

The Influence of Working Experience and Level of Education on the Market Orientation of SMEs in Transition

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Depending on the fundamental strategy of running business, most companies follow an organizational culture orientation that matches one of the following categories: product-oriented, sales-oriented and market oriented. The purpose of this paper is to determine the influence of years of working experience (YWE) and the level of education (LE) on the level of market orientation of organizational culture. This research included 20 companies from Serbian metal industry. The conducted analysis showed that the influence of investigated factors is non-linear and that the influence of LE has the effect which is opposite to the effect of influence of YWE on the market orientation in the investigated range. The inherent way of thinking and the inadequate influence of the Government significantly slow down the development of SMEs in transition and they do not succeed in implementing market orientation in their organizational structures and behaviours.

Keywords: Market orientation, Organizational culture, SMEs, Transition

1. INTRODUCTION

Today's business is not about selling or providing services to customers. In facing rapid evolution of the global market place, having a set of common rules is critical to facilitating trade. It is well-known that business excellence in companies is realized through implementation of the concept of total quality management (TQM). ISO officially defines TQM as a way of managing an organization which aims at continuous participation and co-operation of all its members in the improvement of quality in order to achieve customer's satisfaction, long-term profitability of the organization and benefit of its members, in accordance with requirements of the society. TQM is seen as a description of a culture, attitude and organization of a company that aims to provide products and services that meet customers' needs. Culture requires quality in all aspects of organizational operations, with things being done the right way instantaneously, with defects and waste being simultaneously eradicated from its operations. TQM is a culture in an organization committed to total customer satisfaction through continuous improvement. That is why resources in such cultures are totally utilized [1,2]. Benefit comes in all segments of business: fewer defects, reduced rework and lead times, lower inventory levels, cost reduction, and a higher level of customer satisfaction [3,4].

On the other hand, the world's most successful business leaders agree that corporate culture, if correctly aligned with the external environment, is the glue that ensures long-term organizational success. The former IBM CEO Lou Gerstner, who led its spectacular transformation from a products company to a service organization, says: "I came to see, in my time at IBM, that culture isn't just one aspect of the game-it is a game" [5].

The organizational culture or what is known as the "organization values and personality" was not given the natural interest before the second half of the twentieth century. The 1970s era witnessed an increasing interest in

this concern, which culminated in the 1990s [6]. Even then, it was totally clear that there are differences among national cultures and among companies within the same national culture. Also, it is known that the company's organizational culture directly depends on several different factors: size, tradition, communication among its employees [7].

Nowadays, when the world has become a global village connected by modern communication methods, achieving business excellence and good business parameters becomes impossible for any country and any company staying in isolation from changes [8].

The observations of Gerstner, Welch and Oreck support the importance of culture as a driver of competitive advantage and business performance. They also illustrate that all business leaders need to see their central job as proactively leading their firm's culture for superior performance [8].

Implementing TQM means changes, and for all changes organizational culture is a key. Altering the way people perceive changes and react to them plays an important role in such efforts [9,10,11].

Slater [12] expresses this notion explicitly when stating "A market orientation is the aspect of business culture that motivates employees throughout the organization to place the highest priority on the profitable creation and maintenance of superior customer value. As such, it establishes norms for behavior regarding the organization-wide development of and responsiveness to information about customers and competitors, both current and potential." Slater distinguishes between the traditional and new approaches to market orientation. "Market oriented businesses have traditionally focused on understanding the expressed needs of the customers in their served markets and on developing products and services that satisfy those needs" [13]. In this way, market orientation is focusing on current products and services, incremental rather than breakthrough learning and the

short term. Slater [12] continues by stating that the, "Second generation market-oriented businesses are committed to understanding both the expressed and unexpressed needs of their customers, and the capabilities and plans of their competitors through the processes of acquiring and evaluating market information in a systematic and anticipatory manner." Now, the focus is more on the long-term and on breakthrough learning. Again, we see the concept of market orientation relates to the values of any organisation: its culture [14]. In their meta-analysis of many articles investigating the relationship between market orientation and business performance, Rodriguez Cano, Carillat and Jaramillo conclude that this relationship is positive and consistent worldwide [15].

