Students' quality of life in the context of competencies

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Abstract

The matter of factors that determine the effectiveness of the employee and his professional success has been examined since the very beginning of the existence of management science. Despite the lack of universal consent for a full list of these factors, most researchers agreed to include knowledge, skills and attitudes among them. These are the core elements of competencies. They determine not only professional success itself but also other areas such as self-esteem, student's standard of living, interpersonal relations and coping with life, which together form the quality of life.

The aim of the article is to examine the impact of various competencies on the quality of life of students. The study was based on primary data of quantitative and qualitative nature. They were analysed by the usage of single, double and multidimensional statistics. As a result of conducted analyses, a significant, positive influence of professional, personal and communication competencies was revealed.

Keywords: *competencies, quality of life, factor analysis, analysis of variance*
JEL Classification: *C12, I31, J53, M12, M54*

1. The approach towards competencies

The matter of factors that determine the effectiveness of the employee and his professional success has been examined since the very beginning of the existence of management science. In 1960s and 1970s the concept of competencies was introduced to the literature by R. White and D.C. McClelland (Oczkowska et al., 2017), and later on developed by Boyatzis (1982). Klieme and Hartig (2007) claim that the use of the term competencies has three origins: Weber's sociology, Chomsky's linguistic theory and functional-pragmatic tradition (Klieme et al., 2008). At the same time, Glaesser (2018) mentions Chomsky's understanding of competencies (1968) is slightly different from the rest of educational researches. Some of the authors prefer general and some specific approach towards competencies. Selected definitions are presented in Table 1 and Table 2.

The general approach defines certain personal capabilities that are demonstrated in overall performance or effectiveness. It does not seem to point out to any specific observable skills that can be measured or developed.

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Table 1. General approach towards competencies

Author	Definition
Boyatzis (1982)	Underlying characteristic of the person that leads to or causes effective or superior performance.
Thierry, Sauret, Monod (1994)	Inner human potential (competencies which consist of knowledge, skills, values, motives and attitudes) disclosed when translated into the external effects thereof, for example while performing one's professional duties.
Levy-Leboyer (1997)	Set of behaviours which enable some workers to do the job better than the others.
Pocztowski (2001)	Stable personal characteristic that creates the cause-reaction relations with excellent work results.

Table 2. Specific approach towards competencies

Author	Definition
Pawlak (2003)	Competence means both the ability to work as confirmed by documents, as well as those abilities and skills that the candidate can confirm by performing the assigned tasks properly.
Filipowicz (2004)	All knowledge, skills and attitudes that allow completing tasks at the appropriate level.
Penc (2005)	Competence which consists of knowledge (formal qualifications) and practical skills acquired in the course of work at a given position (professional experience and formal entitlements to a specific activity).
Tyrańska (2015)	Main attributes of the person, its personality traits, education, professional experience, knowledge, skills and abilities as well as practical aspects of their use in the implementation of tasks at the workplace.

On the contrary to the general approach, the specific approach towards competencies (Table 2) includes specific components that can be measured or built upon.

It is important to state that the term of competencies is not coherent. For some of the researchers competencies are only the combination of knowledge, skills and attitudes. Others understand the term in a much wider sense by adding a formal aspect of competencies (Pawlak, 2003), values and motives (Thierry et al., 1994) or education, professional experience and personality traits (Tyrańska, 2015). Based on the presented approaches, the definition of competencies as the result of knowledge, skills, attitudes, including personal characteristics of a person, which allow completing tasks at the expected quality, has been accepted. Knowledge, skills and attitudes are common to each definition – they are incontestable parts of competencies. Com-

petencies have an impact on various aspects of our lives. They not only determine professional success itself but also contribute to self-esteem, student's standard of living, interpersonal relations and coping with life, which together form the quality of life.

