



CER Comparative European Research 2018

Proceedings | Research Track

of the 10th Biannual
CER Comparative European Research
Conference

International Scientific Conference for Ph.D. students of EU countries

October 29-31, 2018 | London



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Introduction

The conference Proceedings you are holding is a collection of selected peer-reviewed texts presented at the international scientific conference Comparative European Research - CER 2018 (October 29-31).

The biannual international scientific conference is organized under the auspices of the SCIEEMCEE scientific platform every March and October and follows up on activities aimed at providing greater support for the scientific activities of Ph.D. students and beginning researchers. The various biannual CER conferences represent a space for the international assessment of the qualitative standard of scientists and the results achieved by the various academic institutes. The CER conference is an ideal place for comparing the standard of scientific work, particularly on a European scale.

The Proceedings from the CER 2018 conference contains several dozen academic texts whose main purpose is the presentation and sharing of knowledge always in one of nine conference sections. The conference Proceedings prioritize only those articles which are good enough to offer readers new insights into the issues analyzed, or which extend the known boundaries of science. The guarantor of the CER 2018 conference is a signatory of the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities, and therefore all papers are made available to professionals and the general public via OpenAccess.

The conference committee, comprising experts from several university departments, believes that the CER international scientific conference will attract an ever wider base of participants to join in the discussions and will stimulate further scientific work and interdisciplinary development.

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STUDENT SEGMENTATION IN POLISH BANKING SYSTEM

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Abstract: *The aim of this paper is to identify bank selection criteria of students in Poland. After identifying selection criteria, there is an attempt to cluster student's population into market segments, that are internally homogenous and externally heterogeneous. In order to enable segmentation, the questionnaire survey was conducted on student's sample, selected from four leading Universities in Poland. The results suggest that there are four unique segments of students: followers, economical, workers and active, with unique set of bank selection criteria that appeals differently to each of the cluster.*

Keywords: *segmentation, student, bank, services marketing.*

1. Introduction

The banking sector in Poland is highly competitive marketplace. In order to maximize profits, financial institutions try to attract new groups of clients, including largely represented group of young people, that is students. Gaining new prospects for banks is possible by offering good products and services that match the needs and preferences of particular segments of clients. One of the way to understand the needs of students is to identify their bank selection criteria. Once criteria are known, it is essential to verify, if students are similar, or rather a heterogeneous group, that can be classified into market segments.

2. Literature Review

Marketing of financial institutions is a complex process of learning, organizing and satisfying the diverse needs of clients in a professional and beneficial way for all parties involved [1]. In the financial world, banks segment their market and narrow their offer to those segments that brings the most profits. The segmentation of bank customers is most often based on the type of products used, customer profitability and customers attitude towards risk. Other criteria includes: gender, age, education, occupational status, type preferred recreational activities, income, value of assets held, place of residence, approach to novelty, attitude to risk and type of products used by the bank. The most important segmentation factors for banks are economic and social criteria, however, often limited access to data, determines the use of easily accessible criteria, such as demographic or geographical [2]. In Poland only ten banks held in their offering bank accounts targeted specifically to students. Basic student package offered by banks in Poland were free account opening, free access to cash machines, debit card and low interests on deposit and credit services. As research from foreign market suggests, banks should tailor their offering towards students by enabling easy access to their services – via Internet and mobile phone, limit costs to minimum – by bringing free account opening and lack of charge for provision of the account, as well as commit to high quality and speed of services provided [3]. Depending on the geographical

region, there are certain factors, that were more significant than others, while selecting bank by the students from different nationalities. For example, for US student, the most important criteria was interest rate of credits [4]. For students in Bahrain, one of the most significant factor was related to ease of access to branch of the bank [5]. In Ghana, students paid high attention to quality of customer service and bank image and reputation [6]. These differences may suggest the need to conduct a research, that is limited to the context of students from one selected country.

3. Data collection and research sample

In order to find bank selection criteria in Poland, the questionnaire survey was distributed to students from four higher education institutions in Poland: University of Warsaw, Maria Curie-Skłodowska University in Lublin, Cracow University of Economics and University of Gdańsk. The survey was conducted online and data was collected in period of a one week in 2015. Research survey consisted of closed questions, semi-closed questions and five-level Likert scale questionnaire. Additionally there were demographic questions, that includes age, sex, year of study and name of the bank, in which the respondent has an active bank account.

4. Results and discussion

In a research sample, 100% of students have at least one active bank account. Nearly half of the sample – 45.5% - declare to have student's account, whereas the rest own different type of current account. Every third student has more than one bank account. Loyalty – that is no change of bank during student's lifetime – is declared by 74% of respondents. Only 21.5% of students consider changing their bank after graduating from University. Income distribution of students is disperse. More than half of students have less than 250 euro of monthly income, whereas more than 500 euro per month, is declared only by 14.5% of the most wealthy students. Above 71% of the group claim, that the first source of information, before opening bank account, is collected from family, friends or colleagues. Different source of information includes

Internet - 17.5%, followed by commercials in newspaper and TV - 8%. In terms of financial familiarity, 39% of students declares good financial knowledge, 34.5 % claim to have neither good or bad awareness of financials. Intensiveness in usage of financial services marked as high is represented by 25% of sample, average – 65% and rarely used by 10% of students. Types of financial services used by students includes deposits – owned by 30% of respondents, saving account – 39%, credit – 9%, and use of other financial instruments, including investment funds and stocks - 3%.

4.1 Bank selection criteria

The most important criteria of bank selection – marked by students on Likert scale as “important” and “very important” - is access to the bank via internet, no fees and commissions on banking transactions, lack of charges for the provision of the account, easy access to cash machine and free account opening. Relatively important criteria – between 3.5 and 4.0 on five degree scale – is image and reputation of a bank, speed of customer service, wide range of offered products, access to mobile services, easy access to bank branch and quality of customer service. The least important criteria – “rather not important” – is bank advertising, physical bank office appearance, interest rates of credits and recommendation of friends.

Table 1: Bank selection criteria by students

Criteria	Average	Standard deviation
Access to internet banking	4.73	0.729
No fees and commissions on bank transactions	4.62	0.842
Lack of charge for provision of the account	4.52	0.874
Easy access to cash machine	4.51	0.880
Free of charge account opening	4.42	0.874
Security of transactions	3.96	0.874
Bank image and reputation	3.95	0.874
(...)	(...)	(...)
Recommendation of friends	2.99	1.266
Interest rate of credits	2.61	1.370
Physical bank office appearance	2.38	1.188

4.2 Segmentation of students

In order to determine segments, cluster analysis in SPSS program was conducted by applying k-means clustering data mining. This analysis led to distinguish four diversified segments of students. With the purpose of establishing cluster centers, system performed iteration and classification of data. As a next step, chosen algorithm assigned points to the nearest centers, then calculated the new class centers. In the third stage, the algorithm was repeated until convergence criteria were obtained. Selected research method was characterized by a minimum internal variance, which means that aggregations were also maximally differentiated externally. In the final stage, profiling was conducted on four identified segments based on additional attributes such as demographic characteristics (gender, income), behavioral factors (level of financial knowledge, loyalty to the bank, frequency of use of financial products and services) and psychographics (type of bank services used, preferred recreational

activities). Finally, based on criteria and attributes, clusters were given names reflecting the dominant criteria or attribute of the segment.

Table 2 Cluster analysis of bank criteria selection

Criteria	Cluster			
	1	2	3	4
Recommendation of parents	3	4	4	2
Recommendation of friends	2	2	3	3
Free of charge account opening	3	4	5	5
Lack of charge for provision of the account	3	4	5	5
No fees and commissions on bank transactions	2	5	5	5
Easy access to cash machine	3	5	5	5
Easy access to bank's branch	2	3	4	4
Bank image and reputation	2	4	4	4
Security of transactions	2	5	5	4
Physical bank office appearance	1	2	3	2
Products and services offered	1	4	4	4
Quality of customer service	2	3	4	4
Speed of customer service	2	4	5	4
Account and deposit interest rate	1	3	4	3
Credit interest rate	1	2	4	2
Access to internet banking	3	5	5	5
Access to mobile services	2	3	4	4
Promotion on opening account	1	3	4	3
Bank advertising	1	2	3	2
Cardinality	13	47	68	72
Percentage (segment size)	6,5%	23,5%	34,0%	36,0%

4.2.1 Segment 1: Followers (6.5% of the sample)

The first cluster of *followers* is mostly attracted to free of charge account opening, lack of charge for provision of the account and easy access to internet banking. This segment is loyal to only one financial institution, with majority - 92% - having one bank account. *Followers* have rather good income, where 54% fell in range between 250-500 euro monthly income. As main source of income this segment declare family help and part-time job. Every third possess deposit in bank. Information about financial provider is obtained mainly - 62% - from colleagues, friends and family. Segment is characterized by the least intensive usage of bank services. *Followers* are dominated by females, having the smallest percentage of men from all four segments. The most common form of spending free time is meeting with friends, colleagues and family.

4.2.2 Segment 2: Economical (23.5% of the sample)

The second segment of *economical* pay high attention to the fees and commissions on bank transactions, access to internet banking, security of transactions and easy access to the cash machine. Relatively important are also free of charge account opening and parents' recommendation. Segment is satisfied with their current financial institution, 85% of students declare willingness to stay with their bank after graduating from University. This segment is eager to save money, 43% own bank deposit and 38% possess saving account next to the current account. *Economical* likes to read books and newspapers – 68% - in their free time. Relatively big part of segment – 43% - receive scholarship from University.

4.2.3 Segment 3: *Workers* (34.0% of the sample)

The third cluster of *workers* favour access to Internet banking, speed of customer service and access to mobile services. Three out of four *workers* likes to spend free time in front of computer and mobile phone. They own relatively small income, with 67% declaring income below 250 euro per month. Segment is represented by students with high financial knowledge. Big part of the cluster is working, either part time – 44%, or as a full time employee – 22%. Segment is dominated by men.

4.2.4 Segment 4: *Active* (36.0% of the sample)

The fourth segment of *active* is looking mostly for access to the Internet banking, no fees and commissions on bank transactions, free of charge account opening and lack of charge for provision of the account. This cluster is the least loyal from all segments, 35% of the *active* possess more than one bank account in different banks, 29% admits to change the institution during studying. Moreover, segment has the smallest percentage of people willing to stay with their bank after graduation. *Active* are knowledgeable about finance and use bank services very intensively. Half of respondent, possess student's type of bank account. The most common recreational activity includes playing sports – 44%, but also spending time in front of computer -78%. Main source of income comes from parents – 69% and granted scholarships – 36%.

5. Conclusions

Students are promising clients for banks. After completing their education and entering work environment, this group gains considerable income and start to use wide range of profitable financial products. Acquisition of the potential clients during the course of studies is easier and less expensive, than taking over mature adult customers from competitive bank. Therefore, it is important that the banks' offering is appropriately tailored and offer benefits, that gives real customer value for each of customer segments. As results of the research suggests, students are heterogeneous group, that have specific needs to be satisfied by the bank offering. Each of the four identified students' segments can be targeted with different marketing activities. Marketing tailored actions are often overlooked by the polish banks, having very limited students offering in the portfolio of services available to them. Limitation of this study is related to the high dynamics of available information technology. Since IT is changing the landscape of bank offering, constant update on the latest services available is needed. Furthermore, the offering has to be appealing and adaptable to the different segments of students identified in this research.

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RECOVERY COMPETENCE - A PREDICTOR FOR STRESS-COPING

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Abstract: Recovery Competence is the ability to regenerate mentally and physically within a short space of time. In sport, the strategy has been established that maximum performance is based on systematic recovery training. Students, regardless if they fulfill physical, mental or spiritual work need a sense of balance between their education and recovery, maintaining their state of health for day-to-day activities in a medium to long term perspective [2],[3]. This work unravels the relationship between Recovery Competence and stress-coping. 98 students participated in the survey, measuring Recovery Competence and stress-coping or regulating cognitions in response to stressors using such scales, as the Recovery Competence Scale (EKS-10) (german: "Erholungskompetenz-Skala") and the Stress & Coping Inventory (SCI). According to the initial assumptions at project start, a significant correlation could be identified. Individuals with a higher Recovery Competence tend to cope with stress more effectively than individuals having lower results on EKS-10. The findings are particularly interesting for the higher education sector as well as for the Organizational Development, for Human Resources Management or within the framework of Occupational Health Management.

Keywords: Recovery Competence, Erholungskompetenz, Stress Management, Coping, Stress & Coping Inventory (SCI)

Introduction

After the implementation of the new study system, the Bologna Reform, many students are overwhelmed by the growing challenges that are increasingly associated with high levels of stress [1]. While stress is omnipresent in everyday professional life to varying degrees, it has also reached a point of sweeping concern in the higher education sector [1]. While (Eu-)stress are stressors which can positively affect the organism [4], chronic long-term (Di-)stress is a sort of negative source of strains with harmful physical, mental and emotional consequences [5], [6]. Test anxiety, money worries, exhausting part-time jobs, gloomy thoughts about the future are a breeding ground for a general feeling of being unable to cope and loss of control. Those students concerned, often lack the skills to recover from Distress¹. Similar to sports, through a systematic recovery training, by building recovery skills and preventive protection factors, as well as strengthening personal resources, chronic stress consequences could be avoided [2]. Likewise, students who perform mentally work, need to create, maintain and utilize recovery periods. To gain Recovery Competence it is especially important to understand stress as a cause and to recognize own stressors and triggers [3]. Ultimately, to successfully practice these skills, motivation, experience, personal abilities and the readiness to act is a prerequisite [3]. This means that recovery periods have to be planned in advance, in order to incorporate recreation strategies in the daily routine for restoring personal resources within a limited period [3]. Whether stress really has a negative effect depends not least on how individuals manage and perceive stress. While some people panic, fall into blind actionism or apathy, others resort to alcohol and cigarettes. Others resign. However, there are also individuals calmly

analyzing the problem and try to systematically eliminate the sources of stress. The different behaviors in dealing with stress are also referred to as coping [4]. The previous explanations, gives rise to the following questions: Is a higher Recovery Competence responsible for choosing better stress-coping strategies? Or: does Recovery Competence predict coping? In order to answer these research questions, the present work investigates Recovery Competence and its effect on stress-coping among university students. To test the hypotheses (see paragraph 1), a correlation analysis and a linear regression were performed.

1. Recovery Competence

Recovery Competence, in the context of this work, is defined as "the selection of a recovery setting that is adapted to the stress condition to be compensated in each case" [7] According to the authors, there are two ways to regenerate from strains: Firstly, taking appropriate measures to reduce the intensity and duration of stress phases. Secondly, the use of measures with which the recovery phases can be extended and intensified in order to reduce the aforementioned negative consequences. The concrete implementation of the recovery phase is determined by four factors: recovery culture, recovery infrastructure, willingness to recover and capacity to recover. In this way, it is possible to differentiate between the realization of recovery pause with regard to their specific recreational activities (e.g. walks in the fresh air, power naps or relaxation exercises), the place of recovery (e.g. at home, park, forest...), accompanying persons (with or without colleagues or fellow students) and the consumption of activating or deactivating substances [7]. Additionally, the initial state must be taken into account – whether the individual is tired, tense or saturated [14]. Recovery results as well as energetic, motivational and emotional per-

¹ In this work the general term "stress" refers to the harmful distress.

formance prerequisites play a central role regarding to quality of life, safety and health [7], [24]. The recovery results are significantly influenced by the recovery competence of the respective person. Recovery Competence can be assessed either output-related or determinant-related. In the output-oriented assessment, Recovery Competence is derived from an improved resource situation (recovery gain) and the actual speed of recovery tasks (adversity of the recovery infrastructure and the recovery culture). In contrast to the output-oriented approach of recording Recovery Competence, the determinant-based approach is concerned with explaining which prerequisites make certain types of breaks probable [24].

Generally speaking, recovery creates a functional balance between over- and underdemands. A recovery effect can be achieved by reducing stress, changing tasks or pausing [20]. If an individual experiences high stress levels, it takes more time to recover. Therefore, recovery affects daily work, the study, etc., even the private life. According to this and the explained above, Recovery Competence is related to stress-coping and could be seen as a prerequisite of individuals stress-coping strategies.

Hypothesis 1: There is a negative correlation (inverse scale) between recovery competence and stress-coping.

The personal ability to deal with stressful situations and possible conflicts is individually different and can be predicted by the Recovery Competence.

Hypothesis 2: Recovery Competence predicts stress-coping.

2. Methodology

This cross-sectional study was carried out at the University of Augsburg, Germany. The survey was conducted in a pen & paper style. The questionnaires were handed out and filled out anonymously by the students across different study programs. Participants received no incentives.

2.1 Recovery Competence Scale (EKS-10)

The ability of students to recover from stress was determined by the short form of the Recovery Competence Scale (EKS-10) [8], [16], [17]. The scale was developed based on previous research by Kallus Recovery Stress Questionnaire [20], Giessen Complaint Sheet (GCS), Pittsburgh Sleep Quality Index, Recovery Experience Questionnaire by Sonnentag and Fritz [21] and the WHO-6 Well-Being Index by Mental Health Center North Zealand [7] and links to external validation criteria such as health or irritation [18], [23]. The short version consists of 10 items, which represent seven different subfacets of Recovery Competence. These include exertion tendency; assertiveness; ability to perceive the value of Recovery (valence); the ability to override cultural norms (nonconformity), the creativity to find recreational opportunities in different situations of everyday life; simplification skills and self-distancing skills.

The individual Recovery Competence score is calculated from the sum of the ten recorded items on a five-level Likert scale. Three of the ten items need to be reversed, as strong approval for the items should represent a lower recreational value: EKS_06: "To have more time for recovery I already reduced my professional efforts." EKS_07: "If I want to be alone in my leisure time, I will manage it." EKS_08: "I can relax well, even if other people (for example family, partners, friends) claim me." The total of the individual measured values can vary between 10 and 50 points, where-by a high value indicates a poor Recovery Competence [23]. During the study, Cronbachs Alpha of .71 was measured.

2.2 Stress and Coping Inventory (SCI)

Satow's Stress and Coping Inventory (SCI) [22] operationalizes the two constructs of stress and coping. The test consists of ten scales. A total of 54 items record the current stress levels and stress symptoms as well as coping. The data collected in the present work are limited to the stress-coping scales. The scales for assessing the current stress levels and the physical and mental stress symptoms were dropped because they are not relevant to the research purpose of this work. Besides to the four adaptive (coping) strategies ("positive thinking", "active stress management", "social support", "hold in faith"), the SCI also identifies the maladaptive strategy "increased alcohol and cigarette consumption". The response scale is a four-level Likert scale ranging from 1 = "does not apply at all" to 4 = "applies exactly". All scales consist of four items. The sum of the five strategies is used to calculate the total score. Values between 20 (minimum) and 80 (maximum) can be achieved. Cronbach's Alphas for the subscales in the present study were .79, .82, .79, .79 and .82 for positive thinking, active stress management, social support, hold in faith and increased alcohol and cigarette consumption. Cronbach's Alpha for the full scale was measured at .72.

2.3 Statistical Analyzes

We performed a correlation and regression analysis. All statistical investigations were conducted using XLSTAT 2017.4 for Windows. The level of statistical significance was set at $p < 0.05$. Recovery Competence was set as an independent variable, perceived stress was defined as a dependent variable.

3. Results

The sample represents a subset of the population of all students in Germany. The age of the participants (N=98) ranges from 19 to 35 years (M = 23.98; SD = 4.02). According to Kolmogorov-Smirnov .000 and Shapiro-Wilk .000, there is clearly no normal distribution for the age of the interviewees, as the specified significance limit for this study falls far short of $p < 0.05$. 47 participants (47.96%) are male and 51 female (52.04%).

3.1 Frequency of Distributions

The Recovery Competence of the surveyed students show a mean of 27.68 with a standard deviation of 4.65. The

mini-mum is 16, the maximum is 42 (Range=26), and the variance 21.66. The Kolmogorov-Smirnov test shows a significance of .06, the Shapiro Wilk test a significance of .32. The significance limit of $p < .05$ is exceeded by both the Kolmogorov-Smirnov and the Shapiro Wilk test, thus a normal distribution of the values is given. There are slight gender differences. The mean of Recovery Competence of female students in the sample is higher (worse). In men, the mean is 27.48 with a variance of 19.12 and a standard deviation of 4.37. In women, the mean is 29.65 with a variance of 22.96 and a standard deviation of 4.79. The range of 18 (min. 18, max. 38) is lower for female students in the sample than for males (26, min. 16, max. 42).

Coping of the interviewed students has a mean of 48.91 with a standard deviation of 9.49 and a variance of 90.22. The extreme values are at min. 20 and max. 74 with a range of 54. For stress-coping of the students, the calculation of the Kolmogorov-Smirnov test gives a value of .16 and that of the Shapiro-Wilk test a value of .06. Thus, according to both tests ($p < .05$), there is a normal distribution of the perceived stress values given. There is also a slight difference in coping between male and female students. The mean coping of female students in the sample is 45.78 and lower than for male students. The variance is 78.66; the standard deviation is 8.86. In male students, the mean is 51.36, with a variance of 96.43 and a standard deviation of 9.82. The range of 40 (min. 20, max. 60) of the female students is lower than for the male students (44, min. 29, max. 74).

3.2 Correlation Analyses

As part of a bivariate correlation analysis possible, relationships between the individual variable were tested. For the variables Recovery Competence and Coping, the Pearson coefficient was used. There is a correlation between recovery competence and coping ($r = -.49$). The correlation is significant at the $p < 0.01$ level. The factor positive thinking ($r = -.41$) correlates significant negative, active stress management ($r = -.42$) correlates significant negative, social support ($r = -.32$) correlates significant negative, hold in faith ($r = -.34$) correlates significant negative and increased alcohol and cigarette consumption ($r = -.31$) correlates significant negative with the Recovery Competence. For these investigations the Spearman's correlation coefficient was used, since the individual factors of the SCI Questionnaire are not normally distributed, but nevertheless should be checked for significance ($p < 0.05$)

3.3 Regression Analysis

The multiple correlation coefficient $R = .49$ corresponds to the bivariate correlation coefficient. 24.6% of the variance of coping can be predicted from the Recovery Competence ($R^2 = .24$ /Adj. $R^2 = .23$). The standard error of the estimate is 8.29. The ANOVA shows that the regression model makes a statistically significant prediction (Sig. $.00 \leq .05$). Finally, a regression coefficient of $B = -1.01$ with a standard error of .18 for the Recovery Competence could be determined.

The upper and lower limits of the confidence interval are -1.37 and .65.

4. Discussion

The purpose of this research was to unravel the associations among Recovery Competence and stress-coping. Looking at the total values of the Recovery Competence and stress-coping, the correlation analysis shows that students with a higher Recovery Competence are able to cope better with stress. It was also investigated that Recovery Competence predicts students' skills for stress-coping. This indicates that learners with a higher Recovery Competence also have the competence to deal better with life situations.

The relationship can be explained by the work of Lazarus & Launier [22]. They distinguish two types of stress-coping: *instrumental coping* refers to a person's active action to reduce stressors. In this case, the activities can relate to both, to changes in situation, as well as to the impact on one's own attitudes and behaviors. This coping method is very well suited to manage stressors which we can change, minimize or even eliminate by our own actions.

In *palliative coping*, the focus is on dealing with feelings of tension that have arisen in connection with a difficult situation. Physical and emotional stress reactions can be controlled and regulated by means of relaxation techniques or distraction. Through instrumental coping, we can mitigate stress, such as annoyance, envy or injury, and the associated physical state of tension. In palliative coping, a distinction is made between the efforts that bring about a short-term relaxation in the acute stress response (palliation) and the efforts that are aimed at longer-term and that aim at constant recovery or relaxation (regeneration). Both coping species resort to recreational and relaxation strategies.

Against this background, Recovery Competence can be seen as the *degree of the ability* to use strategies for relaxation and recovery. The instrumental and palliative coping, on the other hand, describes the effort to use (among others) recovery- and relaxation-strategies. Recovery Competence can be explained as toolbox or a repertoire of skills, allowing and practicing consciously periods of relaxation at regular intervals.

The personal benefit or the appropriate use of one's own Recovery Competence can thus be understood as a prerequisite of recovery- and relaxation-oriented coping-strategies. In this context, Sonnentag and Fritz (2007) were able to show, that not only recreational activities have an influence on recovery results, but also the quality of the recreational experience. In various studies, the emphasized significance of the already mentioned factor mental relaxation or self-distancing skills from work, could be demonstrated. If this ability is absent or low, recovery activities or coping-strategies usually have little or no effect [21].

In this regard, further investigations should be carried out examining the relationship between Recovery Competence and recovery- and relaxation-oriented coping-strategies. When measuring this relationship, however, it should also be noted that a suitable method for coping with stress in the university sector could fail in the private area or in professional life. Therefore, people need a broad fund of strategies to be prepared for stressful situations.

5. Conclusion

Students should be provided with techniques and measures to improve their quality of life and well-being through systematic recovery. Those who are more rested can cope better with everyday life, have a higher strength for tasks, feel more satisfied and live healthier. As this study shows, stress can also be managed in a targeted manner through improved competence in recovery. Thus, it makes sense to offer special lectures and seminars at universities for the practical Recovery Competence training. During these learning phases, students should not only learn about effective methods that appeal to the body, soul and spirit, but also motivate them to behave in a health-promoting manner in everyday life. These trainings can make studying more efficient, and at the same time, facilitate later working life.

6. Limitations of the study

The sample is adequate with N=98, but not representative. Greater test strength and more valid results could be achieved with a larger number of participants.

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SOCIAL PSYCHOLOGICAL ASPECTS IN FIELD OF SPORT

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Abstract: *Sociology in the field of sport is, according to Coakley (2009), a subdiscipline of sociology which studies the sport as a social phenomenon. The fundamental premise of the sport sociology is that the sport is an important institution – the same as the family, education system or political structure. The sport creates and maintains the social values at the same time, including the hard work, fair-play approach, self-discipline, commitment and other (LaVoi, Kane, 2014). Sport, if understood the right way in the society, has the opportunity to contribute to the positive development and stability of individuals and of the society as the whole (Coakley, 2009). This article is focused on the selected relationships within the field of sport. It is the case of relationships among sports clubs and their stakeholders. Using the analysis, selected aspects were identified within individual relationships among sports club and their stakeholders. Based on this knowledge, recommendations were formed for sports clubs that can be used by these clubs in the management of relationships with these stakeholders.*

Keywords: *social psychological aspects, sport, sport clubs, relationships, school*

1. Introduction

An important step for becoming a successful sport manager is a continuous obtaining of deep awareness of the sport as a social, political and economic activity which is a part of society and influences various institutions and people in various ways. According to Smith, Mackie (2000) and Allport (1985), social psychology is a science about social and cognitive processes concerning the way that individuals perceive other people, the way they influence each other and create mutual relationships. Social behaviour of a person can be understood also as a biologic behaviour in environment the person lives in (Myers, 2005; Rotter, 1954). To be able to understand the complex dynamics of the reason why people participate in sport and in the physical activity in general, it is necessary to have the knowledge on individual behaviour and on the social context in which this behaviour occurs (LaVoi, Kane, 2014). The knowledge on this issue helps the managers to solve social problems that are present in sport nowadays. These managers play an important role in the creation of a positive sport environment. If people feel that the sport environment is positive (they do not feel or perceive the negative aspects of this environment), they will participate in events and they will support their sport club or sportsman (LaVoi, Kane, 2014).

From the psychological point of view, the sport performance was not studied until the second half of the twentieth century (Vaněk et al., 1984). Sportsmen are being influenced by both internal and external factors. Internal factors include innate traits of each sportsman, and external factors are represented by the environment of a particular sport (Blahutková, Sližik, 2014). Bandura (1986) in his publication points out that within the innate traits possessed by sportsmen, one of the key traits is a sportsman's self-confidence. Self-confidence has an influence on the emotional side of a person and on his/her performance generated in his/her work. Within emotion in

the field of sport, it is needed to highlight also another factor besides self-confidence, and it is the emotional experience. This topic is being studied by many authors. According to Csikszentmihalye (2007) and Ryba (1998), the emotional experience is very important because the sportsman while performing his activity often loses the sense of reality, and he lives from his enjoyment for a certain time. Thus, it can be stated that psychological aspects are closely interconnected with the emotional side of a person, and they have a direct impact on it. Such aspects can include conflicts, pro-social behaviour, aggressive behaviour, but also reciprocal behaviour and affiliation.

- Conflict is an important part of the development of interpersonal relationships (Pruitt, 1996) and it may cause inconsistent with objectives, opinions, expectations. (Lulofs, Cahn, 2000) of individuals or groups that are direct agents of socialization of individuals (Odehnal, 1988). These group conflicts have an impact on individual members of group (Michener, Delamate, Myers, 2004). Solution both intergroup and interpersonal conflicts can only occur when the disputed parties are motivated to end the dispute (Zartmann, Aurik, 1991). According to Rahim and Magner (1995), the termination of the dispute may have several options: integration, adaptation, domination, avoidance, or compromise.
- Prosocial behaviour is behaviour performed for the benefit of the other individual or group of persons whose purpose is to bring benefits to others (Slaměnik, Janoušek, 2014).
- Aggressive behaviour is a type of behaviour that is specific to its purposeful character to deliberately harm or harm to another person or group of persons (Berkowitz, 1974; Geen, 2001).

- Reciprocal behaviour says that man now or in the future will help what he has helped before him. (Slaměnik, 2014)
- Affiliation is a need for a person to search for and establish contacts and relationships with other people (Freeman, 2014).

These aspects of the individual are heavily influenced by the environment. The process of acquiring behaviour and acquaintance with the environment can be called socialization (Strmeň, Raiskup, 1998; Nakonečný, 1999). Within it, the very strong component is the group in which the individual is located, or which one affects the individual. In the context of the stakeholder relations in the field of sport examined, the group acts as the basic unit for stakeholder relations management (engagement). The group is an association of members sharing group membership (group membership does not guarantee their equality). Groups are naturally created to achieve common goals. Individual performances of individuals have a direct impact on group performance. Individual members have different roles within the group. The group can also be understood as a sports club consisting of management, athletes, coaches, employees, children, and so on. Their position within the club is different and their roles are different. Every individual has his own role and his individual performance affects the performance of the entire club. Within the group, there are different relationships and different behaviours among members that can be split into IPA analyses for problem-solving tasks, relationship-oriented behaviour (positive and negative), or task-building questions (Hewstone, Stroebe, 2008).

The function of members within the group is also rooted in the roles. This means that there is a hierarchy of members within the group. Members are generally differentiated within the group according to their specific (abilities) and diffusion (age, gender, ethnicity) status features. It is preferable to take particular account of the specific features of the position (Hewstone, Stroebe, 2008). As far as the issue of sport it does not matter, that a player is old or young, where he comes from or what is his faith, it is important that he / she can deliver the expected individual performance to achieve the group goal. The same applies to club management and the like.

In groups between individuals within their relationships, there are different communication channels. Frequently, communication is one of the cornerstones for achieving the expected results. Communication has a direct impact on the interaction and influence of individuals within and outside the group (Ruesch, Bateson, 1951). As a basic type of interpersonal communication, conversation can be considered (Levinson, 1983).

It is important to note that communication within a group (or between groups) is not random, but groups use different communication formulas. In the field of sport, the formula called the steering wheel is most often used

(Hewstone, Stroebe, 2008). This is used, for example, in communicating a coach with players, club manager with coaches, scouts or player agents. It is a formula in which a centralized structure of relationships is used. In this structure, the information is distributed to the edge members of the structure through the central position. For example, a coach manager informs all players.

2. Metodology

Within the framework of this paper, sociological survey in the form of a structured questionnaire was used to acquire knowledge, and new facts on the subject. The questionnaire survey consisted of issues related to the necessary topic (cooperation between stakeholders in the field of sport), which were more than 2 000 respondents. The questionnaire survey was preceded by sampling. Sampling is a method that determines the reliability of the results and affects the sample size. Sampling is part of research design, identifying basic and sample sets (stakeholders whose relationships will be examined). The basic set of this survey is made up of all subjects for which research results are to be covered (Ritmorský, 2011) selected sports clubs and schools. The selection sample consists of all primary schools in Slovakia, representing 2530 elementary schools and tennis clubs registered under Slovak Tennis Association (198 sports clubs).

3. Results

Only 29% of elementary schools actively participated in sociological survey conducted through the Internet. Interestingly, up to 50% of elementary schools have completely ignored this survey, as can be seen in the following figure 1. This fact points out that half of the primary schools are not interested in communicating about cooperation with other organizations. Such a negative attitude may in the future have a negative impact not only on the development of sport but also on the development of the elementary schools themselves as they may lose important partners for their existence.

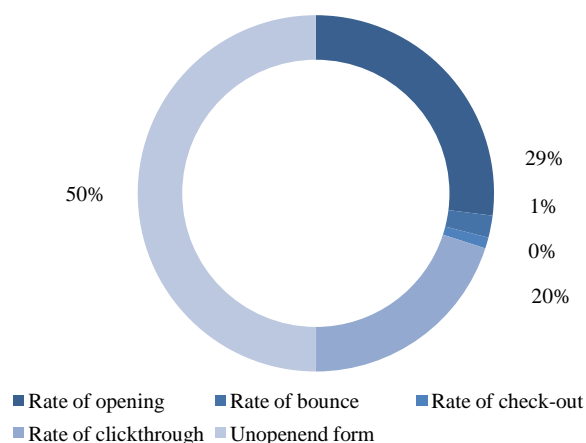


Figure 1. Basic statistic for the collection of questionnaires in schools

Several important pieces of information were obtained from the results of the questionnaire survey. For example,

more than 60% of schools cooperate with organizations active in the field of sport and up to 60% of co-operation is aimed at youth development. What is important in more than 60% of cases is cooperation coordinated by both partners. This fact is a good prerequisite for creating cooperative partnerships. It is also very important to find the expected and real benefits of such cooperation. The most anticipated benefits of cooperation are the distribution of goodwill, the gain of new knowledge and the development of the human potential of the organization. On the contrary, the real benefits of cooperation are mainly in the areas of cost reduction, organizational development, the development of the human potential of the organization, and the spread of goodwill. The highest importance in cooperation with the school attaches to a correct partner approach and fair contract terms. In the case of non-cooperation 45% is the main reason for the cost of cooperation and 61% of the cooperation costs are the main obstacle to cooperation.