A lot of companies in the world did not succeed on the road to achieving business excellence and TQM. Now, if we assume that a company's culture influences everything the company does, it is clear that if you want to achieve TQM business excellence in the era of globalization, you have to be marketing oriented. In their visions companies all around the world have defined that they want this, but everything is different in the field.

2. RESEARCH

The following paragraphs deal with evaluating the state of marketing orientation of organizational culture in 20 companies within Serbian mechanical industry: all companies are nowadays independent entities, whereas in the recent past they have used to be a part of the giant IHP Prva Petoletka in Trstenik (PPT – the field of hydraulics and pneumatics, which gives to almost all of them the prefix PPT). Nineteen companies are currently undergoing the process of restructuring.

2.1. Data collection and processing

In order to identify the present level of organizational culture in terms of marketing orientation of in those 20 companies it was first necessary to make an appropriate questionnaire, which would provide the answer to the key question: what is the direction of our business. The questionnaire was based on MARK – PLAN questionnaire [16]. This poll list was used to conduct the research in companies, in terms of determining management orientation, i.e. whether it is *production, sales or market*.

The questionnaire was structured in such a way that the answers to the previously mentioned issues led to the conclusion about the state of organizational culture in terms of marketing orientation. The questionnaire was compiled from 15 questions with the options given in a way that would prevent routine answering. The data collected from anonymous respondents in the interview were: degree of professional education, years of working experience and their occupation.

For scoring the survey, the points scale was adopted where a response is scored 0 points for indicating production orientation, 5 points for indicating technological orientation, and 10 points for indicating marketing orientation. In the context of the survey results, the marketing orientation of a company can be described as:

- advanced (121-150 points),
- barely satisfactory (91-120 points),
- conservative (61-90 points),
- bad (31-60 points), and
- hopeless (0-30 points).

The starting point of the research was to collect data using surveys on the representative sample of employees in every company. The survey was conducted in the period from the beginning of December 2010 to the end of March 2011. The number of interviewed workers was 2729 from the total of 4343 employed in those companies i.e. 62.84% (Table 1). The workers took questionnaires home, and the following day they left them in the boxes, kept by delegated people.

Table 1. Overview of the enterprises surveyed, the number of employees and the number of respondents

Name of the company	Number of employees	Number of respondents
Armature	391	236
Cilindri	258	180
Energetika	103	73
FUD Brus	305	225
Hidraulika	537	244
Holding	12	10
Industrijska pneumatika	262	200
Inženjering	53	49
Ishrana	56	24
Kočna tehnika	586	328
Namenska	690	383
NIC	4	4
Obezbeđenje	52	49
PPT Delovi Novi Pazar	56	53
Petoletka Promet	119	118
Remont & Energetika	101	100
Servoupravljači	235	172
TMO	178	176
Transport	25	12
Zaptivke	320	93
SUM:	4343	2729

The average number of achieved points per question and per company and the summary and average values per company are shown in Table 2. The average score per question is $\bar{X}=4.887$, the average standard deviation is $\bar{\sigma}=4.172$, and the total average score for all questions is $\bar{R}=73.283$. So, all companies can be classified as conservative and they have hardly satisfied the level of market orientation.

2.2. Results and Discussion

Software Design Expert is used for building an empirical model to determine how the level of market orientation depends on the level of education (LE) and the years of working experience (YWE). The names and levels of the two chosen process factors to study are shown in the table 3.

Table 2. Average number of points per question and per company, the summary and average values per company

