

Machine-Learning Solution for Values-Skills Match-Based Personalised Learning Recommendations

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Abstract

The impact of digitalisation, globalisation, and the rise of AI on the demand for specific skills requires new approaches to developing human capital and skills at all stages, from future-oriented education and on-site training to changes in human resources management and hiring practices that prioritise the ability to learn skills demanded by the future labour market, rather than relying on past education and skills acquired.

The research is part of a project to design a practical instrument that enables individuals, employers, educators, and public authorities to benefit from labour market and skills intelligence in real time, offering individuals personalised recommendations for developing skills matched to their personality, interests, and ability to learn.

The objective is to explore the relationship between values and skills using a custom-developed machine-learning solution, based on a nationally representative survey of 1,741 Latvian working-age respondents, including economically active and inactive persons, and 1,023 companies represented by their recruitment and personnel development decision-makers. The survey instrument was a self-assessment questionnaire comprising 79 skills across 12 groups and personal values tests, using image- and statement-based approaches. A survey, complemented by structured interviews, was administered to employers. The novelty of the method lies in replacing lengthy, less precise value-measurement routines with user-sourced, image-based tests powered by Motival machine-learning algorithms.

The results reveal a significant mismatch between the skills and personal values demanded and those available in the labour market. A machine learning application provides a practical solution and opportunities to close this gap by extending personalised recommendations for individuals' learning and career paths.

Keywords: Competencies, Future-Oriented Skills, Human Capital, Lifelong Learning, Personal Values