



DAFTAR PUSTAKA

- Abdulqader, A., & Al Marri, K. (2018). The Influence of Transformational Leadership Style on Innovation Behaviours: The Case of the Government Sector of the UAE. *International Triple Helix Summit*, 1–12.
- Aesaert, K., & van Braak, J. (2014). Exploring factors related to primary school pupils' ICT self-efficacy: A multilevel approach. *Computers in Human Behavior*, 41, 327–341.
- Agarwal, R., Sambamurthy, V., & Stair, R. M. (2000). The evolving relationship between general and specific computer self-efficacy—An empirical assessment. *Information Systems Research*, 11(4), 418–430.
- Ahsan, M. B., Leifeng, G., Safiul Azam, F. M., Xu, B., Rayhan, S. J., Kaium, A., & Wensheng, W. (2023). Barriers, Challenges, and Requirements for ICT Usage among Sub-Assistant Agricultural Officers in Bangladesh: Toward Sustainability in Agriculture. *Sustainability (Switzerland)*, 15(1). <https://doi.org/10.3390/su15010782>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2005). *Attitudes, personality and behaviour*. McGraw-Hill Education (UK).
- Aker, J. C., & Ksoll, C. (2016). Can mobile phones improve agricultural outcomes? Evidence from a randomized experiment in Niger. *Food Policy*, 60, 44–51. <https://doi.org/https://doi.org/10.1016/j.foodpol.2015.03.006>
- Albarracín, D., Johnson, B. T., Zanna, M. P., & Kumkale, G. T. (2005). Attitudes: Introduction and scope. *The Handbook of Attitudes*, 2005, 3–19.
- Allen, G. P., Mark Moore, W., Moser, L. R., Neill, K. K., Sambamoorthi, U., & Bell, H. S. (2016). The role of servant leadership and transformational leadership in academic pharmacy. *American Journal of Pharmaceutical Education*, 80(7). <https://doi.org/10.5688/ajpe807113>
- Ambarwati, R., Harja, Y. D., & Thamrin, S. (2020). The Role of Facilitating Conditions and User Habits: A Case of Indonesian Online Learning Platform. *The Journal of Asian Finance, Economics and Business*, 7(10), 481–489. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO10.481>
- American Library Association. (2013). Digital literacy, libraries, and public policy: Report of the office for information technology policy's digital literacy task force. *Retrieved January, 20, 2015*.
- Aulifia, A., Subejo, S., & Harsoyo, H. (2016). Persepsi anggota grup Facebook "Komunitas Hidroponik Jogja (Hi-Jo)" terhadap pengembangan hidroponik.



Agro Ekonomi, 27(2), 165–182.

Aydin, M. (2021). Does the digital divide matter? Factors and conditions that promote ICT literacy. *Telematics and Informatics*, 58, 101536.
<https://doi.org/10.1016/J.TELE.2020.101536>

Ayisi Nyarko, D., & Kozári, J. (2021). Information and communication technologies (ICTs) usage among agricultural extension officers and its impact on extension delivery in Ghana. *Journal of the Saudi Society of Agricultural Sciences*, 20(3), 164–172.
<https://doi.org/10.1016/J.JSSAS.2021.01.002>

Azwar, S. (2007). Sikap Manusia Teori dan Pengukurannya, Edisi ke-2. *Yogyakarta: Pustaka Pelajar Offset*.

Azwar, S. (2015). Dasar-dasar psikometrika edisi II. *Yogyakarta: Pustaka Pelajar*.

Baffoe-Bonnie, A., Martin, D. T., & Mrema, F. (2021). Agricultural extension and advisory services strategies during COVID-19 lockdown. *Agricultural & Environmental Letters*, 6(4), e20056.
<https://doi.org/https://doi.org/10.1002/ael2.20056>

Bai, Q., Chen, H., Zhou, J., Li, G., Zang, D., Sow, Y., & Shen, Q. (2023). Digital literacy and farmers' entrepreneurial behavior—Empirical analysis based on CHFS2019 micro data. *PLoS ONE*, 18(7 July).
<https://doi.org/10.1371/journal.pone.0288245>

Baker-Smith, C. M., Sood, E., Prospero, C., Zadokar, V., & Srivastava, S. (2021a). Impact of Social Determinants and Digital Literacy on Telehealth Acceptance for Pediatric Cardiology Care Delivery during the Early Phase of the COVID-19 Pandemic. *The Journal of Pediatrics*, 237, 115-124.e2.
<https://doi.org/10.1016/j.jpeds.2021.06.036>

Baker-Smith, C. M., Sood, E., Prospero, C., Zadokar, V., & Srivastava, S. (2021b). Impact of Social Determinants and Digital Literacy on Telehealth Acceptance for Pediatric Cardiology Care Delivery during the Early Phase of the COVID-19 Pandemic. *The Journal of Pediatrics*, 237, 115-124.e2.
<https://doi.org/https://doi.org/10.1016/j.jpeds.2021.06.036>

Bandura, A. (1977a). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191.

Bandura, A. (1977b). Self-efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review*, 84(2), 191–215.
<https://doi.org/10.1017/S0003055400259303>

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122.

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual*



Review of Psychology, 52(1), 1–26.

- Bandura, A. (2006). Guide for constructing self-efficacy scales. *Self-Efficacy Beliefs of Adolescents*, 5(1), 307–337.
- Barling, J. (2014). *The science of leadership: Lessons from research for organizational leaders*. Oxford University Press.
- Baron, R., & Byrne, D. (2003). *Social Psychology* (10th ed.). Pearson, New York.
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly*, 112–121.
- Bass, B. M., & Riggio, R. E. (2006). *Transformational leadership*.
- Bawden, D. (2008). Origins and concepts of digital literacy. *Digital Literacies: Concepts, Policies and Practices*, 30(2008), 17–32.
- Bazzi, D. (2022). Approaches to a contemporary psychoanalytic Field Theory: from Kurt Lewin, Georges Politzer and José Bleger, to Antonino Ferro and Giuseppe Civitarese. <Https://Doi.Org.Ezproxy.Ugm.Ac.Id/10.1080/00207578.2021.1964971>, 103(1), 46–70. <https://doi.org/10.1080/00207578.2021.1964971>
- Belem, W., Hariadi, S. S., & Wastutiningsih, S. P. (2014). Pengaruh Kepemimpinan Transformasional terhadap Kemandirian Gapoktan. *JSEP (Journal of Social and Agricultural Economics)*, 7(2), 76–83.
- Benson, A., & Jafry, T. (2013). The State of Agricultural Extension: An Overview and New Caveats for the Future. *The Journal of Agricultural Education and Extension*, 19(4), 381–393. <https://doi.org/10.1080/1389224X.2013.808502>
- Beza, E., Reidsma, P., Poortvliet, P. M., Belay, M. M., Bijen, B. S., & Kooistra, L. (2018). Exploring farmers' intentions to adopt mobile Short Message Service (SMS) for citizen science in agriculture. *Computers and Electronics in Agriculture*, 151, 295–310. <https://doi.org/https://doi.org/10.1016/j.compag.2018.06.015>
- Bong, M., & Skaalvik, E. M. (2003). Academic self-concept and self-efficacy: How different are they really? *Educational Psychology Review*, 15(1), 1–40.
- BPS. (2022a). *Indeks Pembangunan Teknologi Informasi dan Komunikasi (IP-TIK) 2021*. Badan Pusat Statistik.
- BPS. (2022b). *Produk Domestik Regional Bruto Provinsi Maluku Utara Menurut Lapangan Usaha 2017-2021*. Badan Pusat Statistik Provinsi Maluku Utara.
- BPS. (2023). *Produk Domestik Regional Bruto Provinsi Maluku Utara Menurut Lapangan Usaha 2018-2022*. Badan Pusat Statistik provinsi Maluku Utara.
- BPS. (2024). *Provinsi Maluku Utara Dalam Angka 2023*. Badan Pusat Statistik provinsi Maluku Utara.



