Eurasia Journal of Mathematics, Science and Technology Education 2017 vol.13 N8, pages 5019-5031

Structure and content of e-learning information environment based on geo-information technologies

Levina E., Masalimova A., Kryukova N., Grebennikov V., Marchuk N., Shirev D., Renglikh K., Shagieva R.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2017 Authors. The urgency of the paper is determined by the continuous information development of all spheres of education: integration of new knowledge, accessibility of information technologies and computer facility aids, professionalization and computerization of educational activities. The purpose of the research is to develop the structure and content of learning information environment in a higher education institute on the basis of geo-information technologies. The authors show the possibilities of using geo-information technologies in teaching outside the scope of their typical application (geographic, geodetic, geological education). The principles of designing the information environment for training on the basis of geo-information technologies are developed, which is built into the general information environment of higher education institute. The peculiarities of using geo-information technologies in non-core training are revealed, and the structure of learning environment modules based on geo-information technologies is developed and their content is described. The authors adapted the system of criteria evaluating the the effectiveness of training information environment, carried out an empirical study of the quality of education information environment in a higher education institute on the basis of geo-information technologies. The paper is intended for teachers, specialists in the field of information as means of education.

http://dx.doi.org/10.12973/eurasia.2017.00974a

Keywords

E-learning information environment, Education, Efficiency criteria of e-learning information environment, Efficiency diagnostics, Geo-information technologies, Information environment

References

[1] Arntzen, J., & Krug, D. (2011). ICT ecologies of learning: Active socially engaged learning, resiliency and leadership. In S. D'Agustino (Ed.), Adaptation, resistance and access to instructional technologies: assessing future trends in education (pp. 332-354). Hershey, PA: Information Science Reference

[2] Bell, T., & Newton, H. (2013). Unplugging computer science. New York, NY: Routledge

[3] Colin, K. K. (2009). Informatization of society and social informatics. Bulletin of the Chelyabinsk State Academy of Culture and Arts, 3, 6-14

[4] Deng, F., Chai, C. S., Tsai, C. C., & Lee, M. H. (2014). The relationships among Chinese practicing teachers' epistemic beliefs, pedagogical beliefs and their beliefs about the use of ICT. Journal of Educational Technology & Society, 17(2), 245-256

[5] Galton, A. (2009). Spatial and temporal knowledge representation. Earth Science Informatics, 3(2), 169-187

[6] Gorski, P. (2005). Education equity and the digital divide. AACE Journal, 13(1), 3-45

[7] Kalyuzhny, K. A. (2015). Information environment and information environment of science: essence and purpose. Science. Innovation. Education, 18, 7-23

[8] Kirilova, G. I. (2011). Questions of modeling the information environment of vocational education. Kazan Pedagogical Journal, 2, 114-119

[9] Kirilova, G. I., & Vlasova, V. K. (2013). Integration potential of information-environment approach in vocational education. Philology and Culture, 1, 244-251

[10] Kirilova, G. I., Volik, O. N., & Vlasova, V. K. (2011). Theory and technology of information-environment approach to the modernization of vocational education. Kazan: Publishing House "Danis" ISPPO

[11] Kozma, R. B., & Vota, W. S. (2014). ICT in developing countries: Policies, implementation, and impact. New York, NY: Springer

[12] Krevsky, I. G., Glotova, T. V., Dragunov, D. G., & Matyukin, S. V. (2014). Information environment of network interaction between universities and the real sector of the economy. Modern problems of science and education, 6, 15-21

[13] Kudryashova, M. G., & Etingof, E. V. (2013). Efficiency of information systems: the essence, types and methods of evaluation. Petropavlovsk-Kamchatsky: KamSU them. Vitus Bering

[14] Levina E. Y., Kamasheva Yu. L., Gazizova F. S., Garayeva A. K., Salpykova I. M., Yusupova G. F., & Kuzmin N. V. (2015). A process approach to management of an educational organization. Review of European Studies, 4(7), 234-241

[15] Levina, E. Y. (2012). The concept of the infologic modeling of educational activity. Discussion, 9, 137-139

[16] Levina, E. Y., Voronina, M. V., Rybolovleva, A. A., Sharafutdinova, M. M., Avilova, V. V., & Zhandarova, L. F. (2016). The Concepts of Informational Approach to the Management of Higher Education's Development. International Journal of Environmental and Science Education, 11(17), 9913-9922

[17] Maksimov, N. V. (2009). Information environment of science and education: from information services to a distributed knowledge management system. Information Society, 6, 58-67

[18] Mayorov, A. A. (2012). The state and development of geoinformatics. Earth sciences, 3, 11-16

[19] Mukhametzyanov, I. Sh. (2010). Health-saving information and communication educational environment. Scientific notes of RAO UES, 32, 145-156

[20] Nikitina, I. Yu. (2014). On the issue of assessing the effectiveness of the information and educational environment of the university. Management of economic systems, 10, 62-68

[21] Ostroumova, E. N. (2011). Information and educational environment of the university as a factor in the professional and personal development of the future specialist. Fundamental research, 4, 37-40

[22] Plomp, T., Anderson, R. E., Law, N., & Quale, A. (2009). Cross-national information and communication technology: Policies and practices in education. Charlotte, NC: Information Age Publishing

[23] Pranov, B. M., & Rassokhina, T. V. (2011). Building an information educational environment in the university. Bulletin of the RMAT, 2, 143

[24] Prestridge, S. (2012). The beliefs behind the teacher that influences their ICT practices. Computers &Education, 58(1), 449-458

[25] Robert, I. V. (2012). Informatization of education as a new field of pedagogical knowledge. Man and education, 1, 14-18

[26] Shreider, Yu. A. (2008). Information processes and information environment. Scientific and technical information, 9, 3-7

[27] Tarasov, S. V. (2011). Educational environment: concept, structure, typology. Bulletin of the Leningrad State University them. A. S. Pushkin, 3(3), 133-138

[28] Tsvetkov, V. Y., & Kulagin, V. P. (2003). Application of geoinformation technologies for the analysis of educational statistical information. News of higher educational institutions. A series of geodesy and aerial photography, 3, 140-156

[29] Vlasova, V. K. (2010). Specificity of designing a modern information educational environment. Educational Technology & Society, 2(13), 269-273

[30] Volik, O. N. (2011). Algorithms of information-environment interaction of subjects in the education system. Educational Technology & Society, 4(14), 448-456

[31] Voogt, J., Fisser, P., Good, J., Mishra, P., & Yadav, A. (2015). Computational thinking in compulsory education: Towards an agenda for research and practice. Education and Information Technologies, 20(4), 715-728

[32] Webster, F. (2004). Information Society Theory. Moscow: Aspect Press

[33] Zakharova, I. G. (2010). Socio-cultural information space of education in the context of the problem of personality formation. Bulletin of the Tyumen State University, 5, 11-17