Similarly, sports clubs have been approached. Of the 192 clubs addressed, 33.3% of sports clubs were actively involved in sociological research. As in the previous case, some respondents (34% of respondents) this sociological survey ignored, as can be seen in the following figure 2.

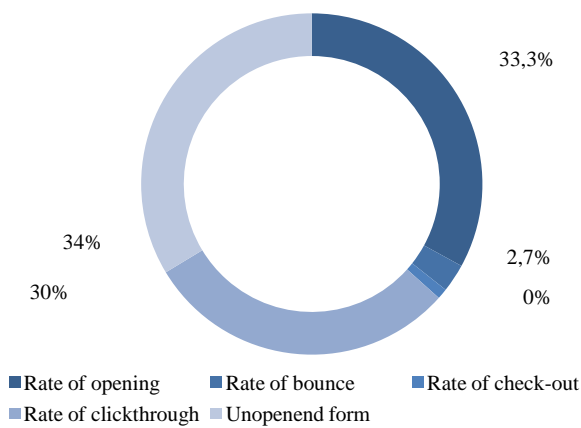


Figure 2. Basic statistics for the collection of questionnaires in sports clubs

Several important pieces of information were obtained from the results of the questionnaire survey focused on sports clubs. For example, more than 90% of clubs cooperate with other sports organizations, with as many as 66% co-operation focused on youth development. However, in more than 55% the cooperation is coordinated by clubs. Similarly, to schools and sports clubs, it is also very important to find the expected and real benefits of these collaborations. The most anticipated benefits for sports clubs from cooperating with other sports organizations are the development of the club and the spread of goodwill. On the contrary, the major real benefits have been marked by cost reductions and the acquisition of new partners. The utmost importance of

cooperation clubs attaches to achieving the goals of cooperation and effective mutual communication.

In the absence of cooperation, the cost of cooperation is the main reason for the non-cooperation, and the main obstacle to cooperation is the cost of cooperation. The last important finding is that most clubs consider sponsoring only as acquisition of money for the club.

4. Discussion

In the field of sport, there are many links between the various stakeholders. One of the most important participants is sports clubs, fans, community, partners / sponsors and schools. There are relationships among these stakeholders that can identify several socio-psychological aspects that affect them. These aspects can be understood as prosocial behaviour, aggressive behaviour, cooperation, competition or affiliation (attraction). As found in surveys, clubs and schools cooperate with each other, have similar expectations of mutual co-operation, but the reality is different. The relationship between these two parties is very important for sports clubs because it can be a source of new athletes. Relationships with individual named stakeholders to the sports club can be seen in the picture below.

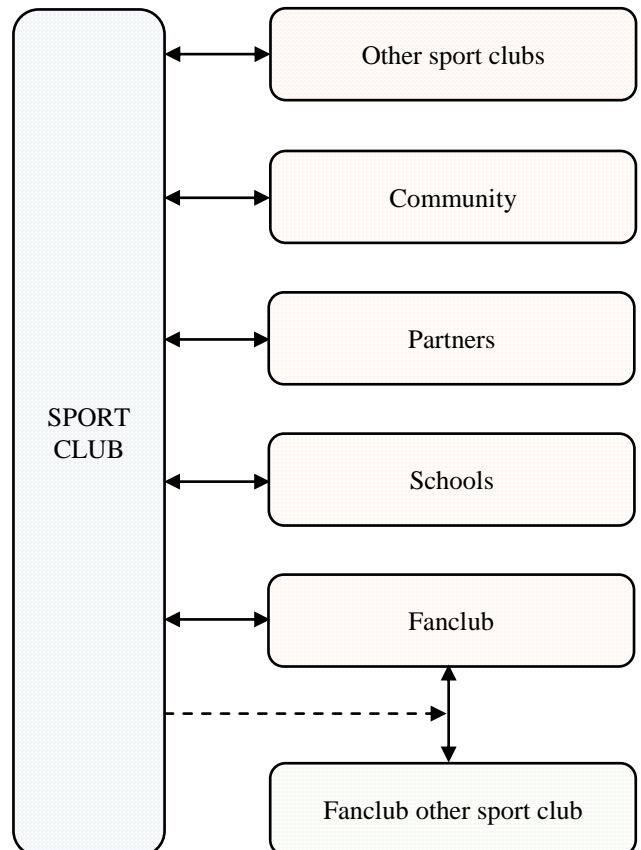


Figure 3. Relations between the sports club and stakeholders

Relationship between sport clubs and community

Within this relationship, it is possible to talk about pro-social behaviour between the sports club and the community. This is behaviour in the relationship between these stakeholders is based on the strong unilateral activity of the club towards the community without the club expecting it to be worthwhile. For example, support for organizations such as UNICEF, such as children's homes, and so on, can be included among these activities. Behaviour within these relationships is very empathic, and these individual activities are often altruistic.

Relationship between sport clubs and partners

Within this relationship, it is possible to talk about cooperative relations or, respectively, also about affiliation relationships. They are expressly about business relations. It is important for these relationships not to have different goals for joint activities set up by partners. It is important to ensure that objectives are met and mutually satisfactory cooperation is achieved. Aspects that most influence on these relationships are competition, success, self-esteem, simplicity. In order to build and manage these relationships, it is advisable to focus their mutual behaviour on more empathic and pro-social behaviour.

Relationship between sport clubs and other sport clubs

Within this relationship, it is possible to talk about relationships that are oriented towards the mutual competing behaviour of stakeholders. Rivalry is one of the basic components of sport and is one of the basic aspects of the relationship between sports clubs. It can often lead to a change from competing behaviour to aggressive and irrational behaviour. This is often seen in sports such as boxing, wrestling, and similar combat sports, where rivals insult each other often before the game itself. The solution to managing these relationships is to control the aggression of athletes by the organizers and also by the athletes' managers themselves.

Relation between sport clubs and schools

Within this relationship, it is possible to talk about pro-social behaviour. This is a very important relationship in the field of sport. Schools are a very important stakeholder for clubs and therefore clubs often behave very prosocial in their relationship. Clubs are trying to get young players in this way. Many times, however, these empathetic reciprocal relationships are transformed into cooperative relationships where a partnership relationship based on the support of youth sport is established between the school and the club.

Relationship between sport clubs and fanclub

Within this relationship, it is possible to talk about affiliation behaviour (attraction) but also aggressive behaviour. Fanclub is one of the main stakeholders. Despite the fact that without fans the sport probably would die, it is necessary for sports clubs to have their fan clubs under control (in terms of managing aggressive fan behaviour towards other stakeholders). For such control, clubs can use coercion and norms.

Relation between fanclub and fanclub of other sport club

Within this relationship we can talk mainly about competing behaviour and aggressive behaviour. This behaviour among the individual fanclubs results from the nature of the sport. It is generally known that in dynamic, collective and popular sports, such behaviour is more likely to be felt by fans. This behaviour is controlled and regulated by the standards and control of aggression by the club or by a third party (as mentioned in the previous case).

5. Conclusion

As identified in survey and discussion, the relationships between sports clubs and their stakeholders are important and need to be constantly developed. It is also necessary to respect their demands and expectations of mutual cooperation. Therefore, it is important for the sports managers to know not only the environment of the organization but also the external environment. A great deal of stakeholder theories in sport can enable sports managers to answer key questions such as:

- who are key stakeholders,
- how interests are changing within and between stakeholder groups, what is the nature of the relationship between the sporting organization and its stakeholders and among the stakeholders themselves, what responsibilities the organization has towards its various stakeholders,
- how decision-making should be aimed at balancing the interests of the various stakeholders, what strategies stakeholders can use to influence the organization.

Overall, it can be said that sports clubs have to think about their individual stakeholders who can influence them. In each section, the importance of managing stakeholder relations in the field of sport was emphasized. Also, the behaviour between the sports club and stakeholders was explained. Behaviour may vary and depend on the type of stakeholder. It is necessary to adapt it and, through appropriate tools, to manage the relationship with the selected stakeholder properly. It is important that sports clubs take care of the proper management of these relationships, as these relationships can be a source of finance, human potential, material, and also know-how or other skills. For sports clubs to be successful, it is necessary to find out from the stakeholders of the right cooperation partners. One of them appears to be elementary schools. Cooperating with them is important for sports clubs from the perspective of the future. It is important for sports clubs to work closely with these stakeholders to plan, develop and maintain for a long time. In this way, sports clubs will be able to sustain long-term continuous growth.

Acknowledgements

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THE INTELLIGENCE SYSTEMS USE IN INNOVATIVE PROCESS

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Abstract: The aim of this article is to emphasize the need for innovative intelligence systems in a company. The intelligence systems are used in many businesses but not for needs of creating and implementing innovation. It is a wasted opportunity, because the intelligence systems are made exactly for discovering of future opportunities and for evaluating them. And that is why they can also be used in the "environment" of innovation. The main role of innovative intelligence systems is the identification of innovative opportunities, their evaluation, assessment and referral to competent persons - innovative manager. Using innovative intelligence systems, a company can achieve a more efficient use of resources, time and, of course, financial resources.

Keywords: innovation, innovation process, the intelligence systems

1. Introduction

Nowadays, most companies are engaged in innovation and are striving for the best possible implementation in their business. Innovation is an important tool for achieving competitiveness. However, they need to be sufficiently focused on obtaining inputs in the form of innovative resources. Innovative resources are then used to evaluate and implement innovations - whether they are various improvements or completely new products/services. It is precisely in this that they are to be helped by innovative intelligence systems, whose main task is to discover innovative opportunities and evaluate them.

2. The intelligence

The news comes from data or indication that are not deeper in themselves and are merely facts, symbols that exist independently of human consciousness. If the symbol is also assigned a content (deeper meaning), it is a message. Information comes from messages that are associated with content, context, purpose, the message is assigned a sense. At the same time, information reduces uncertainty and risk to the recipient. If information is merged with the creative thinking of man, it is knowledge (Figure 1).

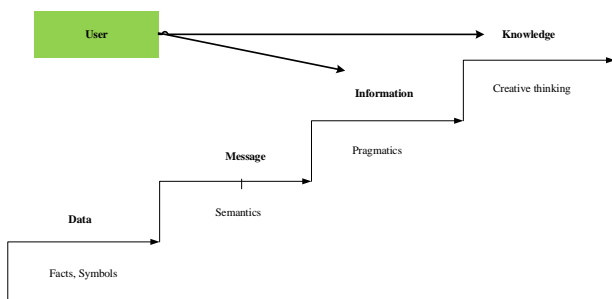


Figure 1: Transformation of data into knowledge [2]

It follows that intelligence can be defined as a set of data that needs further work.

The output of the intelligence system is information that can be defined as a set of facts / data organized in such a way that it contains added value in addition to the value of the facts / data itself. (Stair, Reynolds, 2008) The value of the information depends on its characteristics and quality. [7]

Currently, most managers require a lot of information in the decision making process. However, this is not correct, because the whole decision-making process is overload by a lot of information. Before the decision is necessary, the intelligence, which provides the necessary knowledge for execution of the decision, is necessary.

When we talk about information, it is about pure facts that describe past and present. Instead, the intelligence serves to describe the future and its prediction. Author Vejlupek in tab. 1. point out differences in investigations and decisions. [5;8]

Table 1: Comparing the differences between investigation and decision making

	Investigation - investigative analysis	Decision making - intelligence analysis
Purpose	reaction - addressing the consequences	prevention
Entry	knowing the truth (gathering evidence)	diminishing uncertainty (signal identification)
Technique	deduction	induction
Outputs	hypotheses about the causes of the existing state	hypotheses about future status or development
Time	is not relevant	the sooner the better

3. The intelligence system

The intelligence system is often associated with the word strategic. Strategic intelligence system, respectively strategic intelligence, applies to the management and planning of innovation strategies in the regions. This is a

strategic approach that takes into account the nature of the regional innovation system and the learning process, the willingness to experiment, technological developments in the field of research and development. It includes tools such as technology foresight, technology forecasting, and social impact assessment of technology development. This approach evaluates and predicts the impact of the proposed innovation policy and strategic objectives on the areas of technological development, science, research, innovation and regional development. [3]

The intelligence system includes systematic scheduling, daily gathering, sorting and analyzing of messages, and then evaluating them. Its main role is to help managers in decision-making in given areas, respectively. for given problems (marketing, innovation, etc.). Messages, also called news, can be obtained from both internal and external sources.

At present, companies spend a lot of time and money on technologies and processes that collect, sort, store, analyze, and distribute information. Often, however, it is only internal information that is of a quantitative nature and affects mainly the core activities of the companies - production, sales. Such information serves to increase the efficiency of processes, how to do things right. This is the side of offer. [8]

However, in order for companies to increase their competitiveness, it is also necessary to work with external information of a qualitative nature. It is this information that leads to an increase in efficiency, how to do the right thing. This is a side of demand. Data from external environments of company occur in different forms and therefore there are no universal algorithms for processing them. Information will be created by workers, the technology (intelligence system) is only helping them to make the work easier. [8]

For decision-making, it is necessary for the intelligence system to distribute information in the correct form, because if a manager is facing a problem he needs to evaluate a variety of information that is in different form (text, number, picture, etc.). This often results in a failure or inefficiency. The intelligence system should distribute information, for example, in the form of a scheme that would make it clear to the manager at first glance. The visualization of already obtained and processed data is an important part of intelligence systems. In tab. 16. there is a summary of the process information systems with the intelligence information system according to Vejlupka (2002). [8]

Table 2: Comparison of process and intelligence information systems

Users	<i>wide spectrum - operational</i>	„knowledge workers“ – tactics and strategy
Inputs	specific resources	maximum relevant resources
Operations	standard - predefined	nonstandard - intuitive
Outputs	form, list, table	information map, diagram, graph

The Intelligence Information System works by integrating three basic components:

- information resources (raw material),
- information technologies (working tools),
- methodology (working procedures).

On the basis of the detailed analysis, it can be stated that there are only few authors are dealing with the intelligence system topic. The intelligence system includes intelligence activities (part of the reporting cycle), including planning and routing, information mining, primary data collection, analysis and production, reporting, and reporting on results [1]. However, each author emphasizes other parts and elements of the intelligence systems and their use. For example:

- Sabadka (2004) focuses on competing intelligence (external environment), company intelligence and business intelligence. For the intelligence activities highlights news, gathering, analyzing, selecting, applying and evaluating. [6]
- Kotler (2000) focuses on marketing intelligence and from intelligence activities emphasizes gathering, sorting, analysis, evaluation and distribution. [4]
- Fuld (2007) focuses on the basic intelligence cycle and competing intelligence. From intelligence activities, he highlights planning and direction, disclosure, data collection, and analysis, production, reporting and evaluation of the results achieved. [1]
- Vejlupek (2002) focuses on the Fulda intelligence cycle and covers the competing intelligence tools. [8]

4. The innovative intelligence system

Managing innovation and innovative ideas is a complex activity that consists of extensive collection, analysis and processing of data and information. In the current practice, the biggest problem is the amount of data that needs to be collected, sorted, analyzed, evaluated and subsequently distributed to competent workers. According to Sabadko (2004), for innovation companies it is necessary, the use of a comprehensive information system for innovation, intelligence system to support innovation. [8]

Information from the intelligence system improve decision-making and therefore it is necessary for them to have them in required quality, form, at the right time and right place. From these criteria, time and quality can be determined as priorities and acting on their own. However, unlike the meaning of original intelligence systems, this is not about espionage, but about the legal activity of companies that try to prevent and avoid economic crime. [5]

	<i>The process information systems</i>	<i>The intelligence information systems</i>
Purpose	to increase the efficiency of routine activities	to increase the efficiency of knowledge creation

5. Conclusions

At present, most businesses are aware of the positives and benefits of innovative ideas and innovations that develop and support their business. In the long term, innovation is essential to have and innovative intelligence systems are here to help drive them. The innovative intelligence systems represent a comprehensive system for administering, managing and implementing innovation. The role of the innovative intelligence systems is to collect, sort and analyze the amount of internal data (which the enterprise has) and external data (external environment). At the same time, the innovative intelligence systems distribute processed data to competent workers and unveil new innovation opportunities.

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TEAM-RELATIONSHIP QUALITY - A MODERATOR BETWEEN SUPERVISORY SUPPORT AND PERCEIVED STRESS

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Abstract: Supervisors have an indirect and direct influence on stress situations of employees through possibilities of promoting relevant social support in the workplace. Based on their behavior, they are either able to reduce stress among staff members or cause harmful (di-)stress through misconduct. 61 sales-managers from different industries participated in the survey, measuring perceived supervisory support and perceived stress among sales-managers, using the “Perceived Stress Questionnaire” (PSQ) and the Survey of perceived Supervisory Support (SPSS). It is assumed that a good interpersonal relationship between teammates can moderate the relationship between perceived supervisory support and perceived stress. Social relationships first influence stress-coping processes, which in turn affect the well-being and treatment of illnesses [1]. Therefore social relationships are important predictors of well-being. The team-relationship quality was recorded with the EVOS-Scale which also includes the factor “collective efficacy”. As assumed, a significant correlation between supervisory support and perceived stress among employees was found. Also a significant moderating effect of EVOS-subscale collective efficacy on perceived supervisory support and perceived stress was found. The findings are valuable in the framework of human resources management and leadership research.

Keywords: Perceived Stress, Relationship Quality, Perceived Supervisory Support, EVOS-Scale, Team Relationship Quality

Introduction

Social support is an essential source of health in organizations. Rudow (2014) differentiates two support systems in the workplace: supervisory support and peer (co-worker) support [2]. Social support distinguishes perceived social support and actual received social support [25]. This study refers to the subjective perception of supervisory support. Also interpersonal relationships, broken down to cooperations and interactions, through to short personal encounters, leave an indelible mark on both, the psyche and the physique of an employee [3], [6]. Of particular importance is the quality of these relationships [3], [4]. Although early social-epidemiological research has already examined the influence of relationship quality on health based on the concept of social support, this approach involves only a one-sided positive, health-promoting connotation of social relationships [7]. Too little emphasized are in this context the problematic aspects of social relationships in the workplace as a social system, such as, among others, poor cohesion, communication quality or harmful team climate [8]. Positive interpersonal relationships and social support as a subset, are considered crucial factors in professional and daily life, protecting against unhealthy, excessive stress reactions. Over thirty years ago, Cohen & Willis (1985) proposed that social relationships leads to self-assurance and stability in life, and thus has a direct impact on well-being (main-effect model) [10]. Likewise, objective stressors can be reduced through active support [12]. The buffer hypothesis assumes that social support moderates the relationship between stressors and stress responses [11], whereby social support reduces or blocks exposure to stressful experiences or minimizes their impact on health [9]. Hence, the difference to a main-effect model is

the assumption that social support is not generally regarded as a predictor, but as a moderator (moderator variable) of stress effects¹. However, this buffering effect occurs only in extreme situations with a high stress load. If high strains do not occur, the positive moderating effects of support are not verifiable [13]. The previous remarks, gives rise to the following questions, to what extent good co-worker relationships can buffer (moderate) a high stress level, triggered by poor supervisor support? In order to answer this research question and for testing the hypotheses², a correlation analysis, a linear regression and a moderator analysis were performed. In this study, correlations are determined using the main effect model.

1. Team Relationship Quality

For O'Toole & Lawler (2006) the relationships in work contexts are of great health significance, as they affect the quality of daily life in a very direct way. If the employee experiences team relationships as trusting and supportive, it strengthens the team-internal bond and the willingness to perform. As a result, employee health and the work results are also positively influenced. Badura (2017) indicates interpersonal processes for human health, its development and the mobilization of performance potential as fundamental [17]. This is obviously due to the fact that people have the natural desire, next to the needs for efficiency and autonomy, to unconsciously adopt the regulation mechanisms of the social world, in order to be associated with other individuals, becoming a member of the social world. Attempting to feel connected with others, individuals take over and integrate goals and behavioral norms into their

¹ In the course of this work the general term “stress” refers to the harmful distress.

² see paragraph 2

own self-concept. Prerequisites for this process are offers and requirements in an accepted environment, which strengthens the corresponding behavioral tendencies [17], [18]. This strong pursuit of attachment leads to the emergence of networks of social relationships. Culture of shared values and rules stabilize these relationships and structures interpersonal communication and cooperation, as well as feeling, thinking and behavior [16]. Changes in membership status can cause emotional reactions. Ongoing high involvement in social relationships lead to generally a better emotional condition; lasting deprivation, on the other hand, to a generally poorer emotional condition [19], [20], [21], [22]. According to Petzold (2010), the desire of belonging to a group goes so far, as an individual is prepared to initially put up with physical and emotional injuries. Many people even sacrifice some of their own integrity and social freedom to ensure the cohesion of a larger system. The proximity to other people is therefore based on a need satisfaction, which protects the individual from further physical and mental illness, even if it has to endure pain initially [23]. This gives rise to the following hypothesis:

Hypothesis 1: There is a positive correlation between perceived supervisory support and perceived stress.

Hypothesis 2: Perceived supervisory support predicts perceived stress.

Based on the previous theoretical findings, it is also assumed, that employees who perceive poor supervisory support tend to experience less stress due to a good team-relationship quality.

Hypothesis 3: Team-relationship quality moderates the relationship between perceived supervisory support and perceived stress.

3. Methodology

This paper is a cross-sectional study. The interviewees were recruited online via the XING-Network³. The online survey was conducted via the platform Soscisurvey⁴. Participants received no incentives.

Perceived Stress Questionnaire (PSQ): The PSQ, in the normal version, consists of 30 items. The questionnaire used in this study, in a short version, consists of 20 items. The items are determinations for which the subject judges on a scale of 1 for "almost never", over 2 for "sometimes", 3 for "often" and up to 4 for "mostly", as is often the case applies to them within a certain period of time. The time period in this study is set to the last four weeks, but there is also a variant in the short form, which asks after the last two years. The abridged version comprises the following four scales with five items each: worries, tension, joy, and demands [22]. The individual values of the measured per-

ceived stress of the students are calculated by linear transformation as follows: In order to perform a linear transformation of the scale range from 1-4 to 0-3 in a first step, 1 is subtracted. The result is then divided by 3, which produces a range of 0-1. Subsequent multiplication by the factor of 100 generates values on a scale from 0-100, indicating: The higher the value, the higher the perceived stress. Likewise with this questionnaire some items have to be reversed: PSQ-01: "You feel rested", PSQ-10: "You feel calm", PSQ-07: "You feel you are doing things that you really like", PSQ-13: "You are full of energy", PSQ-17: "You feel safe and protected", PSQ-21: "You have fun", PSQ-25: "You are light-hearted" and PSQ-29: "You have enough time for yourself." Cronbach's alphas for the subscales in the present proved to be sufficient .818, .838, .754 and .799 for worries, tension, joy and demands. Cronbach's Alpha for the full scale was measured at .814.

EVOS-Scale: The EVOS-scale can be used to assess relationship quality and collective effectiveness in multi-person systems. The EVOS has two subscales, consisting of four and five items. There is also a final consensus item. Example of subscale "quality of relationship": „For me, the way we talk to each other, is...“. Example of subscale "collective efficiency": "For me, the way we decide what needs to be done, is...". Members of the social system answer the questionnaire with help of a 4-point rating scale. The format is ranging from "very poor" (0) to "very good" (3). The answers of the consensus item „I think we will give similar answers to this question“ range from "strongly disagree" to "strongly agree". The consensus item is not an integral part of the scale, and may be left out (as done in this study). The answers to the items of the two subscales are added (without consensus item) to a total score [8], [14]. Cronbach's alphas for the subscales in the present study were measured at ,822 for quality of relationship, and ,835 for collective efficiency. Cronbach's Alpha for the full scale was measured at ,903.

Survey of perceived Supervisory Support (SPSS): To measure perceived supervisory support, the SPSS scale [28] is used. The SPSS scale is based on the Perceived Organizational Support Survey by Eisenberger et al. (1986) [22] with the difference, that all items refer to the supervisor, not to the organization as a global entity. The SPSS consists of 16 items with a 7-point Likert scale anchored "strongly disagree (1) and "strongly agree" (7). Example items include: "My supervisor really cares about my well-being." "My supervisor is willing to help me, when I need a special favor." "My supervisor tries to make my job as interesting as possible." The items "If my supervisor could hire someone to replace me at a lower salary he/she would do so." and "If given the opportunity, my supervisor would take advantage of me." must be reversed during summation of the total values. Cronbach's alphas in the present study was measured at ,867.

³ <http://www.xing.com>

⁴ <http://www.soscisurvey.com>

Statistical analyzes:

A correlation-, regression- and moderator analysis were performed. All statistical investigations were conducted using SPSS Version 25. The level of statistical significance was set at $p < 0.05$. Supervisory support was set as an independent variable; perceived stress was defined as a dependent variable. Team-relationship quality was set as a moderator variable.

3. Results

The sample represents a subset of the population of all sales managers in Germany. The age of the participants ($N=61$) ranges from 24 to 56 years ($M = 36.65$, $SD = 5.12$). According to Kolmogorov-Smirnov .000 and Shapiro-Wilk .000, there is clearly no normal distribution for the age of the interviewees, as the specified significance limit for this study falls far short of $p < .050$. 56 participants (91,8%) are male and 5 female (8,2%).

3.1 Descriptive Statistics

The results of the descriptive statistics are displayed in table 1. The Kolmogorov-Smirnov test shows a significance of .003, the Shapiro Wilk test a significance of .002 for coworker relationship quality. In the case of the supervisory support, the Kolmogorov-Smirnov and Shapiro-Wilk result in a value of .000. The significance for perceived stress is .044 (Kolmogorov Smirnov) and .124 (Shapiro-Wilk).

Table 1: Results of the descriptive statistics

scale	mean	min	max	Range	SD	Var.
Peer Rel. Quality	25.93	17	38	21	6.34	40.26
Supervisory Sup.	50.68	25	93	68	22.14	490.22
Perceived Stress	56.35	27	80	53	12.69	161.07

3.2 Correlation Analyses

There is a correlation between supervisory support and perceived stress (full scale) of $-.81$. The correlation between supervisory support and the perceived stress subscales are $-.58$ for tension, $-.63$ for worries, $.40$ for joy and $-.76$ for demands. The correlations for the full, as well as for the subscales, are significant at the $p < 0.01$ level. A correlation of $.22$ has been found for supervisory support and relationship quality (EVOS fullscale). For the EVOS subscales a correlation between supervisory support and relationship quality (.18) and social efficacy (.31) has been found. The latter is significant at the $p < 0.01$ level.

3.3 Regression Analysis

The multiple correlation coefficient $R = .86$ corresponds to the bivariate correlation coefficient. 74.5% of the variance of perceived stress can be predicted from supervisory support ($R^2 = .74$ /Adj. $R^2 = .74$). The standard error of the estimate is 6.46. The ANOVA shows that the regression model makes a statistically significant prediction (Sig. $.00 \leq .05$). Finally, a regression coefficient of $B = -.49$ with a standard error of $.03$ for the supervisory support could be determined.

3.4 Moderator Analysis

Since the results of the EVOS subscale relationship quality show only a weakly and not significantly correlation with perceived supervisory support, a moderator analysis with the EVOS fullscale was dismissed. Instead, the EVOS subscale collective efficacy was used to perform the moderator analysis. The analysis was done with the "PROCESS" macro Version 3.1 by Andrew Hayes. The level of confidence was set to 95%, the number of bootstrap samples to 5000. A significant moderating effect ($p < 0,001$) of collective efficacy on perceived supervisory support and perceived stress was found. The unstandardized beta is $-.46$.

4. Discussion

The purpose of this research was to unravel the associations among supervisory support, perceived stress and the peer-relationship quality as a moderating variable. Looking at the total values of the perceived supervisory support and perceived stress, the correlation analysis shows that employees with a perception of higher supervisory support likewise perceive less stress. It was also investigated that perceived supervisory support also predicts perceived stress of employees. The results underline the particular importance of social support as a relief and protection factor with direct effect (main-effect hypothesis) on stress perception of employees.⁵ Basically, this finding is not a novelty, because assumptions on the effect of social support are typically closely linked to models of stress development and stress management. The evaluation of a situation as favorable, irrelevant or potentially negative depends on the individually available resistance resources, which include the available social resources. In addition, the mobilization of social support is also part of the adaptive stress management strategies [26]. At this point, it is interesting to note that the EVOS subscale relationship quality correlates only weakly and not significantly with supervisory support. This suggests that a supervisor has little influence on e. g. team climate, team cohesion, sympathy or antipathy, where subjective emotions trigger positive or negative associations. However, a supervisor has more influence on perceived collective efficacy and therefore also on individuals' belief in the capability of the group to function. Effective teams are convinced that they will succeed. This in turn motivates them to work harder. Small successes increase self-confidence and motivate the team to improve their technical and interpersonal skills through training. The higher these skills become, the greater the self-confidence and the ability to confirm the trust [27]. If this condition is prevalent in the group, the team is able to compensate poor supervisory support (for a limited time). For executives, therefore, team efficacy should be seen as an important factor that have to be changed for the better.

5. Conclusion

A supervisor can not always prevent stressful phases. However, he can prepare his team by increasing their

⁵ See paragraph introduction

perceive self-efficacy. The more the individual team members are aware of his/her self-efficacy, the more the group benefits - and the team can function well even in stressful times where the supervisor has limited time or is unavailable. Executives are therefore obliged to support team members identifying their own responsibilities in day-to-day business and to increase their self-confidence in order to be more optimistic and assertive in their future tasks and challenges. It is necessary that employees' achievements as well as learning experiences are reflected and tools for influencing the environment as well as the distancing are made tangible. In the context of team development processes, the effects of action and behavior on colleagues can be identified in order to create an improved team climate.

6. Limitations of the study

The sample is adequate with N=61, but not representative. Greater test strength and more valid results could be achieved with a larger number of participants. It is also unclear whether the results in other industries and job-profiles are comparable to those obtained in this research.

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WIZZ AIR CABIN CREW TRAINING

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Abstract: *The aim of this article is to describe the initial training for a cabin crew at Wizzair. The cabin crew must insure the safe storage of objects in the event of turbulence, fully control first aid, ensure that all passengers are fastened whenever necessary and always ready for critical situations such as emergency water landing, cabin pressure reduction, explosion detection, or health problems of someone from the crew or passengers. Cabin crew work is a very nice profession, but it requires many and many hours of training, training, constantly repeating and training.*

Keywords: *Training, Crew members, Wizzair, Airline*

1. Introduction

The aim of this article is to analyze and evaluate the training process of the cabin crew of this company. Based on a personal interview with a crew member of Wizz Air, flying from the base in Kosice. We obtained the information needed to analyze the training process of the cabin crew members of this company. Wizz Air, like any airline, sees training its employees as one of the top priority activities, because it is based on the safety of the flights being carried out and, in general, of the whole air force. Sufficiently educated and qualified employees are a competitive advantage of every company, so employers for education place too much emphasis. Without sufficiently qualified employees, the company would not have the chance to succeed in a highly competitive area, which aviation undoubtedly is. In the case of extraordinary events in the air, the words of crew's praise are often heard, which took care of the safe and timely evacuation passengers from the aircraft. Proper responses in extraordinary and critical situations requires high-quality trainings to address these unexpected situations. Aircraft cabin crew are not required to provide snacks and coffee for passengers. Their most important task is to ensure the timely and safe evacuation of the aircraft in a critical situation. In order to do so without any serious difficulties, they have to go through instruction, training and simulations. Several authors have dealt with the subject and, as an example, the issue can be mentioned Aviation crew resource management – a critical appraisal, in the tradition of reflective practice, informed by flight and cabin crew feedback where authors said that Research in the field of educational technology and curricula has shown experiential/action learning to be the most effective mode of teaching [1]. Is there a doctor on the plane? The distinctive conditions of cardiopulmonary resuscitation on commercial flights where authors mentioned that There are still no international, standardized guidelines, rulebooks, or instructions applying to all airlines when it comes to training and organizing the cabin crew, equipping emergency medical kits and covering the role of medical professionals volunteering their services in medical emergency situations [2]. Comparison of inflight first aid

performed by cabin crew members and medical volunteers where authors found that inflight medical incidents increased annually, with a total of 2818 cases reported [3]. In-flight medical emergencies during airline operations: A survey of physicians on the incidence, nature, and available medical equipment where authors dealt with problem that data on the incidence of in-flight medical emergencies on-board civil aircraft are uncommon and rarely published. Such data could provide information regarding required medical equipment on-board aircraft and requisite training for cabin crew [4]. Managing Asian tourists on long-haul flights where authors said that the voices of cabin crew on international air routes have scarcely been heard in tourism management studies. Typical and real incidents demonstrating problematic behaviours by Chinese, Indian, Japanese, and Korean passengers are documented and discussed [5].