- Brennan, G., Eriksson, L., Goodin, R. E., & Southwood, N. (2013). *Explaining norms*. Oxford University Press.
- Bryant, J. R., Ogle, G., Marshall, P. R., Glassey, C. B., Lancaster, J. A. S., Garcia, S. C., & Holmes, C. W. (2010). Description and evaluation of the Farmax Dairy Pro decision support model. *New Zealand Journal of Agricultural Research*, 53(1), 13–28.
- Burnes, B. (2004). Kurt Lewin and the planned approach to change: A re-appraisal. *Journal of Management Studies*, 41(6), 977–1002.
<https://doi.org/10.1111/j.1467-6486.2004.00463.x>
- Burnes, B. (2021). Lewin, Kurt (1890–1947): The Practical Theorist. *The Palgrave Handbook of Organizational Change Thinkers*, 937–950.
https://doi.org/10.1007/978-3-030-38324-4_13
- Burnes, B., & Cooke, B. (2013). Kurt Lewin's field theory: A review and re-evaluation. *International Journal of Management Reviews*, 15(4), 408–425.
<https://doi.org/10.1111/j.1468-2370.2012.00348.x>
- Burton, R. J. F., & Riley, M. (2018). Traditional Ecological Knowledge from the internet? The case of hay meadows in Europe. *Land Use Policy*, 70, 334–346. <https://doi.org/https://doi.org/10.1016/j.landusepol.2017.10.014>
- Cahyono. (2021). Analysis of the Relationship of Self-Efficacy and Digital Literation With Digital Simulation Learning Outcomes. *Jurnal Pendidikan Teknik Dan Vokasional*, 4, 112–119.
- Cahyono, B., Setyowati, R., & Ihsaniyati, H. (2020). Adoption of Cyber Extension by Agricultural Extension Workers (PPL) and Factors Affecting. *Jurnal Penyuluhan*, 16(2), 240–249. <https://doi.org/10.25015/16202028362>
- Carretero, S., Vuorikari, R., & Punie, Y. (2017). The digital competence framework for citizens. *Publications Office of the European Union*.
- Celik, V., & Yesilyurt, E. (2013). Attitudes to technology, perceived computer self-efficacy and computer anxiety as predictors of computer supported education. *Computers & Education*, 60(1), 148–158.
<https://doi.org/https://doi.org/10.1016/j.compedu.2012.06.008>
- Chaiklin, H. (2011). Attitudes, behavior, and social practice. *J. Soc. & Soc. Welfare*, 38, 31.
- Chellasamy, A., Almeida, S. M., Prakash, G. S., Nagarathinam, A., & Rangasamy, S. (2022). Social media disengagement among gen y and gen z: a quantitative investigation. *Media Literacy and Academic Research*, 5(1), 230–252.
- Chen, Y., Ning, R., Yang, T., Feng, S., & Yang, C. (2018). Is transformational leadership always good for employee task performance? Examining curvilinear and moderated relationships. *Frontiers of Business Research in*



China 2018 12:1, 12(1), 1–28. <https://doi.org/10.1186/S11782-018-0044-8>

Chetioui, K., Bah, B., Alami, A. O., & Bahnasse, A. (2022). Overview of Social Engineering Attacks on Social Networks. *Procedia Computer Science*, 198, 656–661. <https://doi.org/https://doi.org/10.1016/j.procs.2021.12.302>

Choi, S. L., Goh, C. F., Adam, M. B. H., & Tan, O. K. (2016). Transformational leadership, empowerment, and job satisfaction: The mediating role of employee empowerment. *Human Resources for Health*, 14(1), 1–14. <https://doi.org/10.1186/s12960-016-0171-2>

Coggins, S., McCampbell, M., Sharma, A., Sharma, R., Haefele, S. M., Karki, E., Hetherington, J., Smith, J., & Brown, B. (2022). How have smallholder farmers used digital extension tools? Developer and user voices from Sub-Saharan Africa, South Asia and Southeast Asia. *Global Food Security*, 32, 100577. <https://doi.org/https://doi.org/10.1016/j.gfs.2021.100577>

Compeau, D. R., & Higgins, C. A. (1995). Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*, 189–211.

Cook, B. R., Satizábal, P., & Curnow, J. (2021). Humanising agricultural extension: A review. *World Development*, 140, 105337. <https://doi.org/https://doi.org/10.1016/j.worlddev.2020.105337>

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Creswell, J. W., & Plano Clark, V. L. (2011). Choosing a mixed methods design. In *Designing and conducting mixed methods research* (Vol. 2, pp. 53–106).

Daum, T. (2019). ICT Applications in Agriculture. *Encyclopedia of Food Security and Sustainability*, 255–260. <https://doi.org/10.1016/B978-0-08-100596-5.22591-2>

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319–340.

Davis, K. E., Babu, S. C., & Ragasa, C. (2020). *Agricultural extension: Global status and performance in selected countries*. Intl Food Policy Res Inst (IFPRI).

Dawir, R. S. (2023). *Hubungan Literasi Digital, Self-Efficacy Dengan Kemampuan Interpersonal Mahasiswa Melalui Self-Regulation (Implikasi Layanan Informasi Bimbingan dan Konseling di Perguruan Tinggi)* [Universitas Negeri Semarang (UNNES)]. <http://lib.unnes.ac.id/id/eprint/60225>