Name of the company	Question															SUM	Mean
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Armature	4.936	4.237	4.746	4.068	4.915	6.780	5.699	5.932	6.335	3.877	3.983	4.004	5.191	2.034	4.513	71.250	4.750
Cilindri	4.806	4.694	5.333	5.111	6.000	5.083	6.222	4.417	6.306	2.944	6.083	6.722	6.000	3.806	5.139	78.667	5.244
Energetika	3.288	3.493	3.630	1.986	4.726	7.740	5.068	4.863	5.068	5.274	2.945	3.699	3.836	0.548	4.658	60.822	4.055
FUD brus	5.267	5.067	6.200	4.533	6.600	5.333	6.733	3.200	6.267	3.733	4.533	6.133	6.333	3.467	4.000	77.400	5.160
Hidraulika	5.143	5.205	3.709	4.918	4.836	6.680	4.344	3.709	4.898	3.197	5.123	4.488	5.820	3.176	3.094	68.340	4.556
Holding	6.000	4.000	1.000	2.000	7.000	4.500	3.000	1.500	7.500	3.500	2.500	2.500	8.500	4.500	3.000	61.000	4.067
Industrijska pneumatika	6.400	4.525	4.900	4.700	4.975	6.725	5.775	5.600	6.600	2.550	6.650	4.700	7.075	2.150	2.800	76.125	5.075
Inženjering	5.510	3.163	5.510	5.000	5.102	6.122	5.612	5.612	7.449	1.327	6.327	4.082	7.755	2.551	3.061	74.184	4.946
Ishrana	5.833	3.542	5.208	3.750	6.875	3.125	7.708	8.542	4.792	3.958	2.083	4.792	6.667	2.917	5.000	74.792	4.986
Kočna tehnika	4.939	4.421	5.061	4.909	6.037	4.573	5.473	4.726	5.244	3.369	5.213	5.366	5.991	2.942	4.390	72.652	4.843
Namenska	4.452	4.413	4.478	3.629	4.987	6.841	5.274	5.039	5.836	3.930	3.773	3.747	5.157	1.971	4.256	67.781	4.519
NIC	6.250	2.500	6.250	2.500	2.500	6.250	3.750	1.250	6.250	1.250	2.500	3.750	5.000	2.500	1.250	53.750	3.583
Obezbedjenje	7.653	7.449	5.000	5.204	6.122	6.429	7.041	5.918	4.592	3.163	4.082	5.612	6.735	1.837	3.878	80.714	5.381
PPT Delovi Novi Pazar	6.604	3.396	5.189	5.094	5.472	4.717	5.189	3.679	5.189	3.113	5.755	6.132	5.283	4.340	4.623	73.774	4.918
Prva petoletka promet	5.381	4.195	5.890	3.983	6.780	5.339	6.059	2.712	5.551	3.305	4.110	6.229	5.847	3.220	3.856	78.458	4.831
Remont i energetika	7.200	3.800	6.750	6.650	4.600	6.400	6.150	5.600	6.800	3.100	5.750	6.050	6.500	2.700	3.650	81.700	5.447
Servoupravljači	6.919	3.808	4.331	4.157	6.541	7.384	6.483	6.948	6.541	2.965	6.250	5.494	6.977	4.302	2.035	81.134	5.409
TMO	5.483	4.119	4.489	3.778	5.313	5.795	5.710	3.920	6.506	2.614	6.023	3.892	6.278	3.267	3.523	70.710	4.714
Transport	8.333	6.667	7.917	7.500	5.833	5.417	5.000	3.333	4.583	2.917	4.167	5.000	6.667	1.250	2.581	78.333	5.222
Zaptivke	6.828	4.247	5.538	4.892	4.624	6.774	6.667	5.699	5.323	4.462	5.753	5.215	7.473	2.312	2.581	78.387	5.226
Mean	5.416	4.441	4.934	4.447	5.511	6.097	5.729	4.798	5.905	3.375	5.015	4.949	6.032	2.812	3.822	73.283	4.887

Table 3. Factors for response surface study

Factor	Units	Low Level (-1)	High Level (+1)
A -LE	level -number	1	8
B-YWE	year	1	40

The response, marked by letter "R" is the total number of points per respondent based on all 15 questions, i.e. it presents the level of market orientation of organizational culture. Independent variables are: Level of Education (LE), marked as "A" and Years of Working Experience (YWE), marked as "B".

The levels of educational classification (LE) in the examined sample in Serbia is set in compliance with *The International Standard Classification of Education*

(ISCED) [17] and *The European Qualifications Framework (EQF)* [18].

2.2.1. Analysis of the results

The regression model of the lowest order, which meets the requirement of adequacy, based on the conducted ANOVA analysis [19-21] is a second-order polynomial, i.e. Quadratic model:

$$R = \beta_0 + \beta_1 A + \beta_2 B + \beta_{12} AB + \beta_{11} A^2 + \beta_{22} B^2 \quad (1)$$

In this model, **R** is the dependent variable, **A** and **B** are independent variables, $\beta_0, \beta_1, \beta_2, \beta_{12}, \beta_{11},$ and β_{22} are the model term, i.e. regression coefficients.