2. Initial training of cabin crew

Every Wizz Air crew member after successful selection, entry tests and health tests must complete the initial six-week training. This training has to ensure that cabin crew knowledge is sufficient to perform on-board service. The educational program is divided to two parts - the theoretical part that is the responsibility of the company itself - and it forms a larger part of this training and a practical part that is done through direct training in practice or through simulations. The training program is divided into weekly blocks and is carried out in Budapest - Wizz Air's main base. The goal of the program is to prepare participants for all possible situations that may occur in their vocation. The program includes lecturing through which boarding guides gain information, experience and skills in the following areas:

- General theoretical knowledge about aerospace and aeronautical regulations
- Entrance course on human factors and optimization of crew activity
- First aid and aero - medical aspects
- Survival training
- Fire training and safety training

- Dangerous goods
- Handling of passengers and an overview of the situation on board

General theoretical knowledge of aviation and aeronautical regulations that cabin crew are required to observe:

- Terminology, passenger layout, flight theory, operating area, meteorology, airplane surface air pollution consequences;
- In-flight cabin crew duties and the need for immediate response to emergency situations;
- Instructions on cabin crew handling;
- Information and flight time limitations, service hours and rest requirements;
- The importance of maintaining documents and manuals in their current state;
- The importance of knowing when cabin crew have the authority to initiate evacuation and other emergency procedures in emergency situations;
- The importance of performing duties in accordance with the operations of the Airline's Manual;
- The importance of pre-flight instruction and providing security information.

First aid and aero-medical aspects

First aid is important not only on the ground but also in the air during the flight, when the airport is suitable for landing distant even hours away. In this case, it is necessary for the cabin crew to know more than the basic bases of first aid provision. During the initial training, the cabin crew will then be familiar with:

- General lessons on aero-medical aspects;
- Physiological effects of flying with emphasis on inadequate oxygen supply, oxygen requirements;

First aid basics, treatment entry:

- hyperventilation,
- burns,
- nausea,
- stomach aches,
- injuries,
- unconsciousness,
- fractures,
- use of appropriate medical equipment.

Situations of medical readiness during flight and first aid, including:

- shock,
- asthma,
- stress,
- diabetes,
- choking,
- epilepsy,
- stroke,
- childbirth,
- heart attack,

Hygienic and health conditions during flight:

- handling of clinical waste
- disinfection
- infectious diseases and the possibility of disease reduction
- hygiene measures on board
- measures in case of death
- physiological effects of fatigue, attention control, time zone changes
- Practical cardiopulmonary resuscitation training to be carried out by each member of the flight deck and using a special manikin made with regard to the airplane environment

Smoke and fire training

- specific measures to coordinate and assist in the case of fire or smoke;
- emphasis on the cabin crew response in an emergency situation in the case of fire or smoke, and the emphasis on determining the actual source of fire;
- the need for frequent inspection of areas with a high risk of fire;
- general procedures for ground-based rescue and emergency services at the airport;
- types of fire and knowledge of the variety of fire extinguishers;
- ways of using fire extinguishers, consequences of misuse, practical fire-fighting training;

Fire and smoke training is very important. The cabin crew does not only encounter fire and smoke in emergency situations but also during any flight, for example, if the passenger does not obey the smoking ban and then does not quit. On board an aircraft, we most often encounter fire class A, B, and C. Fire training involves realistic and practical training on the use of fire extinguishers on board. The cabin crew will learn to use and apply respiratory protective equipment in a simulated environment full of smoke and learn how to extinguish the fire. This training is repeated every three years as part of the recurrent training. The most important factor is to detect a fire in the shortest possible time. In this activity, the most necessary communication between the crew members is the follow-on to CRM training. If a cabin crew detects a fire on board, they must immediately inform pilots. The first crew member who spotted the fire will be a firefighter. The first task of the fireman is to draw attention to the fire of his colleagues with a loud cry: "Fire, fire, fire!". The next firefighter's activity is to find a fire extinguisher, locate a fire and then extinguish the fire. Another cabin crew that listens to the call of the first cabin crew is a communicator. His task is to immediately inform the pilots via the on-board telephone of the situation that took place on board the aircraft. It should express itself as accurately as possible and inform the pilots of details such as: where is the fire located, the evolution of the fire, the response of the passengers and the possible number of injuries. This contact with the flight crew is maintained constantly until the complete extinction of the fire. The third cabin crew is

the assistant of the first cabin crew, the fireman. Its task is to bring other necessary equipment to the fire. If the situation permits, this guide may be involved in fire extinguishing and prevent further fire spreading. Other cabin crew members take care of the passengers and keep them away from the fire if the situation allows. They provide first aid and, in the case of smoke, guide the passengers to bow the heads or to use the handkerchiefs for breathing.



Figure: 1 MOCKUP training
Source: www.wizzair.com

Survival training

Survival in water, including the use and use of floating means, the use of lifeboats or boats and, of course, practical water training in pool areas called MOCKUP.



Figure 2 MOCKUP training
Source: www.wizzair.com

Admission Course on Human Factors and Crew Activity Optimization (CRM)

This course requires at least one cabin crew CRM. These parts of the training must be taken into full depth and must include at least the following topics:

- Part for the cabin crew: human factor failure and reliability, response and behavior, stress and management, self-assessment, fatigue, situational awareness, assertiveness, information processing.
- General: human factor in aviation, CRM objectives, human performance and human limitations;

The crew meets on briefing before departure. It appears that members of the flight crew are seen for the first time

in their lives. From that moment on, they must be part of a team. In large airlines, where around 20,000 cabin crew members work, it is not very common that a crew will know each other operating on board long-haul aircraft with 27-crew members. In medium-sized airlines, this is becoming more likely, and in smaller airlines, such as Wizz Air, where only a few crew members work, most colleagues get closer.

Communication and team play are one of the obligatory areas where cabin crews are trained during initial training. It is all about good communication between crew members, whether verbal or non-verbal, interpersonal relationships, and overall boarding crew to increase performance during service. Initially, only pilots participated in this training. Now, trainers and cabin crew are also working together with pilots. Both groups must at least be aware of what their colleagues are doing. In the initial queries of joint CRM training pilots had no idea how long the cabin crew was preparing cabin in an emergency situation and emergency landing. On the contrary, some of the cabin crew did not even know what the pilot must undergo in an emergency descent and landing. All of this is now included in the joint CRM training.

Handling of passengers and overview of the situation on board

- the rules on the safe fitting of hand luggage and items of work and the dangers arising from incorrect storage of such luggage;
- importance of proper seat allocation with regard to balancing the aircraft, special category of passengers;
- the security measures to be known when transporting live animals on board;
- guidelines on the identification and treatment of persons under the influence of alcohol or drugs or aggressive travelers;
- obligations in the event of turbulence, secure space for passenger;
- ways to motivate passengers and handle the crowd when evacuating the aircraft.

Also, cabin crew can handle communication with passengers. The passengers themselves are the reason why members of cabin crew are present on board the aircraft. Every single passenger may be a source of danger and risk during the flight. We know a lot of cases when the flight had had to land because of passengers who were in conflict with each other because of passengers under the influence of alcohol and other psychotropic substances because of passengers who threatened to launch a bomb on board an airplane during a flight or other a threat that the cabin crew should not underestimate for the safety of other passengers on board an aircraft. Internationality of air transport also makes it possible to meet different nationalities, races and cultures on board, which can also be the source of conflicts among travelers. The cabin crew is the crucial part in the system that can detect and stop the person with terrorist intentions on board when it passes through the security checks. That is why one part of the

communication training with passengers is also the training of detecting a possible terrorist attacker. The presence of laptops, smartphones, and other advanced technologies that include energy sources also poses a risk of explosion or self-ignition of the battery.

Another group of atypical passengers are accompanied, unmarried or deported. These passengers are expelled from the country and can therefore be the source of problems and conflicts. Therefore, they are treated with special procedures such as the absence of women on board and the ban on hot drinks. For all these types of situations mentioned cabin crew members must be trained.

OSH training

Occupational health and safety is a training that is mandatory for every employee, as is also mandatory for cabin crew members. It is one of the training courses that every employee must go through to re-address this issue. Every employee is required to adhere to all regulations pertaining to the work performed, as determined by the company's procedures and rules. The most common occupational hazards include: unprofessional, negligent, non-compliant, injuries, fire or explosion, etc.

Transferred to cabin crew members on board an aircraft we may mention dangers such as:

- blow to the head of storage
- burning, staining,
- electric shock,
- foot or hand injuries from carts,
- tripping, slipping,
- bodily injuries,
- punch or jam in the door.

At the end of this training, the theoretical and practical knowledge is examined and the IATA Driver's Certificate is issued to the applicant. After obtaining this license, the applicant can prepare for the cabin crew profession.

3. Conclusion

The Wizz Air cabin crew training process begins with initial training that includes a wealth of information, knowledge, practical training on both the current and the crisis situation that may occur on board the aircraft while performing their service. A few dozen people are on board an aircraft. In the event of an unforeseen, crisis situation, this crowd of people may suffer panic and chaos may occur. Therefore, each cabin crew should be prepared to deal with such situations in order to maintain the safety of themselves, their colleagues and, above all, passengers on board the aircraft. Wizz Air places additional demands on its employees in the form of additional training such as training to promote the sale of goods on board. Cabin crew are motivated to work not only by financial means, but also by the possibility of career growth, to the position of chief flight crew or supervisor of initial flight crew training.

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GAME THEORY SUPPORT FOR TEAMWORK DECISION MAKING AND COOPERATION STRATEGY DEFINITION

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Abstract: *A cooperation environment can create synergy effects for teamwork between individuals. This article specifies the basics of the various concepts of game theory and connects them with the cooperative strategy of the enterprise. We have identified the real situation in the team cooperation of the selected company, which points to the shortcomings and positive aspects of cooperation. The aim of the article is to identify appropriate elements of teamwork that support the implementation of the company's cooperative strategy. The selected elements of intra-company cooperation describe a cooperative relationship that is directly aimed to cooperate and predetermines a successful environment for achieving the goals.*

Keywords: *cooperation, cooperative strategy, teamwork, game theory, decision making*

1. Introduction

The basic knowledge base for cooperation is broad-spectrum and exists in various areas. After reviewing individual articles and creating a "knowledge base" for modeling a cooperative relationship, we can say that cooperation is an indispensable part of all areas, whether business, living or inanimate. It is important to confirm that cooperation and cooperative environment is not only knowledge and strategy but, above all, increasing social development and progress in individual areas.

Based on a complex theoretical analysis of the cooperation of its forms, elements and the formation of cooperative management, it is necessary to directly link this knowledge to the real business environment.

For the purposes of this article, primary research was conducted in the form of interviews in the selected business and secondary research in the form of studying the available information resources on the issues of cooperation, teamwork and game theory.

The problem with this article is inefficient management of teams within the enterprise's internal environment.

The objective is to identify, by analyzing the theoretical knowledge and practical research, the appropriate elements of team collaboration that support the implementation of the enterprise's cooperative strategy.

The purpose of this article is to draw attention to the increasing impact of intra-corporate cooperation. Within the framework of realized theoretical and empirical analysis, teamwork is an appropriate approach to tackling lower performance and self-esteem at work. This will increase the cooperation, increase the performance of the individual, the performance of the team and the whole company, synergy effects will also emerge.

2. Game theory viewpoint of team cooperation

Cooperation is one of the fundamental elements of the human and biological nature of the world. Not only does it create new connections, it strengthens and repeats the current and defines the conditions of operation, remuneration and punishment of the individual subjects of the cooperative environment. A cooperative strategy is one of the basic approaches to well-functioning business relationships. It strengthens the competitiveness and increases the benefits and the scale of the relationship.

The cooperation is based on the natural inequality of individuals and utilize it into an effective use of these inequalities and the creation of a higher fitness of the partnership. (We consider fitness in this paragraph as a healthy competitive advantage). An important element is the input of short-term (important) and long-term (experience) conditions.

The cooperative strategy is by itself a subject of vast research. The bases of cooperation, its most important elements and their use in the cooperative environment and in decision making are confirmed by several cooperative strategies and games from the perspective of game theory, such as:

- The Continuous Snowdrift Game is an economic game that compares the way of choosing cooperation partners. In this game, it is advisable to have a large number of repetitions. Individual partners jointly invest their resources with three situations: 1) they both cooperate and invest the same, thus achieving the same result; 2) both do not cooperate (do not invest) and they both lose; 3) one in the relationship cooperates and the other does not, while the one who cooperated and invested in the relationship shares the result with the non-cooperating (cooperation is loss-making, not doing anything is profitable). The individual interacting subjects repeat their decision, compare their results with the overall results, and select a new partner who

may be able to invest more or have greater results (wealth) than past interactions. The results of the experiment by Li-Xin et al. [1] conclude that, in a mixed environment, the cooperation strategy achieves better results than individual strategy and individual subjects are actively looking for partners with higher cooperation potential.

- When playing single-round games, individuals are always tending to cooperate or act neutral. Only in a small number of cases will they opt for complete non-cooperation. The reason why individuals in single-round games are more inclined to cooperate is leaving a positive experience and fear of another encounter. [2]
- Cassar [3] experimented with coordination in the Coordination Game on various types of network connections (number of elements and links). The results point to the following finding: Greater number of subjects and shorter interaction time increase the likelihood that players decide to take the profit dominance method. In the prisoner's dilemma game, researchers promoted cooperation for longer individual distances in the local network, while clustering was insignificant. From the results of the experiment of the dilemma, it is clear that it is difficult to achieve effective cooperation.
- Selection based on the reputation of the individual. While assessing potential cooperation partner, it is necessary to consider their reputation and their recent cooperative actions. Under this rule, cooperation makes a good reputation, and running away from a good cooperation partner makes a bad reputation but rising up against a bad opponent is considered justified and does not change the current reputation. [4]
- Public goods games (PGGs): players can contribute to shared funds (bank), contributions are increased, and then distributed among all players in the game, no matter what they contributed. In these games, the most profitable strategy is to hold back their contributions and take advantage of "free-ride" on the investments of others. Players can punish "free-riders" by charging fines for cheating. [5]
- The behavior of partners in the game of prisoner's dilemma, when considering the territorial selection or group selection, is different. Territorial selection combines unknown individuals to compete with other groups. In this group cooperation dominates over individualism, because subjects try not to compete with each other and not to create conflicts. In KIN selection (group, family), individuals are linked by family relationships. The more genetically similar individuals are, the higher is their tendency to cooperate. The outcome of the game in real teams depends on the ratio of cooperating and non-cooperating subjects: R - both cooperate; S - first cooperates, second does not; T - the first does not cooperate, the second does; P - neither one cooperates. [6]
- Nash equilibrium is a condition where each player knows the cooperation strategies of other players. Because of this balance, no player can improve their status by unilaterally changing their own strategy. Nash

equilibrium represents situation in which none of the partners can cheat or parasite on the cooperation. In normal conditions, organization and teams are accustomed to such behavior negative cooperation habits. An example of Nash equilibrium is the "Ultimatum game" that can be played by two players. In the first round, player A can divide 100 € between himself and player B. In the second round, player B can decide whether to accept the proposal of player A or none of them will get anything. The most rationale solution for player A is: Player A splits € 99 for himself and € 1 for Player B. Player B accepts a split because € 1 is still more than € 0. Research, however, shows that the most frequent distribution was 50/50. Such behavior by participants can be possible explained by player's sense of justice, but more probably by fear of losing social status and being afraid what others may think, as well as the desire to be valued in society by others. [7]

2.1 Most common reactions of individuals to the cooperation games

There are many more similar games design to study the cooperative environment. Based on the framework of the examined topic [8,9], we present a summary of the individual games results During the games individuals:

- consider the risks of cooperation
- compare the benefits and possibilities of cooperation,
- have no incentive to maintain a relationship with a non-cooperating partner,
- select co-workers on the basis of their willingness to cooperate or according to their previous cooperation results, this cooperation should be more stable and last a longer period of time,
- replace those partners who make cooperation harder to maintain, choose a stable cooperation partner rather than an unreliable one,
- create common final results with their partners which depend on the number of iterations of interactions,
- operating inside local networks offer better conditions for cooperation,
- influence the outcome of cooperation depending on the precise relationships structure,
- imitate successful strategies.

2.2 Real life implementation in chosen organization

The observation was carried out in a medium-sized company that has been active on the market for more than 10 years and provides IT services both domestically and abroad. Based on the observation a list of positive and negative aspects of cooperation were defined. Selected aspects of cooperation describe a relationship that focuses directly on intra-company collaboration and predetermines a successful environment for achieving goals, interactions and communications, as well as the potential development of cooperation. Cooperation is described by the elements on which cooperative relationships are based. The second part sets out the bases that prevent and damage the possibilities of cooperation.

Positive aspects of cooperation:

- In a mutually beneficial relationship, the individual members of the company are involved (win-win strategy) mainly to maintain good reputation, to create foundation for positive future relationships as well as positive references
- Individuals in cooperative relationships build a certain credibility where the reputation of the individual and the experiences gained in cooperative interactions directly affect the future of the individual's involvement in the cooperation
- Strongly homogeneous culture of the company
- Cooperative interactions are based on trust, which is built by following the rules and by putting the same effort into common interactions

Negative aspects of cooperation:

- Discrepancies between personal goals and company goals
- Poor formulation or poor understanding of terms and rules of cooperation
- Conflict of interest (formal partnerships only)
- Low level of information interconnection
- Conflicts based on discrepancies in the results (they do not correspond to the effort made)

Elements of the cooperative environment in the selected company, however, only to the examination of objective reality within selected indicators.

3. Discussion and conclusion

Interdependence (reciprocity, altruism) is important for creating future benefits and effective team decisions. Engaging in mutually beneficial relationships, adherence to standards and rules and positive use of inequalities leads to cooperation. Benefits and inequalities are the main accelerators of the creation of cooperation. In order to create a cooperative environment, it is necessary to establish a cooperative balance, on one side, the costs of maintaining cooperation, creating relationships, penalties and on the other side, the benefits of the relationship. In a cooperative relationship, a so-called "nash balance" can occur, where each of the cooperating subjects know the strategies of the other players, and when no player can improve their situation by a one-sided step. [10] It is important to establish the rules and the norms for the relationship, ie to establish the collection of individual relationships and their boundaries. This environment will achieve higher benefits than in an environment where this cooperative relationship is not implemented. [11,12] The norms determine the beneficial behavior of individuals in defined areas of cooperation. Here, we begin to point out certain conditions that are needed in the management of cooperative partners.

Synergy is the central principle of changing the perception of added value, which is created by the cooperation of several elements (individuals, groups, businesses, etc.).

The concept of synergy is applied to all forms of cooperation included in the partnership. Synergy is also reflected in the thoughts and actions that result from cooperation and partnerships in a wider community (a more complex and comprehensive view). [11] Game Theory points to conditions and rules in specific environments that may or may not apply to an individual team member. The individual chooses the goal and then his / her strategy. Achieving a synergic effect therefore depends on the individual goals and strategies of the individuals.

The complex results of the synergic effect research in the cooperative environment point to the following points:

- Synergy has a direct impact on a long-term and sustainable cooperative relationship.
- A cooperative strategy, a strategic management of cooperation, is one of the main ways in which businesses can achieve synergy effects.

Strategic management of cooperation (cooperative strategy) can influence the goals and strategies of individuals. There are several tools and methods for strategic cooperation management, as well as concepts and principles of game theory.

The basic process steps for creating a synergic effect for teamwork are:

1. Set a target / make the reaction
2. Start searching for a cooperative partner
3. Selection of a cooperative partner
4. Team cooperation - cooperative game
5. Achieving synergy effects

The cooperative game is one of the tools to solve problems in the current team environment, where the system as a collection of interacting elements is managed to achieve the set goals (also called cooperation management).

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DECISION MAKING IN TEAMWORK PROCESSES

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Abstract: *Decision making in teamwork processes is a significant success factor of many companies today. In the epoch of automation, the value of people in businesses is steadily increasing, and the success of businesses is increasingly dependent on the skills of employees and their decisions, which determine the direction of modern companies. The paper unveils the ideas of decision making, decision making processes and teamwork processes and their use and good management in companies. The future of decision making and management of teams in companies opens new opportunities for education and development of this part of companies. Human potential, employees and their skills represent one part of the value of the organization.*

Keywords: *teamwork, teamwork processes, decision making, decision making processes, teams*

1. Introduction

In order to achieve organizational goals, the work of smaller staff teams is often critical. As far as social groups are concerned, many different factors influence their performance and efficiency, personality of individual team members, style of leadership, experience etc.

Decision making ability plays a key role here - because it is responsible for determining the goals of the team and the progress of its internal processes. For proper and effective decision making in the teamwork process, it is necessary to understand its principles, understand how it works and how it can be influenced in social reality.

Many organizations currently consider the absence of decision making tools in their internal teamwork processes as one of the most important problems, combined with a lack of management experience and a lack of understanding of the team as a social group. This impacts on negative effects such as high costs, time delays, frustration of people, low or poor quality of work results. Good team management can eliminate the negatives and contribute to effective team setup and performance.

2. Teams and Teamwork

Many authors have attempted to define team appropriately. Based on one of these definitions [1] we can say that team is the community of people who have been assembled to perform some organizationally relevant tasks.

At the same time, Kozlowski defines team more detailed as a community of employees existing to fulfill a role important to an organization, to share one or more common goals, to perform social interactions, to demonstrate interconnection of tasks and to create and maintain borders. At the same time, team must work in a wider organizational context that defines its boundaries, limits it and coordinates its interactions with other entities within the organization. Team members must share one or

more goals, engage in social interactions with other team members, maintain and manage team rules, and engage in interdependent tasks. This can be created by an organization and should work with other units within the organization. For the teamwork concept, it is necessary to promote values that strengthen team culture within the organization. These are for example the ability to listen and constructively respond to opinions expressed by other members of the team, the ability to promote trust amongst members, the ability to properly support others and to recognize the successes and interests of others. [2]

Teamwork is a complex social system that is a complex set of components and activities. Due to the complexity of the issue, most authors in their research deal only with a certain subset of team collaboration or its individual components.

For a comprehensive understanding of teamwork in the context of the paper, it was therefore necessary to combine individual research into a coherent structure depicting a team collaboration system.

The Igenov [3] model of team collaboration was chosen as the framework for the above-mentioned structure. The reason for choice was the clarity of the model along with its simplicity. A simple division of teamwork based on a widely recognized and applied model offers the opportunity to easily integrate individual components examined by different authors into a wider context.

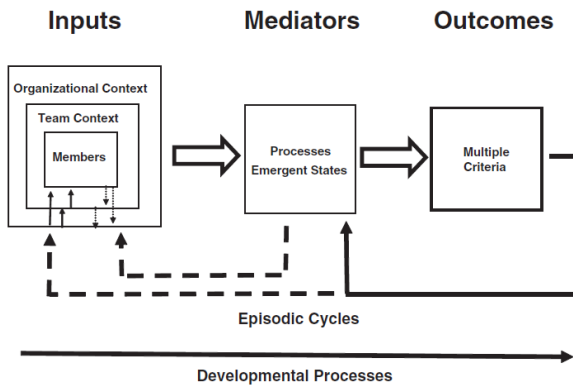


Figure 1: Teamwork model

The model divides the team building components into three groups. They are:

- input into the team collaboration process,
- internal components of team collaboration,
- results or outputs of teamwork.

The model also represents a key division of input into team collaboration and its entire process into three basic levels:

- the level of individual members,
- team level,
- organizational level.

2.1 Teamwork internal processes

A number of authors have attempted to describe the partial processes and components that form within the dynamics of team collaboration. [4,5] One of the most widely accepted model of teamwork is the Dickinson and McIntyrov model. [6] Its graphic representation is described in Figure 2.

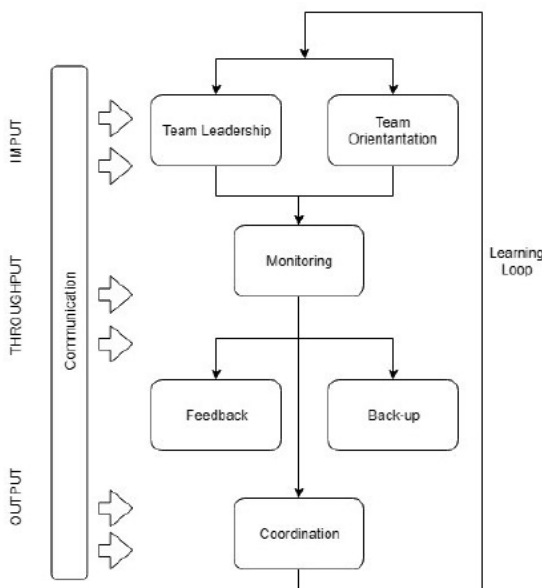


Figure 2: The internal teamwork processes by Dickinson and McIntyre [6]

Dickinson and McIntyre's model of team collaboration process is based on the definition of the seven major components of team collaboration and the relationships between them. They are:

- communication;
- team orientation,
- team leadership,
- monitoring,
- feedback,
- coordination
- communication.

All of these components are supported by a cyclical improvement loop that is designed to periodically improve the process. All internal processes also require a wide range of decisions for the functional functioning of the team collaboration system as a whole.

Synergy in cooperation is more effectively achieved at combination of the character features and abilities of individuals participating in a group, than by achieving them by individuals alone. [7]

The basic components of the model are divided into 3 categories. Team leadership and team leadership are input components, as these components are necessary to enable individual team members to share common tasks.

Monitoring, feedback and reporting are internal components responsible for the effectiveness of team collaboration.

Coordination of past factors is perceived by the authors to be an output component because it defines the overall performance of the team.

All six of the above mentioned components are supported by communication, which extends beyond all three categories of factors. [6]

Other authors look differently on the issues of team processes, and besides the seven processes defined by Dickinson, they also define others:

- *Planning* is a process of identifying the goals of team collaboration, defining expected output properties, and determining assigned resources. [8]
- *Organizing* manages task distribution and synchronization of individual team resources. It represents one of the main components of the team leadership. [9]
- *Dynamic planning* takes into account the dynamic component of team collaboration. This means that team is planning to change the team's composition over time, plans the activities of members who are in multiple teams at once, and updates the team's requirements according to new circumstances. [10]

- *Involvement of members* is responsible for the fact that individual employees are fully employed and involved in team activities. It also defines the responsibilities and competencies of the members. [11]
- *Remuneration* contributes to motivating employees to perform better. It is also responsible for building a team culture, collaboration and competition between individuals and teams. Properly set remuneration systems can have a very positive impact on team collaboration in organizations. [12]
- *Conflict resolution* is one of the basic internal team processes and aims to achieve a peaceful solution and consensus among team members. [13]
- *Motivation* includes a set of internal and external factors of individual team members that stimulate them to perform better in team activities. This is an internal factor at the team level. [14]

3. Decision making

Decision making and its theoretical basis in the context of management have been formed since the early 1950s. Through the past, decision making in management positions was seen as the ability of individuals to properly think and do the right things. Supporting decision making skills have been used mainly to develop employee knowledge, skills and habits. Individual training programs for individuals were set up in enterprises to develop the competencies of managing teams. For the purpose of making the right decisions, organizational structures of companies and the distribution of responsibility were also modified. In this way, the skills of the employees who later intuitively decided on the problems improved [15]. Simon also claims that in the past, managers did not have enough knowledge about decision making processes in complex issues. Human thinking, problem solving and learning are processes that have been described but have not been sufficiently explored. This implied the need to select the management functions of people who were able to intuitively propose the right solutions and demonstrate these capabilities in the tests. Subsequently, their personal skills were developed through training and model situations.

Despite the fact that some authors perceived decision making and management as integral management functions, complex decision making procedures were formed. Abendroth introduces the seven phases that constitute the decision making process of managers [16]:

1. analysis of the decision making area in order to identify important elements,
2. determination of the criteria for evaluation,
3. assessment of known information to reduce uncertainties,
4. isolation of unknown factors,
5. determination of empirical values for unknown factors,
6. determination of weights by relevant elements to take account of materiality,
7. expression of interaction and synthesis of results to the resulting solution.

At the end of the 20th century, discussions about decision making in the enterprise intensified and several views emerged. Decision making has been understood as a process of analysis and thinking [17] and also as a process consisting of certain consecutive and logically connected steps. [18] The importance of the decision was emphasized especially in long-term decisions that determine the direction of the company. According to Dafta, good decision making is an important part of good management because decisions determine how the organization addresses its problems, allocates resources and achieves its goals. [19]

Business decisions are always made in contexts and links to other market elements, and the market as an environment of change does not offer the possibility to fully describe the future. The role of managers is to demonstrate flexibility and make decisions for the future, which will bring benefits for business. [20]

Decisions in cooperative clusters are subject to their strategic management. For the effective implementation of the decision, business managers need to provide a cooperative environment that creates synergy, notably through the full participation of human capital. [21] Algorithms that help solve decision making problems have also been developed to solve the problem of choice. Maddalena [22] described an algorithm that was divided into four phases as a guideline for identifying and solving complex management problems. Decision making has taken place in stages: assessment, planning, implementation and evaluation.

Hittmár [23] specifies decision making as a "non-selective choice of a possible way of solving a problem in the given conditions to meet a predetermined goal". Decision making can be understood as a sequence of activities that reveal the problem that is being addressed. This problem is analyzed and the goals that need to be reached by the decision making process are created. This determines the way in which the problem can be solved and according to the chosen criteria, the most appropriate way of solving the problem [23]).

Simon [15] describes the decision-making process as a three step sequence that helps identify and solve the decision making problem. This process is illustrated in Figure 1 in the following three steps:

1. identification (analysis),
2. design,
3. choice.

The first step is often called also searching for problems or troubleshooting. This step involves finding the environment for a situation requiring a decision. The search process has different characteristics depending on whether it can be structured and whether it is a continuous or ad hoc process. According to this, one of three

approaches is used: unstructured search, structured search, or structured continuous search.

Once the problem is identified, the design step follows, in which various procedures are devised and analyzed. Proposal support should include iterative procedures for assessing variants. Finally, solutions are tested for feasibility. The main task in the last step is to evaluate possible solutions and select the most appropriate alternative based on the previous two steps. In the selection phase, it is needed to make a decision and then implement the chosen solution.

According to Russo and Schoemaker [24], the decision process can be described by two phases: a divergent phase and a convergent phase in which the number of alternatives is reduced. Subsequently a decision is made to select the variation. The divergent phase is described as the creative phase in which solution variants are generated. These phases are shown in Figure 2 along with the indicated information flow directions.

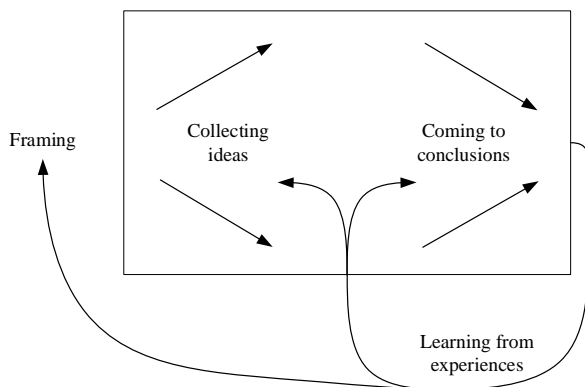


Figure 4: Information flow in team decision making process. [24]

An example may be to divide a task of a particular issue to multiple employees. Everyone will bring some solutions to solve the problem. In another environment, this approach could be described as an example of assigning a problem solution to multiple work teams that can either be isolated or can share thoughts and interact.

6. Conclusions

Based on the analysis of the theoretical knowledge in teamwork and decision making, it is possible to argue that these issues of decision making in teamwork process are unambiguous. Organizations can choose multiple approaches, choose from decision models as well as teamwork processes to set the best practices for achieving organizational goals.

Decision making in the teamwork process is an important part of human potential management that creates framework for better results for individuals and teams, to

increase work efficiency and also a better working atmosphere for employees.

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COMPARING THE IMPACT OF VOCATIONAL REHABILITATION AND THE EMPLOYMENT OF PERSONS WITH DISABILITIES ON COMPANIES: ANALYSIS OF EXISTING RESEARCH

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Abstract: *The constant above-average unemployment rate of people with disabilities (PWD) and the failure of government measures to date indicate the need for companies to address this issue themselves. A reliable understanding of the effects and implications of employment of PWD and vocational rehabilitation for strategic corporate management is therefore required to specifically promote the integration of PWD into the labor market. This paper compares the impacts of the two concepts from a management perspective. A literature review was conducted to collect and analyze the state of research for similarities and differences regarding the categories government policies, corporate social responsibility (CSR), benefits and consequences for companies and business opportunities using a summary content analysis. The results suggest that the effects on companies and the resulting implications are identical, at least over a longer period. The employment of PWD, as well as vocational rehabilitation, can be a key to attracting customers with disabilities and thus allowing to enter new market segments.*

Keywords: *vocational rehabilitation, employment of persons with disabilities, CSR, strategic management*

1. Introduction

There are persons with disabilities (PWD) who are not affected in their working life or at their workplace. However, there are impairments or handicaps that force people to switch jobs or occupations or to give up employment fully [1]. It is estimated that in each country 10 to 20 percent of the population is affected by disabilities [2]. Despite all efforts (e.g., legal provisions, anti-discrimination, equal treatment), PWD continues to be affected by unemployment to an above-average extent [3]. At the same time, the PWD segment is a mostly untapped market for products and services [2] as well as an enormous untapped workforce potential [4]. If companies want to exploit this potential and be successful in this market segment, this requires, as in any other segment, a clear understanding of the needs of the market. Only if customer needs are met effectively, profitably and better than by competitors, a genuine competitive advantage can be created [5]. A commitment to vocational rehabilitation and employment of PWD can help develop a better understanding of the needs and concerns of customers with disabilities [6]. So far companies seem to ignore the potential of PWD as customers and as employees [7], although there is some empirical evidence that PWD employment can bring many benefits to companies [8].