De la Boutetière, H., Montagner, A., & Reich, A. (2018). *Unlocking success in digital transformations*. McKinsey & Company. October, Available Online:[Accessed 10 Oktober 2020]. <https://www.mckinsey.com/business-functions/people-and-organizational-performance/our-insights/unlocking->



success-in-digital-transformations

- Deja, M., Rak, D., & Bell, B. (2021a). Digital transformation readiness: perspectives on academia and library outcomes in information literacy. *Journal of Academic Librarianship*, 47(5), 102403.
<https://doi.org/10.1016/j.acalib.2021.102403>
- Deja, M., Rak, D., & Bell, B. (2021b). Digital transformation readiness: perspectives on academia and library outcomes in information literacy. *The Journal of Academic Librarianship*, 47(5), 102403.
- Dissanayeke, U., Prasada, P., & Wickramasuriya, H. (2020). *ICT-Based Information Systems in Agricultural Extension and Their Economic Implications: Sri Lankan Perspectives BT - Agricultural Research for Sustainable Food Systems in Sri Lanka: Volume 2: A Pursuit for Advancements* (R. P. De Silva, G. Pushpakumara, P. Prasada, & J. Weerahewa (eds.); pp. 331–351). Springer Singapore.
https://doi.org/10.1007/978-981-15-3673-1_15
- Dufva, T., & Dufva, M. (2019). Grasping the future of the digital society. *Futures*, 107, 17–28. [https://doi.org/https://doi.org/10.1016/j.futures.2018.11.001](https://doi.org/10.1016/j.futures.2018.11.001)
- Duncombe, R. (2016). Mobile phones for agricultural and rural development: A literature review and suggestions for future research. *The European Journal of Development Research*, 28(2), 213–235.
- Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the unified theory of acceptance and use of technology (UTAUT): Towards a revised theoretical model. *Information Systems Frontiers*, 21(3), 719–734.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Harcourt brace Jovanovich college publishers.
- Eastin, M. S., & LaRose, R. (2000). Internet Self-Efficacy and the Psychology of the Digital Divide. *Journal of Computer-Mediated Communication*, 6(1).
<https://doi.org/10.1111/j.1083-6101.2000.tb00110.x>
- Eastwood, C., Ayre, M., Nettle, R., & Rue, B. (2019). Making sense in the cloud: Farm advisory services in a smart farming future. *NJAS - Wageningen Journal of Life Sciences*, 90–91(December 2018), 100298.
<https://doi.org/10.1016/j.njas.2019.04.004>
- Eastwood, C., Klerkx, L., & Nettle, R. (2017). Dynamics and distribution of public and private research and extension roles for technological innovation and diffusion: Case studies of the implementation and adaptation of precision farming technologies. *Journal of Rural Studies*, 49, 1–12.
<https://doi.org/10.1016/j.jrurstud.2016.11.008>
- Effendi, S., & Singarimbun, M. (1995). *Metode penelitian survai*.



- El Sawy, O. A., Kraemmergaard, P., Amsinck, H., & Vinther, A. L. (2016). How LEGO built the foundations and enterprise capabilities for digital leadership. *MIS Quarterly Executive*, 15(2).
- Eremina, I, Yudin, A., Tarabukina, T., & Oblizov, A. (2022). The Use of Digital Technologies to Improve the Information Support of Agricultural Enterprises. *International Journal of Technology*, 13(7), 1393–1402. <https://doi.org/10.14716/ijtech.v13i7.6184>
- Eremina, Irina, Yudin, A., Tarabukina, T., & Oblizov, A. (2022). The Use of Digital Technologies to Improve the Information Support of Agricultural Enterprises. *International Journal of Technology*, 13(7), 1393 – 1402. <https://doi.org/10.14716/ijtech.v13i7.6184>
- Fabregas, R., Harigaya, T., Kremer, M., & Ramrattan, R. (2023). Digital Agricultural Extension for Development. In T. Madon, A. J. Gadgil, R. Anderson, L. Casaburi, K. Lee, & A. Rezaee (Eds.), *Introduction to Development Engineering: A Framework with Applications from the Field* (pp. 187–219). Springer International Publishing. https://doi.org/10.1007/978-3-030-86065-3_8
- FAO. (2021). *Empowering smallholder farmers to access agricultural extension and advisory services digital*. Food and Agriculture Organization of the United Nations Rome.
- Farazmand, A. (2018). *Global encyclopedia of public administration, public policy, and governance*. Springer New York, NY.
- Faure, G., Desjeux, Y., & Gasselin, P. (2012). New challenges in agricultural advisory services from a research perspective: a literature review, synthesis and research agenda. *The Journal of Agricultural Education and Extension*, 18(5), 461–492.
- Fielke, S., Taylor, B., & Jakku, E. (2020). Digitalisation of agricultural knowledge and advice networks: A state-of-the-art review. *Agricultural Systems*, 180(August 2019), 102763. <https://doi.org/10.1016/j.agsy.2019.102763>
- Finnemore, M., & Hollis, D. B. (2016). Constructing norms for global cybersecurity. *American Journal of International Law*, 110(3), 425–479.
- Fishbein, M., & Ajzen, I. (1975). Belief, attitude, intention, and behavior: An introduction to theory and research. *Philosophy and Rhetoric*, 10(2).
- Fishbein, M., & Ajzen, I. (2010). *Predicting and changing behavior: The reasoned action approach*. Psychology press.
- Fry, R., & Parker, K. (2018). Early Benchmarks Show 'Post-Millennials' on Track to Be Most Diverse, Best-Educated Generation Yet: A Demographic Portrait of Today's 6-to 21-Year-Olds. *Pew Research Center*.
- Gabryelczyk, R. (2020). Has COVID-19 Accelerated Digital Transformation?



- Initial Lessons Learned for Public Administrations. *Information Systems Management*, 37(4), 303–309.
<https://doi.org/10.1080/10580530.2020.1820633>
- Ghozali, I. (2017). Model Persamaan Struktural Konsep dan Aplikasi dengan Program AMOS 24. *Semarang: Badan Penerbit Universitas Diponegoro.*
- Gibson, J., Ivancevich, J., Donnelly Jr, J., & Konopaske, R. (2012). *Organizations Behavior, Structure, Process* (14th ed., Vol. 148). Mc. Graw Hill Irwin: New York.
- Gilster, P. (1997). *Digital literacy*. John Wiley & Sons, Inc.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review*, 17(2), 183–211.
- Gkerekakis, M., Lifshitz-Assaf, H., & Barrett, M. (2021). Crisis as opportunity, disruption and exposure: Exploring emergent responses to crisis through digital technology. *Information and Organization*, 31(1), 100344.
<https://doi.org/https://doi.org/10.1016/j.infoandorg.2021.100344>
- Gouroubera, M. W., Moumouni, I. M., Okry, F., & Idrissou, L. (2023). A holistic approach to understanding ICT implementation challenges in rural advisory services: lessons from using farmer learning videos. *Journal of Agricultural Education and Extension*, 1–20.
<https://doi.org/10.1080/1389224X.2023.2171077>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). Multivariate data analysis: Pearson new international edition. *Essex: Pearson Education Limited*, 1(2).
- Hammer, M., Scheiter, K., & Stürmer, K. (2021). New technology, new role of parents: How parents' beliefs and behavior affect students' digital media self-efficacy. *Computers in Human Behavior*, 116, 106642.
<https://doi.org/https://doi.org/10.1016/j.chb.2020.106642>
- Hamutoğlu, N. B., Savaşçı, M., & Sezen-Gültekin, G. (2019). Digital literacy skills and attitudes towards e-learning. *Journal of Education and Future*, 16, 93–107.
- Handayani, D. W. D., Damayanti, C., & Dewi, U. N. M. (2022). DIPLOMASI PERDAGANGAN PALA MALUKU UTARA KE BELANDA PADA TAHUN 2015-2020. *Review of International Relations*, 4(1), 21–40.
- Hariadi, S. S. (2011). *Dinamika kelompok: teori dan aplikasinya untuk analisis keberhasilan keompok tani sebagai unit belajar, kerjasama, produksi, dan bisnis*. Sekolah Pascasarjana, Universitas Gadjah Mada.
- Hariadi, S. S. (2012). *History and Experiences of Agricultural Extension in Indonesia*. March, 15–17.