Quality of life may be considered as a multidimensional concept that consists of health, marriage, family life, friends, home, employment, level of life, free time, education and generally perceived standard of living. Naderifar et al. (2019) claim that quality of life is an all-inclusive concept involving various aspects of life such as financial status, occupation, love, religion, and also the physical, mental, and social health. Eurostat approach indicates that Quality of Life consists of only two dimensions, objective living conditions and subjective well-being. Comprehensive data coming from the medicine studies equate quality of life with health (Solati et al., 2019), but it is only one of the dimensions in most of the approaches. As already mentioned, similar to the concept of competencies, the definition of quality of life and its measurements is not coherent. In spite of all, most approaches are focusing on including various aspects. In the following research the concept of combining various aspects has been implemented.

2. Data and research method

Data used in the research originate from the data collection obtained by the researchers themselves. The questionnaire research was conducted with the use of CSAQ (Computerized Self-Administered Questionnaire), i.e. by means of a computer based questionnaire where respondents could give their answers directly. There were 252 students who participated in the research from among undergraduate and graduate studies (respectively 62% and 21%) as well as the students from the combined bachelor's degree/master's degree programs (13%), doctoral studies (3%) and post-graduate studies (1%). Women represented 82% of the respondents' population. The age range was between 18 and 42 years, while the average age was at 22.9 years.

In order to identify and interpret the latent factors which determine the variability of the observed diagnostic variables, the factor analysis was utilized. The starting point of the analysis is the construction of entry data matrices. Each of the entry variables after its standardization is represented as a linear combination of the unobservable variables, known as the major factors, which carry the information common for the entry variables, and the unique factor, which carries the exclusive information for the entry variable, not present in any other entry variable. It is assumed that the common and unique factors are not correlated. In consequence, the variance of each entry variable can be represented by the variance explained by the common factors as well as by the unique factor (Panek and Zwierzchowski, 2013):

$$S^2(z_j) = h_j^2 + d_j^2 = \sum_{l=1}^{s} w_{jl}^2 + d_j^2 = 1, \quad j = 1, 2, \ldots, m,$$

where: h_j^2 – resources of common variability for j-variable, d_j^2 – resources of unique variability. The factor analysis eliminates the influence of the unique factor in favour of the common factors, and, at the same time, minimizes the influence on the values of the entry variables other

than the common factors. The influence is eliminated by replacing the R correlation matrix of the diagonal coefficients of the correlation with the common variability resources. In the result, the below reduced correlation matrix is obtained (Panek and Zwierzchowski, 2013):

$$\tilde{R} = \begin{cases} \tilde{r}_{jj'} = r_{jj'}, & \text{for } j \neq j' \\ \tilde{r}_{jj} = h_j^2, & \text{for } j = j' \end{cases}, \quad j, j' = 1, 2, \ldots, m.$$

The reduced correlation matrix serves as the basis to determine the loadings in the subsequent model equations. The loadings were estimated by means of the principal axis method. The obtained results were subject to the rotation using Varimax rotation with Kaiser normalisation.

3. Students' competencies in the light of empirical studies

The respondents evaluated their competencies by answering 22 questions with regards to various skills and abilities. They were rating their responses with the Likert scale – 1 (very poor) and 5 (very good). The factor analysis was used in order to identify and interpret the latent factors determining the variability of the observed diagnostic variables.

Table 3. Matrix of rotated elements

Variable	Element					
	1	2	3	4	5	6
Showing initiative	0.731	0.151	0.126	0.240	–0.075	0.167
Coping with stress	0.692	0.126	0.222	–0.017	0.088	0.023
Collaboration	0.640	0.005	0.364	0.189	0.05	0.184
Innovativeness	0.502	0.303	–0.137	0.467	0.17	0.069
Client-oriented	0.473	0.360	0.098	0.198	–0.035	–0.004
Analytical skills	0.190	0.699	0.100	0.003	0.111	0.102
Goal orientation	0.053	0.603	0.290	0.458	0.092	0.111
Subject matter expertise related to future job	0.247	0.589	0.177	0.038	–0.023	0.152
Quality-driven	–0.016	0.546	0.378	0.343	0.168	0.155
Organising one's own work	0.192	0.220	0.802	0.179	–0.014	0.087
Time management	0.224	0.121	0.757	0.11	–0.009	0.014
Adaptability	0.399	0.308	0.526	0.057	0.070	0.200
Engagement	0.190	0.080	0.322	0.674	–0.146	0.245
Mobility	0.278	0.009	0.050	0.673	0.156	–0.097
Learning	–0.002	0.357	0.223	0.554	0.060	0.363
Knowing more than one foreign language	–0.043	0.130	0.014	–0.007	0.755	0.097