Vocational rehabilitation can be understood as a variant of PWD employment. However, it differs from the employment of PWD in several respects. For example, it can be assumed that a person with a disability knows what adjustments are required at the workplace or what aids are needed and how to optimally use them.

In the context of vocational rehabilitation, performance must first be trained and tested, which takes some time due to the adaption of the work process, required aids and testing the optimal adjustments to the workplace. The employment of PWD as an actual employment relationship

tends to be long-term, whereas vocational rehabilitation in companies represents a limited period of several months.

This article aims to briefly present and compare the current state of research on the effects of PWD employment and vocational rehabilitation on companies. This article shows the similarities and differences between the two concepts and derives findings for strategic corporate management.

1.1 Employment of PWD

The integration of PWD in the company must be understood as a standardized process aimed at promoting employment under the same conditions as other employees [9]. PWD cannot simply be equated with other disadvantaged groups as part of "diversity". Diversity management approaches seem to be too limited and cannot promote equality and equal opportunities for PWD [10]. The main element of proactive employment of PWD and their integration into the company is the reduction of mental and physical barriers within the company [11]. A company's commitment to PWD employment can already significantly reduce barriers [12]. In principle, PWD employment is about adapting each job individually to the needs of PWD and the business context [3]. Individual adjustments to the workplace and working environment according to the disability [12] or individual aids are therefore often necessary [3]. However, adjustments to the job profile [12] or the general conditions may also be necessary. It includes the need for irregular, adapted or flexible working hours or the possibility of telecommuting [13]. PWD face wide-ranging barriers in recruitment and employment [3]. To increase the number of PWD, companies should take disabilities already into account when recruiting [14]. The procedures and techniques of job interviews should be reviewed to determine to what extent they limit the applicant's ability to demonstrate the required qualifications [3].

The employment of PWD and therefore the use of the potential of PWD as a workforce requires open-minded companies that are prepared to reduce mental and physical barriers in the company.

1.2 Vocational Rehabilitation

After an accident or serious illness, the return to work can become difficult or even impossible due to long incapacity to work or permanent restrictions. In this case, vocational rehabilitation [15] takes place in parallel or after medical rehabilitation. Vocational rehabilitation enables persons with a temporary, impending or permanent disability to access, return to or remain in a job [16].

The vocational rehabilitation insurers accompany the person concerned in this process and cooperate with companies and specialized institutions (e.g., sheltered workshops, social enterprises for work integration, employment support). The inclusion of companies is the most efficient and effective option in vocational rehabilitation [15]. Often, however, there are no suitable alternatives with the previous employer and the person concerned is dependent on being given a chance despite possible impairments in another company.

The insurance carriers provide a full range of employment and training services for PWD seeking jobs and for companies seeking workers [17]. This may also include additional measures such as vocational assessment, vocational reorientation, retraining, counseling, workplace guidance and counseling, ergonomic adjustments at the workplace, functional recovery programs as well as psychosocial interventions and other forms of preparation for the return to work [18]. These vocational rehabilitation interventions are applied almost identically to people with congenital or developmental disabilities who want to enter the labor market for the first time [15], but also to PWD who return to work or change jobs after a long absence.

When companies become involved in vocational rehabilitation, they are faced with a tension between assuming social responsibility and fulfilling their operational goals [19].

2. Methods

The research was conducted by searching the databases Web of Science and SCOPUS for published literature since 2000 in the subject areas of business, economics, and management using the following keywords: vocational rehabilitation, occupational rehabilitation, return-to-work, disability management, and employment of persons with disabilities. Additionally, the reference lists of all previously selected articles were checked to find further studies. The titles, abstracts, and keywords of papers were scanned to identify papers related to vocational rehabilitation and employment of persons with disabilities. For the in-depth analysis, English articles published in peer-reviewed journals, conference proceedings or books describing the business management aspects of the topic were selected.

The selected literature was evaluated regarding explicit similarities and differences using a deductive content analysis [20]. The coding was carried out according to the following categories: government policies, CSR, benefits and consequences for companies, and business opportunities. In the case of multiple references, the most recent source was cited.

3. State of Research

The knowledge of vocational rehabilitation is relevant for the employment of PWD [6]. However, the effects of vocational rehabilitation [21] and the employment of PWD have hardly been investigated from an organizational management perspective [6].

Lindsay et al. (2018) have compiled the advantages and effects of PWD employment mentioned in various studies in extensive systematic literature analysis. A total of 6,176 studies from the last two decades were examined. Of these, only 39 studies could be identified which dealt at least partially with the advantages and effects on companies employing PWD [8].

There are a few studies regarding the effects of vocational rehabilitation on companies which in principle all concentrate on the same few familiar aspects [22]. For example, various studies show that vocational rehabilitation reduces disability rates and overall health costs [23]. Nevertheless, due to the wide variety of disabilities and intervention possibilities, it is almost impossible to determine cost-effectiveness or cost benefits accurately [22]. Accordingly, no international consensus has yet been reached on the methodology of vocational rehabilitation as well as its effectiveness and efficiency [24]. CSR literature has also paid little attention to both vocational rehabilitation and the employment of PWD [25].

There is no comprehensive understanding of how the employment of PWD or vocational rehabilitation affects companies. There is a lack of in-depth analysis and knowledge on how competitive advantages can be derived and the implications for strategic corporate management.

4. Results

The results of the deductive content analysis are described below according to the coded categories: government policies, CSR, benefits and consequences for companies, and business opportunities.

4.1 Government Policies

Legislation alone is insufficient for the economic integration of PWD. Companies rarely implement legal directives and guidelines and do not claim government support [26]. The same applies to vocational rehabilitation. In addition, cooperation between insurers and companies is often inadequate and hampered by general problems [27]. In most countries, PWD employment and vocational rehabilitation are exclusively voluntary social commitments on the part of companies. Nevertheless, in

many countries, the political aim is to reduce the number of recipients of disability pensions, primarily by increasing the eligibility criteria. Therefore, vocational rehabilitation will become even more strategically important for insurance providers and in politics. The need for companies that carry out vocational rehabilitation and are open and positive towards PWD will become even greater [4].

4.2 CSR

The promotion of PWD employment and vocational rehabilitation serves as an added value for a company's social responsibility program. On the one hand, the commitment serves society and the company is regarded as a good "corporate citizen". On the other hand, it creates a positive image and makes disability-friendly values explicit in the workplace [28].

The constant above-average unemployment rate of PWD and the failure of government measures indicate the need for companies to address this issue in the context of CSR [25].

Occupational safety and health is already an important and central element of CSR which is taken into account in all CSR tools and instruments. However, if an employee becomes ill or has an accident and subsequently needs support in returning to work or vocational rehabilitation, this is rarely part of the CSR strategy [29]. The employment of PWD is also rarely part of the CSR strategy in business practice [30].

The employment of PWD and vocational rehabilitation are an essential element of social responsibility towards the employees and towards society [29].

4.3 Benefits and Consequences for Companies

The employment of PWD can bring various advantages for companies, such as employee loyalty and motivation, company image, various customers, customer loyalty and satisfaction, innovation, productivity, work ethic, safety, inclusive work culture [8]. Additionally, personnel costs can be reduced by exploiting state subsidies or tax benefits [30].

Vocational rehabilitation can bring advantages to companies. These advantages can be divided into three categories: Increasing productivity, reducing personnel costs and maintaining the return on human capital. The faster an impaired employee can return to work, the less disruption will be caused in the work processes. If an affected employee can be retained in the company, the fluctuation rate decreases and therefore also the personnel costs (e.g., recruitment, selection, employment and training of a replacement employee). Losing an employee due to illness or accident reduces the "return-on-investment" in the employee's previous investment in formal and practical training [31]. Overall, vocational rehabilitation makes a positive contribution to the success of the company [21].

After successful vocational rehabilitation, affected employees are above-average committed and loyal [31]. A positive social reaction to disability in the workplace reduces the stigma and threat of job loss associated with it. Employees who learn how the company cares for sick or injured colleagues seem to have better resilience. Studies also indicate that the existence of disability management or vocational rehabilitation program in a company is associated with fewer work-related burnout cases and an improved corporate culture as well as a positive influence on the job satisfaction of the affected persons and their colleagues [32]. Vocational rehabilitation offers a great opportunity of recruiting and retaining employees [29].

Employment of PWD brings similar advantages. PWD are very loyal employees and change jobs less often, thus reducing staff turnover in the company. PWD are very dedicated employees and have higher productivity in comparison. PWD are an integral part of a diverse workforce [33]. Also, the employment of PWD seems to increase psychological safety at work, which can lead to a higher motivation of all employees, less staff turnover, higher overall profitability and accordingly to a competitive advantage [34].

The employment of PWD offers companies a competitive advantage in the form of a source of qualified, committed and loyal employees [35]. This untapped pool of applicants can also be a solution to a future shortage of skilled workers [36]. Moreover, the integration of PWD into the company improves the corporate culture and strengthens the employer brand [37]. There are also benefits to be gained from CSR, particularly through an improved corporate image [38].

The benefits seem to outweigh the costs in both PWD employment and vocational rehabilitation.

4.4 Business Opportunities

Companies should respond to the needs of customers with disabilities, as they may need specially designed products and services to be able to benefit from the offer [39]. A company can develop a comprehensive understanding of the needs and concerns of customers with disabilities through a commitment to vocational rehabilitation or the employment of PWD [6]. This commitment can increase awareness of disability among employees [8], which in turn promotes innovation [36] and the development of "designed-for-all" products and services [38]. Additionally, employment of PWD is in itself an opportunity to attract and retain socially responsible customers and customers with disabilities [8].

The employment of PWD and vocational rehabilitation can minimize social and health costs for society in the long term and secure the professional future of those affected. Companies that commit themselves can generate an actual "shared value" since the prosperity of society is increased which will benefit the company in return [29].

5. Conclusion

The analysis of the state of research leads to the conclusion that the effects on companies by the employment of PWD and vocational rehabilitation are identical, at least when observed over a longer period.

Hence, the employment of PWD, as well as the vocational rehabilitation, allows a company to benefit from the resulting multiple advantages. Further, the resulting sensitivity to disability allows companies to develop products and services for PWD, which could open up new market segments.

From a business point of view, both concepts have hardly been researched. There is still a need for research into a solid understanding of the effects on companies and the implications for strategic corporate management. Only then can the employment of PWD and vocational rehabilitation be specifically promoted by companies themselves.

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CURRENT SITUATION IN TERMS OF MOTIVATION AND CREATIVITY OF HUMAN POTENTIAL

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Abstract: A paper is devoted to the searching the relationship between motivation and creativity, their processes and how they impact and influence each other. The motivation, understood generally as the inner force of people – employees, forms the basis of influencing of their behaviour at work. Since motivation and creativity are linked, the paper points to their mutual influence. It means that motivation can influence creativity and motivation can be influenced by creativity. Based on mentioned premise, we have decided to perform a sociological questioning dealt with this aim. The survey was performed in 2018 on a sample of 55 employees and results obtained indicate that a combination of the motivation and creativity allows and enables to set up appropriate processes, activities, and open-minded thinking of employees to achieve great results. Only such an organization can succeed in the current market situation. These facts can be supported by a model that expresses the links between motivation and creativity and their impact on the organization.

Keywords: motivation, creativity, survey, model, relationship

1. Introduction

The current focus of science on the development of human potential is centered on the most important but also the most complex process, which is the motivation (Blašková et al., 2018, p. 28).

Motivation can be understood as an inner effort or the state of a person who moves him or her to achieve the goal (Donnelly, Gibson and Ivancevich, 1992, p. 308). Motivation is associated with an *individual's personality*. The postures, attitudes, needs, aspirations or values that make up the personality of a person affect their motivation. Motivation connects the psychic and physical activity of a person in order to achieve a defined goal. Ideas, aspirations, interests and, especially unsatisfied needs cause psychic stress which is an impulse to induce a certain behavior of an individual (Veber, 2009).

On the other hand, in the opinion of many authors, the premise for organizational success in today's highly changing era is the creativity. Cefis and Ciccarelli (2005) incline to say that the development of creative and innovative products and services is a driver of sustained growth and performance improvements in organizations.

According to the opinions of many authors, we can define creativity as individual behavior that stimulates new, innovative and useful ideas (Anderson, 2014; Montag, 2012; Somech and Drach-Zahavy, 2013; Yu-Qian Zhu, 2016). Creative research has revealed that creative people are characterized by distinctive personality traits. One of the findings points to the connectivity of *creativity and openness to experience* (Carson, Peterson, & Higgins, 2005). This property is essential for processing information from the environment that leads to the best creative performance (Agnoli et al., 2015).

The aim of this article is a motivation, creativity and their mutual relationship which brings success to the organization on the current market.

2. Methods

In recent years it has made the amount of research on employee motivation. The results of research already carried out were followed by our sociological research entitled '*Gaining Information for the Future Development of Selected Business Processes*' (Hriníková, 2018). Sociological research in the form of a questionnaire served to provide additional information about the perception of motivation by employees of the selected company. Its main focus was to obtain information on motivation processes (internal and external motivation).

The questionnaire was sent to 64 respondents. The number of responses that operated in the above analysis was 55. The relevance of the sample was verified using Raosoft software at a tolerable 5% error and a 95% confidence interval.

After results evaluation, typical factors that positively affect motivation include, for example, *a friendly work environment or good workplace relationships*. Other elements that respondents have identified as key to their motivation are also *the effective provision of feedback and definition of the meaning of individual activities*. The importance of these factors was confirmed by the results of the survey.

Several shortcomings have also been identified in the context of setting up and providing motivation factors. The '*sufficiency of information*' factor was, on the one hand, assessed with a high degree of importance and, on the other hand, a low level of application.

Based on the results of research, it can be argued that in the case of employee initiative support, creativity will also be promoted. Initiative is willing to act and present new ideas to other colleagues. The initiative for employees can be supported in a number of ways, such as expressing interest in their opinion from superiors.

With regard to presented findings, the respondents' responses highlighted also the *need to promote creativity among employees*, as shown in Figure 1.

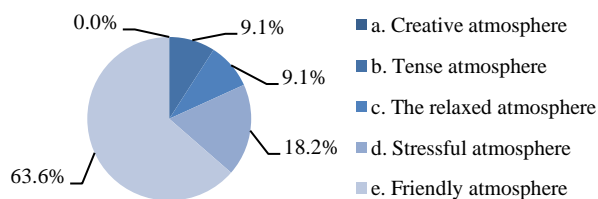


Figure 1: Characteristics of the working atmosphere according to the respondents from the selected company

The creativity of the individual is closely linked to the possibility of personal and professional development (Hriníková, 2018). In the case of such development, the needs of self-realization are achieved, and the individual has the opportunity to use the abilities he or she considers essential in fulfilling the work tasks.

3. Discussion – motivation & creativity

The link between motivation and creativity is obvious on the basis of previous claims. It can be assumed that their interconnection will affect not only employees but also the organization.

The direct relationship between internal motivation and creativity is also supported by Leung and Chen (e.g., Leung, Chen, & Chen, 2014). The results of other studies have shown that the relationship between internal motivation and the external motivation process was a very powerful element of creative thinking (Agnoli, Runco, Kirsch, Corazza, 2018).

It is very likely that *motivation is the element that drives the entire creative process*. Motivation activates the cognitive and conative-attitudinal resources that enable individuals to face challenges. Responding to these challenges can be compared with the creative process.

Through our research conducted in 2018, it was possible to identify factors that influence both motivation and creativity. Respondents identified those factors in which they feel deficient. These are:

- Teamwork;
- Group projects;
- Sense of security and security.

Many literary sources have pointed out that the main aspect of creative behavior is *personal interest and enjoyment* (e.g., Forgeard & Mecklenburg, 2013). This argument is supported by the recent research, which states that individual motivation directly activates the creative process (Agnoli, Franchin, Rubaltelli, & Corazza, 2018).

According to the theme of Prabhu, Sutton and Sausser (2008), motivation does not affect creativity as a separate force but works with other factors in influencing creative performance.

One of these elements is also the *environment*. As Amabile, Conti, Coon, Lazenby and Herron (1996) have opined, the environment plays a crucial role in the relationship between motivation and creativity. The environment and constraints in it activate or deactivate motivational drives or influence the nature of motivation

as well as the impact that motivation has on creative achievements.

The link between the motivation and creativity of the company's employees can be characterized by *a certain succession of steps*. These steps were determined by linking previous knowledge about creativity and motivation with the organization's work environment.

This sequence may look as follows: If a manager uses creative approaches to motivate the staff of his or her team, it can be argued that the *processes will be creative*. Employees will thus be motivated to *creative performances*. Therefore, the work activities will be creatively performed, which then motivates the manager him/herself to creative performances and ideas.

If the managers, processes, employees, and activities can be called creative, then the organization *as a whole becomes creative*. Only such an organization can advance and can be innovative and competitive.

Linking concepts and their impact on the organization can be illustrated by using relationship diagram shown in the following figure (Figure 2).

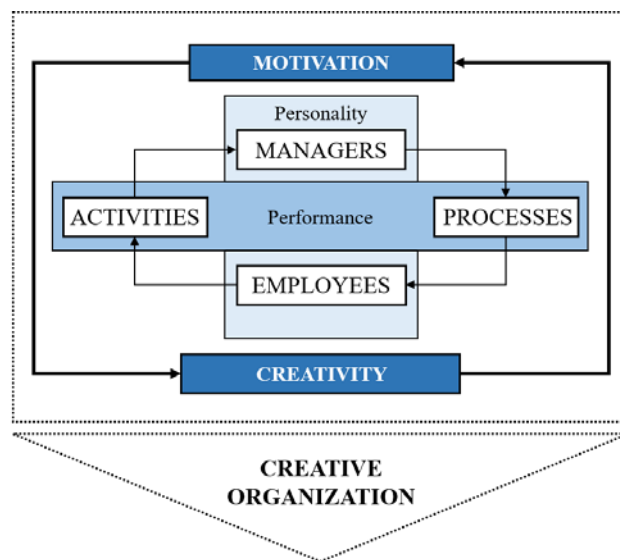


Figure 2: The impact of motivation and creativity on elements in the organization and on the organization as a whole

The main elements of the model are managers, employees, processes and activities. These elements are linked by the bonds that form the cycle.

A key role in terms of motivation is played by the personality of managers and employees and their performance displayed through processes and activities.

The described cycle is interconnected through the interaction of motivation and creativity. This interaction then affects the organization as a system.

As stated: *Only if the elements in the organization are creative, the organization as a whole becomes creative as well.*

4. Conclusion

An analysis of the development and the current situation in the area of motivation and creativity has shown that the *interaction between motivation and creativity will bring many benefits to the organization.*

Only motivated managers will perform creatively processes that can motivate employees to perform creative activities. This cycle, built upon the interplay of motivation and creativity, will bring success to the organization. Only a creative organization gives value to its customers, it adapts to changes and takes care of their long-term development.

The main premise for successful use of the model presented is the open mind of all participants. Both managers and employees must understand the importance of using motivation and creativity to ensure the success of the organization.

Managers should try to grasp the potential of employees in the right way. Revelation of trust will create a willingness for employees to work passionately and creatively.

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CURRENT SITUATION IN THE FIELD OF MANAGEMENT OF THE VALUE OF SMALL AND MEDIUM-SIZED ENTERPRISES THROUGH MARKETING ACTIVITIES

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Abstract: *Managing the value of an enterprise can be perceived as a financial activity, but it is just a seeming feeling. The value of an enterprise is something deeper and its essence is directed to the company's long-term goals. Since the 60s of the last century, not only the approach to company management has changed, but also its value. Business models are preferred that present flexible responses to market needs, offer is directly generated by customers, company management is no longer directed downwards, and marketing is not only just a tool for communicating the price of products and services. Companies are becoming more aware of the impact of their business activity. Changes in thinking not only for entrepreneurs but also for the government are changing for a number of reasons, but the most important is sustainability. An entrepreneur wants his business to prosper, grow and have a future. The government wants to support business because it generates the main financial income, but it also forms the overall direction of the state. Recent studies describing the value of the company refer to the concepts such as sustainability, circular economy, innovation, environments etc. How we can bring the change in the overall perception of the value in the business into the real world of the local entrepreneur? This paper is based on study about local business from 2016.*

Keywords: *Business model, value, marketing, sustainability*

1. Introduction

There have been many changes in terms of elements of a trade in past few years. These changes are caused not only by technological environment, which brings us online communication, web page visitors tracking, as well as various forms of advertisement localized by GPS, but there have been also other changes in the perception of a firm management. Management is no longer directed strictly from the leaders of a company down to their employees, relaxed working environment, where creativity together with personal development of employees is supported, is more preferable nowadays. (J. Collins, 2001) Changes, however, are coming from the responsible manufacture and consumption. This field, particularly, is a space for necessary innovations. Companies are used to consumption model „take-make, and dispose“. This model, however, did not count on the fact that sources are limited, as well as the material/waste, which is created during manufacturing, is a real trouble, once it crosses a certain border, not only for the particular company but also for the society. Based on the above mentioned fact many changes and precautions from state are in place. Importance of this matter comes from the East, since China is a production superpower and the problematic area related to waste and environment has an intense impact there. (J.A. Mathews, H. Tan, 2011)

The biggest part of an environmental pollution is caused by big enterprises a sustainable development has to be implemented to their business model. This reaction is much more faster by small and medium companies than the great manufacturing enterprises, which inevitably need investment sources for innovations in the field of technology and know how.

A trigger for a change of entrepreneurship environment primarily comes from the government. The government offers a global insight to the happening in business environment and it is necessary to regulate the impact of entrepreneurship activities on environment.

Indeed, in this relation brand new forms of entrepreneurship are created in praxis of forms of entrepreneurship, based on the principals of circular economics, sustainability, searching for alternative sources of manufacturing, or decreasing a consumption. (V. Ranta, L. Aarikka-Stenroos, S. J. Makinen, 2018)

The aim of this article is a value, which is in connection with environment and sustainability of the business model.

2. Theoretical background

The entrepreneurship environment which is self-sufficient and therefore is able to create sources for production and services on its own, but, at the same time approaches output of its production responsibly, we are able to name as a sustainable economic entity. However, it is necessary to comply with a global system which ensures the sustainability.

Theoretical terms and activities in order to ensure sustainable business environment are as follows:

Cirkular economy – business model

It based on 3R principles: Reduce, reuse, recycle.

„In a circular economy, companies need to develop offers and value propositions with the idea of product life extension and closing material loops in mind. This way,

companies can maintain and capitalize on the embedded value in products and materials beyond a single life. In a circular business model, companies adjust the elements of their business model to facilitate circular strategies, such as repair, refurbishment, remanufacturing, and recycling. These strategies can be operated in their own business model or enabled through partner networks and extended value chains. The value proposition includes products that are more durable, easy to repair, reuse and remanufacture, as well as services that enable collection of products.“ (Julia L.K. Nußholz, 2018)

Value management

Value management is considered as a non-financial component of a company, it presents a company’s strategy which leads to not only customers’ requirement fulfilment, but also to fulfilling goals of a company and society. “We understand values of the a company as a definite required final stage, which one recognizes or wants to acquire. The Values are separated in several levels. The cultural values are the deepest and long-lasting ones, recognized by majority of a society.” .“ (J. Strišš, J. Vodák, M. Kubina, R. Jankal, J. Soviar, 2009)

An actual situation comes from an era of maximal consumption back to the roots of a quality, local productions and topics related to a source of commodities or materials related to products. The demand leads to production value in general as the main attributes of product which are the price, the availability and selling forms.

Business model

The form of an employee activity of a company. Simplified perspective regarding company’s operations, what the worth is and what the main output for the customer is. There are many opportunities for modelling company’s activities. One of them is a business model canvas, arisen as the main tool for specification start-ups’ activities. The value presents a key component within all of these models.

Benefit value. The actual value, which business model brings to all customers along with the whole society, through its functioning.

Table 1: Business model Canvas, <https://strategyzer.com/platform/resources>

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
	Key Resources		Channels	
Cost Structure			Revenue Streams	

Marketing

Marketing presents a form of communication of a product or a service. The way a company presents its activities, what an approach to external environment is. Marketing ties selling and presentation strategies of a company.

Taking into account significant changes in technological environment in last 5 years, marketing has also considerably changed its position within a company. Online marketing brings maximal collection of customer dates and information on customer’s needs.

Sustainability

According Cambridge dictionary sustainability in environment is meaning like „The idea that goods and services should be produced in ways that do not use resources that cannot be replaced and that do not damage the environment.“ (Cambridge University Press)

In case we do apply this model on all of the companies, where will not be any troubles with waste and an application of circular economics would be only a formal step for sustainable healthy competitive environment.

- *Sustainable company* (fulfilment of company’s values, company’s development, creation of company’s culture)
- *Sustainable production* (renewable manufacturing resources, recyclability of products, minimization of packed materials, local production, sustainable design)
- *Sustainable business model* (rentability, flexible reaction to trade demands, back-ups of employees)

The most relevant is to realize in what situation a company is in regard to social conditions. In case we know that a company reacts to actual problems within a trade, is capable to ensure its sustainability in terms of products as well as healthy business model.

3. Generalization

The problematic area of non sustainable production and consumption requires a closer look to business models of companies. Taking into account the complexity of application of changes in great enterprises, it is appropriate to start affecting small and medium companies which are able to apply and test sustainability module in a relatively short period of time. In case a firm considers sustainability as a key value, it is able to react to market changes trends, because the firm itself will create such trends.

Key factors involved in the particular topic:

- Enterprise
- Customer
- Marketing
- Sustainability
- Environment

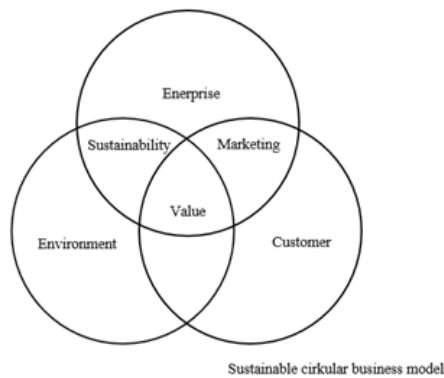


Figure 1. Connection between key factors of sustainable business model

Company value creation must be primarily linked to the customer and the environment. These two indicators will be not only the basis for the company's production but should lead the company to achieve its personal goals.

If a company has set its primary values in line with the environment, its activity is sustainable. There is also a link between the company and the customer. When a company communication with the customer presents the core values of the company and declares them by individual products, the customer feels not only the fulfillment of their demand, but also the satisfaction of the social responsibility and the responsibility for the impacts of the product itself.

Linking these factors generates social benefits in meeting firm interests, customer demand, and social goals.

For example – company PURE JUNK DESIGN ltd. is actually testing model based on recycling local wood waste. This business model is about maximalization of cooperation between customer and environment. The input for production is local waste, communication with customer is based on custom design and presenting only recycled materials. The customer is in the position when he starts to creating recycled product and company is reflecting social business in profit. Business model is sustainable, because company is producing only custom products from demand of customers, so they create new trends. And company can to prove social impact for environment.

This model was set in to the company in 2016, and from this time their profit grow up twice.

4. Conclusion

Current situation in management of business value depends on environment situation. In my next work I would like to find more connection between sustainable business model and social impact. Everything have to be based on analysis in small companies, which in short time can try to test and improve this type of business model.

It is necessary to find model, how we can bring sustainability to business and then we can solve global environmental problems in one way.

Acknowledgements

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POSSIBILITIES OF THE INTERNET USE IN ENTERPRISE REPUTATION BUILDING

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Abstract: *The Internet is a dynamic environment. The constant development of the Internet brings about changes in business communication with customers. At present, online shopping is coming to the fore. Customers are looking for and tracking business activities in a virtual environment. Customers reviews of the products and companies in an online environment have a significant impact on the business reputation. Reputation has an impact on consumers buying behavior. This article focuses on the use opportunities of new marketing communications forms to improve the company's reputation.*

Keywords: *Tools for Online Marketing Communication, Reputation, Online Reputation*

1. Introduction

Present time is the right time for Internet and IT. This has led to a bigger concentration of customers on the Internet. The Internet has allowed expansion of human relationships to the business sector in a bigger extent. Building a company's reputation today therefore depends heavily on business communication with online customers. It is also known that reputation and marketing are linked very closely. To build reputation, companies use various marketing tools and a mix of communications.

2. Online marketing and reputation

As mentioned above, companies use different online marketing tools to build online reputation. Classic marketing mix is a collection of tools and includes product, price, promotion, place. Marketing tools make it easier for a company to achieve both marketing and corporate goals [Johnová, 2008].

Online marketing differs from classic marketing in area where it is implemented. It logically follows that also online marketing tools differ from classic marketing tools [Hossain and Rahman, 2017]. Praveen [2014] argues that a major role in online marketing plays mentorship, constant learning and building relationships with customers. Internet development has greatly contributed to changing the approach to marketing and the reputation of the business. Information are easy to access now. People make use of the ability to shop on the internet and compare products, reviews, prices, and so on. Thanks to the Internet, customers exchange opinions, evaluate their experience and satisfaction with the companies. Just such ordinary evaluations and reviews can affect the reputation of the company. If customers are satisfied with the company and the products, they have a positive opinion on the company.

Reputation represents an intangible asset for a company [Helm, Liehr-Gobbers, Storck, 2011; Davies et al., 2003; Drobis, 2000; Miles and Covin, 2000; Miles and Covin, 2002]. Reputation also introduces certain concept of building a positive image of the company. Through

reputation, the company can achieve prestige. With marketing tools, company can build a brand. A strong brand contributes to a positive reputation, but by the reputation is possible to build the brand. Brand and reputation are in one vicious circle.

Reputation is a prediction of future behaviors that is based on an assessment of how past behaviors meet the role expectations that follow occupying a particular social status [Barnet, Pollock, 2012]. If companies are not interested in their reputation, the positive reputation may change into negative. In the current age of the Internet, social media and tools the online environment creates a risk for the reputation of the company. Reputation represents for companies an internal quality and is perceived as the result of cumulative activity [Roberts, 2009]. Authors Farmer and Glass state the following about reputation: „Reputation is information used to make a value judgment about an object or a person“ [Farmer and Glass, 2010]. The next statement or old saying is shown in Buckingham book: „It takes a long time to build a good name, but only a moment to destroy“ [Buckingham, 2013]. Today in the age of the Internet, information is spreading rapidly and only a moment is needed to destroy the reputation. However, remedying the damage takes much longer time and is difficult.

Reputation represents opinions, views and opinions of all stakeholders. Based on the opinions and value judgments, trust to the company arises. Reputation represents also admiration and respect, based on past behavior, activities and experiences.

About the existence of association between reputation and marketing is no doubt. Even the well-known author, Fombrun, claims that the reputation is related to the overall strategy of the company and must be consistent with the marketing strategy [Fombrun, 1996].

The company must try to maintain control over its brand. It should be aware of the fact that the number of potential customers in the virtual environment is constantly rising

together with the availability of internet access and the availability of information on the Internet [Dorčák a kol., 2017]. Building a reputation rests on building valuable content and customer trust towards the company. When is building a reputation, impression is important. The company can successfully create a positive impression through marketing tools, which ultimately brings a positive reputation.

3. Survey

The Internet has significantly changed the way in which each company operates. Companies had to change their business plans and marketing strategies according to trends on the Internet. In order to get customers companies had to start communicate through the internet - and various social media. If this communication should make sense, companies need to know their customers. Customer analysis give companies the answer to the question of what tools of communication mix must be selected.

Survey in this paper focused on the analysis of marketing tools in an online environment that companies can use to build their online reputation. There are many ways how organizations communicate via the Internet with the public. They use their web sites, social networks, e-mail marketing, but also write different blogs and papers.

Social media is nowadays a phenomenon that affects and interferes with a large part of the company. Social networks are a subset of social media. Social media include, in addition to social networks, various blogs, websites for sharing photos, audio and video content, and so on. The primary goal of social networks is communication between people. Through the creation of profiles on social networks can companies venture to get potential customers and retain their loyalty. Through social networks, a company can get feedback. Through feedback, it can analyze processes and find out where the problem is. This means that it can build up its reputation thanks to feedback. Table 1 shows the ranking of the most used social network of programs and services on the Internet up to August 2018 by How Many people Use facebook, YouTube, Twitter and Other Social Media? [2018].

Table 1 Ranking of the most used social networks

Service name	Number of users / installations
Chrome	2 billion installations
Facebook	2.234 billion monthly active users
YouTube	1,8 billion logged-in monthly users
WhatsApp	1,2 billion users
Gmail	1 billion users
Facebook Messenger	1 billion users
Instagram	1 bilion users
WeChat	818 million users
LinkedIn	546 million users
Dropbox	500 million users
Pinterest	200 million users
Twitter	330 million monthly active users

The use of social networks in business is also popular in Slovakia. Facebook is the most widely used social network, followed by YouTube, Pokec, Instagram, Twitter and Snapchat. In Slovakia, Facebook customers are most interested in electronic sales, retail, services, drinks and

alcohol, as seen in Figure 1. The use of social networks has become a key marketing tool for companies business making.

Pay-per-click (PPC advertising) means payment for every click on certain advert. This advertising is visible only to people searching for specific information using search engines. Due to the relatively low cost and precise targeting it is among the most effective forms of marketing communication in the online environment. This tool is effective and efficient especially because of camouflage. People will stop noticing what is advertising and what not if they are looking for something. If it's something urgent, customers are clicking on links in the first place. In addition to targeting, PPC advertising is beneficial for simple measurability, low cost, quick control, and quick change capabilities.