- Hatlevik, O. E., Thronsen, 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/https://doi.org/10.1016/j.compedu.2017.11.011>
- Hinshelwood, R. D. (2019). John Rickman behind the scenes: The influence of Lewin's field theory on practice, countertransference, and W.R. Bion. <Https://Doi-Org.Ezproxy.Ugm.Ac.Id/10.1080/00207578.2018.1508354>, 99(6), 1409–1423. <https://doi.org/10.1080/00207578.2018.1508354>
- Hobbs, R. (2017). *Create to learn: Introduction to digital literacy*. John Wiley & Sons.
- Hobbs, R., & Tuzel, S. (2017). Teacher motivations for digital and media literacy: An examination of Turkish educators. *British Journal of Educational Technology*, 48(1), 7–22. <https://doi.org/10.1111/bjet.12326>
- Ikbalbahua, M. (2018). Peran Motivasi Dan Kinerja Penyuluhan Pertanian Dalam Mengubah Perilaku Petani Jagung. *Jurnal Sosial Ekonomi Pertanian*, 14(3), 225–232.
- Indraningsih, Kurnia S, Septanti, K. S., & Ar-Rozi, A. M. (2020). Penyuluhan Pertanian dalam Upaya Pemberdayaan Petani Pada Era Pandemi Covid-19. *Pusat Sosial Ekonomi Dan Kebijakan Pertanian, Bogor*.
- Indraningsih, Kurnia Suci, Ashari, A., Syahyuti, S., Anugrah, I. S., Suharyono, S., Saptana, S., Iswariyadi, A., Agustian, A., Purwantini, T. B., Ariani, M., & Mardiharini, M. (2023). *Factors influencing the role and performance of independent agricultural extension workers in supporting agricultural extension*. 8(1). <https://doi.org/doi:10.1515/opag-2022-0164>
- Ingram, J., & Maye, D. (2020). What Are the Implications of Digitalisation for Agricultural Knowledge? In *Frontiers in Sustainable Food Systems* (Vol. 4, p. 66). <https://www.frontiersin.org/article/10.3389/fsufs.2020.00066>
- Iwuchukwu, J. C., Eke, O. G., Arigbo, P. O., Chukwudum, E. O., & Igwe, N. J. (2023). Challenges and Training Needs for Integrating Social Media into Agricultural Extension Services in Enugu State, Nigeria. *Journal of Agricultural Extension*, 27(2), 88–96.
- Jackson, C. M., Chow, S., & Leitch, R. A. (1997). Toward an understanding of the behavioral intention to use an information system. *Decision Sciences*, 28(2), 357–389.
- Jacobs, C., Pfaff, H., Lehner, B., Driller, E., Nitzsche, A., Stieler-Lorenz, B., Wasem, J., & Jung, J. (2013). The Influence of Transformational Leadership on Employee Well-Being: Results From a Survey of Companies in the Information and Communication Technology Sector in Germany. *Journal of Occupational and Environmental Medicine*, 55(7). https://journals.lww.com/joem/Fulltext/2013/07000/The_Influence_of_Trans



formational_Leadership_on.9.aspx

- Jaeger, P. T., Bertot, J. C., Thompson, K. M., Katz, S. M., & DeCoster, E. J. (2012). The Intersection of Public Policy and Public Access: Digital Divides, Digital Literacy, Digital Inclusion, and Public Libraries. *Public Library Quarterly*, 31(1), 1–20. <https://doi.org/10.1080/01616846.2012.654728>
- Jensen, M., Potočnik, K., & Chaudhry, S. (2020). A mixed-methods study of CEO transformational leadership and firm performance. *European Management Journal*, 38(6), 836–845.
- Jin, S., Seo, M. G., & Shapiro, D. L. (2016). Do happy leaders lead better? Affective and attitudinal antecedents of transformational leadership. *The Leadership Quarterly*, 27(1), 64–84. <https://doi.org/10.1016/J.LEAQUA.2015.09.002>
- Jisc. (2019). *Jisc digital capabilities framework: The six elements defined*. 1–8. <http://repository.jisc.ac.uk/7278/1/BDCP-DC-Framework-Individual-6E-110319.pdf>
- Johnston, N. (2020). The Shift towards Digital Literacy in Australian University Libraries: Developing a Digital Literacy Framework. *Journal of the Australian Library and Information Association*, 69(1), 93–101. <https://doi.org/10.1080/24750158.2020.1712638>
- Joo, Y. J., Lim, K. Y., & Kim, N. H. (2016). The effects of secondary teachers' technostress on the intention to use technology in South Korea. *Computers & Education*, 95, 114–122. <https://doi.org/https://doi.org/10.1016/j.compedu.2015.12.004>
- Julien, H. (2018). Digital literacy in theory and practice. In *Encyclopedia of Information Science and Technology, Fourth Edition* (pp. 2243–2252). IGI Global.
- Kaliky, R. (2012). *Kajian Sistem Penyuluhan Pertanian di Provinsi Maluku*. Universitas Gadjah Mada.
- Kamilaris, A., Kartakoullis, A., & Prenafeta-Boldú, F. X. (2017). A review on the practice of big data analysis in agriculture. *Computers and Electronics in Agriculture*, 143(September), 23–37. <https://doi.org/10.1016/j.compag.2017.09.037>
- Kementan. (2022). *Rekap Penyuluhan Pertanian Tingkat Kabupaten/Kota Provinsi Maluku Utara*. www.simluh.pertanian.go.id
- Kesharwani, A. (2020). Do (how) digital natives adopt a new technology differently than digital immigrants? A longitudinal study. *Information & Management*, 57(2), 103170. <https://doi.org/https://doi.org/10.1016/j.im.2019.103170>
- Kirkman, B. L., Chen, G., Farh, J.-L., Chen, Z. X., & Lowe, K. B. (2009).



Individual power distance orientation and follower reactions to transformational leaders: A cross-level, cross-cultural examination. *Academy of Management Journal*, 52(4), 744–764.

