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Transformation of teacher training in a rapidly evolving digital environment

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Abstract

Today the increasing level of technology in education requires corresponding skills from the teachers. However, they often do not have them. The purpose of the study is to explore the problem of digital competence of rising teachers and provide recommendations for its improvement. The study generally describes the widespread use of digital tools in the classroom, namely the current situation, barriers and prospects associated with it. The research was conducted using a digital questionnaire that was sent to respondents by e-mail. The survey involved 117 people: 85 university students and teachers. The results showed that today there is every reason to actively introduce digital technologies in educational institutions. Thus, 100% of the respondents have and can use various devices (smartphones, laptops, tablets, etc.); 74% of participants consider it appropriate to introduce digital tools into the educational process. However, only 31% of respondents believe that they have been properly trained in their educational institutions, which would allow them to apply the above technologies in the classroom. The research results can be of interest to those who develop plans for the digitalization of educational institutions, teachers, creators of digital tools and

learning programs. This article describes both current problems and possible solutions.

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Data availability

Data will be available on request.

Code availability

Not applicable.

References

Abdullah, A., & Meral, A. (2018). Blended learning at preservice teacher education in Turkey: A systematic review. *Early Childhood Education Journal*, *47*(3), 321–329. https://doi.org/10.1007/s10639-018-9723-5

Ali, R., & Hamza, M. (2018). Impact of teachers' training on students' learning attitude and organizational performance. *The International Journal of Business & Management*, *6*(10), 239–248.

Amhag, L., Hellström, L., & Stigmar, M. (2019). Teacher educators' use of digital tools and needs for digital competence in higher education. *Journal of Digital Learning in Teacher Education*, 35(4), 203–220.

https://doi.org/10.1080/21532974.2019.1646169

Baran, E. (2014). A review of research on mobile learning in teacher education. *Educational Technology & Society*, 17(4), 17–32.

Bardakci, S., Alakurt, T., Akyüz, H., & Samsa, S. (2010). Preservice teachers and technology: gender, technology experience, beliefs and predisposition to technophobia. In *9Th* international internet education conference & exhibition (pp. 1–10). Cairo, Egypt.

Baturay, M. H., Gökçearslan, Ş, & Ke, F. (2017). The relationship among pre-service teachers' computer competence, attitude towards computer-assisted education, and intention of technology acceptance. *International Journal of Technology Enhanced Learning*, *9*(1), 1–13. https://doi.org/10.1504/IJTEL.2017.10003119

Bhattacharjee, B., & Deb, K. (2016). Role of ICT in 21st century's teacher education. *International Journal of Education and Information Studies*, 6(1), 1–6.

Bond, M., Marín, V., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: Student and teacher perceptions and usage of digital media. *International Journal of Educational*

Boudersa, N. (2016). The importance of teachers' training programs and professional development in the Algerian educational context: Toward informed and effective teaching practices. *Expériences Pédagogiques*, 1, 1–14.

Bukht, R., & Heeks, R. (2018). Digital economy policy in developing countries. *Development Implications of Digital Economies*, Working Paper no. 6.

https://doi.org/10.13140/RG.2.2.24272.15364

Claro, M., Salinas, A., Cabello-Hutt, T., SanMartín, E., Preiss, D., Valenzuela, S., & Jara, I. (2018). Teaching in a Digital Environment (TIDE): Defining and measuring teachers' capacity to develop students' digital information and communication skills. *Computers & Education*, 121, 162–174. https://doi.org/10.1016/j.compedu.2018.03.001

Derbel, F. (2017). Technology-capable teachers transitioning to technology challenged schools. *The Electronic Journal of E-Learning*, *15*(3), 269–280.

Dorofeeva, A. A., & Nyurenberger, L. B. (2019). Trends in digitalization of education and training for industry 4.0 in the Russian Federation. In *IOP conference series: Materials science and engineering* (Vol. 537, No. 4, p. 042070). IOP Publishing. https://doi.org/10.1088/1757-

899X/537/4/042070

Efimov, V., & Lapteva, A. (2018). The future of universities: Is digitalization the priority? (Expert view). *Journal of Siberian Federal University*, 12, 1925–1945.

https://doi.org/10.17516/1997-1370-0367

Fu, J. (2013). Complexity of ICT in education: A critical literature review and its implications. *International Journal of Education and Development Using Information and Communication Technology*, 9(1), 112–125.

Gupta, A., & Pathania, P. (2021). To study the impact of Google Classroom as aplatform of learning and collaboration at the teacher education level. *Education and Information Technologies*, 26, 843–857. https://doi.org/10.1007/s10639-020-10294-1

Jan, H. (2017). Teacher of 21st century: Characteristics and development. *Research on Humanities and Social Sciences*, 7(9), 50–54.