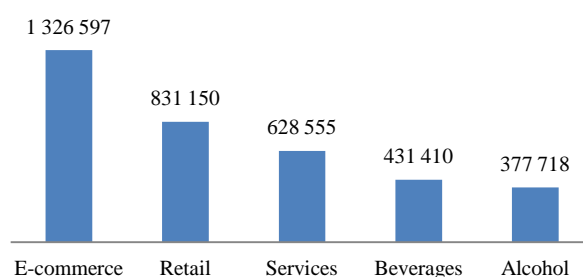


Figure 1: Top customer interest areas on Facebook

E-mail marketing is another trend in communication. E-mail has become an acceptable form of communication for all stakeholders. In many countries e-mail has taken over leadership in popularity rankings. E-mail serves to expand and build customer relationships. It's not just about sending e-mails to customers. It's about building relationships, understanding needs and active communication with customers. Companies are trying to build a community of loyal customers and sympathizers. This is just the way to build the reputation. If company obtains such a community based on their approval, it can inform them about news, activities, and so on. Through this communication, they create a relationship with customers and gain their trust. Without trust, reputation is hard to build. E-mail marketing has many advantages compared to classic mail: low cost, faster and easier communication, a broad spectrum of audiences and potential customers, the ability to communicate actively, disseminate customer content, quick feedback, measurability, and more effective efficiency evaluation. Statistics from Convince and Convert report that up to 44% of e-mail recipients have made at least one purchase via e-mail [2017]. Figure 2 shows a comparison of the profitability of e-mail with SEO, catalog or traditional banner advertising. According to windwardsoftware.com [2018], when investing \$ 1 in e-mail marketing, it will return up to \$ 40.

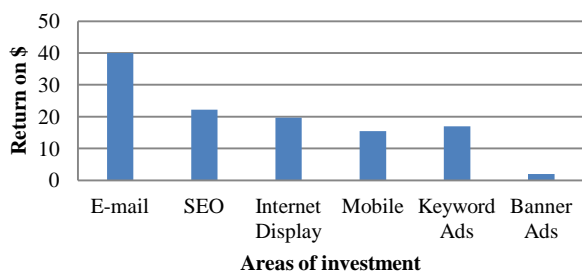


Figure 2: Return on investments in e-mail marketing

Blogging has recently come to the fore. It's a simple and effective way to get your own content to customers. Blog is another kind of special type websites. It is created and maintained by a person who has a personal relationship to the subject. Blogger presents his views, opinions, expertise, and promotes them publicly. Blogs can be used by companies to monitor and get feedback, as well as to publish their own content. Today, companies often benefit from cooperation with bloggers who write about companies in superlatives, thus creating a positive company reputation.

4. Conclusions

Marketing helps upload content created by company to the general public, but it can also target its content to specific audiences. The content must be as exciting as possible and the way of distribution must be appealing. Especially nowadays, when the physical world is overwhelmed with billboards, banners, but also with different types of virtual forms of advertising. For this reason, it is difficult to choose the right online marketing tools. The company must strive to remain in constant contact with customers and build a strong relationship with them. The relationship must be based on trust so that customers are loyal to the company. When communicating with customers it is necessary to pay attention also to the scope of this communication. For example, in the case of e-mails, it is advisable to inform customers in regular intervals, but not very often. If the communication frequency was too high, e-mails could bother customers. In frequent communication, the customer would feel pressure, which would adversely affect reputation. Another important action is to respond to questions and customer reviews in a timely manner. If company will follow these activities, it can prevent the occurrence of negative views on the company. The advantage of using marketing tools in the online environment is the ability to control content creation, distribution, and content promotion. Companies benefit from the low cost of using marketing tools in the online environment. It can be said, therefore, that in building a reputation in the online environment, online marketing tools are a great benefit, while the cost of online reputation building is not high and burdensome for company.

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Session: Economy, Financing, Public Administration

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INNOVATION IN MODELS OF ECONOMIC GROWTH

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Abstract: *The proposed article treats models of economic growth in the context of innovation. Two classic research methods were used in the work: the analysis of the subject literature and comparative analysis. On the other hand, the general objective of the study was defined as: theoretical analysis of basic models of economic growth with particular emphasis on the issues of innovativeness. The considerations were divided into four basic parts combined into a logical whole. In the introduction a condensed definition of the word innovations was mentioned, and therefore the view of the precursor of innovation - J. Schumpeter and the Polish economist - M. Kalecki was proposed. The next part is devoted to discuss economic growth in a synthetic theoretical approach. The main part of the work, however, includes presenting selected models of economic growth. The main focus was on analyzing the similarities and differences in views on economic growth: D. Ricard, A. Smith, R.M. Solowa X. Sala-i-Martin and M. Kalecki. The whole was crowned with a lapidary summary. These considerations are entirely of a theoretical character, therefore they are mainly addressed to theoreticians of economics. In particular, for students / PhD students of economic studies, for whom the issues mentioned will constitute the grounding of existing knowledge and will be an impulse for further in-depth study of the mentioned matter.*

Keywords: *innovation, models, economic growth*

1. Introduction

The term innovations belongs to a group of terms commonly used in various disciplines of science as well as colloquial speech. However, this concept has no explicit definition. In the literature on the subject, there are many different expressions of this term, depending on the context of the research.

The idea of innovation was presented by the Austrian financial analyst Joseph Schumpeter at the beginning of the twentieth century. His definition is the establishment on which alternate terms are based, yet it is amazingly adaptable and current in the present day. The maker constructed the innovation in the following way [1]:

- introduction of new merchandise that buyers have not yet known or some kind of new product;
- introducing another technique for generating a product that has not yet been used or tested in the specific business;
- opening up another market, i.e. a market where a given kind of industry of the applicable nation was not already presented, paying little mind to whether the market existed previously or not;
- gaining another wellspring of crude materials or semi-completed items, paying little mind to whether the source has already existed or must be made;
- conducting another business of an industry, for example, making an imposing business model or breaking it [2].

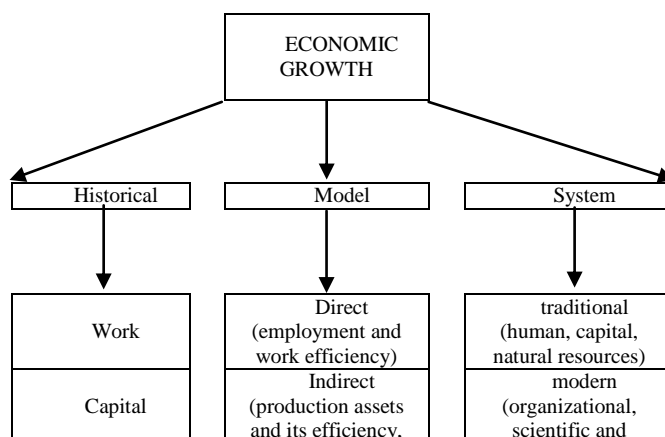
The problem of innovation is also present in Polish economic thought. Already in the 1930s, M. Kalecki pointed to the importance of innovation in economic development. He argued that innovations - being

production solutions and inventions used for the first time - are the best factors for economic growth in the long run [3].

2. Economic growth in a synthetic theoretical approach

Economic growth can be seen as increasing the capacity of a given society to produce goods and services within the entire economy. Therefore, in the theory of economics, the term economic growth is used to describe quantitative changes. However, it should be noted that in the case of defining economic development, in addition to the aforementioned aspect, qualitative changes and changes in the structure of the economy are also taken into account [4]. The most frequently used quantitative reflection of economic growth is the increase in the real value of GDP in the economy [5].

In the subject literature one can find three basic accounts of factors affecting economic growth. This aspect is presented in Figure 1.



	investments and their effectiveness)	technical progress)
Land		social (economic and social infrastructure)
		progress in economic management (international division of labor and structural changes)
		special (development disproportions and proportionality)
		market (balance and competition)

Figure 1: Three approaches to economic growth factors [5]

The fundamental aspects determining economic growth are labor productivity and employment growth. These elements constitute the national income [6]. Growth also generates a combination of such factors as the process of creating a convergent to a country-specific path of sustainable growth, showing the development of *per capita* production; technological development; changes in expenditures on human capital, changes in investments and paths of sustainable growth [7].

Observing a specific industry, it is noticeable that the average increase in productivity can be presented as the merging of the following elements [7]:

- increase in participation in the market of enterprises with high productivity;
- increase in productivity inside enterprises already operating;
- building new business entities that replace entities with lower productivity.

3. Models of economic growth

There are 4 basic criteria defining models of economic growth. They have been synthetically presented in Table 1. This allows the identification of 9 models, of which 2: classic and Keynesian is the basis for consideration.

Table 1: Criteria for determining economic growth models [8]

Criterion	Model	Characteristic
Time	Long-term	It is used to define the path of sustainable growth, therefore it works with the assumption that the market determines the forces affecting the use of production capacity. It is also an important element in the development of the economy, as well as focuses on changes in the level of capital, labor and technology.
	Short-term	It is associated with Keynesian economics and focuses on identifying the reasons that affect whether production is focused on achieving its potential level. In this model, prices are fixed and should

		not be adjusted.
Theoretical foundations	Classic	This model is characterized by the optional use of production potential, wages and flexible prices. Thanks to this, demand and supply are compensated. In addition, the natural level of unemployment and the small role of the state in adjustment processes are characteristic of this model. Flexible prices affect the low effectiveness of monetary and fiscal policy.
	Keynesian	In this case, the flexibility of prices and wages is very low or even non-existent, and therefore the balance is obtained through quantitative adjustments.
The number of variables in the model	Univariate	In this model, one factor is analyzed (e.g. capital or work), which determines the fact that other components of economic processes are not taken into account.
	Bifactor	In this case, two factors of economic processes are analyzed.
	Multifactorial	More than two factors are examined. Taking into account the greater number of factors, a greater number of equations should be distinguished.
Principia of creating models	Mathematical	It is based on deterministic correlations and is clearly defined. They are presented in the form of structures significantly different from abstract ones.
	Econometric	It consists in specifying the variables explained by the model and explanatory variables, making a decision on the nature of the dependencies present in the model, thus it consists in determining not only interdependencies, but also the analytical form of the model's equations.

D. Ricardo and A. Smith, who are considered to be representatives of the classical trend, believed that the main catalyst for economic growth is production, which was confirmed by the claims concerning the law of the markets of J.B. Say. They also emphasized the existence of a correlation between the amount of wages and the demand for labor, which in turn determines the number of offspring on which the workers decide. While A. Smith looked at this dependence with optimism, D. Ricardo claimed that dynamic demographic growth has a negative impact on the growth of livelihoods, because it generates social chaos and decreases the rate of profit and the dynamics of raising capital. These aspects contribute to the slowdown in economic growth and the deepening of differences between the poor and the rich. According to D. Ricar, an economic tool that can stop the rapid demographic growth is the minimum wage and its maintenance at a constant level. For the British economist, money had only one function, namely the medium of exchange, which was used when buying and selling products and services [9].

Although in the case of the above-mentioned considerations, factors of economic growth, such as work,

capital and land, are distinguished to a large extent, statements regarding innovativeness appear both in A. Smith and D. Ricardo. The first of them observed that innovative activity, which improves the efficiency of production techniques, manifests itself in the form of the division of labor. This aspect influenced the fact that the employee could concentrate on one activity, thanks to which he saved time. Therefore, he could use it to create ideas that would improve the performance of work [10]. Over the years, a group of people was formed that specialized in creating inventions. A. Smith perceived the division of labor in such a broad sense that it can now be stated that this concerns technical progress. Despite the fact that he noticed how important the role of machines in more efficient and faster performance of work, at the same time emphasized the speculative activities of inventions and condemned banks for easy and quick lending for such projects [11]. He defined many types of innovative products requiring different levels of technical knowledge, analysis skills and creativity. He raised issues related to already existing or newly invented inventions.

Like A. Smith, D. Ricardo in his assumptions took into account technical progress in the developing economy. He paid attention to the impact of process innovations, especially in agriculture, which saved three basic (primary) production factors. In the first aspect, innovations reduced pensions per hectare and share in income, while innovations in the area of capital minimized the sum of cash pensions. He also stated that the design and implementation of machines can have a negative impact on production, causing its decline, as well as an increase in unemployment. At the same time, he emphasizes that the decline in rent caused by the introduction of innovation is temporary, and the reduction in prices is due to the actual use of new technology, which can generate an increase in production and employment.

D. Ricardo also stated that the long-term development of technology in the area of production of goods determines the creation of new goods, as a result of which new needs arise, production and profit increase [9]. This means that technological progress guarantees sustainable economic growth. It should be emphasized, however, that A. Smith and D. Ricardo nevertheless did not distinguish innovation as an important factor affecting economic growth.

The neoclassical model, which was created at the beginning of the 20th century, referred to three aspects: work, capital and land. With the growth of each of these factors, there was an economic growth. However, R.M. Solow in the late 1950s, he departed from this concept and presented the idea in which these elements were of little importance in the case of US economic growth. He pointed to a completely new factor, which was technical progress [12]. The Solow model was based on the production function, which was expressed as follows [13]:

$$Y = F(K, AL) \quad (1)$$

where:

Y - actual production,

K - capital,

L - labor effort,

A - measure of technology,

AL - the effort of an effective workforce that refers to the amount of labor and productivity that is determined by access to technology.

Therefore, it can be assumed that technical progress is taken into account, which supports work. If employees acquire new knowledge, there is an increase in productivity, which translates into the supply of effective work.

In the course of further analysis, R.M. Solow proved the participation of technical progress in economic growth, which was presented by means of the formula:

$$\Delta A/A = \Delta Y/Y - (\alpha \Delta K/K + \beta \Delta L/L) \quad (2)$$

wherein:

$\Delta A/A$ is referred to as the "rest of Solow".

The research by R.M. Solow led to the separation of the fundamental factor affecting the increase in *per capita* income, which was an increase in the entire productivity of production elements. However, one should pay attention to a certain weakness of this model, and it is connected with the fact that technical progress has exogenous features, which are "the rest of Solow". Therefore, it is stated that this model does not explain the impulses of progress referred to as the basic growth factor. Such perception causes technical progress to be an unexpected gift, while the "rest of Solow" reflects the ignorance of man about the processes of economic growth [14].

A somewhat different point of view was presented by X. Sala-i-Martin, for whom there were three groups of factors determining economic growth [15]:

- human and physical capital consolidation and education;
- heterogeneity of institutions supporting the economy;
- unlimited flow of technology, information, capital, ideas and foreign investments.

The two positions mentioned above present a different perception of factors of economic growth. Because R.M. Solow in his concept focuses primarily on technical progress, while X. Sala-i-Martin lists many more factors.

In the process of analyzing the impact of innovation on economic growth, it is worth presenting the model proposed by M. Kalecki, who believed that the fundamental task in the process of economic growth are investments while rejecting the models of L. Pasinetti [16] and N. Kaldor [17], according to which, savings are the most important factor. In connection with the above, the Kalecki model should be specified as an investment one, because in accordance with these assumptions, growth is determined by investments [18]. This approach has been extended, for example, by S. Gomulka, A. Ostaszewski and R. Davies [19].

By juxtaposing M. Kalecki's theory with the statements of neo-institutional studies, it can be observed that the most important goal of economic policy are organizational innovations created on the basis of institutional reforms. However, it should be emphasized that the assumptions of economics presented by neoinstitutionalists and based on the model of M. Kalecki, can define the effects of institutional transformations within macro-scale.

Accepting the claim that the technology and the needs of the individual are universal, caused that the basic difficulty in the research are institutions establishing management structures and transaction costs, and not the technology itself. Therefore, all considerations of neo-institutionalists were directed to the organizational prerogatives of the relations between enterprises, as well as between the public area and enterprises. The task of these analyzes was to identify rules for managing the allocation of resources enabling savings on replacement costs. This allows the creation of microeconomic foundations in relation to decisions and macroeconomic analyzes whose task is to improve the relationships between public and private entities.

In the IT society, development and economic growth are determined mainly by innovations and not investments. In particular, this applies to developed countries. M. Kalecki stated that innovations are one of the "flywheels" of economic progress, but it should be noted that for an economist, innovations were not an exogenous factor in relation to market processes. However, in present times this view is not justified. The same applies to investments whose character has taken on a new dimension. This approach changed the perception of business entities and governments.

M. Kalecki presented innovations from the perspective of inventions and production solutions that were used for the first time as the best factor of economic growth in the long run. In his opinion, "long-term development is not something inherent in the capitalist economy. Therefore, special development factors are necessary to sustain long-term development. Among these factors, we have distinguished innovations, in the broadest sense of the term, as the most important stimulus for development "[3].

In addition, M. Kalecki stated that the reduction in wages will not contribute to overcoming the crisis, the need for stabilization of wages is needed. Reducing the nominal wage may lead to a reduction in real wages, which is determined by the rigidity of prices. The effect of such action is a drop in demand and employment in consumer departments. Demand reduction reduces socio-economic development [20].

The model of M. Kalecki was based on the following equation:

$$r = \frac{\Delta D}{D} = \left(\frac{1}{K} \cdot \frac{I}{D} \right) - a + U \quad (3)$$

wherein:

I/k – investment productivity,

I/D – investment rate (capital intensity ratio, cost, how much capital participates),

a – factor of physical wear of production factors (not depreciation),

U – technical and organizational improvements.

Technical knowledge is an extremely important element affecting economic growth. This determinant was defined by the International Chamber of Commerce as a whole of information, and therefore specialist knowledge, as well as experience relating to technology and the production process for a certain product. Technical progress is strongly associated with new knowledge, which determines new inventions and innovations used in the production process. Therefore, economic development appears with the new technology.

4. Conclusions

In economic sciences, the issue of economic growth is one of the most important research issues. For decades, it was believed that the most important factors affecting economic growth were: land, labor and capital, which determine the level of wealth of the society. However, due to the constantly changing economic realities, such an approach has begun to lose its importance. Currently, markets that want to constantly develop need knowledge, creativity and experience, and this translates into innovations that are the result of creative effort.

The foundation of innovative development is the ability and the potential to create and absorb knowledge and use it in practical activities. Creation and implementation of innovations is based on knowledge, which is also a determinant of technological progress.

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THE POLICY OF SUSTAINABLE BUDGETING OF ECONOMIES OF EUROPEAN UNION COUNTRIES IN TIME OF FINANCIALIZATION

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Abstract: *The purpose of the article is to indicate the size of the finalization process and type of budgeting in the European Union Member States. Financialization is a process of growing importance of the financial sector in the economy. Since the financial crisis, which began in 2007, it is the area of many scientific research. The excess of finances is visible in highly developed countries – even on national level as financing of budget deficit. There are both highly developed and developing countries in the European Union. It is important to indicate differences between those two groups of EU countries. It is also important to conduct research on the importance of the financial sector and the role of financial instruments in the economies of the countries studied.*

Keywords: *sustainable budgeting, financialization, financial sector.*

1. Introduction

In the 21st century, more and more countries do not apply a balanced budget policy. This means that most of them prefer budget expenses that exceed incomes. In that case it is all about budget deficit. Excessive expenses must be financed from funds, which come from the financial market. The deficit, which comes on one year and another may be the reason for increasing public debt and the size of the financial sector. It can also increase turnovers on the financial markets.

2. The policy of sustainable budgeting

The state budget is a basic element of revenue and expenditure planning for a given budgeting year. Government authorities apply different methods of building the budget. The literature of subject often mentions fiscal rules.

There are many fiscal rules. Some are used more often, the second less frequently. The choice of the most universal of them is complicated by the diverse conditions found in the economies of the states in the 21st century. The following reasons support the application of fiscal rules [4]:

- removing the problem of decision delays when implementing fiscal policy,
- reducing the impact of policy on fiscal policy decisions,
- transfer of responsibility for fiscal policy to other countries (applies to countries in the monetary union).

In the case of a budget deficit, four fiscal rules stand out. Below are the ones, which belong to them:

- balanced budget rule,
- deficit limits,
- limits of the cyclically adjusted balance,
- golden rule.

The balanced budget rule is one of the first fiscal rules. The assumptions of this rule are simple - the budget should balance income and expenses. However, it is difficult to implement in the economic reality. The rule does not have to be applied only for one financial year. There are instances of applying this rule for two budget periods. In this case, the surplus from the second year should cover the deficit from the first period. [4]

Deficit limits are defined as a simplified rule of balanced budgeting. In accordance with this rule, the budget deficit cannot exceed a certain predetermined value. Often the share of the deficit in a given year in GDP is used [4].

The purpose of applying the balance limits cyclically canceled is to adjust the deficit limit to take into account the change in the economic situation of the country. Limits should refer to a hypothetical balance that can be achieved without any cyclical fluctuations [4].

According to the golden rule, current budget expenditures should be covered by current income. However, expenses incurred for investment purposes should be financed from external sources - by incurring debt. Applying this rule ensures the flow of well-being between generations. Investments made in the current period will in future be created assets that will be useful for the next generation. In this way, it is justified to make investment expenditures by debiting future generations to pay off debts [4].

There are fiscal rules in the European Union and all Member States are obliged to keep a predetermined level of budget deficit expressed as a percentage of GDP. The maintenance of a certain level of deficit is controlled by the European Commission, which may propose solutions to help regulate the level of budget balance in a given country. Controlling Member States in budgetary terms, the European Commission is mainly guided by two criteria [6]:

- the ratio of the planned / actual deficit to GDP (the maximum level in the Member States is 3%);
- the ratio of public debt to GDP (the maximum level in the Member States is 60%).

3. Financialization – definition and effects

The process of financialization is present in many economies of the 21st century countries. Many countries finance part of budget expenditure from external funds. Thus, it increases the importance of the financial sector in the economy.

Financialization is an increase in the importance of the financial sector. There are many definitions of this process in the literature. Some focus on the general meaning. Others point to the details of increasing the role of the financial sector. Two definitions appearing in the subject literature are presented below.

J. Bibow (2010) claims that financialization is a process of structural changes in the financial sector. This process includes increasing the importance of derivatives and securities markets [2].

A similar sentence is presented by P. Wisniewski. According to the author, financialization is a change in the financial sector, in which the role of financial products and services consisting in the use of financial leverage increases [8].

The occurrence of financialization brings both benefits and losses to the economy. In the case of positive effects, you can distinguish:

- GDP growth in countries, in which occur the process of financialisation,
- accelerated economic growth in these countries,
- development and growth of the financial sector and financial instruments.

Many positive effects of increasing importance of the banking sector may turn into negative effects. There are many negative effects mentioned in the literature, but only three relate to the greater part of the economy. These include [5]:

- slowdown in economic growth - effects include deepening of cross-sectoral differences, increased level of unemployment [1],
- changes in business cycles that affect the occurrence of trade deficits, low inflation, increase in corporate and household debt [7],
- increased sensitivity of economies to crises.

4. The policy of sustainable budgeting of two groups of European Union countries

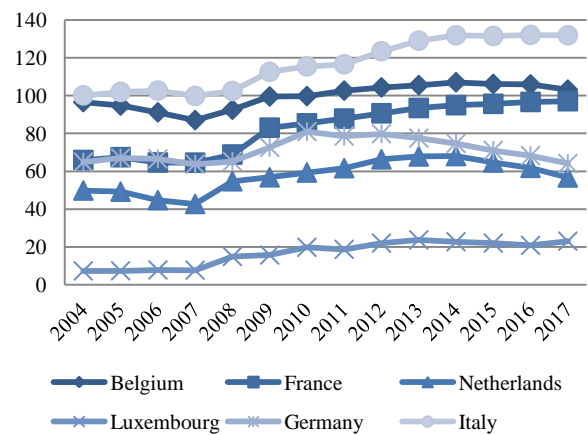
The rule of sustainable budgeting can be examined using the same indicators that measure the level of financialization in a given economy. The author has attempted to determine the level of financialization and

implementation of the balanced budget principle by means of three indicators:

- ratio of public debt to GDP in the,
- ratio of public debt growth to GDP growth,
- ratio of public debt growth to GDP growth.

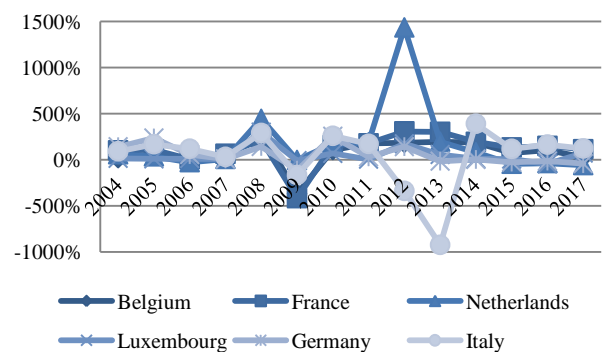
The research covers two groups of countries, which belong to the European Union. The first group is the founding member of the Community, in which there were favorable conditions for the development of financialization and the increase of the budget deficit. The second group are the countries of the Visegrad Group, which have undergone a change from a centrally planned economy to a free market economy in the 1990s. First research was conducted on a group of founding countries of the EU, then in the Visegrad Group countries.

Chart 1: Ratio of public debt to GDP in in the EU's founding member states (in %)



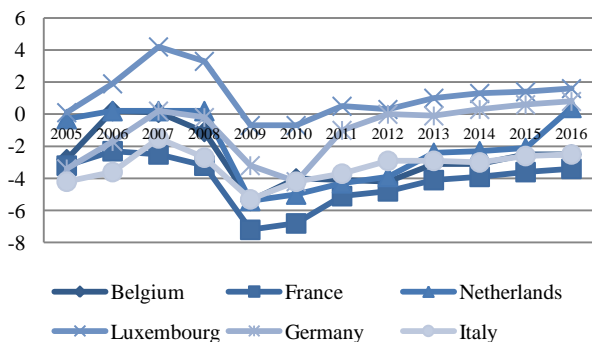
Graph 1st presents the share of public debt in the level of GDP in the founding states of the European Union. In line with the budgeting rules followed by the European Union, only the Netherlands and Luxembourg meet the requirements. In the remaining researched countries, the index level exceeds 60%. The largest share of public debt in GDP is in Italy, Belgium and France. Increasing public debt contributes to increasing the need for external financing of budget expenditure and debt service. This favors the development of the financial sector.

Chart 2: Ratio of public debt growth to GDP growth in the EU's founding member states (in %)



Graph 2nd shows the share of public debt growth in GDP growth in the EU founding member states. In the majority of the countries surveyed, the level of public debt increased much faster than the level of GDP. Noteworthy is the reduction in the level of public debt in Italy in 2013 and the increase in the level of debt in the Netherlands in 2012.

Chart 3: Ratio of the budget balance to GDP in the EU's founding member states (in %)



Graph 3rd presents the share of the budget balance in GDP. If the ratio is above 0, then there is a fiscal surplus included in relation to GDP. In the case of a negative value of the indicator in the country, there is a budget deficit. This indicator is the second budgetary rule, which is directed by the European Commission when assessing the budget of a given country. In the case of the surveyed countries, only France is not in the safe range of the indicator. For most of the period under consideration, the founding countries of the EU showed a budget deficit. This favored the taking of public debt and increasing the turnover of the financial sector. During the entire period considered, only Luxembourg did not show a budget deficit exceeding 3% of GDP.

Chart 4: Ratio of public debt to GDP in the Visegrad Group countries (in %)

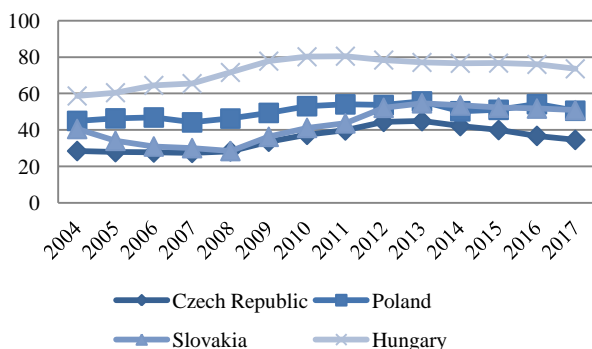


Chart 4th presents the share of public debt in the GDP level in the Visegrad Group countries. In accordance with the budgeting principles followed by the European Union, the value of the indicator should not exceed 60%. Among the countries studied, only Hungary does not meet this principle. Other countries have public debt not exceeding 60% of GDP. This means that there is less demand for products from the financial sector in the Visegrad Group

countries. A lower level of debt may be associated with a shorter period of free market economy in that group of countries.

Chart 5: Ratio of public debt growth to GDP growth in the Visegrad Group countries (in %)

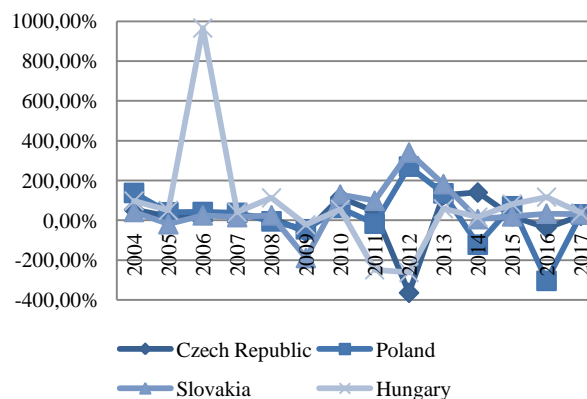


Chart 5th shows the share of public debt growth in GDP growth in the Visegrad Group countries. In the analyzed period, Hungary and Slovakia were characterized by high volatility in changes in the level of public debt. It is worth noting that in recent years Poland has been showing a reduction in the level of public debt in GDP growth.

Chart 6: Ratio of the budget balance to GDP in the Visegrad Group countries (in %)

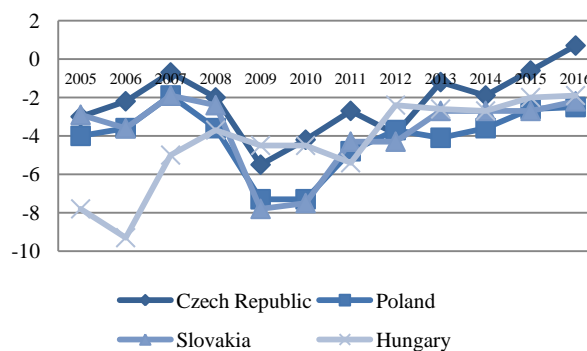


Chart 6th presents the share of the budget balance in GDP in the Visegrad Group countries. If the ratio is above 0, then there is a fiscal deficit included in relation to GDP. In the case of a negative value of the indicator in the state, there is a budget deficit. According to the rules checked by the European Commission, the value of the indicator should not exceed 3%. During the examined period, each of the states did not meet the EU requirements in at least one year. From 2015, all Visegrad Group countries have a budget deficit level below 3%. This means that they do not show such a high demand for financing their expenses through external funds.

5. Conclusions

In the 21st century, the financial sector gained importance in relation to other parts of the economy. The increase in the role of finances is compounded by the increased demand of the state for external funds from market participants.

In the case of the studied groups of countries, there is a visible increase in public debt and the occurrence of an annual budget deficit. In both groups, the demand for external funds is growing. In the case of founding countries of the EU the demand is larger than in the Visegrad countries. In line with the above, both groups of countries, pursuing the unbalanced budget policy, contribute to increasing the size and significance of the financial sector. At the same time, accelerating the process of financialisation.

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GDPR IN THE PRACTISE OF THE SMALL COMPANIES

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Abstract: *The GDPR has caused an enormous increase in public interest in the protection of personal data in the Slovak Republic since early 2018. The media has spread information relating to the GDPR so enormously in the Slovak Republic, that the issue of personal data protection in relation to the GDPR has become one of the main topics of the year 2018. What is more, the GDPR has been presented as a "scarecrow" in many cases. Let us say that the issue of personal data protection in relation to the GDPR has been mostly presented to the public in an inappropriate manner. In fact, the previous legislation has already ensured the protection of personal data. In relation to the protection of personal data, thus no changes have been often adopted in terms of the substantive-legal protection of personal data. This is the case of many small entrepreneurs or businesses, among which the GDPR has caused a chaos and fear of huge fines despite the fact that they have ensured the protection of personal data at a sufficient level also in terms of GDPR. Therefore, the author of the article evaluates the legal regulations of GDPR in terms of its application, especially in the practice of small businesses and entrepreneurs.*

Keywords: *GDPR, data protection, a small company*

1. Introduction

The primary reason for writing this article was a stir caused by the adoption of GDPR in the Slovak Republic. The GDPR has caused a huge increase in public interest in the protection of personal data in the Slovak Republic since early 2018. The media has spread information relating to the GDPR so enormously in the Slovak Republic, that the issue of personal data protection in relation to the GDPR has become one of the main topics of the year 2018. What is more, GDPR has been presented as a "scarecrow" in many cases. Protection of personal data is in the centre of interest of politicians, academics and practicing lawyers in these days. The main reason for the buzz is the reform of the data protection framework.¹

Let us say that the issue of personal data protection in relation to the GDPR has been mostly presented to the public in an inappropriate manner. In fact, the previous legislation has already ensured the protection of personal data. In relation to the protection of personal data, thus no changes have been often adopted in terms of the substantive-legal protection of personal data.

This is the case of many small entrepreneurs or businesses, among which the GDPR has caused a chaos and fear of huge fines despite the fact that they have ensured the protection of personal data at a sufficient level also in terms of GDPR.

The leading legal instrument in the area is adopted Regulation (EU) 2016/679 of the European Parliament and of the Council of 27th April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation – hereinafter referred to as the “GDPR”), coming into force on 25th May 2018.² Second part of the EU data protection

reform package constitutes of directive (EU) 2016/680 of the European Parliament and of the Council of 27th April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA.³

Prior to the adoption of GDPR in the Slovak Republic, the personal data protection was ensured by Act no. 122/2013 Coll. on Personal Data Protection, as amended, which repealed the previous legislation - Act no. 428/2002 Coll. on Personal Data Protection as amended by Act no. 602/2003 Coll., Act no. 576/2004 Coll., Act no. 90/2005 Coll. and Act no. 583/2008 Coll.