Kitole, F. A., Mkuna, E., & Sesabo, J. K. (2024). Digitalization and agricultural transformation in developing countries: Empirical evidence from Tanzania agriculture sector. *Smart Agricultural Technology*, 7. <https://doi.org/10.1016/j.atech.2023.100379>

Klerkx, L. (2020). Advisory services and transformation, plurality and disruption of agriculture and food systems: towards a new research agenda for agricultural education and extension studies. *Journal of Agricultural Education and Extension*, 26(2), 131–140. <https://doi.org/10.1080/1389224X.2020.1738046>

Klerkx, L. (2021). Digital and virtual spaces as sites of extension and advisory services research: social media, gaming, and digitally integrated and augmented advice. *The Journal of Agricultural Education and Extension*, 27(3), 277–286. <https://doi.org/10.1080/1389224X.2021.1934998>

Klerkx, L., Jakku, E., & Labarthe, P. (2019). A review of social science on digital agriculture, smart farming and agriculture 4.0: New contributions and a future research agenda. *NJAS - Wageningen Journal of Life Sciences*, 90–91(November), 100315. <https://doi.org/10.1016/j.njas.2019.100315>

Klerkx, L., & Rose, D. (2020). Dealing with the game-changing technologies of Agriculture 4.0: How do we manage diversity and responsibility in food system transition pathways? *Global Food Security*, 24, 100347.

Kominfo. (2020). *Status Literasi Digital Indonesia 2020: Hasil Survei di 34 Provinsi*. 90. https://katadata-s3-public.s3.ap-southeast-1.amazonaws.com/media/kic/kominfo/Status Literasi Digital_Nasional.pdf

Kominfo. (2021). *Literasi digital jadi kunci keberhasilan transformasi digital*. <https://aptika.kominfo.go.id/2021/02/literasi-digital-jadi-kunci-keberhasilan-transformasi-digital/>

Krosnick, J. A., Boninger, D. S., Chuang, Y. C., Berent, M. K., & Carnot, C. G. (1993). Attitude strength: One construct or many related constructs? *Journal of Personality and Social Psychology*, 65(6), 1132.

Laor, T. (2022). My social network: Group differences in frequency of use, active use, and interactive use on Facebook, Instagram and Twitter. *Technology in Society*, 68, 101922. <https://doi.org/https://doi.org/10.1016/j.techsoc.2022.101922>

Leroy, H., Segers, J., van Dierendonck, D., & den Hartog, D. (2018). Managing people in organizations: Integrating the study of HRM and leadership. *Human Resource Management Review*, 28(3), 249–257. <https://doi.org/https://doi.org/10.1016/j.hrmr.2018.02.002>



- Lesmana, R. (2016). Pengaruh Motivasi Kerja Terhadap Kinerja Penyuluhan Pertanian Lapangan (Ppl) Dinas Pertanian Kabupaten Bulungan Kalimantan Timur. *JBTI: Jurnal Bisnis: Teori Dan Implementasi*, 7(2), 251–277.
- Lewin, K. (1951). *Field theory in social science: selected theoretical papers (Edited by Dorwin Cartwright.)*.
- Li, B., Zhuo, N., Ji, C., & Zhu, Q. (2022). Influence of Smartphone-Based Digital Extension Service on Farmers’ Sustainable Agricultural Technology Adoption in China. *International Journal of Environmental Research and Public Health*, 19(15). <https://doi.org/10.3390/ijerph19159639>
- Li, X., Wu, L., Gao, H., & Hu, N. (2024). Can digital literacy improve organic fertilizer utilization rates?: Empirical evidence from China. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-024-04793-1>
- Lilian, A. (2022). Motivational beliefs, an important contrivance in elevating digital literacy among university students. *HELIYON*, 8(12). <https://doi.org/10.1016/j.heliyon.2022.e11913>
- List, A. (2019a). Defining digital literacy development: An examination of pre-service teachers' beliefs. *Computers & Education*, 138, 146–158. <https://doi.org/https://doi.org/10.1016/j.compedu.2019.03.009>
- List, A. (2019b). Defining digital literacy development: An examination of pre-service teachers' beliefs. *Computers & Education*, 138, 146–158.
- Listiana, I., Sumardjo, S., Sadono, D., & Tjiptopranoto, P. (2018). Hubungan Kapasitas Penyuluhan dengan Kepuasan Petani dalam Kegiatan Penyuluhan. *Jurnal Penyuluhan*, 14(2). <https://doi.org/10.25015/penyuluhan.v14i2.18673>
- Listiana, I., Sumardjo, Sadono, D., Tjiptopranoto, P., & Ariyanto, D. (2019). Internet Usage in Agricultural Extension Activities in Lampung Province, Indonesia. *International Journal of Innovative Technology and Exploring Engineering*, 8(12), 1486 – 1493. <https://doi.org/10.35940/ijitee.L3097.1081219>
- Littlejohn, A., Beetham, H., & McGill, L. (2012). Learning at the digital frontier: a review of digital literacies in theory and practice. *Journal of Computer Assisted Learning*, 28(6), 547–556.
- Liu, B., & Zhou, J. (2023). Digital Literacy, Farmers' Income Increase and Rural Internal Income Gap. *Sustainability*, 15(14). <https://doi.org/10.3390/su151411422>
- Magesa, M., Jonathan, J., & Urassa, J. (2023). Digital Literacy of Smallholder Farmers in Tanzania. *Sustainability (Switzerland)*, 15(17). <https://doi.org/10.3390/su151713149>
- Manzi, C., Coen, S., Regalia, C., Yévenes, A. M., Giuliani, C., & Vignoles, V. L.



- (2018). Being in the Social: A cross-cultural and cross-generational study on identity processes related to Facebook use. *Computers in Human Behavior*, 80, 81–87. <https://doi.org/https://doi.org/10.1016/j.chb.2017.10.046>
- Martin, J. L. (2003). What is Field Theory? *American Journal of Sociology*, 109(1). <https://doi.org/10.1086/375201>
- Mayer, J. D., Faber, M. A., & Xu, X. (2007). Seventy-five years of motivation measures (1930–2005): A descriptive analysis. *Motivation and Emotion*, 31(2), 83–103.
- McCampbell, M., Adewopo, J., Klerkx, L., & Leeuwis, C. (2023). Are farmers ready to use phone-based digital tools for agronomic advice? Ex-ante user readiness assessment using the case of Rwandan banana farmers. *Journal of Agricultural Education and Extension*, 29(1), 29–51. <https://doi.org/10.1080/1389224X.2021.1984955>
- McClelland, D. C. (1987). *Human motivation*. CUP Archive.
- McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). The achievement motive. *New York*, 5.
- McClelland, D. C., & Burnham, D. H. (2008). *Power is the great motivator*. Harvard Business Review Press.
- McFadden, J., Casalini, F., Griffin, T., & Antón, J. (2022). The digitalisation of agriculture. In *OECD Food, Agriculture and Fisheries Papers* (Issue 176). OECD Publishing: Paris. <https://doi.org/https://doi.org/https://doi.org/10.1787/285cc27d-en>
- McGregor, D. (1960). Theory X and theory Y. *Organization Theory*, 358(374), 5.
- McGuire, W. J. (1985). Attitudes and attitude change. *The Handbook of Social Psychology*, 233–346.
- Michels, M., Fecke, W., Feil, J.-H., Musshoff, O., Pigisch, J., & Krone, S. (2020). Smartphone adoption and use in agriculture: empirical evidence from Germany. *Precision Agriculture*, 21(2), 403–425. <https://doi.org/10.1007/s11119-019-09675-5>
- Morf, M., & Bakker, A. B. (2022). Ups and downs in transformational leadership: A weekly diary study. *European Management Journal*. <https://doi.org/https://doi.org/10.1016/j.emj.2022.12.007>
- Mullins, J. K., & Cronan, T. P. (2021). Enterprise systems knowledge, beliefs, and attitude: A model of informed technology acceptance. *International Journal of Information Management*, 59, 102348. <https://doi.org/https://doi.org/10.1016/j.ijinfomgt.2021.102348>
- Mulyandari, R. S. H., Lubis, D. P., & Pandjaitan, N. K. (2010). Analisis Sistem Kerja Cyber Extension Mendukung Peningkatan Keberdayaan Petani Sayuran. *Jurnal Komunikasi Pembangunan*, 8(2), 246651.



