Application of graphical representations for analysis criteria

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In the process of any activity for decision making arises the necessity to improve the quality criterias. Analyzing criteria, which satisfy the requirements and have a bearing on choice of employer, deliver the desired result. For a visual representation, analysis and forecast is necessary to apply a graphical representation of using trend lines. This analysis will respond to changes of trends in the modern world and will give to the right choices in the selection of factors.

For a graphical representation of the direction of these changes in the number of data (depending on the trends) is used trend line.

Virtually none of the methods of the graphic analysis is not without trend lines, which help to determine the direction of the trend.

Construction of the trend line for the presentation and analysis of education quality criteria allows to display trends in the existing data, which influence the quality of education or forecast future data.

So we apply technical analysis - trend line to identify trends in the factors of quality education which appeal modern employer. It will allow in the collected data to detect the trend in certain factors over the years and forecast factors that a□ect the improvement of education. That is, which we will consider the most attention. The function to be used for the construction of trend lines may be linear, polynomial or any other depending on what we want to see in the chart, and that the original data will be used. That is possible to build multifactor model, conduct a survey and on this basis construct a graph, which will give a more complete picture of the problem [1].

Operation crossing made it possible to identify the factors $K = \{x_4, x_6, x_7\}$, with which in the future we will work, build function and schedule [1]:

x_4- "Quality of education"; properties of the object are discipline and evaluation (ie, we consider the average score in the study of subjects: x_{41} - the average score of general subjects, x_{42} - the average score of practical vocational subjects);

x_6- "Mobile activity"; properties of the object are type, characteristics, quantity, level, language (European, American etc.). Consider x_{61} - the number of students who participated in various educational and research programs, x_{62} - the number of students who speak a foreign language and x_{63} - the number of scientific publications in foreign languages.

x_7- "Practical experience"; properties of the object can be volume, type of participation in solving problems etc. Consider, for example x_{71} - the number of students which received certificates (experience with information systems) and x_{72} - number of applications for implementation after pre-graduation practice.

Based on the presented data we construct a trend line to predict. Thus, we define the trends in the existing data and we make a forecast significant factors in the future (Figure 1). As can be seen from the graph, the trend line for factor x_{72} - number of applications for adoption after pre-graduation practice is polynomial trend line of the second stage:

$$y = 0,5x^2 - 2013,5x + 2E + 06,$$
$$R^2 = 1.$$

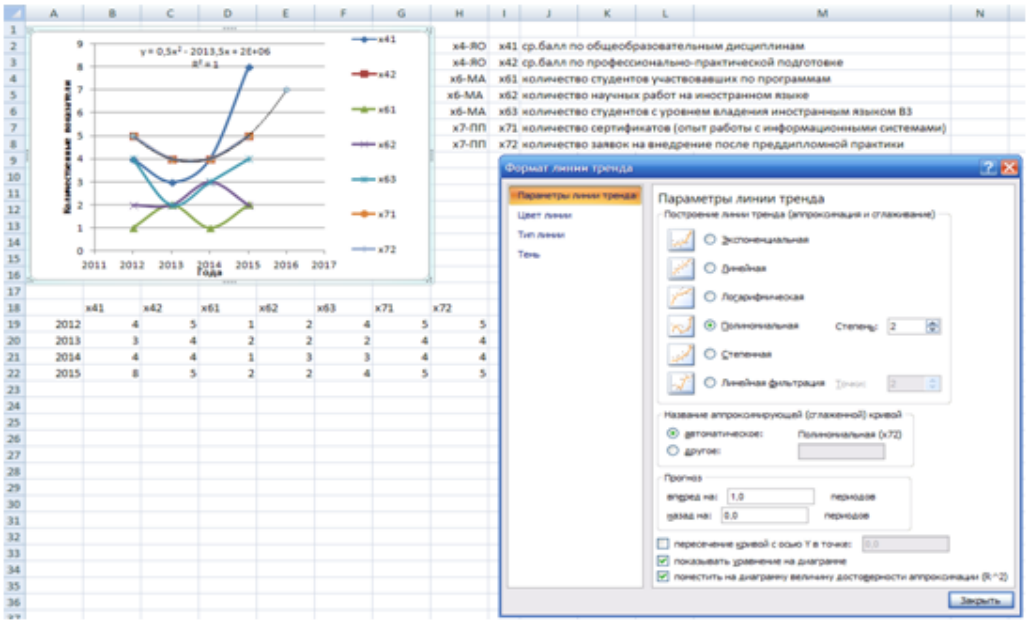

Рис 1. Рис. 1 - Диаграмма строго соответствия альтернативных программ

In our example, second-degree polynomial (a maximum) for factor x_{72} shows the dependence criteria of quality education to meet the requirements of the employer and the future of predictive value.

A polynomial trend line describes of the magnitude, which is alternately increasing and decreasing. It is useful for the analysis of a large data set of unstable value. The degree of the polynomial is determined by the number of extremes (highs and lows) of the curve. The polynomial trend line is based on the following formula:

$$y = b + c_1 \cdot x + c_2 \cdot x_2 + c_3 \cdot x_3 + \cdots + c_n \cdot x_n,$$

where b and n - constants.

As we see from the graph, the approximant $R^2 = 1$. This shows the accuracy of the graph.

From graph may conclude that in subsequent years the number of applications for implementation after pre-graduation practice will be increased. This way you can analyze other indicators of interest to employer.

1. T. Filatova, M. Glava. Mathematical Models of Information Manipulation in the Subject Field of Intellectual Production in Educational Institutions. Materials of the International conference on Electronics and Information Technology (EIT'2016), 23th–27th May, 2016. - Ukraine, Odessa, pp. 92–96.