Variable	Element					
	1	2	3	4	5	6
Knowing English	–0.069	–0.095	0.138	–0.094	0.741	0.126
Ability to work with MS Office, OpenOffice, Google Docs	0.154	0.082	–0.052	0.258	0.610	0.123
Programming skills	0.270	0.405	–0.266	0.146	0.540	–0.067
Writing skills	0.038	0.006	0.200	0.238	0.206	0.766
Speaking skills	0.464	0.108	0.093	0.079	0.096	0.674
Awareness of cultural diversity	0.058	0.367	–0.06	–0.07	0.113	0.625

The first factor is highly correlated with such variables as showing initiative, coping with stress, innovativeness, collaboration and client-orientation. This factor can be tagged as Personal Competencies. The second factor is linked with the Professional Competencies correlated with such variables as: analytical skill, goal-orientation, expert knowledge related to the future employment and being quality-driven. The third factor interpreted as the Competencies of Self-Organization comprises the ability to organize one's own work, time management and adaptability. Engagement and mobility as well as learning compose another factor that can be labelled as the Self-Development Competencies. The fifth factor describes Language Competencies that are correlated with knowing more than one foreign language, knowing English as the foreign language, having a working knowledge of MS Office, OpenOffice, Google Docs and computer programming. The last factor being Communication Competencies is correlated with the following variables: writing skills, speaking skills and cultural diversity awareness.

The internal consistency of the determined factors was tested with a reliability analysis, the results of which are summarized in Table 4.

Table 4. Reliability analysis of the determined factors

Factor No	Factor Name	Number of positions	Cronbach's Alpha
1	Personal Competencies	5	0.766
2	Professional Competencies	4	0.724
3	Self-Organization Competencies	3	0.760
4	Self-Development Competencies	3	0.618
5	Language Competencies	4	0.822
6	Communication Competencies	3	0.834

The reliability of factors presented in the above table is at the adequate level except for factor 4 (Self-Development Competencies). Further analysis proves that Mobility variable should be removed

from this factor. Once removed, the value of Cronbach's Alpha for factor 4 increased up to 0.682 which is at a satisfactory level. Descriptive statistics of particular factors have been collated in Table 5.

Self-evaluation of specific competencies among the students is diverse (compare Table 5). The highest value was assigned to factor 4 – the average value is at 4.27. This factor has the lowest value of the coefficient of variation. Factor 5 was evaluated with the lowest average (3.12) and at the same time the highest value of the coefficient of variation (24.8).

Table 5. Descriptive statistics of students' competencies evaluation

Factor No.	Respondents Number	Average	Standard Deviation	Coefficient of Variation
1	252	3.62	0.71	19.59
2	252	3.65	0.62	16.88
3	252	4.03	0.72	17.98
4	252	4.27	0.66	15.53
5	252	3.12	0.77	24.80
6	252	4.01	0.69	17.09

4. Competencies and the quality of students' lives

The quality of students' lives, similar to the competencies, was rated with reference to the 5-level scale. Students were asked to evaluate the quality of their lives in comparison to their peers. The average level of competencies among the population of the students who evaluated the quality of their lives at various levels is depicted in Figure 1.