Kafyulilo, A., Fisser, P., & Voogt, J. (2016). Factors affecting teachers' continuation of technology use in teaching. Education and Information Technologies, 21, 1535–1554. https://doi.org/10.1007/s10639-015-9398-0

Keengwe, J., & Kang, J. (2013). A review of empirical research on blended learning in teacher education programs. Education and Information Technologies, 18, 479–493. https://doi.org/10.1007/s10639-011-9182-8

Krutikov, M. (2020). Formation of digital competence of rising teachers in the process of professional training. *Contemporary Problems of Science and Education*, 6, 92. https://doi.org/10.17513/spno.30414

Mercader, C., & Gairín, J. (2020). University teachers' perception of barriers to the use of digital technologies: The importance of the academic discipline. *International Journal of Educational Technology in Higher Education*, 17, 4. https://doi.org/10.1186/s41239-020-0182-x

Ottestad, G., Kelentrić, M., & Guðmundsdóttir, G. (2014).

Professional digital competence in teacher education. *Nordic Journal of Digital Literacy*, *9*(4), 243–249.

https://doi.org/10.18261/ISSN1891-943X-2014-04-02

Owens, J., & Hudson, A. (2021). Prioritizing teacher emotions: Shifting teacher training to a digital environment. *Educational Technology Research and Development*, 69, 59–62. https://doi.org/10.1007/s11423-020-09921-y

Potyrała, K., Demeshkant, N., Czerwiec, K., Jancarz-Łanczkowska, B., & Tomczyk, Ł. (2021). Head teachers' opinions on the future of school education conditioned by emergency remote teaching. *Education and Information Technologies*. https://doi.org/10.1007/s10639-021-10600-5 in Press.

Quaicoe, J. (2018). Basic school teachers' perspective to digital teaching and learning in Ghana. *Education and Information Technologies*, 23, 1159–1173. https://doi.org/10.1007/s10639-017-9660-8

Rienties, B., Giesbers, B., Lygo-Baker, S., Ma, H., & Rees, R. (2014). Why some teachers easily learn to use a new virtual learning environment: A technology acceptance perspective. *Interactive Learning Environments*, *24*, 3. https://doi.org/10.1080/10494820.2014.881394

Robertson, H. (2003). Toward a theory of negativity. Teacher education and information and communications technology. *Journal of Teacher Education*, *54*(4), 280–296. https://doi.org/10.1177/0022487103255499

Smolyaninova, O., & Bezyzvestnykh, E. (2019). Implementing teachers' training technologies at a federal university: E-portfolio, Digital Laboratory, PROLogModule System.

International Journal of Online and Biomedical Engineering, 15(04), 69–86. https://doi.org/10.3991/ijoe.v15i04.9288

Spiteri, M., & Rundgren, S. (2017). Maltese primary teachers' digital competence: Implications for continuing professional development. *European Journal of Teacher Education*, 40(4), 521–534. https://doi.org/10.1080/02619768.2017.1342242

Srivastava, K., & Dey, S. (2018). Role of digital technology in teaching-learning process. *Journal of Humanities and Social Science*, *23*(1), 74–79. https://doi.org/10.9790/0837-2301057479

Starkey, L. (2010). Teachers' pedagogical reasoning and action in the digital age. *Teachers and Teaching: Theory and Practice*, *16*(2), 233–244.

https://doi.org/10.1080/13540600903478433

Tømte, C., Fossland, T., Aamodt, P., & Degn, L. (2019). Digitalisation in higher education: Mapping institutional approaches for teaching and learning. *Quality in Higher Education*, *25*(1), 98–114.

https://doi.org/10.1080/13538322.2019.1603611

Uvarov, A. (2018). *Towards the digital transformation of education*. Education and Informatics.

Uvarov, A. (2020). Digital transformation and scenarios of general education development. Modern Analytics of Education. NRU HSE.

Valeeva, R., & Gafurov, I. (2017). Initial teacher education in Russia: Connecting theory, practice and research. *European Journal of Teacher Education*, 40(3), 342–360. https://doi.org/10.1080/02619768.2017.1326480

Voogt, J., & McKenney, S. (2017). TPACK in teacher education: Are we preparing teachers to use technology for early literacy? *Technology, Pedagogy and Education, 26*(1), 69–83. https://doi.org/10.1080/1475939X.2016.1174730

Yadav, A., Stephenson, C., & Hong, H. (2017). Computational thinking for teacher education. *Communications of the ACM*, 60(4), 55–62. https://doi.org/10.1145/2994591

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Ethics declarations

Ethical approval

The authors declare that the work is written with due consideration of ethical standards. The study was conducted in accordance with the ethical principles approved by the Human Experiments Ethics Committee of Kazan Federal University (Protocol No 1 of 12.03.2019).

Consent to participate

All the participants have given their written informed consent to the participation in the research.

Consent for publication

All the participants have given their consent to the publication of the research results.

Conflict of interest

The authors declare that they have no competing interests.

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