The Model F-value of 4.83 (Table 4) implies that the model is significant. There is only a 0.02% chance that the Model is not significant.

Table 4. ANOVA for Response Surface Quadratic Model

Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	8921.08	5	1784.22	4.83	0.0002	significant
A-LE	1624.17	1	1624.17	4.39	0.0361	
B-YWE	1821.31	1	1821.31	4.93	0.0265	
AB	721.35	1	721.35	1.95	0.1625	
A^2	965.73	1	965.73	2.61	0.1061	
B^2	6144.60	1	6144.60	16.623	< 0.0001	
Residual	1006310.97	2723	369.56			
Cor Total	1015232.05	2728				

The values of "Prob > F" less than 0.0500 indicate that the model terms are significant. In this case A, B, and B2 are significant model terms. The values greater than 0.1000 indicate that the model terms are not significant.

2.2.2. Diagnosis of Statistical Properties of the Predicted Model

The normal probability plot of the residuals (Figure 1) indicates non-normality in the error term, which may be corrected by a transformation.

The Box-Cox diagnostics [21, 22] recommends the "Square-root" transformation for variance stabilization.

2.2.3. Transformation of the Predicted Model

The new, transformed model is presented in this form:

$$\text{Sqrt}(R) = \beta_0 + \beta_1 A + \beta_2 B + \beta_{12} AB + \beta_{11} A^2 + \beta_{22} B^2 \quad (2)$$

The repeated analysis for *Square-root* model transformation confirms the significance of the Quadratic Model (Table 5).

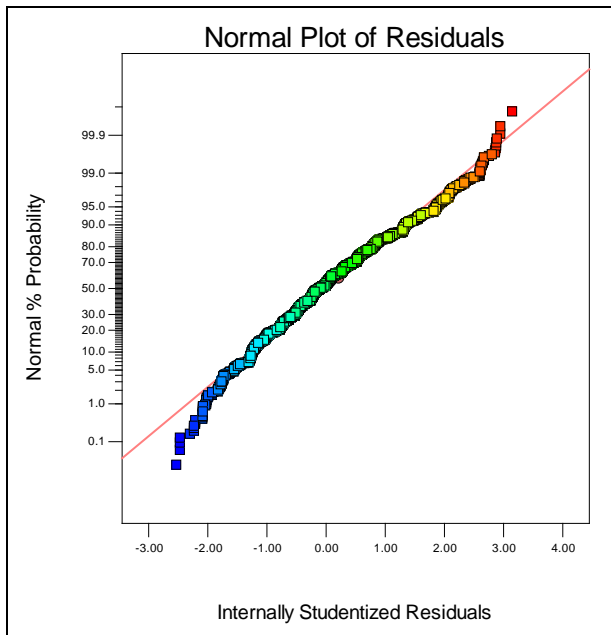


Figure 1. Normal probability plot of Internally Studentized Residuals

The Model F-value of 4.51 implies that the model is significant. There is only a 0.04% chance that the model is not significant. The values of "Prob > F" less than 0.0500 indicates that the model terms: A, B, A² and B² are significant model terms. The values greater than 0.1000 indicate that the model terms AB are not significant.

The new improved model is presented in this form:

$$\text{Sqrt}(R) = \beta_0 + \beta_1 A + \beta_2 B + \beta_{11} A^2 + \beta_{22} B^2 \quad (3)$$

The ANOVA in this case confirms the adequacy of the Reduced Quadratic Model (Table 6).

The Model F-value of 5.17 implies that the model is significant. In this case, all the model terms are significant.

Individual regression coefficients, Standard error, 95% confidence interval and Variance inflation factor (VIF) for the regression coefficient are shown in Table 7.