2. GDPR in the practise of the small companies

In the Slovak Republic, as well as in the whole world, a large number of business companies and entrepreneurs are small business companies and small entrepreneurs. A small business company and small entrepreneur are understood as a business or small entrepreneur whose ownership structure consists of a maximum of 3 people and have a maximum of 5 employees.

The new GDPR legislation has touched also these entities, while in view of the presentation relating to the GDPR given by media, it has become a bureaucratic burden especially for small business companies and small entrepreneurs.

Immediately after the GDPR was adopted by the Slovak Republic, a number of entrepreneurs offering data protection services in accordance with the General Data Protection Regulation have started their businesses. They

have offered services relating to setting up the personal data legal protection according to the GDPR to individual entities in the Slovak Republic, and thus also to the small business companies and small entrepreneurs. Let me say that, such action has been useless for many involved legal entities. These services have not been needed for many small businesses and small entrepreneurs since they have already ensured sufficient protection of personal data in the past.

Prior to the adoption of GDPR in the Slovak Republic, the personal data protection was ensured by Act no. 122/2013 Coll. on Personal Data Protection, as amended, which repealed the previous legislation - Act no. 428/2002 Coll. on Personal Data Protection as amended by Act no. 602/2003 Coll., Act no. 576/2004 Coll., Act no. 90/2005 Coll. and Act no. 583/2008 Coll. Given the historical development of the personal data protection legislation, we are convinced that the Slovak Republic was well prepared to accept the GDPR. Thus, a huge upheaval with the adoption of GDPR was not correct.

In the light of all the above, we present the basic principles of the processing of personal data and the fundamental rights and obligations of the personal data processing in accordance with the GDPR regulations. The Slovak Republic was prepared for these regulations already before the adoption of the GDPR and therefore, the fear of enormous administrative bureaucratic burdens has been undue in case of small businesses and small entrepreneurs.

We note that the small businesses and small entrepreneurs that are referred to in this article, represent small businesses and small entrepreneurs the main business activity of which is not a data processing.

The basic principle of personal data processing is the fact that the protection is provided only in the range of personal data of natural persons, i.e. not in the range of personal data of legal persons.

Personal data protection is provided for personal data which are processed by automated means or also by other than automated means.

Personal data may be processed only for a specific purpose and only in accordance with the law. Personal data may be processed only to the extent which is necessary, only if they are correct and only until the moment of fulfilment of the purpose. What is more, personal data may be processed only if adequate security is guaranteed.

There are several legitimate reasons for personal data processing. In the case of small businesses and small entrepreneurs, the main business activity of which is other than data processing, there are following three the most frequent reasons:

- the person concerned has given consent to the processing of his/her personal data;

- the processing is necessary for the performance of a contract and the person concerned is one of the party;
- the personal data processing is necessary in order to fulfil a legal obligation.

It is forbidden to process personal data that reveal racial or ethnic origin, political opinions, religious or philosophical beliefs or membership in trade unions, as well as the processing of genetic data, biometric data for the purpose of individual identification of a physical person, and health data or data relating to sexual life or sexual orientation of a natural person.

The operator is obliged to provide the person concerned with all information (for example contact details of the person responsible, processing time, purpose of processing, legal basis of processing, etc.) and notifications (e.g. notification of repair, notification of deletion, notification of personal data breach, etc.) concerning the personal data processing. Above mentioned changes in this legal obligation were adopted because of the GDPR.

An operator is obliged to adopt appropriate technical and organizational measures in order to ensure the processing of personal data and to be able to demonstrate that the personal data processing is carried out in accordance with the European Union General Data Protection Regulation and, where necessary, is also obliged to review and update these measures.

The operator is obliged to keep the records of the processing activities for which he is responsible (for example purpose, length of processing, legal reason for processing, etc.), which is also a new obligation. However, the Personal Data Protection Office according to the new Act on Personal Data Protection - Act no. 18/2018 Coll. on Personal Data Protection, as amended.

An operator is obliged to ensure the security of the personal data processing, and within this:

- a) the pseudonymization and encryption of personal data;
- b) the ability to ensure permanent confidentiality, integrity, accessibility, and resilience of processing systems and services;
- c) the ability to restore and access personal data in time, in case of the physical or technical incident;
- d) the process of periodic testing and assessment.

An operator is obliged to notify the supervisor of any such personal data breach without undue delay and, if possible, no later than 72 hours after he/she has learned of this matter of fact. At the same time, an operator is also obliged to notify a person concerned.

An operator is required to provide an assessment of impact, however, only in the cases defined by the GDPR. In our opinion, many above-mentioned cases do not apply to the overwhelming majority of small business companies and small entrepreneurs.

An operator is obliged to determine a responsible person if:

- a) the processing is carried out by a public authority or by a public body with the exception of courts in the exercise of their jurisdiction;
- b) the principal activities of an operator or an intermediary involve processing operations which, in terms of their nature, scope and/or purpose require regular, systematic, and large-scale monitoring of the persons concerned;
- c) the main activities of an operator or an intermediary involve, to a large extent, the processing of data of particular categories (religion, health, race, etc.) or the processing of personal data relating to the recognition of guilt for offenses and delinquency.

Specific rules and obligations have been set in case of the transfer of personal data to third countries outside the European Union. However, again we would like to argue that the overwhelming majority of small businesses and small entrepreneurs have not been doing that.

Each Member State is obliged to determine a supervisory authority. In Slovakia, it is the Office for the Protection of Personal Data of the Slovak Republic, which was established long before the adoption of the GDPR. Office for the Personal Data Protection of the Slovak Republic is obliged to perform all the functions in the field of personal data protection, same as in the past before the GDPR adoption.

Each person concerned has the right to lodge a complaint to the supervisory authority, in particular in the Member State of residence, place of work or at the place of the violation, if they think that the processing of personal data concerning he or she is contrary to the GDPR. It means that anyone may notify any personal data protection misconduct in the field of personal data protection to the Office for Personal Data Protection of the Slovak Republic.

Any person who has suffered material or non-pecuniary damage as a result of an infringement by the operator is entitled to compensation for the damage from the operator.

The fine for violating the GDPR may be up to 2% of worldwide turnover or up to 10,000,000 EUR, whichever is higher. In case of serious violations, the fine can be up to 4% of worldwide turnover or up to 20,000,000 EUR, whichever is higher. Specific rules for granting fines are set by the Slovak Act on Personal Data Protection.

In relation to personal data in labour-law relations, perhaps the largest range of duties exist for small business companies and small businesses. The Slovak Republic may lay down more specific rules to ensure the protection of rights and freedoms in the processing of personal data of employees in relation to the employment, especially, for the purposes of recruitment, performance of a work contract, including fulfilment of obligations arising from legislation or collective agreements, and for the purposes

of management, planning and organization of work, equality and diversity at the workplace, health and safety at work, and protection of the employer's or customer's property. Therefore, in this area of labour-law relations and the related personal data protection, the Act on Personal Data Protection is relevant for small businesses and small entrepreneurs.

3. Conclusion

The GDPR has caused an enormous increase in public interest in the protection of personal data in the Slovak Republic since early 2018. The media has spread information relating to the GDPR so enormously in the Slovak Republic, that the issue of personal data protection in relation to the GDPR has become one of the main topics of the year 2018. What is more, the GDPR has been presented as a "scarecrow" in many cases.

Let us say that the issue of personal data protection in relation to GDPR has been mostly presented to the public in an inappropriate manner. In fact, the previous legislation has already ensured the protection of personal data. In relation to the protection of personal data, thus no changes have been often adopted in terms of the substantive-legal protection of personal data.

This is the case of many small entrepreneurs or businesses, among which the GDPR has caused a chaos and fear of huge fines despite the fact that they have ensured the protection of personal data at a sufficient level also in terms of GDPR.

Therefore, the author of this article evaluated the GDPR legislation in terms of its application, especially in the practice of small business companies and entrepreneurs.

The author pointed out that small entrepreneurs or businesses, among which the GDPR has caused a chaos and fear of huge fines, had ensured the protection of personal data at a sufficient level also in terms of GDPR already before the GDPR was adopted. Such protection was ensured based on previous legal adjustments.

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PROCESSING OF PERSONAL DATA CONCERNING HEALTH IN LABOUR LAW RELATIONSHIPS

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Abstract: *This article focuses on an issue of protecting a special category of personal data defined in the Article 9 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC and in the Slovak Legal order in the Section 16 of the Act. No. 18/2018 Coll. on the Protection of Personal Data and on Changes and Amendments to Certain Acts. The article deals with basic legal terms and situation as processing of special categories of personal data (or sensitive data), general prohibition of processing of special personal data and exemption of prohibition of processing of special personal data, regarding to focus on possibilities and obligations of employers in labour law relationships.*

Keywords: *GDPR, personal data, labour law, mental health, health*

1. Introduction

Implementation of European legal regulation of personal data protection was until May 25, 2018 content of Directive 95/46/EC of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data and on the free movement of such data (hereinafter as the “Directive 95/46/EC”) and in Slovak Legal order by the Act No. 122/2013 Coll. on the Protection of Personal Data and on Changing and Amending of other acts, as amended (hereinafter referred to as the “Previous Act on the Protection of Personal Data”).

After May 25, 2018, a new legal regulation of personal data protection was implemented into the legislation of the Slovak Republic by new Act No. 18/2018 Coll. on the Protection of Personal Data and on Changes and Amendments to Certain Other Acts. (hereinafter referred to as the “New Act on PPD”). However, the base of this “false” implementation, Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of natural persons with regards to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (General Data Protection Regulation) (hereinafter referred to as the “Regulation GDPR”) is legally binding all citizens and legal entities in territory of all of the Member States especially without a need for its specific implementation (transposition) into the national (Slovak) law, the Slovak Republic implemented the Regulation GDPR into the Slovak legislation by the New Act on PDD.

The adoption of the Regulation GDPR at the European Union level and New Act on PDD at the level of the Slovak legal order aims to ensure high level of protection of individuals (*persona natura*) against an unauthorized interference with personal data that may lead to breach of their rights and freedoms.

2. Data concerning health – special category of personal data or sensitive data

In the Chapter II named as *Principles*, and in the Article 9 - Processing of special categories of personal data, paragraph 1 of the Regulation GDPR (similarly the provision of Section 16 Par. 1 of the New Act on PDD) is stated: “*Processing of personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person's sex life or sexual orientation shall be prohibited.*”

In general (the Article 4 Par. 2 of the Regulation GDPR and similarly the provision of Section 5 point (e) of New Act on PDD), processing of personal data means: “*...any operation or set of operations which is performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organization, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction.*”

The concept of “data concerning health” is defined in the Article 4 Par. 15 of the Regulation GDPR (similarly the provision of Section 5 point (d) of the New Act on PDD) as “*personal data related to the physical or mental health of a natural person, including the provision of health care services, which reveal information about his or her health status*” and specified in detail in the Recital 35 of the Regulation GDPR: “*Personal data concerning health should include all data pertaining to the health status of a data subject which reveal information relating to the past, current or future physical or mental health status of the*

data subject. This includes information about the natural person collected in the course of the registration for, or the provision of, health care services as referred to in Directive 2011/24/EU of the European Parliament and of the Council [1] to that natural person; a number, symbol or particular assigned to a natural person to uniquely identify the natural person for health purposes; information derived from the testing or examination of a body part or bodily substance, including from genetic data and biological samples; and any information on, for example, a disease, disability, disease risk, medical history, clinical treatment or the physiological or biomedical state of the data subject independent of its source, for example from a physician or other health professional, a hospital, a medical device or an in vitro diagnostic test.“

As the personal health data, we can consider not only the information mentioned above, but also an information about fact that a person wears glasses or use contact lenses, also data about a person's IQ or intellectual and emotional capacity, mental illness or status, stress resistance, information about drinking habits, drug abuse, smoking, data about allergies, data on health conditions to be used in an emergency, membership of an individual in a patient support group (e. g. cancer support group, Alcoholics Anonymous or other self-help and support groups with a health-related objective; and the mere mentioning of the fact that somebody is ill in an employment context are all data concerning the health of individual data subjects. [2]

As reader can see, the Recital 35 of the Regulation GDPR sets basic characteristic of data concerning health and the Article 9 Par. 1 of the Regulation GDPR (similarly the provision of Section 16 Par. 1 of the New Act on PDD) sets a prohibition of processing of data concerning health, but this prohibition is not absolute. Why cannot be prohibition of processing of data concerning health absolute?

3. Legal base of processing of data concerning health as an employer

The processing of data concerning health is common processing activity of dozens of controllers in member states of the European union (natural or legal person, public authority, agency or other body which alone or jointly with the other determines the purposes and means of the processing of personal data) as health care professional (medical professions in common), psychologists, lawyers and of course employers.

The prohibition on the processing of a specific category of personal data is broken down by an enumerative list of legal bases (processing conditions of a specific category of personal data) that allow processing of a special category of personal data. In this article, we focus only on relevant legal bases concerning health-allowing processing of special category of data concerning health.

Employers, which process data concerning health, often (wrongly) request an explicit consent from their employees. Problem of the consent as a legal base is that all subjects have right to withdraw his/her consent at any time. In this case, without consent, any employer could not further process personal data.

The Regulation GDPR in the Article 9 Par. 2, point (b) (similarly the provision of Section 16 Par. 2, point b) of the New Act on PDD) sets exemption from the Article 9 Par. 1 (similarly the provision of Section 16 Par. 1 of the New Act on PDD). The prohibition of processing data concerning health shall not “*apply if processing is necessary for the purposes of carrying out the obligations and exercising specific rights of the controller or of the data subject in the field of employment and social security and social protection law.*” The employer has not obligation to acquire the employee’s consent if these data concerning health are necessary for the purpose mentioned above.

On this legal base, a special category of personal data can be processed without explicit consent, if such processing is permitted by a specific regulation (the Union law or the law of the Slovak Republic) or a collective agreement. Regulation or collective agreement must provide, under the law, adequate safeguards to protect the fundamental rights and interests of the person concerned. The processing of a special category of personal data for these purposes may e. g. take place for the purposes of providing personal data to employers with the health insurance, social insurance, retirement savings, the granting of state social benefits (such as benefits in material need), social protection of children social welfare, social service provision, and so on. [3] The obligation mentioned above in the Slovak legal order results from legal Acts as Act No. 580/2004 Coll. on health insurance, Act No. 461/2003 Coll. on social security, Act No. 462/2003 Coll. on the replacement of income in case of temporary incapacity for work, and Act No. 43/2004 Coll. on old-age pension insurance etc.

The employer is obliged to process data concerning health not only based on the above-defined specific legislation, but also based on Act No. 311/2001 Labour Code as ammended (hereinafter referred to as the “Labour Code”). Thus, the employer is empowered to process the data concerning the health of the employee (without a need of the employee consent), e. g., based on the provision of Section 41 Par. 2 of the Labour Code for the purposes of determining medical fitness for work within the initial medical examination, on the basis of provision of Section 98 Par. 3 of the Labour Code for a preventive medical examination for the purpose of performing work at night or for the purpose of assessing the effects of the performance of work in the framework of extraordinary medical examinations pursuant to the provision of Section 55 Par. 2 point (a) and (e) and the provision of Section 63 Par. 1 point (c) of the Labor Code.

On the other hand, an entity performing medical opinion on health ability or mental health ability or other opinion within preventive occupational medicine for purpose of medical expert opinion has a separate legal base for the processing of a special category of data concerning health. The Regulation GDPR in the Article 9 Par. 2, point (h) (similarly the provision of Section 16 Par. 2, point (h) of the New Act on PDD) sets exemption from the Article 9 Par. 1 (similarly the provision of Section 16 Par. 1 of the New Act on PDD). The prohibition of processing data concerning health shall not apply if “*processing is necessary for the purposes of preventive or occupational medicine, for the assessment of the working capacity of the employee, medical diagnosis, the provision of health or social care or treatment or the management of health or social care systems and services.*” The processing such as this one must be subject to the simultaneous application of the guarantees and conditions referred in the Article 9 Par. 3 of the Regulation GDPR. Data concerning health “*...may be processed for the purposes referred to in point (h) of paragraph 2 when those data are processed by or under the responsibility of a professional subject to the obligation of professional secrecy under Union or Member State law or rules established by national competent bodies or by another person also subject to an obligation of secrecy under Union or Member State law or rules established by national competent bodies.*”

4. Conclusion

The Processing of a specific category of personal data – data concerning health is generally prohibited in the Article 9 Par. 1 of the Regulation GDPR. The Regulation GDPR in the Article 9 Par. 2, point (b) (similarly the provision of Section 16 Par. 2, point (b) of the New Act on PDD) sets exemption for every employer from the Article 9 Par. 1 (similarly the provision of Section 16 Par. 1 of the New Act on PDD)., who wants to process the employee’s data concerning health. The employer must consider whether the personal data of employee do not fall under the category of a special personal data concerning health and whether the legal base required for such processing exists.

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TRANSTERRITORIAL ADMINISTRATIVE ACTS – MUTUAL RECOGNITION OF DRIVING LICENCES

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Abstract: *The present paper deals with the issue of transterritorial administrative acts as administrative measures sui generis. The characteristic feature of the transterritorial administrative act is the fact that its effects are not limited to the territory of the issuing State but also take effect outside that territory. These transboundary effects are always a consequence of the source of International, or Union law. The author of the paper deals with the basic characteristic of transterritorial administrative acts. It focuses its attention on the analysis of Directive 2006/126/EC of the European Parliament and of the Council of 20 December 2006 on driving licenses, according to which the driving licenses issued by the Member States shall be mutually recognized.*

Keywords: *Transterritorial Administrative Acts, Reciprocity, Mutual recognition of driving licenses*

1. Introduction

Transterritorial administrative acts are a form of administrative action sui generis and tools, that are used by Union law to simplify the free movement of persons, goods, capital and services. Intra-territorial administrative acts (and therefore administrative acts the effects of which are limited by the State territory) are binding only for the parties and the domestic authorities, on the other hand, transterritorial administrative acts also have an effect on the authorities of foreign power without the need for their explicit recognition. In case of collision between the effects of a transterritorial administrative act and an intra-territorial administrative act, the transterritorial administrative act in the application activity of the national administrative authority shall prevail.

The basic characteristic is their reciprocity, which means that the sovereign state issues administrative acts, having implications outside its own territory and at the same time state accept implications of foreign administrative acts in its own territory.

Transterritorial administrative acts have effects in the territory of other States, but remain with acts issued under the public law regime of their home country. According to these legal orders, the lawfulness of their issuance, respectively, any defects (unlawfulness, formal defects, misstatement, or nullity) [1].

1. Inter – administrative Tie

The characteristic feature of a transterritorial administrative act is the fact that its effects are not limited to the territory of the issuing State but also take effect outside that territory. The concept of transterritorial administrative acts is not based on the fiction of existence in the sphere of foreign power, but on the cross-border extension of the effects of these acts. The consequence of a transterritorial administrative act is always a certain form of breaking the territorial authority of a foreign state, and that foreign state is pro unione obliged to respect the

effects resulting from the transterritorial administrative act. At the same time, it implies specific relation of reciprocity between the states concerned.

The transboundary effects of a transterritorial administrative act have legal consequences at the level of the rule of law which did not issue this decision and did not participate in his extradition. It is an act which has been issued under a foreign law.

Currently, literature suggests that an integral part of the transterritorial effect is an element called an inter-administrative tie. This phenomenon is of a dual nature. First of all, the transterritorial effect implies, that the administrative act is directly binding for the body of foreign powers, but it doesn't mean that these bodies are required to follow the law of the State which issued this act (we can talk about an inter-administrative tie in the narrow sense).

Secondly, the transterritorial effect implies that the addressee of a transterritorial act is entitled to an allowable act not only in the territory of the issuing State, but also in the territory of other Member States of the European Union. The addressee is not obliged to request an act of recognition in the territory of other states (under the regime of foreign public law), his entitlement arises without any other relevant area (we can talk about of an inter-administrative tie in the broad sense). However, such an understanding of the inter-administrative tie in a broad sense doesn't mean that the addressee of the transterritorial administrative act was not bound by the law of a foreign State in the exercise of its powers [2].

2. Some issues of mutual recognition of driving licenses

Based on the above, it is my goal to point out in this part of the article on some issues of transterritorial administrative acts and their effects on the mutual recognition of driving licenses. As mentioned above, transboundary effects of transterritorial acts are always the result of the international, or Union law. Harmonization of

the Member States' driving licenses legislation is one of the means of ensuring the free movement of persons within the European Union. Its foundations were laid down in 1980 in the form of the first Council Directive 80/1263/EEC of 4 December 1980 on the introduction of a Community driving licence. This Directive has replaced Council Directive 91/439/EEC of 29 July 1991 on driving licences which, as a result of substantial amendments, has over time codified Directive 2006/126/EC of the European Parliament and of the Council of 20 December 2006 on driving licenses (hereinafter referred to as "Directive") [3].

The Directive is based on the principle of mutual recognition of driving licenses, whereby the authorities of a Member State have issued a driving license in accordance with Article 1 of the Directive, other Member States are not entitled to verify compliance with the requirements for its issue and the possession of a driving license issued by a Member State must be regarded as proof that the holder has fulfilled the requirements laid down by the Directive at the date of its issue. This is in particular the residence requirement in the Member State issuing the driving license and the requirement to drive a motor vehicle.

This interpretation of the Directive is supported by the objectives pursued, since the aim is to contribute to improving road safety and to facilitate the free movement of persons who settled in a Member State other than that in which the license was issued. Furthermore, the explicit purpose of this Directive is to address the issue of transparency for citizens, police forces and the administration responsible for driving licenses and to avoid this problem, as well as the falsification of driving licenses resulting from the concurrent existence of different rules in different Member States. This Directive has introduced a uniform model of driving license, which successively replaces the various driving licenses existing in the Member States.

We can say, that this Directive makes a minimum harmonization of the requirements under which driving licenses are issued. These requirements are defined in particular in the Articles 4 and 7 and relate, inter alia, to the minimum age required, the ability to drive, the tests to be carried out by the applicant and his residence in the territory of the Member State issuing the driving license.

Last but not least, although the directive lays down minimum requirements for the issue of driving licenses, it does not regulate the correct procedure for issuing such licenses. It is up to the Member States to lay down the procedure and determine the date on which the driver who has met the minimum requirements must issue this driving license. In line with the substantiation of the Directive, for reasons connected with road safety, Member States should be able to apply their national provisions on the withdrawal, suspension, renewal and cancellation of

driving licences to all licence holders having acquired normal residence in their territory.

The case law of the Court of Justice of the European Union plays an important role, since a series of judgments relating to this issue have been known from the last period (for example Cases *Wiedemann a Funk* C-329/06 and C-343/06 *Weber* C-1/07, *Hofmann* C-419/10, *Aykol* C-260/13). As already mentioned, Article 2 Par. 1 of the Directive provides that Driving licences issued by Member States shall be mutually recognised. According to the settled case-law of the Court of Justice of the European Union, that provision imposes a clear and precise obligation to the Member States of mutual recognition without any formality, which leave no discretion as to the adoption of the measures to be taken to ensure compliance with that obligation (on the other hand, the so-called permitted restrictions on the principle of mutual recognition of driving rules under the Article 11 of the Directive).

It follows from the provisions of this Directive that the objective of the legislator was to strengthen the effective fight against "tourism for driving licenses", which is one of the objectives of the directive. At national level, this also requires strict rules on the eligibility for driving, which could not be circumvented after taking a driving license in another country.

3. Conclusion

The fact that transterritorial administrative acts also have effects in other Member States' legal systems has the effect of increasing the intensity of mutual cooperation between the national administrations. It is necessary, that this cooperation be conducted in accordance with the principle of mutual cooperation as defined in the Article 4 Par. 3 of the Treaty on the Functioning of the European Union. This principle establishes, in relation to transterritorial administrative acts, a large number of new obligations that national authorities have to implement in their practice (for example notifying the fact of the repeal or change of an issued act by the administrative authority of another State or mutual notification in the case of the identification of a malicious act).

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ANALYSIS OF COMPANIES OF THE ENERGY SECTOR BASED ON AN EXAMPLE OF THE COMPANIES QUOTED ON THE WARSAW STOCK EXCHANGE IN POLAND AND THEIR FAIR VALUE BETWEEN 2010-2018

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Abstract: This paper examines share price of the companies listed on the WIG-ENERGY and their fair value between 2008-2018. Data from 2008 to 2018 were collected from the Stooq.pl (Polish portal of shares). Two hypotheses are tested: (1) value of the shares based on the market price; (2) value of the shares as the fair value of shares. The energy market was analysed and characterised, also the companies participating in it were described. Nevertheless, the market value of shares does not reflect the fair value of the shares which is currently assigned to different companies in the sector. The research analysed the key financial ratios, the actual value of shares; also the fair value of the energy sector companies listed on the Warsaw Stock Exchange was calculated.

Keywords: power engineering, fair value of shares, company, market value of shares

1. Introduction

The energy security is a strategic issue for every country. For every country, the generation and transmission of electricity is the economic lifeblood, which in addition to the transport system, determines efficient functioning of the economy, and even makes a country independent from other countries and economies.

The economic development of the country is dependent on the access to energy. It is predicted that until 2040, the global economy will be growing at an average rate of 2.8% per year. Taking into account the predicted steady increase of efficiency in the energy production, the increase of the global energy sector will be 1.1% per year. It is anticipated that the importance of conventional sources (energy from coal and oil – the expected increase of 0.4% per year) will be decreasing, with the concurrent increase of participation of the renewable sources (solar, wind and geothermal energy – the increase of 7.4% per year). The development of the renewable energy should contribute to the achievement of its share of approx. 20% in the energy production in 2040.

The WIG-ENERGIA index, presented in Figure 1, shows that from 2011 to 2013, the energy sector companies in Poland showed a lateral trend in their values. However, from the first quarter of 2014, a significant upward trend as well as the achievement of the highest levels, up to the level of 4722 points in the index, next downward trend after 2014. The values reported on 18.10.2018 reflect the downward trend and confirm it. However, the market values do not reflect the fair value of the energy sector companies.

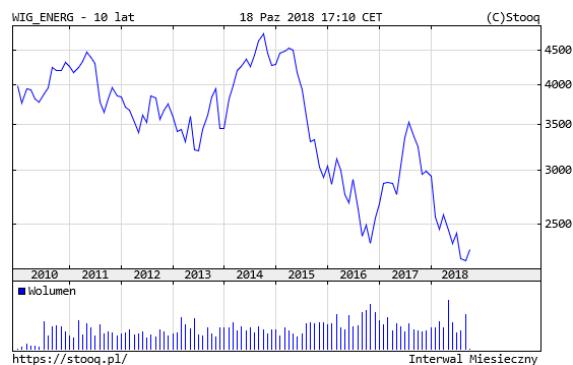


Figure 1: WIG-ENERGIA in the period from 01.2010 to 10.2018 [16]

Therefore, it can be assumed that the energy market in Poland is highly dependent on the global economy. Most of the companies quoted on the WIG-ENERGIA index, have a very good financial condition and promise great hope for the rapid and large increases of their values. For that reason, the fair value should be included in the market value, however, the market value differs from it due to some other external factors on the financial market and even speculative factors in the development of the share price of the energy companies quoted on the Warsaw Stock Exchange in Poland [1, 6, 7, 8].

2. Analysis and valuation of the energy sector's companies quoted on the Warsaw Stock Exchange (WSE) in Poland

Shares are the most important group of financial instruments listed on the Warsaw Stock Exchange. In 1991, during the first quotation, the shares were the only financial instrument. At the end of the 90s, the structure of the Warsaw Stock Exchange changed as other financial instruments, including forward contracts, were introduced to turnover. On the first exchange session, shares of 5

companies were listed. In the subsequent years, there was observed an increase in the number of companies and their market value [2, 4, 5].

A share is an instrument combining rights of property and non-proprietary character which result from shareholder's participation in a joint-stock company or a limited joint-stock partnership, and the sum of rights and obligations that a shareholder has within the framework of a company or a partnership or a part of a share capital [3, 13, 14, 15].

The following property rights are vital for the valuation of shares:

- right to a dividend (share in a company's profit assigned for division among shareholders),
- right to participation in the division of assets of a company in the case of its liquidation,
- right to subscription of shares of a new stock issue (The Code of Commercial Companies and Partnerships grants the hitherto shareholders a right to taking up of shares on a new sock issue in the case of an increase of a capital by a company) [5, 13, 14, 15].

Table 1: The energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Average rating 12 months	rating
BEDZIN	-4,45%	B
CEZ	+21,04%	A
ENEA	-42,14%	C
ENERGA	-35,65%	C
INTERAOLT	-48,20%	C
KOGENEREA	-32,03%	C
MLSYSTEM	No data	No data
PEP	+77,83%	A
PGE	-22,44%	B
TAURONPE	-48,56%	C
ZEPAK	-44,44%	C

In the power engineering sector there are two companies, the values of which approach their maximum prices on 18.10.2018, can be recorded, and they are CEZ and BEDZIN. However, other companies do not show their maximum or even fair value, though they can show the net profit and good financial condition, and they are ENEA and ENERGA. Some companies were overvalued by even 50%. The flagship companies, such as ENERGA, PGE, TAURONPE and ZEPAK, stay ahead with the best results, as shown in Table 1-2.

Table 2: The energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Current price PLN	Maximum price PLN from the beginning of the stock exchange quotation
BEDZIN	23,60	42,00

CEZ	91,00	143.80
ENEA	8,13	21.45
ENERGA	8,16	23.89
INTERAOLT	6,32	28.24
KOGENEREA	53,00	101.60
MLSYSTEM	No data	32,00
PEP	19,65	40.66
PGE	10,16	20.80
TAURONPE	1,79	5.64
ZEPAK	7,00	30.33

Table 3: Technical evaluation of the energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	P/OE (price/operating earnings)	P/BV (price/book value)
BEDZIN	3,52	0,43
CEZ	15,05	1,29
ENEA	2,68	0,24
ENERGA	2,49	0,33
INTERAOLT	3,44	3,04
KOGENEREA	10,36	0,53
MLSYSTEM	0,00	0,00
PEP	-21,50	0,78
PGE	5,40	0,40
TAURONPE	2,14	0,17
ZEPAK	3,01	0,17

Table 3-4 presents the key ratios that show the financial condition of the energy sector companies. Within the nine examined companies, the generated profit per share was reported in four companies, which should be regarded as a great success of this sector compared to other sectors. It shows that the energy companies prosper properly on the financial market and are able to record higher or lower profits.

The price to the operating earnings shows the losses of the company at the negative value, and this state of affairs was not reported in seven stock exchange quoted companies, and in one company, the calculation cannot be performed due to the lack of data.

In contrast, analysing P/BV and P/P, it should be noted that both the price to the book value and the price to profit demonstrate that two companies exemplary operate on the market and have a value of more than 1.0, and this is CEZ. Other companies do not significantly differ from the average values, and these are ENEA, KOGENEREA, PGE, TAURONPE and PEP. Only MLSYSTEM make it impossible to calculate the P/BV and P/P values due to the lack of data.

Table 4: Technical evaluation of the energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	P/P (price/profit)	Profit per share
BEDZIN	0,38	-0,520
CEZ	1,70	0,721
ENEA	0,30	0,431

ENERGA	0,33	0,679
INTERAOLT	0,15	-0,009
KOGENEREA	0,81	-6,086
MLSYSTEM	0,00	0,000
PEP	0,30	-0,822
PGE	0,75	0,185
TAURONPE	0,18	-0,039
ZEPAK	0,16	-0,712

Table 5-6 presents the studies concerning, among others, the net profit, depreciation, EBITDA and assets of the energy sector companies.

According to the obtained values, it is clear that nine companies showed a profit, which was confirmed by the previous ratios included in Table 3-4. In contrast, three companies have shown a substantial profit which was generated in second quarter in 2018, and they were CEZ, ENEA and ENERGA.

Table 5: Technical evaluation of the energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Net profit (net loss) in thousands PLN	Depreciation in thousands PLN
BEDZIN	-1638	4880
CEZ	388000 (CZK)	7974000 (CZK)
ENEA	190434	359195
ENERGA	281000	239000
INTERAOLT	-173	603
KOGENEREA	-90686	35286
MLSYSTEM	0	0
PEP	-37359	24052
PGE	346000	945000
TAURONPE	-69124	432660
ZEPAK	-36174	47308

Table 6: Technical evaluation of the energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	EBITDA in thousands PLN	Assets in thousands PLN
BEDZIN	4826	707927
CEZ	10252000 (CZK)	671642000 (CZK)
ENEA	653300	28389420
ENERGA	654000	21000000
INTERAOLT	856	42197
KOGENEREA	-80469	2341745
MLSYSTEM	0	0
PEP	1776	2912507
PGE	1461000	71042000
TAURONPE	491858	35052682
ZEPAK	21322	4134380

According to the book value per share, it is possible to deduce that some companies are heavily overvalued, and they are BEDZIN, ENEA, ENERGA, KOGENEREA, PEP, PGE and ZEPAK, and in the case of the CEZ, INTERAOLT and TAURONPE companies, slightly overvalued (Table 7).

Table 7: The energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Book value per share in PLN
BEDZIN	55,464
CEZ	443,023 (CZK)
ENEA	31,373
ENERGA	24,532
INTERAOLT	0,476
KOGENEREA	99,292
MLSYSTEM	12,397
PEP	25,168
PGE	25,052
TAURONPE	10,662
ZEPAK	41,535

However, it is important not to follow this opinion because the values are only the book values, and the calculation of them is purely mathematical and financial. In the case of using the economic attitude and interpretation, it would occur that the companies do not have the fair value (Table 7).