- Mulyono, H., Suryoputro, G., & Jamil, S. R. (2021). The application of WhatsApp to support online learning during the COVID-19 pandemic in Indonesia. *Heliyon*, 7(8), e07853.
<https://doi.org/https://doi.org/10.1016/j.heliyon.2021.e07853>
- Munthali, N., Leeuwis, C., van Paassen, A., Lie, R., Asare, R., van Lammeren, R., & Schut, M. (2018). Innovation intermediation in a digital age: Comparing public and private new-ICT platforms for agricultural extension in Ghana. *NJAS - Wageningen Journal of Life Sciences*, 86–87, 64–76.
<https://doi.org/10.1016/J.NJAS.2018.05.001>
- Murray, H. A. (1938). *Explorations in personality: A clinical and experimental study of fifty men of college age.*
- Mustapha, S., Man, N., Shah, J. A., Kamarulzaman, N. H., & Tafida, A. A. (2022). Mediating Role of Motivation in the Relationships between Awareness, Accessibility, Perceived Organizational Support and Adoption of ICT among Extension Agents in North-East, Nigeria. *Journal of Agricultural Science and Technology*, 24(6), 1313–1329.
- Nadkarni, S., & Prügl, R. (2021). Digital transformation: a review, synthesis and opportunities for future research. In *Management Review Quarterly* (Vol. 71, Issue 2). Springer International Publishing. <https://doi.org/10.1007/s11301-020-00185-7>
- Northouse, P. G. (2021). *Leadership: Theory and practice*. Sage publications.
- Ntiri, P., Ragasa, C., Anang, S. A., Kuwornu, J. K. M., & Nimorme Torbi, E. (2022). Does ICT-based aquaculture extension contribute to greater adoption of good management practices and improved incomes? Evidence from Ghana. *Aquaculture*, 557, 738350.
<https://doi.org/https://doi.org/10.1016/j.aquaculture.2022.738350>
- OECD. (2015). *Fostering Green Growth in Agriculture: The Role of Training, Advisory and Extension Initiatives*. OECD Publishing: Paris.
- Oskamp, S., & Schultz, P. W. (2005). *Attitudes and opinions*. Psychology Press.
- Papastergiou, M. (2010). Enhancing physical education and sport science students' self-efficacy and attitudes regarding information and communication technologies through a computer literacy course. *Computers & Education*, 54(1), 298–308.
- Partini, Wastutiningsih, S. P., Nugroho, N. C., & Fatonah, S. (2024). Tantangan Menjadi Penyuluh Kekinian di Era Disrupsi. *Jurnal Penyuluhan*, 20(01), 29–40.
- Pauschinger, D., & Klauser, F. R. (2021). The introduction of digital technologies into agriculture: Space, materiality and the public–private interacting forms of authority and expertise. *Journal of Rural Studies*.
<https://doi.org/https://doi.org/10.1016/j.jrurstud.2021.06.015>



- Pérez-Escoda, A., García-Ruiz, R., & Aguaded, I. (2019). Dimensions of digital literacy based on five models of development. *Cultura y Educacion*, 31(2), 232–266. <https://doi.org/10.1080/11356405.2019.1603274>
- Philip, J. (2021). Viewing Digital Transformation through the Lens of Transformational Leadership. *Https://Doi-Org.Ezproxy.Ugm.Ac.Id/10.1080/10919392.2021.1911573*, 31(2), 114–129. <https://doi.org/10.1080/10919392.2021.1911573>
- Phuapan, P., Viriyavejakul, C., & Pimdee, P. (2016). An Analysis of Digital Literacy Skills among Thai University Seniors. *International Journal of Emerging Technologies in Learning*, 11(3).
- Pradana, A. W., Sevatita, A., Asmara, A. Y., Yusuf, A. A., Pantjadarma, D., Hidayat, D., Siregar, F., Rakhmani, I., Nugraha, L. K., Royono, R., & Nugroho, Y. (2021). *Cetak Biru Ekosistem Pengetahuan dan Inovasi*. Ristek BRIN, Bappenas, dan KemenPAN-RB: Jakarta.
- Prayoga, K. (2018). Dampak Penetrasi Teknologi Informasi Dalam Transformasi Sistem Penyuluhan Pertanian Di Indonesia. *JSEP (Journal of Social and Agricultural Economics)*, 11(1), 46. <https://doi.org/10.19184/jsep.v11i3.5663>
- Prensky, M. (2005). Listen to the natives. *Educational Leadership*, 63(4).
- Prior, D. D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy and self efficacy: Flow-on effects for online learning behavior. *Internet and Higher Education*, 29, 91–97. <https://doi.org/10.1016/j.iheduc.2016.01.001>
- Purnama, S., Ulfah, M., Machali, I., Wibowo, A., & Narmaditya, B. S. (2021). Does digital literacy influence students' online risk? Evidence from Covid-19. *Heliyon*, 7(6), e07406. <https://doi.org/10.1016/j.heliyon.2021.e07406>
- Purnomo, S., & Lee, Y.-H. (2010). An assessment of readiness and barriers towards ICT program implementation: Perceptions of agricultural extension officers in Indonesia. *International Journal of Education and Development Using ICT*, 6(3), 19–36. <https://www.learntechlib.org/p/42380>
- Raidimi, E. N., & Kabiti, H. M. (2019). A review of the role of agricultural extension and training in achieving sustainable food security: a case of South Africa. *South African Journal of Agricultural Extension*, 47, 120–130. http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0301-603X2019000300010&nrm=iso
- Rajkhowa, P., & Qaim, M. (2021). Personalized digital extension services and agricultural performance: Evidence from smallholder farmers in India. *PloS One*, 16(10), e0259319. <https://doi.org/10.1371/journal.pone.0259319>
- Raya, A. B., Kriska, M., Wastutiningsih, S. P., Cahyaningtyas, M. U., Djitmau, A., & Cahyani, G. F. (2018). Strategi Pemanfaatan Aplikasi Desa Apps dalam Literasi Informasi Pertanian. *Jurnal Komunikasi Pembangunan*, 16(2),



274–285.