Table 5. ANOVA for Response Surface Quadratic Model

Response	I	R				
Transform:	Square Root	Constant:	0			
ANOVA for Response Surface Quadratic Model						
Analysis of variance table [Partial sum of squares - Type III]						
Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	28.62	5	5.72	4.51	0.0004	significant
A-LE	6.77	1	6.77	5.34	0.0210	
B-YWE	4.93	1	4.93	3.89	0.0488	
AB	2.334	1	2.34	1.84	0.1749	
A ²	4.84	1	4.84	3.81	0.0509	
B ²	18.26	1	18.26	14.39	0.0002	
Residual	3456.43	2723	1.27			
Cor Total	3485.05	2728				

Table 6. ANOVA for Response Surface Reduced Quadratic Model

Response	I	R				
Transform:	Square Root	Constant:	0			
ANOVA for Response Surface Reduced Quadratic Model						
Analysis of variance table [Partial sum of squares - Type III]						
Source	Sum of Squares	df	Mean Square	F Value	p-value Prob > F	
Model	26.28	4	6.57	5.17	0.0004	significant
A-LE	6.95	1	6.95	5.47	0.0194	
B-YWE	6.99	1	6.99	5.50	0.0191	
A ²	5.11	1	5.11	4.02	0.0450	
B ²	18.29	1	18.29	14.41	0.0002	
Residual	3458.77	2724	1.27			
Cor Total	3485.05	2728				

Table 7. Coefficients for the Reduced Quadratic Model

Factor	Coeff.	df	Stand. Error	95% CI		VIF
				Low	High	
Intercept	8.549	1	0.0348	8.481	8.618	
A-LE	-0.207	1	0.0887	-0.381	-0.034	1.825
B-YWE	-0.122	1	0.0521	-0.224	-0.020	1.178
A ²	0.344	1	0.1717	0.008	0.681	1.837
B ²	-0.399	1	0.1052	-0.606	-0.193	1.172

The Final Equation of the predictive model in Terms of Coded Factors is:

$$\text{Sqrt}(R) = 8.549442362 - 0.207492094*A - 0.12219104*B + 0.344239483*A^2 - 0.399341225*B^2 \quad (4)$$

The Final Equation of the predictive model in Terms of Actual Factors is:

$$\text{Sqrt}(R) = 8.824 - 0.224*LE + 0.034*YWE + 0.022*LE^2 - 0.001*YWE^2 \quad (5)$$

2.2.4. Diagnosis of Statistical Properties of the Reduced Quadratic Model

After transformation of the model, the response variance is stabilized, the distribution of the response variable is closer to the normal distribution, and the fit of the model to the data is improved. None of the plots: a) a normal probability plot of studentized residuals, b) a plot of studentized residuals versus the predicted values, and c) a plot of studentized residuals versus run order, reveals any model inadequacy.

After the applied Box-Cox procedure, the optimum value of λ is 0.47 and the 95% confidence interval for λ contains the value 0.47, so the use of a Square root transformation is indicated (Figure 2).

