and Design 2ⁿᵈ edition*. Routledge.

Ramasamy, M., & Pilz, M. (2019). Competency-based curriculum development in the informal sector: The case of sewing skills training in rural South India. *International Review of Education*, *65*(6), 905-928. https://doi.org/10.1007/s11159-019-09810-4

Rambousek, V., Štípek, J., & Vaňková, P. (2016). Contents of digital literacy from the perspective of teachers and pupils. *Procedia-Social and Behavioral Sciences*, *217*, 354-362.

Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu* (No. JRC107466). Joint Research Centre (Seville site).

Reisoğlu, İ. (2022). How Does Digital Competence Training Affect Teachers' Professional Development and Activities? *Technology, Knowledge and Learning*, *27*(3), 721-748.

Richey, R. C., & Klein, J. D. (2014). *Design and development research: Methods, strategies, and issues*. Routledge.

Rizal, R., Susanti, E., Sulistyaningsih, D., & Budiman, D. M. (2020). Desain evaluasi program pelatihan guru fisika profesional. *DIFFRACTION: Journal for Physics Education and Applied Physics*, *2*(1), 30-37.

Rodríguez, M. U., Cantabrana, J. L. L., & Cervera, M. G. (2021). Validation of a tool for self-evaluating teacher digital competence. *Educación XX1*, *24*(1), 353-373.

Rogers, E. M., Singhal, A., & Quinlan, M. M. (2014). Diffusion of innovations. In *An integrated approach to communication theory and research* (pp. 432-448). Routledge.

Røkenes, F. M., & Krumsvik, R. J. (2014). Development of student teachers' digital competence in teacher education-A literature review. *Nordic Journal of Digital Literacy*, *9*(04), 250-280. https://doi.org/10.18261/ISSN1891-943X-2014-04-0

Rosak. Szyrocka & J. Zywiolek, *In the Role of Sustainability and Artificial Intelligence in Education Improvement*, (hlm. 203-218). Chapman and Hall/CRC.

Rossett, A. (1987). *Training needs assessment*. Educational Technology.

Ruiz Mezcua, A. (2019). Digital competence and ICT in interpretation:" to renew or to perish". *EDMETIC*, *8*(1), 55-71.

Rusman. (2021). *Manajemen Kurikulum Pendidikan dan Pelatihan*. Depok Rajawali Pers.

Safitri, A. O., Yunianti, V. D., & Rostika, D. (2022). Upaya peningkatan pendidikan berkualitas di Indonesia: Analisis pencapaian sustainable

development goals (SDGs). *Jurnal Basicedu*, *6*(4), 7096-7106. https://doi.org/10.31004/basicedu.v6i4.3296

Sanjaya, W. (2008). *Kurikulum Dan Pembelajaran (Teori & Praktek KTSP).* Kencana.

Sarango-Lapo, C. P., Mena, J., & Ramírez-Montoya, M. S. (2017). Teachers' Digital Skills training by using the Educational Innovation based on Evidence methodology (EIBE). *Search and Research: Teacher Education for Contemporary Contexts. Editions Universidad de Salamanca*, 1005-1014.

Saylor, J. G., Alexander, W. M., & Lewis, A. J. (1981). Curriculum Planning for Better Teaching and Learning. New York: Holt. *Rinehart & Winston*.

Schleicher, A. (2019). *Helping Our Youngest to Learn and Grow: Policies for Early Learning. International Summit on the Teaching Profession*. OECD Publishing. 2, rue Andre Pascal, F-75775 Paris Cedex 16, France.

Shihab, N., Indriati, Y., Wawan, N. I., Wulandari, N. M. D., Kiong, M., Nurfadilah, N., ... & Yuniarti, S. L. (2020). Praktik baik penyelenggaraan pendidikan keluarga.

Siapera, E. (2019). The political economy of digital media, migration and race. *The SAGE handbook of media and migration*, 103-112.

Srisawat, S., & Wannapiroon, P. (2022). The Development of Virtual Professional Learning Community Platform with Experiential Design Thinking Process to Enhance Digital Teacher Competency. *International Journal of Information and Education Technology*, *12*(12), 1219-1299. https://doi:10.18178/ijiet.2022.12.12.1753

Srivastava, K., & Dey, S. (2018). Role of digital technology in teaching-learning process. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, *23*(1), 74-79.

Statistik, B. P. (2021). Indeks Pembangunan Teknologi, Informasi, dan Komunikasi 2020. *Badan Pusat Statistik*.

Sutton, S. R. (2011). The preservice technology training experiences of novice teachers. *Journal of Digital Learning in Teacher Education*, *28*(1), 39-47.

Suyoto, S., & Sodik, A. (2015). Dasar Metodologi Penelitian. *Yogyakarta: Literasi Media Publishing*, *130*.

Somantrie, H. (2010). "Kompetensi" Sebagai Landasan Konseptual Kebijakan Kurikulum Sekolah di Indonesia. *Jurnal Pendidikan dan Kebudayaan*, *16*(6), 684-698. https://doi.org/10.24832/jpnk.v16i6.497

Spady, William G. 1980. "The Concept and Implications of Competency-Based Education" in Minimum Competency Achievement Testing, Edited by Richard M. Jaeger & Carol Kehr Tittle. Berkeley, CA: McCutchan Publishing Company.

Spencer, L. M., & Spencer, P. S. M. (2008). *Competence at Work models for superior performance*. John Wiley & Sons.

Sunendar, D. (2016). Pedoman Pelaksana an Gerakan Nasional Literasi Bangsa. *Jakarta: Kemendikbud*.

Suprihatiningrum, J. (2013). Guru Profesional: Pedoman Kinerja, Kualifikasi & Kompetensi Guru. Jogjakarta: Ar-ruzz Media.