- Reddy, P., Sharma, B., & Chaudhary, K. (2020). Digital literacy: A review of literature. *International Journal of Technoethics*, 11(2), 65–94.
<https://doi.org/10.4018/IJT.20200701.oa1>
- Reddy, P., Sharma, B., & Chaudhary, K. (2021). Digital literacy: a review in the South Pacific. *Journal of Computing in Higher Education*, May.
<https://doi.org/10.1007/s12528-021-09280-4>
- Redecker, C. (2017). *European framework for the digital competence of educators: DigCompEdu*. Joint Research Centre (Seville site).
- Rijswijk, K., Klerkx, L., & Turner, J. A. (2019). Digitalisation in the New Zealand Agricultural Knowledge and Innovation System: Initial understandings and emerging organisational responses to digital agriculture. *NJAS - Wageningen Journal of Life Sciences*, 90–91(November), 100313.
<https://doi.org/10.1016/j.njas.2019.100313>
- Rola-Rubzen, M. F., Paris, T., Hawkins, J., & Sapkota, B. (2020). Improving gender participation in agricultural technology adoption in Asia: from rhetoric to practical action. *Applied Economic Perspectives and Policy*, 42(1), 113–125.
- Rose, D. C., Morris, C., Loble, M., Winter, M., Sutherland, W. J., & Dicks, L. V. (2018). Exploring the spatialities of technological and user re-scripting: the case of decision support tools in UK agriculture. *Geoforum*, 89, 11–18.
- Sadaf, A., & Gezer, T. (2020). Exploring factors that influence teachers' intentions to integrate digital literacy using the decomposed theory of planned behavior. *Journal of Digital Learning in Teacher Education*, 36(2), 124–145. <https://doi.org/10.1080/21532974.2020.1719244>
- Sadaf, A., & Johnson, B. L. (2017). Teachers' Beliefs About Integrating Digital Literacy Into Classroom Practice: An Investigation Based on the Theory of Planned Behavior.
<Http://Dx.Doi.Org.Ezproxy.Ugm.Ac.Id/10.1080/21532974.2017.1347534>, 33(4), 129–137. <https://doi.org/10.1080/21532974.2017.1347534>
- Salemink, K., Strijker, D., & Bosworth, G. (2017). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of Rural Studies*, 54, 360–371.
- Santoso, H., Abdinagoro, S. B., & Arief, M. (2019). The role of digital literacy in supporting performance through innovative work behavior: The case of indonesia's telecommunications industry. *International Journal of Technology*, 10(8), 1558–1566. <https://doi.org/10.14716/ijtech.v10i8.3432>
- Santoso, H., Elidjen, Abdinagoro, S. B., & Arief, M. (2019). The role of creative self-efficacy, transformational leadership, and digital literacy in supporting performance through innovative work behavior: Evidence from



- telecommunications industry. *Management Science Letters*, 9(Special Issue 13), 2305–2314. <https://doi.org/10.5267/j.msl.2019.7.024>
- Saravanan, R., Rasheed Sulaiman, V., Davis, K., & Suchiradipta, B. (2015). Navigating ICTs for extension and advisory services. *What Works in Rural Advisory Services?*, 85.
- Sari, N. U., Munajat, M., & Yunita, Y. (2022). Utilization of Social Media in Agricultural Extension Activities in South Ogan Komering District. *AJARCDE (Asian Journal of Applied Research for Community Development and Empowerment)*, 6(3), 24–28.
- Shawky, S., Kubacki, K., Dietrich, T., & Weaven, S. (2019). Using social media to create engagement: A social marketing review. *Journal of Social Marketing*, 9(2), 204–224.
- Sia, S. K., Soh, C., & Weill, P. (2016). How DBS Bank Pursued a Digital Business Strategy. *MIS Quarterly Executive*, 15(2).
- Singh, A., & Hess, T. (2017). How chief digital officers promote the digital transformation of their companies. *MIS Quarterly Executive*, 16(1).
- Social, W. A. (2023). Indonesia digital report 2023. In *Global Digital Insights* (Vol. 247). <https://datareportal.com/reports/digital-2023-indonesia>
- Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018a). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, 5(1), 1–21. <https://doi.org/10.1080/2331186X.2018.1519143>
- Spante, M., Hashemi, S. S., Lundin, M., & Algers, A. (2018b). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, 5(1), 1–21. https://doi.org/10.1080/2331186X.2018.1519143/SUPPL_FILE/OAED_A_1519143_SM9855.DOCX
- Spielman, D., Lecoutere, E., Makhija, S., & Van Campenhout, B. (2021). Information and Communications Technology (ICT) and Agricultural Extension in Developing Countries. *Annual Review of Resource Economics*, 13(1), 177–201. <https://doi.org/10.1146/annurev-resource-101520-080657>
- Steinke, J., van Etten, J., Müller, A., Ortiz-Crespo, B., van de Gevel, J., Silvestri, S., & Priebe, J. (2020). Tapping the full potential of the digital revolution for agricultural extension: an emerging innovation agenda. *International Journal of Agricultural Sustainability*, 0(0), 1–17. <https://doi.org/10.1080/14735903.2020.1738754>
- Straub, D., Boudreau, M.-C., & Gefen, D. (2004). Validation guidelines for IS positivist research. *Communications of the Association for Information Systems*, 13(1), 24.



- Subejo. (2011). Babak baru penyuluhan pertanian dan pedesaan. *Jurnal Ilmu-Ilmu Pertanian*, 7(1), 10.
- Subejo, Untari, D., Wati, R., & Mewasdinta, G. (2019). Modernization of agriculture and use of information and communication technologies by farmers in coastal Yogyakarta. *Indonesia Journal of Geography*, 51(3), 332–345. <https://doi.org/http://dx.doi.org/10.22146/ijg.41706>
- Sugihono, C., Hariadi, S. S., & Wastutiningsih, S. P. (2024). Digital Literacy Among Agricultural Extension Agents in North Maluku, Indonesia. *Asian Journal of Agricultural Extension, Economics & Sociology*, 42(6), 417–429. <https://doi.org/10.9734/ajaees/2024/v42i62504>
- Sugihono, C., Juniarti, H. A., & Nugroho, N. C. (2022). Digital Transformation in The Agriculture Sector: Exploring The Shifting Role of Extension Workers. *STI Policy and Management Journal*, 7(2).
- Sulaiman V, R., Hall, A., Kalaivani, N. J., Dorai, K., & Reddy, T. S. V. (2012). Necessary, But Not Sufficient: Critiquing the Role of Information and Communication Technology in Putting Knowledge into Use. *Journal of Agricultural Education and Extension*, 18(4), 331–346. <https://doi.org/10.1080/1389224X.2012.691782>
- Suratini, S., Muljono, P., & Wibowo, C. T. (2021). Pemanfaatan Media Sosial untuk Mendukung Kegiatan Penyuluhan Pertanian di Kabupaten Minahasa Provinsi Sulawesi Utara. *Jurnal Penyuluhan*, 17(1), 12–24.
- Syafruddin, Hariadi, S. S., & Wastutiningsih, S. P. (2013). *Kinerja Penyuluhan Pertanian Berdasarkan Faktor Personal dan Situasional*. 40(2), 240–257.
- Syahyuti, N. (2016). Modernisasi Penyuluhan Pertanian di Indonesia: Dukungan Undang-Undang Nomor 23 Tahun 2014 terhadap Eksistensi Kelembagaan Penyuluhan Pertanian di Daerah. *Analisis Kebijakan Pertanian*, 14(2), 83–96. <https://doi.org/10.21082/akp.v14n2.2016.83-96>
- Tanaka, K. (2023). What hinders digital communication? Evidence from foreign firms in Japan. *Japan and the World Economy*, 66, 101190. <https://doi.org/https://doi.org/10.1016/j.japwor.2023.101190>
- Tata, J. S., & McNamara, P. E. (2018). Impact of ICT on agricultural extension services delivery: evidence from the Catholic Relief Services SMART skills and Farmbook project in Kenya*. *Journal of Agricultural Education and Extension*, 24(1), 89–110. <https://doi.org/10.1080/1389224X.2017.1387160>
- Taylor, S., & Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, 6(2), 144–176.
- Tejedor, S., Cervi, L., Pérez-Escoda, A., & Jumbo, F. T. (2020). Digital literacy and higher education during COVID-19 lockdown: Spain, Italy, and Ecuador. *Publications*, 8(4), 1–17. <https://doi.org/10.3390/publications8040048>



