QUALITY OF EDUCATION FROM THE PERSPECTIVE OF SELECTED INDICATORS IN EUROPEAN COUNTRIES

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The paper aims to evaluate selected indicators of education quality, focusing on similarities and differences in European countries.

The research selected quantitative indicators of education quality and was carried out for a selected set of 31 European countries in the period 2010-2017 with using hierarchical cluster analysis.

Methods: analysis, comparison and abstraction, the review of literature, content analysis and synthesis and induction.

Hierarchical cluster analysis and box-plot for similarities and differences between European countries by selected quantitative indicators of quality education.
Data

- For the purposes of the empirical analysis data from the Eurostat database (Sustainable development indicators) were used.

- Four variables (quantitative indicators of quality education, which have been selected on the basis of data availability) for the eight-year period 2010-2017.
  - Early leavers from education and training (% of the population aged 18 to 24)
  - Tertiary educational attainment (% of the population aged 30-34)
  - Employment rates of recent graduates (% of persons aged 20 to 34)
  - Adult participation in learning (% of the population aged 25 to 64)
Quality of education

- **Quality of education** is quality (of educational processes, educational institutions, education system), a desirable level of working or production of these processes or institutions, which can be measured and evaluated objectively.

- The term *quality* of education is not exclusively bound to education, because quality of education is affected by numerous economic, political and cultural factors present in the given social system (Janouskova and Marsak, 2008).

- **Education quality indicators** are defined as in a way measurable (statistical) data that mediate the status of an observed educational system or processes under way.
Indicators of quality education

Two from the indicators of quality education also represent the EU 2020 strategy indicators, where it is used to monitor progress towards the EU in the area of education. These are the indicators:

• 1) “Early leavers from education and training” - target of “reducing the share of early leavers of education and training to less than 10 %” by 2020,

• 2) “Tertiary educational attainment” - target of “increasing the share of the population aged 30 to 34 having completed tertiary or equivalent education to at least 40 %” by 2020.
The results of cluster analysis – similarities and differences between European countries by indicators of quality education

- Applying the method of hierarchical cluster analysis and box-plot, 31 European countries are analysed regarding **four indicators of quality education** with emphasis on similarities and differences in the period 2010-2017 as average.

- The **dendrogram** shows the results of the cluster analysis and **table** the **division of European countries into clusters by internal similarity**.

- **Four clusters of similar countries** can be distinguished based on the similarity of evaluated indicators of quality education.
Dendrogram of European countries by education quality indicators in 2010-2017

1\textsuperscript{st} Cluster: EE, FR, SI, LV, PL, BE, IE, LT, CY

2\textsuperscript{nd} Cluster: DE, AT, CZ, MT

3\textsuperscript{rd} Cluster: SE, CH, DK, FI, NL, UK, NO, LU, IS

4\textsuperscript{th} Cluster: PT, RO, HU, SK, BG, HR, EL, IT, ES
Box-plot of European countries by education quality indicators in 2010-2017

- **1st Factor (ELET)** - Early leavers from education and training - % of population aged 18 to 24;
- **2nd Factor (TEA)** - Tertiary educational attainment - % of population aged 30 to 34;
- **3rd Factor (ERRG)** - Employment rates of recent graduates - % of population aged 20 to 34 with at least upper-secondary education,
- **4th Factor (APL)** - Adult participation in learning - % of population aged 25 to 64
Results of the cluster analysis evaluated indicators of quality education

- When comparing European countries by similarity (dissimilarity) of evaluated indicators of quality education, it can be said that based on the median values higher similarity is observed in countries:
  - by *early leavers from education and training* in the first and second clusters,
  - according to *tertiary educational attainment* in the selected countries in the second and fourth cluster,
  - by *employment rates of recent graduates* (countries in the second and third clusters).
Results of the cluster analysis evaluated indicators of quality education

- Results of the cluster analysis based on the evaluated indicators of quality education have also shown differences between countries.

- These are mainly seen in countries in the third cluster (Denmark, Sweden, Switzerland), with the highest adult participation in learning, and Bulgaria and Romania in the fourth cluster, with the lowest adult participation in learning.

- Differences have also manifested in employment rates of recent graduates in the countries in the second cluster (Germany, Austria, Malta, with the highest employment rates of graduates) and countries in the fourth cluster (Greece, Italy, with the lowest employment rates of graduates).
The paper aimed to evaluate selected indicators of quality education, focusing on similarities and differences in European countries. The analysis of quantitative indicators of education quality was carried out for a selected set of 31 European countries in the period 2010-2017.

The results of the hierarchical cluster analysis by the evaluated indicators showed both similarities and differences between European countries. These differences are associated with not only the level of educational policies and quality of educational systems, but also economic and social possibilities of the individual countries.

The theme for further research can be the evaluation of quality of education extended with other indicators from the area of education. The direction of the further research can also be the evaluation of the efficiency of expenditures on education in relation to specific attained outcomes in education.
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