Sutton, S. R. (2011). The preservice technology training experiences of novice teachers. *Journal of Digital Learning in Teacher Education*, *28*(1), 39-47. https://doi.org/10.1080/21532974.2011.10784678

Sulasmi, E. (2022). Primary school teachers' digital literacy: An analysis on teachers' skills in using technological devices. *Journal of Innovation in Educational and Cultural Research*, *3*(2), 140-145. https://doi:10.46843/jiecr.v3i2.81

Swedish Ministry of Education. (2017). Nationell digitaliseringsstrategi för skolväsendet U2017/04119/S.

Syafaat, W. (2020). Peningkatan Sumber Daya Manusia Guru Di SMP Brawijaya Pungging Melalui Budaya Literasi Digital. *Al-Muttaqin*, *1*(1), 57-67.

Syaodih Sukmadinata, Nana, 1997. Pengembangan Kurikulum, Bandung : Remaja Rosda Karya

Tafazoli, D., Huertas Abril, C. A., & Gómez Parra, M. E. (2019). Technology-based review on Computer-Assisted Language Learning: A chronological perspective. *Pixel-Bit: Revista de Medios y Educación, 54, 29-43.* https://10.12795/pixelbit.2019.i54.02

Tammaro, R., & D'Alessio, A. (2016). Teacher training and digital competence: A pedagogical recommendation. *International Journal of Digital Literacy and Digital Competence (IJDLDC)*, *7*(2), 1-10.

Tejada, J. J., & Punzalan, J. R. B. (2012). On the misuse of Slovin's formula. *The philippine statistician*, *61*(1), 129-136.

Thomas, A. (2011). Towards a transformative digital literacies pedagogy. *Nordic Journal of Digital Literacy*, *6*(1-2), 89-101. https://doi.org/10.18261/ISSN1891-943X-2011-01-02-07

Trilling, B., & Fadel, C. (2009). *Bernie Trilling, Charles Fadel-21st Century Skills_ Learning for Life in Our Times -Jossey-Bass*.

Tondeur, J., Aesaert, K., Pynoo, B., van Braak, J., Fraeyman, N., & Erstad, O. (2017). Developing a validated instrument to measure preservice teachers' ICT competencies: Meeting the demands of the 21st century. *British Journal of Educational Technology*, *48*(2), 462-472. https://doi.org/10.1111/bjet.12380

Tove, Leming., L., Johanson. (2023). "And then I check to see if it looks legit" – digital critical competence in teacher education. Frontiers in Education, https://doi: 10.3389/feduc.2023.1137563

Townsend, D., Mills, N., Savović, J., & Donovan, J. L. (2015). A systematic review of training programmes for recruiters to randomised controlled trials. *Trials*, *16*, 1-10.

Tyler, R. W. (2013). *Basic principles of curriculum and instruction*. University of Chicago press.

UNESCO (2009), Policy Guidelines on Inclusions in Education, UNESCO.

Valtonen, T., Kukkonen, J., Kontkanen, S., Sormunen, K., Dillon, P., & Sointu, E. (2015). The impact of authentic learning experiences with ICT on pre-service teachers' intentions to use ICT for teaching and learning. *Computers & Education*, *81*, 49-58. https://doi.org/10.1016/j.compedu.2014.09.008

Vasylykiv, I. (2023). Development Of Ict Competence of Primary School Teachers In The Process Of Continuous Education. *Baltic Journal of Legal and Social Sciences*, (1), 127-135. https://doi.org/10.30525/2592-8813-2023-1-17

Williamson, B., Potter, J., & Eynon, R. (2019). New research problems and agendas in learning, media and technology: the editors' wishlist. *Learning, Media and Technology*, *44*(2), 87-91. https://doi.org/10.1080/17439884.2019.1614953

Wiles, J. W., & Bondi, J. C. (2011). *Curriculum development: A guide to practice*. Prentice Hall.

Yazon, A. D., Ang-Manaig, K., Buama, C. A. C., & Tesoro, J. F. B. (2019). Digital literacy, digital competence and research productivity of educators. *Universal Journal of Educational Research*, *7*(8), 1734-1743.

Yusop, F. D. (2015). A dataset of factors that influence preservice teachers' intentions to use Web 2.0 technologies in future teaching practices. *British Journal of Educational Technology*, *46*(5), 1075-1080. https://doi.org/10.1111/bjet.12330

Zainuddin, D.S., Yusof, S.M., & Hamdan, A.R. (2017). Teacher's Experience in Curriculum Implementation: An Investigation on English Language Teaching in Vocational Colleges in Malaysia. *Sains Humanika*, 4(2), 49-58. https://doi.org/10.11113/sh.v9n4-2.1359

Zakharov, K., Komarova, A., Baranova, T., & Gulk, E. (2022). Information literacy and digital competence of teachers in the age of digital transformation. In *XIV International Scientific Conference "INTERAGROMASH 2021" Precision Agriculture and Agricultural Machinery Industry, Volume 2* (pp. 857-868). SpringerInternational Publishing. https://doi.org/10.1051/e3sconf/202127312077

Zenda, R. and Dlamini, R. (2022), Examining factors that influence teachers to adopt information and Communication Technology in rural secondary schools: an empirical study. *Education and Information Technologies*, Vol. 28, pp. 815-832, https://doi: 10.1007/s10639-022-11198-y.

Zhao, Y., Llorente, A. M. P., & Gómez, M. C. S. (2021). Digital competence in higher education research: A systematic literature review. *Computers & Education*, *168*, 104212. https://doi.org/10.1016/j.compedu.2021.104212