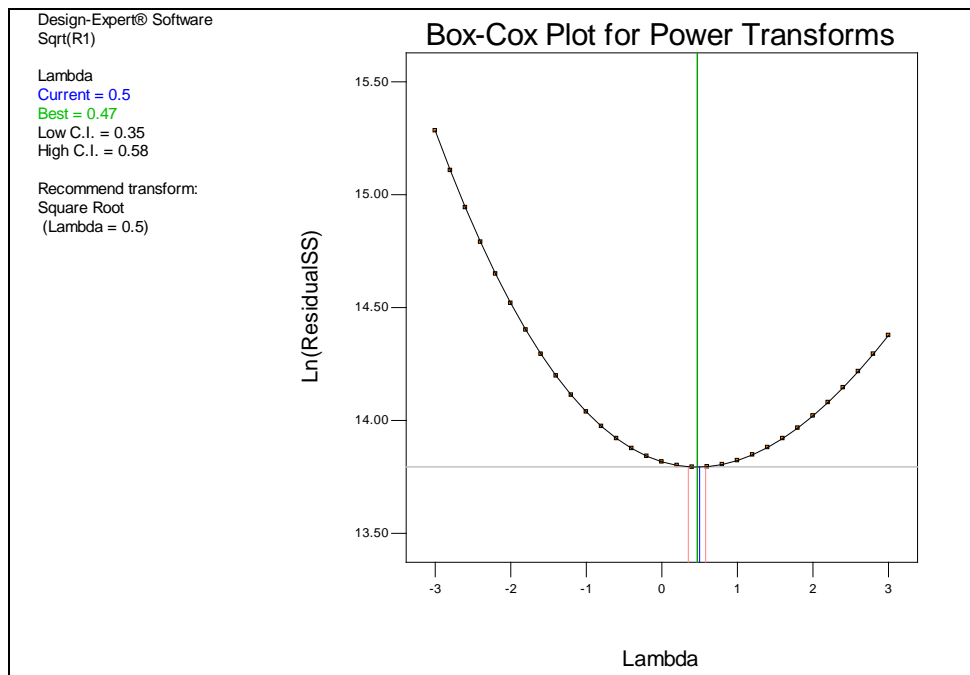


Figure 2. Box-Cox plot for power transformations

2.2.5. Model Graph Examination

The plots of the conversion response surface and contour plot, respectively, for the fitted model are shown in Figures 3 and 4. It can be seen that the level of market orientation is in non-linear dependence from the LE and YWE. The response surface plot indicates that the maximum level of marketing orientation is at the point where A= 1 and B=17.

The Perturbation plot (Figure 5) shows how the response changes when each factor moves from the chosen reference point, with other factors held constant at the reference value. This diagram clearly shows the opposite effects of analysed factors.

As ANOVA analysis showed that there is no interaction between the analysed factors A and B, they can be analysed individually.

Figure 6a shows the influence of variable A for B=20. The dotted line on the same diagram shows the 95% interval of confidence in which the theoretical line is $R=f(A)_{B=20}$.