- The Open University. (2019). Digital and information literacy framework. In *Open University*. http://ddl-resources.s3.amazonaws.com/resources/dilframework_view_by_skill.pdf
- Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal computing: Toward a conceptual model of utilization. *MIS Quarterly*, 125–143.
- Thurstone, L. L. (1929). Theory of attitude measurement. *Psychological Review*, 36(3), 222–241. <https://doi.org/10.1037/h0070922>
- Tramontano, C., Grant, C., & Clarke, C. (2021). Development and validation of the e-Work Self-Efficacy Scale to assess digital competencies in remote working. *Computers in Human Behavior Reports*, 4, 100129. <https://doi.org/https://doi.org/10.1016/j.chbr.2021.100129>
- Trendov, M., Varas, S., & Zeng, M. (2019). Digital technologies in agriculture and rural areas: status report. In *Digital technologies in agriculture and rural areas: status report*. FAO. <https://www.fao.org/3/ca4985en/ca4985en.pdf>
- Triaji, M., Padmaningrum, D., & Anantanyu, S. (2021). Faktor-Faktor yang Memengaruhi Perilaku Pencarian Informasi Berbasis Digital oleh Penyuluh Pertanian di Provinsi Jawa Tengah. *Jurnal Agribest*, 5(1), 56–71.
- Ukwoma, S. C., Iwundu, N. E., & Iwundu, I. E. (2016). Digital literacy skills possessed by students of UNN, implications for effective learning and performance: A study of the MTN Universities Connect Library. *New Library World*, 117(11–12), 702 – 720. <https://doi.org/10.1108/NLW-08-2016-0061>
- Ulfert-Blank, A.-S., & Schmidt, I. (2022). Assessing digital self-efficacy: Review and scale development. *Computers & Education*, 191, 104626. <https://doi.org/https://doi.org/10.1016/j.compedu.2022.104626>
- Ulhaq, I., Pham, N. T. A., Le, V., Pham, H.-C., & Le, T. C. (2022). Factors influencing intention to adopt ICT among intensive shrimp farmers. *Aquaculture*, 547, 737407. <https://doi.org/https://doi.org/10.1016/j.aquaculture.2021.737407>
- Umstot, D. D. (1988). *Understanding organizational behavior: Concepts and applications*. West Publishing Company.
- UNESCO. (2018). *Digital Literacy and Beyond*. March, 11. <https://www.unescap.org/sites/default/files/Digital%20literacy%20and%20beyond%20UNESCO.pdf>
- Vazquez, I. G., Milasi, S., Gomez, S. C., Napierala, J., Bottcher, N. R., Jonkers, K., Beldarrain, X. G., Pabollet, E. A., Bacigalupo, M., & Biagi, F. (2019). *The changing nature of work and skills in the digital age*. Joint Research Centre (Seville site).
- Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research



agenda on interventions. *Decision Sciences*, 39(2), 273–315.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 425–478.

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 157–178.

Verma, P., & Sinha, N. (2018). Integrating perceived economic wellbeing to technology acceptance model: The case of mobile based agricultural extension service. *Technological Forecasting and Social Change*, 126, 207–216. <https://doi.org/https://doi.org/10.1016/j.techfore.2017.08.013>

Vintarno, J., Sugandi, Y. S., & Adiwisastra, J. (2019). Perkembangan penyuluhan pertanian dalam mendukung pertumbuhan pertanian di Indonesia. *Responsive: Jurnal Pemikiran Dan Penelitian Administrasi, Sosial, Humaniora Dan Kebijakan Publik*, 1(3), 90–96.

Vu, K., Hanafizadeh, P., & Bohlin, E. (2020). ICT as a driver of economic growth: A survey of the literature and directions for future research. *Telecommunications Policy*, 44(2), 101922.

Warno, K. (2020). The factors influencing digital literacy of vocational high school teachers in Yogyakarta. In N. D., S. null, S. B.R., & P. H. (Eds.), *Journal of Physics: Conference Series* (Vol. 1446, Issue 1). Institute of Physics Publishing. <https://doi.org/10.1088/1742-6596/1446/1/012068>

Zabolotska, O., Zhyliak, N., Hevchuk, N., Petrenko, N., & Alieko, O. (2021). Digital competencies of teachers in the transformation of the educational environment. *Journal of Optimization in Industrial Engineering*, 14(1), 43–50. <https://doi.org/10.22094/JOIE.2020.677813>

Ziebland, S., Hyde, E., & Powell, J. (2021). Power, paradox and pessimism: On the unintended consequences of digital health technologies in primary care. *Social Science & Medicine*, 289, 114419. <https://doi.org/10.1016/J.SOCSCIMED.2021.114419>

Zournazis, H. E., & Marlow, A. H. (2015). The use of video conferencing to develop a community of practice for preceptors located in rural and non traditional placement settings: An evaluation study. *Nurse Education in Practice*, 15(2), 119–125.

Zscheischler, J., Brunsch, R., Rogga, S., Scholz, R. W., Zang, D., Yang, S., Li, F., Wei, X., Liu, Y., Liu, Y., Vasileiou, M., Kyrgiakos, L. S., Kleisiari, C., Kleftodimos, G., Vlontzos, G., Belhouchette, H., Pardalos, P. M., Stanley, K. C. C., Harrigan, P. B. B., ... Abdulai, A.-R. (2023). Societal digital platforms for sustainability: Agriculture. *Sustainability (Switzerland)*, 13(7), 54–62. <https://doi.org/10.1177/0266666919864126>



Zulu, S. L., & Khosrowshahi, F. (2021). A taxonomy of digital leadership in the construction industry. *Construction Management and Economics*, 39(7), 565–578. <https://doi.org/10.1080/01446193.2021.1930080>