Currently, the value of some companies deviates from the maximum value achieved a few years ago. The only exceptions are CEZ and BEDZIN, which achieved the value close to the maximum one. Other companies have the values of approx. 60% of the maximum one.

Table 8: The energy sector companies quoted on the Warsaw Stock Exchange in Poland as of 18.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Fair value	Deviation from the fair value in PLN
BEDZIN	35,20	3,80
CEZ	111,00	32,80
ENEA	18,45	3,00
ENERGA	20,89	3,00
INTERAOLT	26,32	1,92
KOGENEREA	98,24	3,36
MLSYSTEM	30,00	2,00
PEP	35,58	5,08
PGE	19,01	1,79
TAURONPE	4,99	0,65
ZEPAK	27,26	3,07

However, the fair value, which should be reflected by the share prices of the examined companies, in some cases, differs from the calculated value, which was presented in Table 8. In some companies, it is even approx. 50% of the current values, and they are ENEA, ENERGA, KOGENEREA INTERAOLT and PEP. In a few cases, the fair value is similar to the current value of the examined companies, and they are CEZ and BEDZIN.

3. Conclusions

The share price of the energy sector companies quoted on the Warsaw Stock Exchange in Poland is similar to the fair value because there is a high demand for energy in the world. Though, energy companies demonstrate a profit and the fair value at the same time because the energy market

in Poland is developing very well, and even promising bigger development for the future years. In some European Union countries, the development of the energy market is faster because these countries have access, in larger quantities, to the resources, such as oil or natural gas which means that they do not have to import significant amounts outside its borders.

The fair value of all the energy sector companies quoted on the Warsaw Stock Exchange in Poland should be achieved within one year, by 2020, because the energy sector is developing very rapidly.

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FAIR VALUE OF THE MEDIA SECTOR COMPANIES QUOTED ON THE WARSAW STOCK EXCHANGE IN POLAND WITHIN 2008-2018 AND THEIR FINANCIAL ANALYSIS

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Abstract: *This paper examines share price of the companies listed on the WIG-MEDIA and their fair value between 2008-2018. Data from 2008 to 2018 were collected from the Stooq.pl (Polish portal of shares). Two hypotheses are tested: (1) value of the shares based on the market price; (2) value of the shares as the fair value of shares. The media market was analysed and characterised, also the companies participating in it were described. Nevertheless, the market value of shares does not reflect the fair value of the shares which is currently assigned to different companies in the sector. The research analysed the key financial ratios, the actual value of shares; also the fair value of the media sector companies listed on the Warsaw Stock Exchange was calculated. In addition, the author expressed his view on the opportunities of the property companies market's WIG-MEDIA in 2008-2018.*

Keywords: *media, fair value of shares, company, market value of shares.*

1. Introduction

The modern media recipient, in spite of appearances, reads not only branch magazines, but also observes the reality outside the mainstream, that in on Internet portals such as Kwejk, Demotywatory, or reading comments on Onet.pl, and Gazeta.pl websites. These Internet services are the source of the young generation's voice. It is there, where we can observe behaviours of these people, who will take purchasing decisions in 9 years time. The young generation thinks in different terms, and will decide about their future in a way different than our one.

The challenge for the media market will be also demographic changes. The Polish society – by analogy, like these of the West – is getting old very fast. Media will have to reckon with not only audience outflow, but also with other patterns of consumption because young groups do not copy communication schemes of the older ones.

The media market is subject to dynamic changes. Primarily, the consumer and the direction of development of new technologies are changing. The media market is following them. The modern media recipient, in spite of appearances, reads not only branch magazines, but also observes the reality outside the mainstream, that in on Internet portals such as Kwejk, Demotywatory, or reading comments on Onet.pl, and Gazeta.pl websites. These Internet services are the source of the young generation's voice. It is there, where we can observe behaviours of these people, who will take purchasing decisions in 10 years time. The young generation thinks in different terms, and will decide about their future in a way different than our one.

The area, where changes are the most visible, is the technology. The consumer of the 21st century uses new technologies in full, but subjectively – he or she accepts these solutions, which give him or her something more.

Alex Stil, the head of digital EMEA & global head of programmatic, Mindshare Worldwide, speaking of an important role of digital media in our lives, proved that the future belongs to big data [2].

Media will also change. Apart from the "mythic" passing from off-line to on-line, about which everybody talks about, the change of systems of access dividing the content into the basic and the premium one also awaits us. The process, which has been in progress for a very long time in spite of appearances, will be a great challenge for publishers in the coming years. The offer is being developed, but not only towards the on-line direction – thanks to digitisation of broadcasting, new channels quickly earning new watchers are being created [3, 5].

2 Fair value of listed companies

Share price of the companies listed on the Stock Exchange should reflect also their fair value. The fair value can be defined in several ways. In view of the foregoing, the fair value is a value used repeatedly in accounting, and thus in Article 28 (6) of the Accounting Act of 29.09.1994 as "the amount for which a given asset component could be exchanged, and the liability could be paid on market transaction terms between interested and well-informed, unrelated parties.

In view of whether the price of shares that are quoted on the stock exchange corresponds to their fair value, should be found in the value alone, since, after all, the values may be diverse, like the value of a similar company, producing similar goods and operating in the same industry, will also be diverse for various reasons.

The subject of trade covers minority shares, and the main market participants are retail investors or minority institutional investors, thus the price of shares should

reflect the fair value characterizing the liquid minority interest.

The value presented in this way seems righteous, which is confirmed by the premium paid by the investors who announce calls for subscription for shares and plan in this way the purchase of the controlling interest. Then the premium reflects the difference between the level of liquid minority interest and the level of controlling interest. Sometimes the level takes into account benefits resulting from synergy. An investor purchasing the controlling interest in this way receives premiums that appear after taking over control of a company, in the form of funds, business management and making a number of strategic decisions.

The fair value of the share price should be determined in accordance with the idea of capital market, namely the market participants should have equal access to data, information and all messages concerning a given company [16, 18, 19]. However, the investors are divided into three groups:

- a) People with access to the most closely guarded information that affects the price and the business value, namely those can the company's management board or shareholders,
- b) Institutional investors with blocks of shares with simultaneous access to the company's management board,
- c) Individual investors who have access to public information.

At this point, there should be no differences in particular groups, at least officially, however, it happens that a group that is closest to the company has information which can obviously change its value overnight or distort its value artificially, e.g. other data or informal data, and even fictitious data.

Worldwide we can also appreciate companies that treat individual investors seriously, namely provide them data concerning a company and treat them as equal and as strategic investors, with a large impact on a company in the present and in the future.

Transactions that are concluded on the Warsaw Stock Exchange relate to transactions between interested parties, namely a purchase or sale order should be submitted. Sometimes there are cases of wrongly submitted orders, but these are marginal orders that do not have a large impact on the transactions conducted on the Warsaw Stock Exchange.

Share liquidity is understood as a percentage quantity of shares in a company that are in the possession of minority shareholders. This is, at the same time, free float and the face value of such shares and the value of average daily trade in shares in a given company.

Thus, we may presume that if during a day a large trade in shares takes place and a greater part of shares remains in the hands of minor shareholders, the share price reflects their fair value. We cannot agree with the fact that at small or minimum trade the value of shares is reduced to its daily minimum and it would be its fair value. Then it is only a change in the share price to a lower one and it does not indicate its fair value, as the trade alone suggests that this is only a pure coincidence. Such an impact can be exerted by large shareholders, as they can, by using one block, decrease the share value, preventing smaller players from raising the price for one reason: the capital of smaller shareholders does not enable them to raise the share price. There is one premise more to determine the fair value of share price. The investors are fond of investing in shares, namely they buy them as in the past they managed to earn on them and they feel that presently the share price is ideal and reflects their fair value and will enable them to obtain fair dividend in the future [14].

Such a purchase or sale of shares can largely overestimate or underestimate the share value of a quoted company. Here the IT industry may serve as an example, namely shares in technological companies at the beginning of the new millennium, when shares in these companies were being purchased without any analysis in technical terms, but looking at their name and value, which was increasing overnight. In view of the foregoing, this led to excessively high business value above its fair value.

The share price should thus reflect the fair value of a company listed on the Warsaw Stock Exchange. For the value of these companies be fair, the market must make available to all investors information regarding companies listed on the Warsaw Stock Exchange [18]. The shareholders should be treated equally; therefore we cannot distinguish majority shareholders as those who should have information unavailable for minority shareholders. First of all, shares should be liquid securities, therefore they should be in free float and have real-time transferability, namely at any moment and at any time during the office hours of the Warsaw Stock Exchange on a business day.

The WIG-MEDIA index, presented in Figure 1, shows that from 2012 to the first quarter of 2017, the WIG-MEDIA sector's companies in Poland showed an upward trend in their values. However, from the second quarter of 2017, a significant downward trend can be noticed, until 2018 showed an upward trend in their value too, in which the augmentation and consolidation at the level of 4565.36 points on the index take place. The values reported on 19.10.2018 reflect the lateral trend and confirm it. However, the market values do not reflect their fair value.



Figure 1: WIG-ENERGIA in the period from 01.2010 to 10.2018 [17]

3. Analysis and valuation of the WIG-MEDIA sector companies quoted on the Warsaw Stock Exchange (WSE) in Poland

In the WIG-MEDIA sector, two companies, the values of which approach to their maximum prices on 19.10.2018, and they are WIRTUALNA and IMS. However, another company does not show its maximum or even fair value, though it can show the net profit and good financial condition, and this is KCI, LARQ and PMPG. Some companies were overvalued by even 70%.

These companies are AGORA, KCI and MUZA. The flagship companies, such as 4FUNMEDIA, K2INTERNET, WIRTUALNA and MORIZON, stay ahead with the best results, as shown in Table 1-2.

In the WIG-MEDIA sector, it can be seen that AGORA has a overestimated value in relation to the maximum value by more than 99%, but the WIRTUALNA and the IMS are presented as companies of a high value in the sector.

Table 1: The property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Average rating 12 months	rating
4FUNMEDIA	75,00%	A
AGORA	-43,20%	C
ASMGROUP	-14,29%	C
ATMGRUPA	30,67%	A
IMS	6,32%	B
K2INTERNET	-21,28%	C
KCI	-39,18%	C
KINOPOL	10,36%	B
LARQ	-47,56%	D
MEDIACAP	-7,44%	C
MORIZON	-4,11%	C
MUZA	-12,12%	C
PMPG	-18,52%	C
WIRTUALNA	18,18%	A

Table 2: The property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Current price PLN	Maximum price PLN from the beginning of the stock exchange quotation
4FUNMEDIA	13,95	19,80
AGORA	9,04	103,00
ASMGROUP	3,60	5,70
ATMGRUPA	5,24	10,20
IMS	3,72	3,70
K2INTERNET	11,95	19,90
KCI	0,59	88,00
KINOPOL	11,50	23,00
LARQ	8,16	22,40
MEDIACAP	1,99	3,40
MORIZON	1,47	2,90
MUZA	2,90	19,50
PMPG	3,30	196,00
WIRTUALNA	52,20	58,00

It is obviously a very good recommendation for future investors. These companies prosper properly and are quoted on the Warsaw Stock Exchange [1, 6, 7, 8, 9, 15]. In tables are nominal prices in PLN.

In table 3-4, the most important ratios presenting the financial condition of the WIG-MEDIA sector's companies were presented. The profit per share was generated in 14 examined companies. It shows that WIG-MEDIA invest a lot, what determines their value and the generated profit per share [2].

The price to the operating earnings shows the losses of the company, and this state of affairs was reported in the examined stock exchange quoted companies (AGORA, KCI). The ASMGROUP, ATMGRUPA, IMS, MEDIACAP, MORIZON, MUZA, WIRTUALNA, achieved a very high ratio, and the 4FUNMEDIA, K2INTERNET, KINOPOL and PMPG – an average one.

Table 3: Technical evaluation of the property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	P/OE (price/ operating earnings)	P/BV (price/ book value)	P/PF (price/ profit)
4FUNMEDIA	0,65	1,49	1,09
AGORA	-4,56	0,42	0,38
ASMGROUP	26,36	2,62	0,92
ATMGRUPA	13,19	1,84	1,86
IMS	10,53	8,32	2,43
K2INTERNET	5,85	1,19	0,26
KCI	-0,31	0,13	0,36
KINOPOL	4,46	2,67	1,77
LARQ	3,32	0,49	16,96
MEDIACAP	10,98	1,47	0,44
MORIZON	24,54	2,05	2,50
MUZA	19,20	0,35	0,26
PMPG	3,96	1,00	0,70
WIRTUALNA	15,93	3,67	3,00

Generally, the value of the index P/OE is a useful tool for determining an absolute share value referred to the operating profits. Using the operating profit instead of a net profit (the P/E index) allows for rejecting single events. Moreover, a net profit is easier to handle. Fewer companies incur losses at the level of an operating profit rather than a net value, which allows for a broader use of P/OE [4, 6, 7, 8, 13, 19].

The P/BV index informs how the company's own capital is valued by the market at a given moment. A general interpretation of the index consists in the fact that the P/BV indices below 1 mean a low price of a company, whereas a value over 3 that a company is overrated [4, 9, 12, 15].

The value of the P/PF index is expressed in the way that when the value of the index is lower, then the price for the purchased company's shares is theoretically lower too, which means that the enterprise is more attractive. It is used in order to demonstrate cyclic profits and losses of the analyzed companies (the income is much more stable than the company's profit) [4].

In contrast, analysing P/BV and P/PF, it should be noted that both the price to the book value and the price to profit demonstrate that five companies exemplary operate on the market and have a value of more than 1.0, and these are 4FUNMEDIA, ATMGRUPA, IMS, KINOPOL, MORIZON and WIRTUALNA.

Table 4: Technical evaluation of the property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Net profit (net loss) in thousands PLN	Depreciation in thousands PLN
4FUNMEDIA	3115	695
AGORA	335	20495
ASMGROUP	1855	421
ATMGRUPA	3599	4815
IMS	2053	1063
K2INTERNET	407	1179
KCI	2959	1275
KINOPOL	32350	7365
LARQ	1310	2010
MEDIACAP	33	696
MORIZON	791	155
MUZA	389	764
PMPG	2002	102
WIRTUALNA	18840	13947

Table 5: Technical evaluation of the property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	EBITDA in thousands PLN	Assets in thousands PLN
4FUNMEDIA	4703	56172
AGORA	-2287	1384231
ASMGROUP	2408	297592

ATMGRUPA	8645	336012
IMS	3768	31974
K2INTERNET	1525	1703
KCI	3521	397804
KINOPOL	40792	206101
LARQ	4777	57740
MEDIACAP	1273	47240
MORIZON	1206	31021
MUZA	1081	41197
PMPG	2105	50355
WIRTUALNA	41878	940068

Other companies do not significantly differ from the average values.

Table 5 presents the studies concerning, among others, the net profit, depreciation, EBITDA and assets of the WIG-MEDIA sector's companies.

According to the obtained values, it is clear that only AGORA showed a loss, which was confirmed by the previous ratios included in Table 3.

Table 6: Technical evaluation of the property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Profit per share	Book Value per Share
4FUNMEDIA	0,756	9,163
AGORA	0,007	20,559
ASMGROUP	0,033	1,653
ATMGRUPA	0,043	2,851
IMS	0,061	0,443
K2INTERNET	0,164	9,890
KCI	0,043	3,990
KINOPOL	1,632	4,252
LARQ	0,179	2,308
MEDIACAP	0,002	1,078
MORIZON	0,019	0,682
MUZA	0,139	8,313
PMPG	0,193	3,138
WIRTUALNA	0,652	13,964

According to the book value per share and profit per share, it is possible to deduce that some companies are overvalued, and they are 4FUNMEDIA and WIRTUALNA and in the case of the ASMGROUP, IMS, MEDIACAP, MORIZON company, they are undervalued.

However, it is important not to follow this opinion because the values are only the book values [4], and the calculation of them is purely mathematical and financial. In the case of using the economic attitude and interpretation, it would occur that the companies do not have the fair value (table 6).

The profitability of the equity, as well as the profitability of assets is shown by 4FUNMEDIA, ASMGROUP, ATMGRUPA, IMS, KINOPOL, LARQ, MEDIACAP, MORIZON, MUZA, and WIRTUALNA, while AGORA, KCI and PMPG does not have it.

Therefore, according to the presented study, it is possible to observe that the flagship media concerns have the

profitability and they are not threatened by any disturbance of the financial liquidity (table 7).

Return on equity (ROE) measures the rate of return for ownership interest (shareholders' equity) of common stock owners.

Table 7: Technical evaluation of the property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	ROE (Q2)	ROA (Q2)
4FUNMEDIA	22,27%	14,96%
AGORA	-6,86%	-4,85%
ASMGROUP	5,33%	1,69%
ATMGRUPA	17,74%	12,69%
IMS	62,15%	28,88%
K2INTERNET	17,31%	8,09%
KCI	-31,07%	-21,37%
KINOPOL	53,63%	21,93%
LARQ	10,70%	9,55%
MEDIACAP	7,68%	3,30%
MORIZON	6,26%	5,85%
MUZA	2,24%	1,26%
PMPG	-7,31%	-4,73%
WIRTUALNA	11,63%	4,99%

It measures the efficiency of a firm at generating profits from each unit of shareholder equity, also known as net assets or assets minus liabilities. ROE shows how well a company uses investments to generate earnings growth [10, 11].

The return on assets (ROA) shows the percentage of how profitable a company's assets are in generating revenue.

Other companies have shown a substantial profit which was generated in 2018 (IIQ), and they were 9 companies. Currently, the value of companies significantly deviates from the maximum value achieved a few years ago.

Table 8: The WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland as of 19.10.2018 (own development based on the data of the Warsaw Stock Exchange)

Name	Fair value	Deviation from the fair value in PLN
4FUNMEDIA	18,20	4,25
AGORA	85,68	76,64
ASMGROUP	4,99	1,39
ATMGRUPA	9,28	4,04
IMS	3,72	0,00
K2INTERNET	19,00	7,05
KCI	85,00	84,41
KINOPOL	22,00	10,50
LARQ	21,00	12,84
MEDIACAP	3,10	1,11
MORIZON	2,88	1,41
MUZA	18,64	15,74
PMPG	187,00	183,70
WIRTUALNA	52,20	0,00

The only exceptions are IMS and WIRTUALNA, which achieved almost the maximum value in its history. Other

companies have the value less than 70% of the maximum one (Table 8).

However, the fair value which should be reflected by the share prices of the examined companies significantly differs from the calculated value, which was presented in Table 8. In some cases, it is even 80% of the current value. The fair value is considerably higher than the current value of the examined companies.

$$\text{Deviation from the fair value in PLN} = \text{DevFV} \\ \text{DevFV} = \text{Fair value} - \text{current value.}$$

4. Conclusion

The share price of selected companies of the food sector's companies quoted on the Warsaw Stock Exchange in Poland is significantly underestimated by the current financial situation in the world.

The flagship companies of the WIG-MEDIA sector achieve enormous profits, which was proved in the examination of ratios in last years and a net profit in 2018 (IIQ). 4FUNMEDIA, ATMGRUPA, KINOPOL and WIRTUALNA are an example of it.

The share price of the property WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland is significantly underestimated by the current financial situation in the world [16, 18, 20].

The fair value of the WIG-MEDIA sector's companies quoted on the Warsaw Stock Exchange in Poland should be reached within two years, that is up to 2020 because it is the right estimation of further fast development of the Polish WIG-MEDIA sector.

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THE CONSEQUENCES OF STRIKES IN AIRLINE INDUSTRY

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Abstract: Aviation industry is dependent on many different factors. Airline management has to follow and analyze the development of the global economy. At the same time they have to keep an eye on the well-being of the company stakeholders, especially the employees. Disruptions in airline operations are generally accompanied by losses due to incurred flight cancellations and disgruntled passengers. In some cases the airlines can disclaim the responsibility for the payment of compensations. But when the cause of the disruption are the pilots of the airlines fighting for better working conditions the airlines have to take full responsibility and pay all the compensations. The case of the Lufthansa pilots fighting for a rise in salary showed how vulnerable airline operations are to such disruptions. Fourteen strike actions of Lufthansa pilots within the years of 2014 to 2016 prove the difficulty of negotiating all the conditions to the satisfaction on both sides. Our paper presents an overview of the mentioned strike actions with quantification of upset flights and disgruntled passengers. The imbalance between strikes within different segments of passenger transport is highlighted. Losses of the company caused by strikes are compared to the anticipated costs for new higher wages. General conclusions are drawn for the airline industry and the operators who might encounter similar difficulties.

Keywords: airlines, aviation, strike

1. Introduction

Aviation industry and the airline performance may become affected by a number of factors that are dependent on each other and interconnected. Airlines just like any other company are directly influenced by microeconomic factors that can be based on the internal environment of an enterprise or are generated by elements directly related to an enterprise such as customers, suppliers etc. Macroeconomic factors arise in the external environment where businesses can not directly influence them, but they affect individual elements of the microenvironment. Thus the companies have to continuously monitor the developments in macroeconomics. This allows them to better understand the events and changes at the micro level [1].

In the microeconomic environment the monitoring of the behavior of customers, suppliers or competitors is an essential part of the company's activities. However, it is also necessary for the corporate management to keep an eye on the development inside of the company. Internal well-being, culture and mentality of employees can also have a positive or negative influence on the company's economic results, respectively. Rivalry between departments can cause achievement of strategic goals to be stifled at the cost of small internal wars and mutual proofing of who has a greater reach and whose goals will be met in the first place [2]. Another example of neglecting the needs of their employees are strikes, when long-term employee dissatisfaction and ignorance by the company's management leads employees to extreme steps. Strike is a sure way to attract attention and a guarantee that the demands of employees will actually be heard and will not be ignored.

An example of strikes in the aviation sector is Lufthansa, which has undergone a series of strikes by pilots and other staff. In our research, we examined how these strikes affected the company's economic performance and what steps Lufthansa had taken to calm down the situation eventually.

2. Short profile of Lufthansa

The Lufthansa Group is an aviation company with operations worldwide. Often addressed only by the "Lufthansa" name the company actually operates in many different segments with subsidiaries designated by appropriate names.

Deutsche Lufthansa AG has its own Executive Board which is responsible for managing the company's strategic goals and direction of development with the aim to increase company value sustainably. Members of Executive Board are appointed, advised and supervised by the Supervisory Board. The Lufthansa Group is organized into the business segments such as network airlines, point-to-point airlines, aviation services (comprising the segments such as logistics, MRO and catering), and additional businesses and group functions. The individual business segments are run as separate group companies, with the exception of the Lufthansa Passenger Airlines. They have their own profit and operating responsibility and are monitored by their respective supervisory boards, in which members of Deutsche Lufthansa AG's Executive Board are also represented. Some of the subsidiaries are for example Lufthansa Technik responsible for aircraft maintenance since 1995. The catering is operated by the group's own LSG Sky Chefs, and the Lufthansa Aviation Training as a separate company runs training centers for pilots and flight attendants. In addition to its main

passenger operation, Lufthansa Group has several airline subsidiaries. Those wholly owned by Lufthansa include:

- Lufthansa Regional – regional feeder airline, with Lufthansa CityLine as a German regional airline and Air Dolomiti for operations in Italy
- Austrian Airlines – the flag carrier airline of Austria based at Vienna International Airport
- Swiss International Air Lines – the flag carrier airline of Switzerland with leisure airline subsidiary Edelweiss Air
- Eurowings Group – low-cost or hybrid point-to-point airlines including German low-cost airline Eurowings, former low-cost airline Germanwings now only operating as a wet lease operator for Eurowings, Australia-based Eurowings Europe and Belgian flag carrier airline Brussels Airlines
- Lufthansa Cargo – German cargo airline [3].

3. History of strikes in Lufthansa Group

Strikes of the pilots in the German airline Lufthansa were becoming increasingly frequent in the last decade, especially since 2012. The most striking was the period from April 14 2014 until the year 2017, as during this period the pilots decided to execute the strike action 14 times. The whole situation around the strike started escalating up when pilots began to strike in order to receive better wage conditions. A large number of strikes took place in 2014, but they were not successful. Strikes continued in 2015 when further actions took place but with the same result as in 2014, that is without an agreement with company management. In 2016, the strike broke out on November 23 and lasted several days. Within these years, the airline booked economic losses due to the strikes. [4]

3.1 Overview of the strike action in 2014-2016

The next chapter offers an overview of the strike actions in the years 2014-2016. It is interesting to look at the contrast between the number of canceled flight and the number of affected passengers when looking at different segments, that is short-haul, medium-range and long-haul flights. The same goes with the aiming of the strike actions geographically, whether the strike took place in smaller airports, or on major hubs. The contrasting numbers can be easily seen also in the Figure 1.

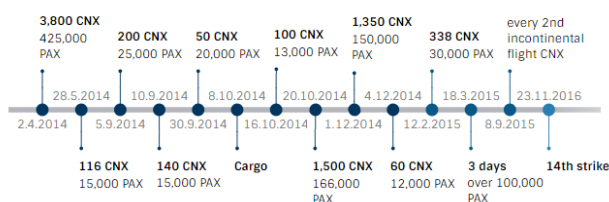


Figure 1: Timeline of strikes within Lufthansa Group in 2014-2016

Year 2014:

- 2nd to 4th of April: With a three-day strike, pilots virtually paralyzed Lufthansa. The sharpest outage in the group's history led to around 3800 flight cancellations, affecting 425,000 passengers.
- 29th August: Strike at the Lufthansa subsidiary Germanwings. There were 116 flights cancelled, affecting 15,000 passengers.
- 5th September: Pilots canceled short- and medium-haul Lufthansa flights from Frankfurt. A good 200 flights and 25,000 passengers were affected.
- 10th September: The pilot union is on strike at the Munich hub. 140 flights were canceled, more than 15,000 passengers were affected.
- 30th September: Strike of the pilot union Vereinigung Cockpit at the Frankfurt hub. 50 long-haul flights were canceled affecting 20,000 passengers.
- 8th October: The cargo subsidiary Lufthansa Cargo joined the strike actions. The two-day operation outage, however, had little impact on the company.
- 16th October: Germanwings' pilots were striking nationwide. 100 flights did not take place, it hit 13,000 passengers.
- 20th October: A strike on short- and medium-haul routes was extended to long-haul flights the following day. Lufthansa canceled over 1,500 flights on both days, affecting 166,000 passengers.
- 1st to 2nd December: Germany-wide strike hit 1,350 flights and around 150,000 passengers.
- 4th of December: Strike on long-haul and cargo routes of Lufthansa, 60 flights were canceled, 12,000 passengers were affected.

Year 2015:

- 12th to 13th of February: Two-day strike at Germanwings. 338 flights were canceled. It affected around 30,000 passengers.
- 18th to 21st March: Strike call in several stages. On the first day about 80,000 passengers on short- and medium-haul routes of Lufthansa were affected, on the second day 18,000 passengers on long-haul flights were affected as well as subsidiary's cargo flights, on the third day medium and long-haul flights were disrupted again. In May the negotiations begun.
- September 7th: After the Vereinigung Cockpit union has declared the negotiations for failed, the 13th round of strikes was planned for the September 8th and 9th. On September 8th a 16-hour strike on long-haul flights resulted in cancellation of almost every second intercontinental flight. On the following day the September 9th short- and medium-range flights were affected. Out of 1,520 scheduled flights 1,000 were canceled.

Year 2016:

- November 23rd: The pilot strikes affect the short- and long-haul flights. Also in the following days the labor dispute would continue [5] [6].

3.2 The economic impact of strikes in Lufthansa

Losses caused by the strike of the German airline Lufthansa pilots in 2014 reached 222 million Euro. In 2015, the airline lost about 230 million Euro. One day of strike cost between 10 to 15 million euros. In 2016, strikes caused 4,581 cancellations during the time of collective bargaining, affecting approximately 389,000 passengers. In November 2016, the strike action reduced the company's profit during the 6-day strike by approximately 100 million Euro [7] [8].

3.3 The result of the pilots' strike

On 15th of February 2017, Lufthansa and the Vereinigung Cockpit pilot association adopted an arbitration proposal on a wage agreement. This included an increase in salaries of approximately 8.7% for the 5,400 company pilots. In addition, each pilot should have been paid an amount of between 5,000 and 6,000 Euro.

As a result of the bargaining the costs for crew salaries increased by approximately €85 million per year. The discussion between company management and the pilot unions were supposed to continue to come up with an alternative plan for cost reduction as part of the overall solution. Without the reduction of costs there would be a risk that 40 new aircraft would be occupied by crews that would not be included in the wage agreement.

The threat of strikes had a negative effect on passenger reservations and thus adversely affected the revenue beyond the direct cost of strikes. [9]

Trade union leaders initially demanded an increase in wages of 22 percent for their members over the following five years. The dispute between Lufthansa management and union leaders started as soon as in 2012. It intensified in 2014 when the pilots took action and organized a strike 14 times within 2 years, which caused to Lufthansa losses of over half a billion euros. According to the airline management the agreement did not cover all aspects of the conflict, such as the question of pensions, and therefore more strikes are not totally excluded.

3.4 Agreement on a new wage structure

On 21st December 2017, the Lufthansa Group and the pilot organization Vereinigung Cockpit signed agreements on all collective bargaining issues for Lufthansa German Airlines, Lufthansa Cargo and Germanwings, which were in accordance with the basic settlement reached in March 2017. They included new wage and collective agreements, as well as the pension and transitional arrangements, which would remain effective until June 2022 at least.

These collective agreements with the trade unions represent a long-term solution to the risk of strikes. [10]

3.5 Long-term solutions to strikes at Lufthansa

Lufthansa and the German trade union Ver.di signed on 7th February 2018 long-term wage agreements for approximately 28,000 ground workers employed by Lufthansa German Airlines, Lufthansa Cargo, Lufthansa Technik and LSG in Germany. The wage agreements provide for an increase of 4.9 to 6.1%. The increase depends on the adjusted profit margin before EBIT in individual segments with a guaranteed increase of at least 4.9% regardless of the margin reached. The pay agreement is valid for 33 months, from 1st January 2018 to 30th September 2020. [10]

4. Further analysis

Currently the situation at Lufthansa has calmed down. The period of unrest however created a great amount of financial losses. European legislation clearly prescribes how air carriers are obliged to replace passengers in case of significant delays or cancellation of flights.

4.1 Calculation of losses

In certain situations, compensations to passengers may be avoided especially if the schedule disruption has been caused by circumstances that the carrier has been unable to predict or influence, such as, for example, hazardous weather conditions hindering the execution of air transport. However, a staff strike does not belong to such circumstances. A part of recorded losses from ceased transport operations comes from the financial compensations that the carrier had to pay to the passengers. The other part comes from the costs incurred to the air carrier, regardless of whether the operation took place, such as the costs for using the airport facilities, possession and maintaining of aircraft, etc. According to Lufthansa's annual reports, the cost of one day of strike actions ranged between 10 and 15 million Euro. It would be possible to add additional figures to these losses, but it is very difficult to quantify them. On the one hand these are the losses that the airline has sustained as a result of losing a part of the clientele to other carriers. In addition to the traveling public, the carrier may also lose public support, e.g. its traded shares may lose value.

An analysis of airline losses due to employee strikes was attempted in 1991 by DeFusco and Fuess [11]. They analyzed major US air carriers stock exchange data from 1963 to 1986, dividing this period into two phases. The dividing milestone was the year 1978, when a deregulatory act was adopted in the US that significantly affected air carriers and the entire industry. According to the findings of the authors regarding the period after 1978, effective strikes resulted in negative abnormal returns for struck airlines and positive abnormal returns for non-struck airlines. The ineffective strikes as studied on the case of Continental Airlines that went bankrupt resulted only in redistribution of wealth from Continental's employees to its shareholders.

4.2 Reasons for strikes

An example of Lufthansa shows how employees who work in different sections of a company or even in different subsidiaries can show unity. The pilots of Lufthansa passenger airlines, Lufthansa Cargo and Germanwings have joined together, and their actions later opened the space for the negotiating ground for ground staff.

The management of a company should know the setting of its employees. Another example from practice shows that employees are also willing to support colleagues in a completely different company, especially when they belong to the same union. In 2005 a walkout of employees and subsequent dismissing at the Gale Gourmet catering company led to a walkout of about 1,000 British Airways workers at Heathrow Airport, causing the cancellation of all British Airways flights for 24 hours. Approximately 100,000 passengers at Heathrow Airport and other airports were delayed. Also, Gale Gourmet was not able to supply British Airways with in-flight meals. In the end, British Airways estimated the cost of the strike to have been between £ 35M and £ 45M [12].

5. Conclusions

A strike in the airline industry is clearly unpleasant for all parties involved. The traveling public faces delays and cancellations of flights. The air carrier books high losses because it does not make any profit on the one hand, and in addition it has to pay refunds to the passengers. Further losses are incurred to the carrier due to the loss of trust from the traveling public and from investors.

The obvious reason for a strike is the neglect of the needs of the employees. Company management can anxiously track the development in the market and all the external factors influencing its business, but at the same time it might forget to keep track of developments inside the corporation and the mood of its own employees. Danger of dissatisfaction comes from other companies on the market as well, as the strike within a contractor's or a competitor's company can mobilize the employees of other companies into strike actions for reasons of solidarity, or because of their quest to secure the same benefits.

The strike actions within the airline business bring significant losses, and it is therefore necessary to start a dialogue in time, look for ways to avoid such actions and to find a compromise that would satisfy all parties.