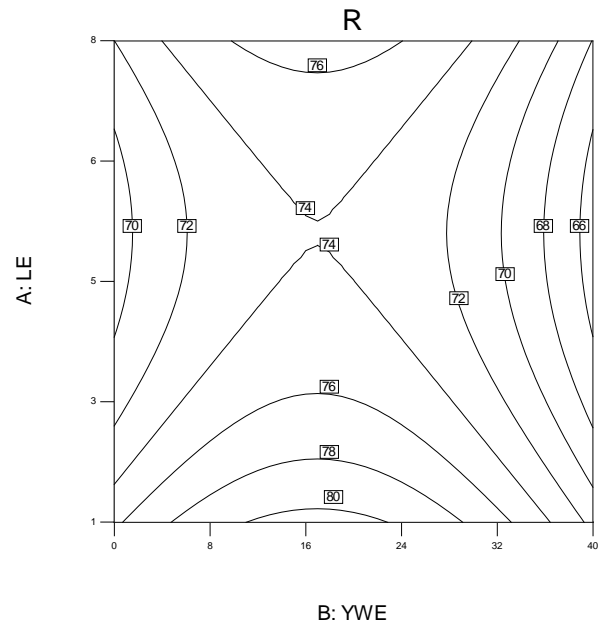


Figure 3. Response surface contour plot

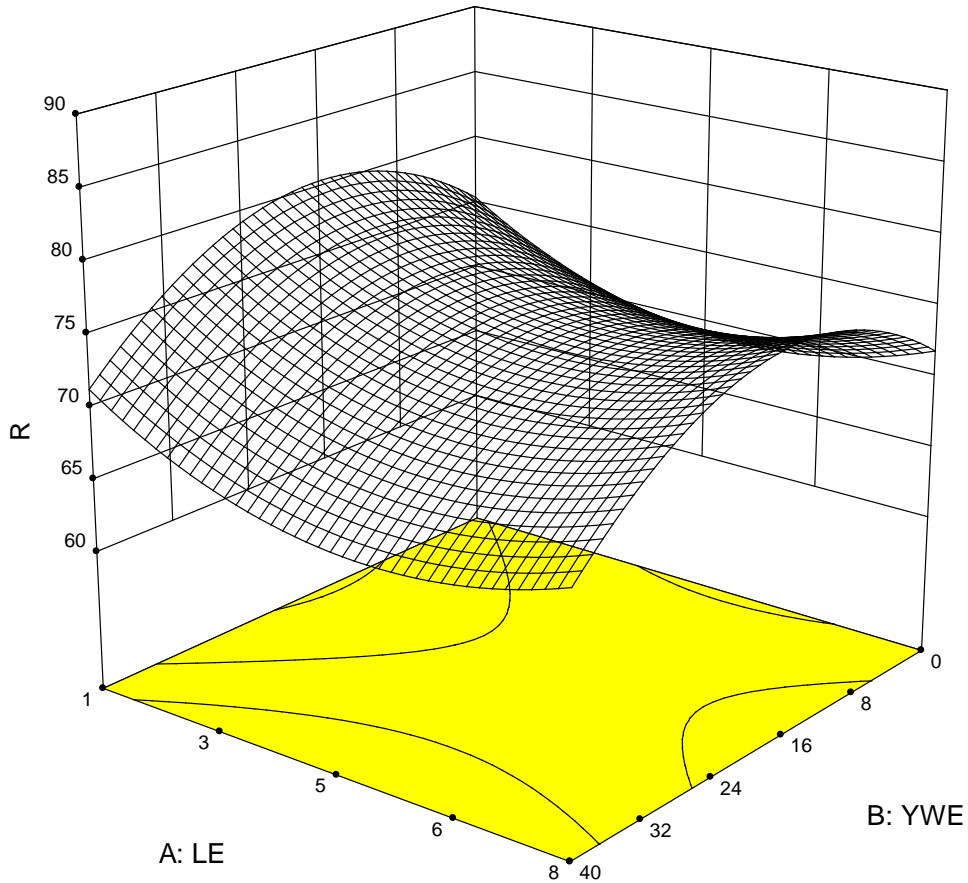


Figure 4. 3D response surface plot

The highest level of awareness about market orientation can be found at the lowest LE ($R=80$ for $A=1$) and highest LE ($R=77$ for $A=8$). The lowest level of awareness can be found among the employees with the middle level of education ($R=74$ for $A=4$), and they present the main part of the examined employees. This means that something should be changed in the system of education so that the way of thinking and organizational culture could be changed and lead to the market way of thinking.

Figure 6b shows the influence of factor B (YWE) for $A=4$. The dotted line in the same diagram shows the 95% interval of confidence for function $R=f(B)_{A=4}$. It can be seen that the employees with the highest number of years of experience ($R=65$ for $B=40$) have the lowest level of awareness about market orientation, while the highest level of awareness is shared by the employees with 20 years of experience ($R=75$). The good fact is that the employees with the fewest years of experience ($B=0$) have a higher level of awareness of the need to be market-oriented than the oldest employees ($R=70$). Young workers are probably still not aware of the importance to be market-oriented, while older workers, who are at the end of their careers are under the influence of long-term contractual economy. In any case, it is positive that the employees with working experience between 10 and 30 years are aware of the changes which should be done.