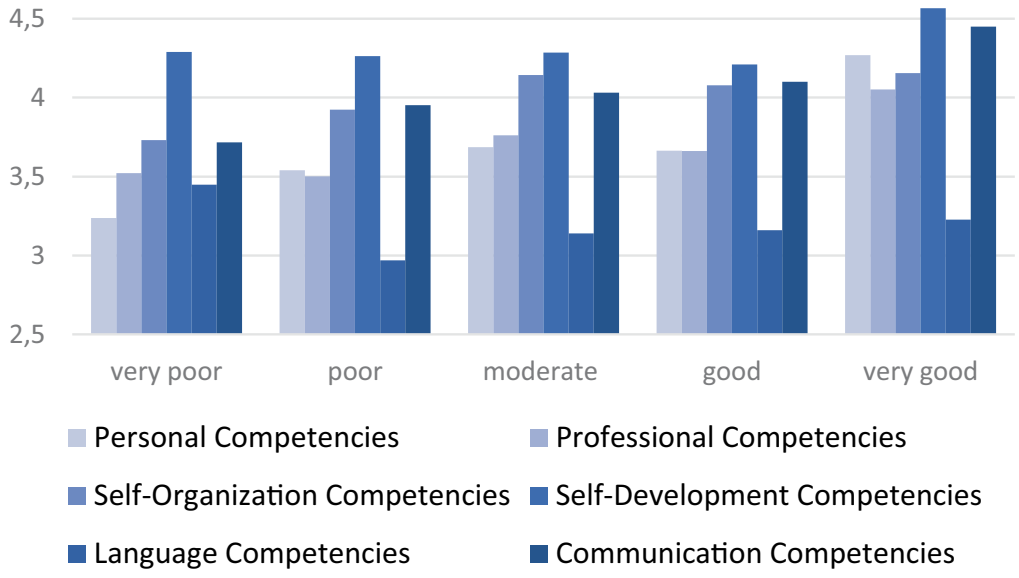

Fig. 1. Evaluation of the competencies by the students who declare various levels of life quality

There is an overall tendency among the evaluators which proves that the high rating of the competencies corresponds with the high evaluation of the quality of life. One exception is observed with regards to factor 5 – the highest average for this factor is observed among the respondents who rated their quality of life at the lowest. This exception can be linked to the fact that foreign language skills and computer programming engage a lot of time and there is not much time left for the students to engage in other life activities, which leads to the lower evaluation of the life quality.

In order to check whether there is a significant difference between the levels of competencies among the participants who declared various levels of the quality of life, a one-way analysis (ANOVA) was applied (Aczel and Sounderpandian, 2009). Factors 3 and 6 were excluded from the analysis as they did not meet the criteria of variance homogeneity. The parameters of the variance are presented in Table 6.

Table 6. Parameters of variance analysis

Variable	Between Group Effect	Within Group Effect	Value of Statistics F	p-value
Factor 1	1.921	0.481	3.994	0,004
Factor 2	1.125	0.369	3.053	0.018
Factor 4	0.446	0.433	1.030	0.392
Factor 5	1.011	0.593	1.705	0.150

The hypothesis of the equality of the average values of Personal Competencies and Professional Competencies should be rejected (where p-value <0.05). Accordingly, it is correct to assume that the quality of life is an important differentiator in the self-evaluation of students' competencies. Taking into account both of the above factors, the participants declaring high levels of life quality also declare high levels of competencies. However, no relation was proved between factors 4 and 5 and the students' quality of life.

Conclusions

Revenue and the resulting consumption are recognized as key determinants of quality of life in the literature (Medcalfe 2018, Jorgenson and Schreyer, 2017, Reeskens and Vandecasteele, 2016). The study showed a significant relation between employee and personal competences as well as the quality of life of students. However, the influence of self-organization, self-development, language and communication competencies on the quality of life has not been demonstrated. This lack of statistical significance may result from inadequate competence assessment or be associated with low experience of respondents on the labour market. The authors plan to extend the students' study, which will result in the analysis of the impact of competences on the

quality of life of students in individual years of study, as well as to examine the dependence of competences and quality of life among working and non-working students.

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