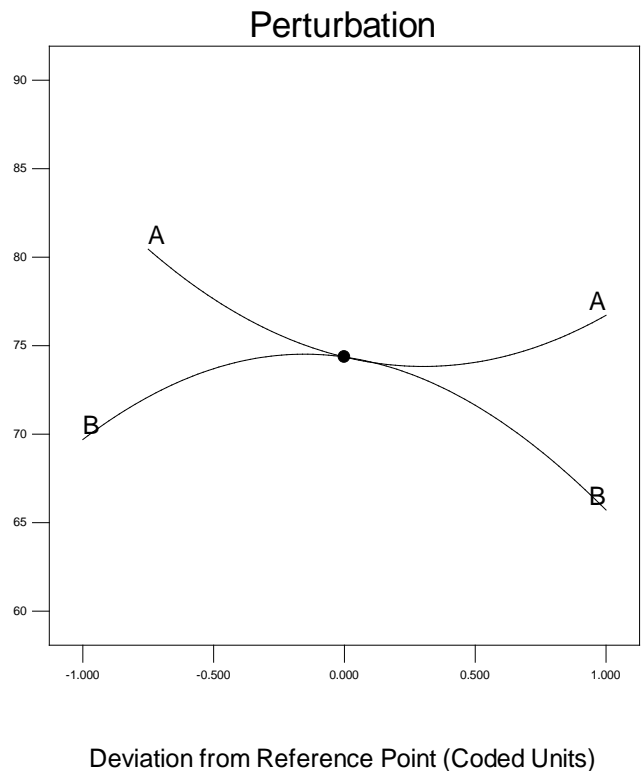


Figure 5. Perturbation plot

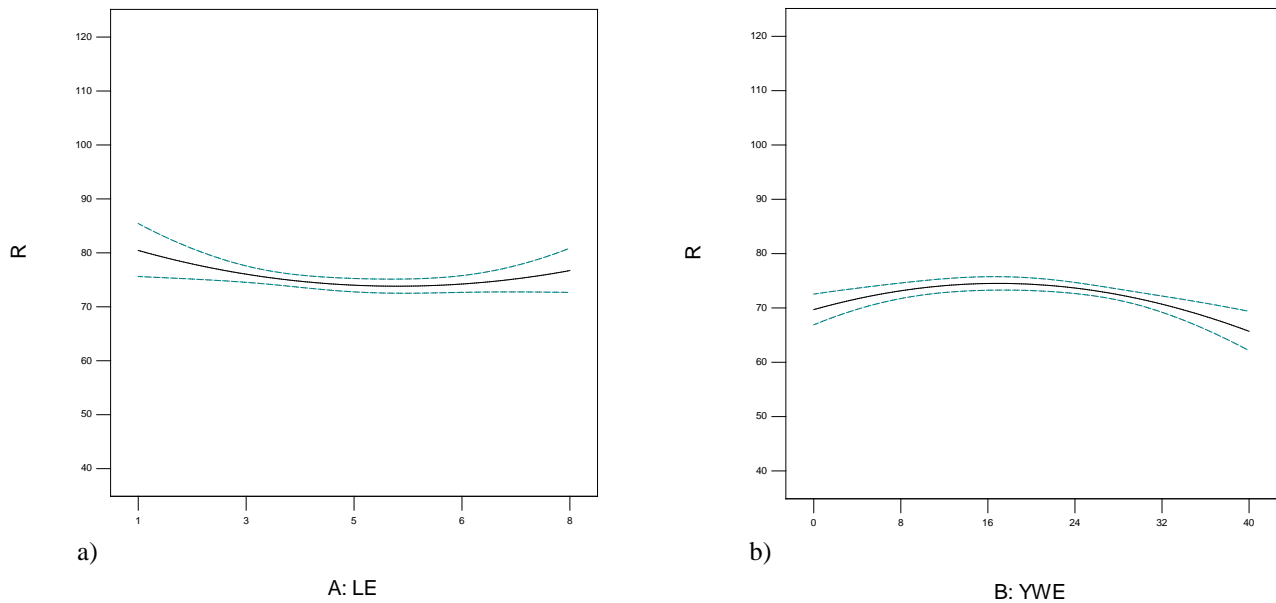


Figure 6. a) Influence of the level of education, b) Influence of the years of working experience

3. CONCLUSIONS AND FUTURE RESEARCH

The conducted study has showed that the level of market orientation in Serbian SMEs is unsatisfactory. Deeper analysis and the history overview have confirmed that the principles of contractual economy are still deep in the thoughts of all employees. What is especially worrisome is the fact that top management also have such opinions. Besides that, the political influence and the influence of the Government on setting up top management in companies in reconstruction deeply slow down strategic decisions which should be based on scientific opinion. Despite the fact that all companies included in this research have implemented QMSs, they did not succeed in implementing market principles in their structures and behaviour, i.e. market management in their business, which is a prerequisite for TQM implementation.

The conducted research should be expanded to all companies in the Serbian metal complex as well as to companies from other branches. The results will for sure give a much clearer picture about the organizational culture in Serbia. Also, in further research, some new variables should be included, such as: type of business, size of the company, occupation, type and kind (state or private), etc. We believe that this kind of research should be conducted beyond the Serbian borders, in all countries in transition and in a wider region.

For businesses in underdeveloped economies, and for economies in transition, which are numerous, this is very important. They have to find a way how to get to the market, but, simply, problems related to their successful business operations are much more complex. Problems in developing world economies have mainly a multidimensional character [16]:

- lack of quality marketing practices,
- lack of adequate technological equipment,
- lack of adequate financial means,
- lack of satisfactory management behaviour,
- presence of political and economic instability, etc.

If the research gives such results that they indicate a low level of market orientation, then the company reengineering should be launched (all processes, management), which would give a basis for developing a totally new management methodology-company reengineering. This methodology will primarily be important for countries in transition and all specificities of national cultures should be considered. Also, the new methodology must take into consideration the need to have long-term management and a balanced and integrated approach to the business structure of the business subject.

Therefore, identification of the level of market orientation in the companies in transition should be the starting point for defining a methodology for solving problems in the companies which are striving to achieve TQM.

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