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CAPITAL STRUCTURE, CREDIT RATING – AND VICE VERSA

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Abstract: *The debate on the – optimal – capital structure began 60 years ago with the paper by Modigliani and Miller. Since then, many subsequent research contributions have developed it. There are two basic discussion directions. The first examines the question, if there exists an optimal capital structure reducing cost of capital, optimizing risk, and ultimately maximizing company value. The second focuses the potential interaction between capital structure and company's real environment – such as investment decisions, performance or competitive behaviour. There are also mixed variants between these two poles. This paper intends to give a brief overview of the various approaches. Then, the new approach to integrate credit rating into the capital structure discussion will be deepened. Building on the link between capital structure and credit rating, this paper proposes to use quantitative credit rating indicators in order to move to an alternative – and more dynamic – understanding of capital structure. Finally, a simple empirical study is presented which provides information about the – new – capital structure and the resulting correlation with the performance of companies.*

Keywords: *capital structure, credit rating, key financial figures, financial flexibility, strategic finance.*

1. Introduction

The question of the optimal choice of capital structure is one of the most crucial decisions that the management of a company has to deal with. Thus, the capital structure of companies has been a lively topic in scientific research over the last six decades. The starting point was the paper of Modigliani and Miller in 1958 [12]. This approach states that it is irrelevant to the value of a company how its capital is structured – in terms of the relation of debt to equity. Since important factors such as taxes, transaction costs and information asymmetries were excluded, the irrelevance approach is primarily seen as a theoretical construct. Subsequently, further theoretical approaches to the question of capital structure were developed. These then go roughly in two directions – and a mixture of both. The first of them examines whether there can be an optimal capital structure that lowers the cost of capital, reduces the risk and maximizes the value of the company. The second of them examines the interaction between the – financial – capital structure of a company and its – real – environment. Here the question is, whether investment decisions, competitive behaviour or the performance of a company can correlate to its capital structure.

Despite the many papers on the question of the optimal capital structure, Myers stated in 1984 [14] and in 2001 [16] that there is still no clear theory that takes into account all factors of a company's capital structure decisions – and will not exist. Unimpressed by this assessment, theoretical and empirical research develops existing approaches further and creates new ones. In 2006 and 2009 [8][9], Kisgen contributed his innovative credit rating hypothesis to the capital structure debate. The focus on this approach – and its discussion in a further direction – is also the intention of this paper. This leads to the suggestion to redefine the capital structure on the basis of key financial figures [20][21].

This first chapter presents an introduction into the topic of capital structure. The second discusses different capital structure approaches and presents the credit rating approach as a new one of them. The third chapter provides the idea to make use of key financial figures to define the capital structure in a more dynamic and practical way as the pure debt to equity ratio does. Additionally, recent empirical results regarding this new capital structure definition and company performance are presented. Finally, the fourth chapter summarises this paper, draws a conclusion and delivers an outlook to further research.

2. Theoretical Background

2.1. Financial approaches

In 1958, Franco Modigliani and Merton Miller laid the foundation for the capital structure theory in their paper “The Cost of Capital, Corporate Finance and the Theory of Investment” [12]. Their central thesis states the irrelevance of the capital structure – thus, *irrelevance theory*. They stated under restrictive assumptions, that the choice of capital structure has no effect on the value of a company and the choice between equity and debt offers no advantage for companies. In order to reduce the complexity of the model, Modigliani and Miller made restrictive assumptions. The main of them are:

- world without taxes and a complete capital market,
- average profit expectation is the same for all market players,
- companies generate uncertain profits, which remain unaffected by the form of financing,
- uniform interest rate, which is the same for all market players,
- insolvency costs do not exist,
- all market participants have the same information.

The company value results from discounting expected cash flows with the average cost of capital. For the company value to remain constant, the cost of capital must be constant and independent of the choice between equity and debt. Since the cost of capital remains constant, the lower cost of debt must be balanced by an increase in the return on equity [12]. However, because of the restrictive assumptions a transfer of the model to reality is doubtful. Thus, the merit of Modigliani and Miller is not the statement that the capital structure is irrelevant, but the discovery of the conditions to be fulfilled, so that this would be true.

After Modigliani's and Miller's theory was published, it was lively discussed. The authors themselves recognised that their model had to take account interest on debt and its tax deductibility [13]. This would result in a higher value for a company that finances itself through both equity and debt. In the following research, there was also a focus on insolvency costs. Robichek and Myers [22] developed a model, which still regards the capital structure as irrelevant, but places the insolvency costs in the focus of interest. Then, Baumol and Malkiel [2] examined the implications of taxes, insolvency risks and transaction costs on the irrelevance hypothesis. They show that there is an optimal – not irrelevant – capital structure. Resulting, the *trade-off theory* states that indebtedness leads to a lower tax burden for companies and consequently an increase of company value. Then, a rising debt ratio increases the probability of insolvency. The result is a cost-benefit analysis, according to which the capital structure is optimal, if the marginal tax advantage corresponds to the marginal insolvency costs.

The trade-off theory is also confronted with some problems regarding the estimation of insolvency costs and probability [7]. Additionally, the theory implies a positive correlation between profitability and leverage – in fact, profitable companies often show high equity ratios [18].

2.2. Financial to real approaches - transition

In 1984, Myers and Majluf [17] published a new approach, which intended to explain capital structure decisions of companies. According to this *pecking order theory*, companies are not focussed on a value maximizing capital structure. In general, they prefer forms of financing that have fewer information asymmetries. Thus, internal financing is preferred to external. If the company needs external capital, it will first raise low-risk debt, followed by risky debt and equity coming last in their preference. Thus, the pecking order theory does not provide advice for an optimal capital structure that may maximise the company value, but only reflects the preferences regarding its financing structure. Further, the authors also prove that a company that has sufficient financing possibilities can realise more projects that are profitable and may perform better. If the internal financing is not sufficient to invest in a valuable project, debt capital is used [24]. However, the pecking order theory also has weaknesses. According to

Myers, it is often observed that companies, which have the opportunity to raise debt, decide in favour of equity [15].

2.3 Real approaches

The – primarily – real approaches focus on a potential connection between capital structure and the real environment of a company. First, the capital structure may have influence on the activities of a company, its investments, market actions, cost efficiency and others [5][10]. Second, different strategic decisions of a company may require different capital structure decisions [11][22]. For example, Campello's paper [3] provides evidence on the impact of the capital structure on product market outcomes. The study claims that debt financing – in additional circumstances – can have a negative impact on a company's revenue growth. Then, Hackbarth and Mauer show that the capital structure can lead to over- or underinvestment [6].

Different researchers contribute to the question, if there is a relation of capital structure and company performance. Here, the study by Shubita and Alsawalhah [22] states that the performance of a company decreases with its indebtedness; which contradicts Abor's findings [1]. In addition to the question of profitability, other researchers are looking at competitive behaviour as a function of the capital structure. Overall, it can be stated that the real approaches of the capital structure debate are very diverse, show overlaps with the financial ones and, finally, have not yet produced a universally valid result.

2.4 Credit Rating and capital structure

The creditworthiness of a company is essential for obtaining debt. Since it is difficult to measure it, the lender tries to approximate it by using different sources of information. Credit risk is the risk that a borrower may not be able to service the debt or that the probability of default may increase. If the borrower's creditworthiness worsens, the loan interest rate may increase. From the borrower's point of view, this can lead to a reduced attractiveness of debt in relation to equity. At the same time, the lender may be less willing to lend capital due to the higher risk. These two aspects can lead to a shift in the capital structure.

A credit rating expresses the probability that a company will be able to pay its liabilities in full and on time. If a company is rated in a certain rating class, this indicates the probability of default of its capital service. The assessment of the credit rating is based on qualitative and quantitative data. Often, relationships between key financial figures provide an expressive approximation of the credit rating.

A rating change occurs either in the shape of an up- or a downgrade. Such a change is justified by a change in creditworthiness. The main factors influencing it appear to be a change in corporate indebtedness and earnings. Mainly because of the following reasons, the credit rating may play a significant role in capital structure decisions:

- Regulatory effect: lenders may have to adopt their engagement because of the credit rating.
- Signal effect: the credit rating may be a general signal regarding the healthiness of a company.
- Direct and indirect costs: the credit rating has an influence on the financing costs of a company.

In his initial paper of 2006, Kisgen [8] showed that credit ratings play a key role in corporate management decisions. Companies facing a credit rating up- or downgrade issue less net debt compared to other companies. Managers are particularly concerned about the costs of a downgrade of the credit rating. This would further have a negative impact on the liquidity of companies and investment decisions. In his study of 2009, Kisgen [9] examined the indebtedness after an up- or downgrade of the credit rating. The results are consistent with those of his first study. Companies pursue active capital structure management in order not to fall below certain rating levels. Particularly after credit rating downgrades companies are interested in a reduction of their indebtedness. This capital structure behaviour is independent of business cycles, the risk of insolvency and market timing aspects [9]. The study of Wojewodzki, Poon and Shen [25] backs Kisgen’s findings. Further, it reveals that companies with a good credit rating use debt more conservatively than those with a poor rating do. Finally, the relationship between credit rating and capital structure shows an effect that lies between financial and real in relation to the above chosen classification.

3. Alternative definition of capital structure

The credit rating approach provides important insights into the interrelation of credit rating and capital structure. In the business world, however, many companies are not rated by specialised agencies. They mainly borrow money from banks – resulting their credit rating is less transparent. Nevertheless, the consequences of a change of their credit rating may be almost the same as described before.

Because of the rules of Basel II/III and the fact that key financial ratios are often employed as debt covenants, financial managers know the most important financial ratios about – above all – their indebtedness and earnings well. Thus, they are able to track them and indirectly the credit rating on their own. Resulting, financial managers may focus primarily on a number of credit rating ratios rather than only on the debt to equity ratio – understood as capital structure. Consequently, the suggestion of this paper is to define the capital structure by making use of a set of these key financial – rating –figures [19][20][21]:

Standard & Poors	AAA	AA	A	BBB	BB	B	CCC
Peer-Group Industrial, long-term debt							
S&P Financial Ratios							
EBIT interest coverage (x)	23,8	19,5	8,0	4,7	2,5	1,2	0,4
EBITDA interest coverage (x)	25,5	24,6	10,2	6,5	3,5	1,9	0,8
Total debt/EBITDA (x)	0,4	0,9	1,6	2,2	3,5	5,3	7,9
Total debt/capital (%)	12,4%	28,3%	37,5%	42,5%	53,7%	75,9%	113,5%

Figure 1: Classification of credit rating figures

These ratios together then may define the – new – capital structure that the management of companies indeed track accurately. Additionally, they may be translated into

classes of default probabilities. Recently, this approach has been tested using financial figures of 3.500 German midcap companies with a turnover of 0,1 to 1,0 bill. € for the years 2012 to 2016. Further, this first approach made use of only one key financial figure – the important relation of debt to EBITDA (earnings before interest tax depreciation and amortisation). Then, it is assumed that companies may stay below the possible limits of indebtedness. In detail, referring to the table above it is analysed, if companies holding financial flexibility by staying below a relevant relation of debt to EBITDA may show relative better performance figures. Specifically, the calculations and regression analysis for the 2.5 x EBITDA (about BBB) indebtedness result as follows.

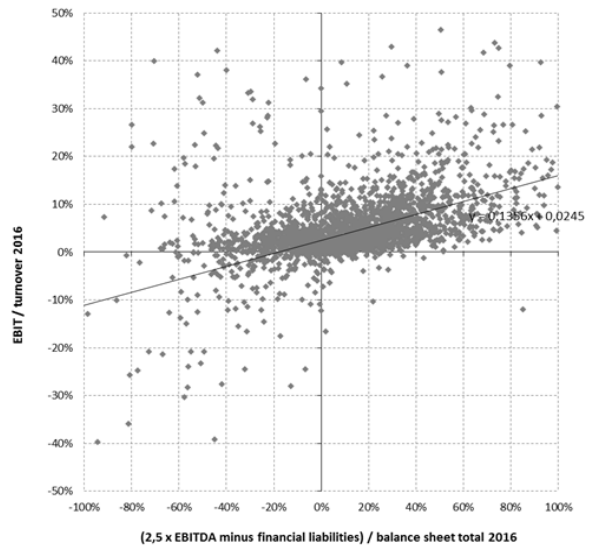


Figure 2: Relative performance in relation to financial flexibility = (EBIT / turnover) / ((2.5 x EBITDA – financial liabilities) / balance sheet total)

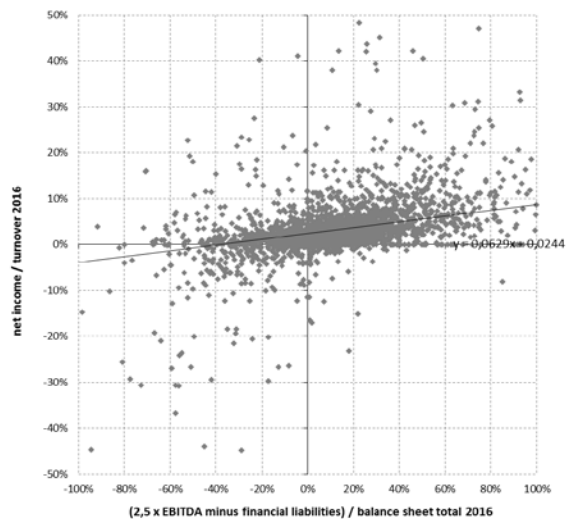


Figure 3: Relative performance in relation to financial flexibility = (net income / turnover) / ((2.5 x EBITDA – financial liabilities) / balance sheet total)

The mean correlation on the basis of the EBIT- (earnings before interest and tax) calculation for the years 2012 to 2016 results as: $Y = 0,1178 X + 0,0235$. And, the mean correlation on the basis of the net income-calculation for the years 2012 to 2016 results as: $Y = 0,0990 X + 0,0150$. The relationship between relative performance and financial flexibility is becoming clear. It appears to be slightly higher for the EBIT- than for net income-calculation. It can also be presented for the 3.5 EBITDA-calculation [21]. The results also show how important it is for a company's performance to remain financially flexible by not getting too close to potential debt limits. They support the idea of the – real – value of flexibility [3]. Finally, the approach presented is of the opinion that the capital structure can be better, more practical and more dynamic defined by – a series of – financial ratios.

4. Conclusions

This paper has provided a brief overview of the debate on the optimal capital structure. It has distinguished between more financial and more real orientations as well as intermediate variants. The research on the relationship between capital structure and credit rating was also presented. This proves that rating changes can have an influence on the capital structure as a ratio of debt to equity. On this basis, this contribution pursues the view that the capital structure itself should be better defined on the basis of rating ratios. On this basis, it was shown that the relative performance of companies correlates to their financial flexibility. Capital structure and rating appear to be interrelated.

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Index of Author(s)

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IMPACT OF PARAMETERS α , β AND ρ ON QUALITY OF SOLUTION TO TRAVELLING SALESMAN PROBLEM BY ANT COLONY OPTIMIZATION ALGORITHM

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Abstract: The travelling salesman problem is a well-known and popular optimization problem. Because it is an NP-hard problem, the number of permissible solutions is very high – it grows with the number of nodes in the transport network. So even with nowadays computers, it takes very large amount of time to solve TSP with exact methods. Ant colony optimization is metaheuristic algorithm inspired by nature. It has several parameters, which have to be set before the first run of algorithm and their correct setting is important for finding a satisfying solution. This paper deals with the effect of setting these parameters on the quality of the solution found.

Keywords: ant colony optimization, metaheuristic, optimization, travelling salesman problem

1. Introduction

Although computing performance continues to grow, some optimization tasks especially discrete combinatorial problems cannot be resolved within a reasonable time period for their computational complexity over a larger scale. That is why complex sophisticated methods, commonly called metaheuristics, are increasingly being promoted, which offer a quality (sub) optimal solution in a relatively short time.

2. Traveling salesman problem

Traveling salesman problem (TSP) is one of the basic tasks of operational research. The goal of TSP is to visit all nodes (cities) of the graph exactly once with the possible shortest route and return to the origin node (i.e. to find Hamiltonian cycle called after the Irish mathematician William Rowan Hamilton, who is considered to formulate TSP in 19th century). [1]

[1]

This seeking the Hamiltonian cycle is situated on a transportation network, which can be described as graph $G = (\mathbf{N}, \mathbf{E})$, where \mathbf{N} is set of n nodes (cities) and \mathbf{E} is set of m edges (paths) between these nodes and each edge has its own length. The network is a complete graph (i.e. each pair of nodes is connected by an edge) very often. Or when the graph is not complete, fictive edge between two unconnected nodes with length of shortest path between these two nodes can be added without affecting the optimal solution. [2]

[2]

TSP in general can be represented with following mathematical model: [3]

$$\min \sum_{i=1}^n \sum_{\substack{j=1 \\ j \neq i}}^n d_{ij} x_{ij} \quad (1)$$

$$\sum_{\substack{i=1 \\ i \neq j}}^n x_{ij} = 1 \quad \text{for } j = 1 \dots n \quad (2)$$

$$\sum_{\substack{j=1 \\ j \neq i}}^n x_{ij} = 1 \quad \text{for } i = 1 \dots n \quad (3)$$

$$y_i - y_j + nx_{ij} \leq n - 1 \quad \text{for } 1 \leq i \neq j \leq n \quad (4)$$

$$x_{ij} \in \{0, 1\} \quad \text{for } i, j = 1 \dots n \quad y_i \in \mathbb{N}_0 \quad (5)$$

Where n is a number of nodes, d_{ij} is a distance between nodes i and j , and variable x_{ij} is 1 when the edge between nodes i and j belongs to the Hamiltonian cycle, otherwise it is 0.

The equalities (2) and (3) provide that each node can be entered and left only once. The constraint (4) provides that Hamiltonian cycle is only one tour, not a number of smaller cycles. [3]

There are several cases of TSP (not all are mentioned): [4]

- Symmetric: distance between nodes i and j is the same as distance between j and i .
- Asymmetric: distance between nodes i and j is not the same as distance between j and i .
- With time windows: each node can be visited only in given amount of time.
- Sequential Ordering Problem: nodes can be visited only in given order.
- Etc.

Only a symmetric travelling salesman problem is considered further in this paper.

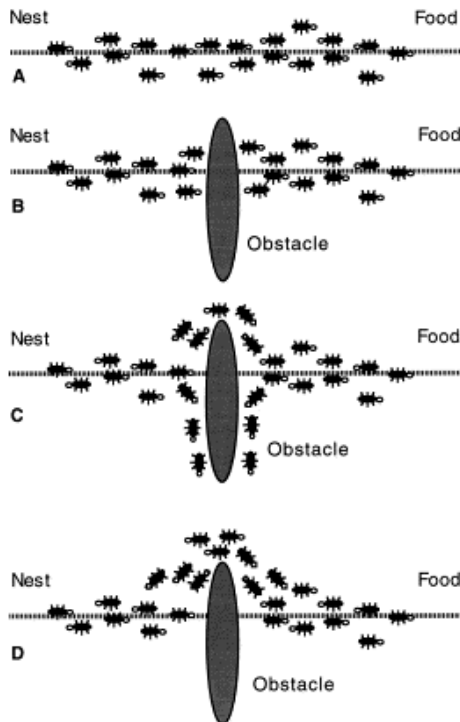
Since TSP is NP-hard problem [1][1] – the number of possible solutions for graph with n nodes is $(n - 1)!/2$. This means that the exact algorithm can be used only for small number of nodes.

3. Ant colony optimization algorithm

Ant colony optimization algorithm (ACO) is young probabilistic technique of discrete optimization. It was first presented by Marco Dorigo in his doctoral thesis in 1992 [5]. It was originally designed for finding the shortest path between two nodes of graph. Later, the ACO method was extended and now is used for solving a large amount of optimization problems. [6]

ACO belongs in nature-based algorithms, as e.g. Bat algorithm, Bees colony algorithm, Particle swarm optimization, etc. It is based on examining ant colonies and studying cooperation and communication of ants when they are searching for food. Ants belong to social insect; it means that the prosperity of whole colony is much more important than surviving of individual ant.

Ants communicate with each other using pheromone trails. The pheromones are chemical substances used by ants to mark their paths. Ants leave pheromone trails on a ground and other ants can scent the direction and intensity of those pheromones. Each ant, which uses a marked path, renews a pheromone trail because it evaporates during a time (loses its attractive strength). When the path is not used for some time, the pheromone trail slowly disappears. [5]



The communication between ants by pheromones is shown

Figure 1: Reaction of ants to obstacle at their path [6]

at figure 1. At first (figure 1A), there is a pheromone marked path between the colony and the source of food. When a new obstacle appeared at the path (figure 1B), ants start to find a new path randomly choosing turn left or right (we can assume with the same probability) (figure 1C). At the shorter path, there is less time for pheromones to evaporate, so the density becomes higher and during a time, all ants will choose the shorter path (figure 1D). [6][6]

4. Finding solution using Ant colony optimization

When applying an ant colony method to an optimization task, an artificial ant passes through a graph and searches for a solution with the best value of objective function. The problem is, that it is not possible to determine whether the solution found is of sufficient quality (or even optimal), so the algorithm has to be defined with a stopping criterion. Typically, this is a time limit, the number of iterations without changing the best solution found, etc.

On its way through a graph, the ant moves discreetly from the node i to the node j from the neighbourhood $N(i)$ (not staying at the edges) and remembers the already visited nodes.

The artificial ant decides to transition between edges i and j with a probability determined by the formula (6). The artificial ant can put the pheromone information on the edges both in the transition and the return phase when it already knows the value of the purpose function of the solution found. [7]

$$p_{ij} = \frac{(\tau_{ij})^\alpha (\eta_{ij})^\beta}{\sum_{k \in N_k} (\tau_{ik})^\alpha (\eta_{ik})^\beta} \quad (6)$$

Where τ_{ij} is amount of pheromone on the edge between nodes i and j , η_{ij} is an attractiveness of each edge according to formula (7), α and β are parameters and N_k is set of unvisited nodes for k^{th} ant.

$$\eta_{ij} = \frac{1}{d_{ij}} \quad (7)$$

Where d_{ij} is a distance between nodes i and j .

The pseudocode for the implementation the basic ACO method is very simple: [8]

```

AntColony ()
  repeat
    BuildSolution(k)
    PheromoneUpdate ()
    PheromoneEvaporation ()
  until StoppingCriterion
end;

```

In the procedure BuildSolution, k ants look for solutions according to the principle described above. When the search ends, it will be checked whether the value of the objective function of the best solution found by them is

less than the value of the objective function of the best solution found so far. If so, the newly found solution will be saved.

The procedure `PheromoneUpdate` will modify the pheromone trace on the edges contained in the best solution found in the current iteration according to formula (8).

$$\tau_{ij} = \tau_{ij} + \Delta\tau \quad (8)$$

Where $\Delta\tau$ can be represented as a constant, or it may depend on the quality of the solution found.

The procedure `PheromoneEvaporation` will ensure the evaporation of a certain amount of pheromones throughout the graph, preventing the accumulation of pheromones at the edges of the graph and thus converging to disadvantageous paths. Evaporation of pheromones is governed by a parameter called a *coefficient of evaporation* ρ from the interval (0; 1) whose value is chosen at the start of the algorithm run, according to the formula (9). [9]

$$\tau_{ij} = (1 - \rho)\tau_{ij} \quad (9)$$

In general, ACO is a complex algorithm that is very well-suited for calculating tasks whose solution is represented by a sequence of objects (eg the travelling salesman problem or the search for the shortest path between the two graph nodes).

This is a method sensitive to the correct setting of parameter values. But with good settings, it is capable of delivering high-quality solutions. Due to the great popularity of this method, there are also quite a number of modifications of this algorithm.

5. Experiment results

As mentioned in the previous chapter, the Ant Colony Method has three parameters:

- evaporation coefficient ρ ,
- influence of pheromones on ant decision α ,
- influence of heuristic information on ant decision β .

The TSPLIB library [10], run by Ruprecht-Karls-Universität in Heidelberg, was used to experimentally verify the effect of parameters setting on the quality of solving TSP by ACO. This is a set of 112 examples of travelling salesman problem along with their optimal solutions, many of which are based on real world issues. This library is publicly accessible and serves researchers from around the world to compare their own results. For the solution, the Ant Colony Method was implemented in the Java programming language, and 6 implementations presented in TSPLIB, each with a different number of nodes (51, 76, 96, 130, 159 and 198 nodes), were solved with this implementation.

For each instance of TSP, the value of the monitored parameter gradually increased, the other parameters

remained constant. Parameters α and β were monitored at interval $\langle 0.5; 5 \rangle$ with increase of 0.5; the coefficient ρ was monitored in the interval $\langle 0.1; 1 \rangle$ with increase of 0.1. In total, 30,000 TSP iterations were calculated. For each monitored combination of parameters, the best calculated solution was compared with the best solution reported in TSPLIB [10].

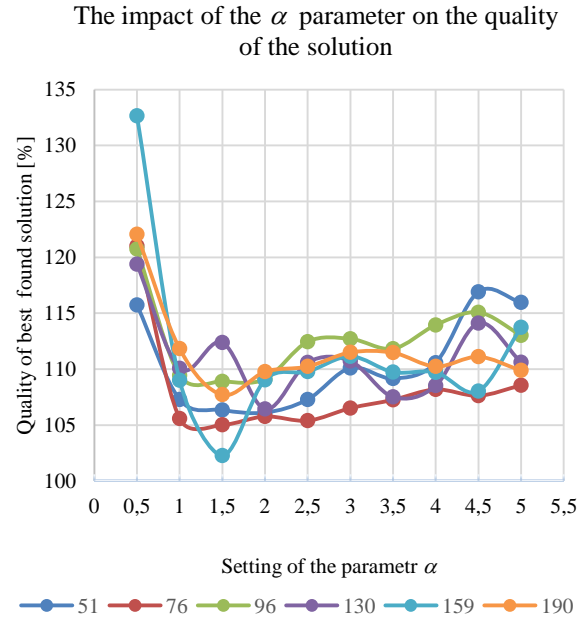


Figure 2: The impact of the α parameter on the quality of the solution

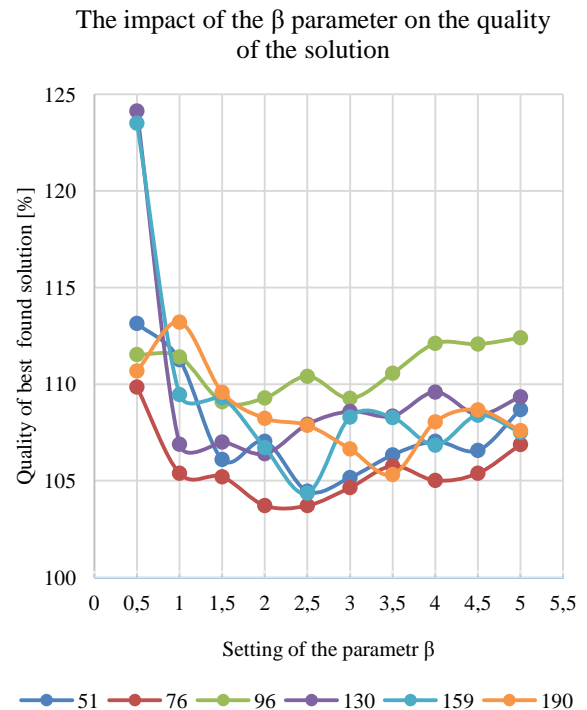


Figure 3: The impact of the β parameter on the quality of the solution

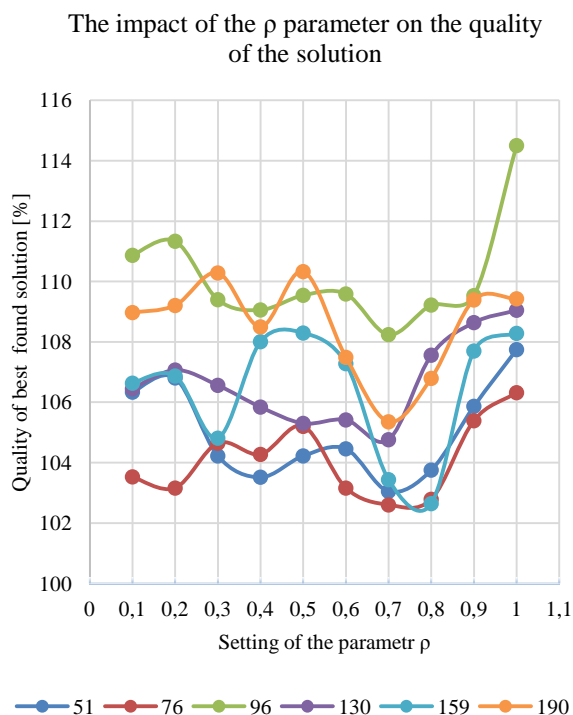


Figure 4: The impact of the ρ parameter on the quality of the solution

Figures 3 to 5 illustrate the effect of setting the individual parameters α , β and ρ on the quality of the best found solution.

6. Conclusions

This paper deals with the problem of correct parameter setting when solving the travelling salesman problem by metaheuristic method of an ant colony. By experimental verification on 6 different TSP instances, the recommended values of individual parameters were proposed, namely: parameter α in interval $\langle 1; 2 \rangle$, parameter β in interval $\langle 2; 3 \rangle$ and parameter ρ in interval $\langle 0.7; 0.8 \rangle$.

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DYNAMIC PROGRAMMING IN MODELLING OF INFORMATION SYSTEMS

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Abstract: The scientific article considers features of designing of information systems. Methods of dynamic programming are applied to definition of the optimum decision of n -dimensional problem by decomposition on n stages. Network diagram of installation and configuration works of the local area network organization is developed. The optimum activity time on each stage and the shortest path from the start to the finish on the network diagram are defined. The optimum decision is defined by a forward recursion method on the network diagram. The results of research allow to reduce financial expenses at designing information systems of the organizations.

Keywords: information system, local area network, dynamic programming, forward recursion, backward recursion.

1. Introduction

Increase of efficiency of designing of information systems is an actual problem. Methods of the operations research are applied to the decision of a problem [1-12]. Methods of dynamic programming are used for optimum control of installation and configuration works of the local area network organization. Dynamic programming determines the optimum solution of a multivariable problem by decomposing it into stages, each stage comprising a single-variable subproblem. The advantage of the decomposition is that the optimization process at each stage involves one variable only, a simpler task computationally than dealing with all the variables simultaneously. A dynamic programming model is basically a recursive equation linking the different stages of the problem in a manner guarantees that each stage's optimal feasible solution is also optimal and feasible for the entire problem [13-17].

2. Statement of a problem

The problem of optimum control of installation and configuration works of the local area network organization is formulated as follows. Develop network diagram of installation and configuration works of the local area network organization, define the minimal activity time on each stage and the shortest path from the start to the finish on the network diagram.

3. Development of network diagram

Methods of forward recursion and backward recursion of dynamic programming are used for solution of a problem. The principle of optimality is formulated as follows. Future decisions for the remaining stages will constitute an optimal policy regardless of the policy adopted in previous stages [13].

The algorithm of the decision of a problem includes steps.

1. Definition of stages of works.
2. Definition of the optimum decision at each stage.
3. Definition of the optimum decision of a problem.

Let x_i – state of a process of installation and configuration works at creation of the local area network of the

organization, $i = \overline{1, n}$ – number of stage, $t(x_{i-1}, x_i)$ – time of work from x_{i-1} to x_i .

The forward recursive equation is

$$f(x_i) = \min_{x_{i-1}, x_i} \{t(x_{i-1}, x_i) + f(x_{i-1})\}$$

where, $t(x_{i-1}, x_i)$ = time from state of a process x_{i-1} to state of a process x_i and $f(x_{i-1})$ = shortest time to the state x_{i-1} .

The backward recursive equation is

$$f(x_i) = \min_{x_i, x_{i+1}} \{t(x_i, x_{i+1}) + f(x_{i+1})\}$$

where, $t(x_i, x_{i+1})$ = time from state of a process x_i , to state of a process x_{i+1} and $f(x_{i+1})$ = shortest time to the state x_{i+1} .

Stages of installation and configuration works are presented in table 1.

Table 1: Stages of installation and configuration works

Code	Content of work	Time
1-2	The statement of the plan of works with attraction of own experts	1
1-3	Choice of the organization for work	3
2-4	Spadework with attraction of own experts	1,5
3-4	Spadework of the foreign organization	2
4-5	Installation of network cards. automatic installation of drivers	0,5
4-6	Installation of network cards. manual installation of drivers	0,8
5-7	Compression of a cable after automatic installation of drivers under standard TIA \EIA-568A	2
5-8	Compression of a cable after automatic installation of drivers under standard TIA \EIA-568B	1,5
5-9	Compression of a cable after automatic installation of drivers under standards TIA \EIA-568A and TIA\EIA-568 B	2,1
5-10	Compression of a cable after automatic installation of drivers under standards TIA \EIA-568A and	2,2

	Crossover 1000 Mbits	
6-7	Compression of a cable after manual installation of drivers under standard TIA \EIA-568A	2
6-8	Compression of a cable after manual installation of drivers under standard TIA \EIA-568B	1,5
6-9	Compression of a cable after manual installation of drivers under standards TIA \EIA-568A and TIA \EIA-568 B	2,1
6-10	Compression of a cable after manual installation of drivers under standards TIA \EIA-568B and Crossover 1000 Mbits	2,2
7-11	Compression of sockets after compression of a cable under standard TIA \EIA-568A	0,8
8-11	Compression of sockets after compression of a cable under standard TIA \EIA-568B	0,6
9-11	Compression of sockets after compression of a cable under standards TIA \EIA-568A and TIA \EIA-568B	0,9
10-11	Compression of sockets after compression of a cable under standards TIA \EIA-568B and Crossover 1000 Mbits	0,95
11-12	Placement of switches and repeaters on the wall	0,4
11-13	Not rigid placement of switches and repeaters	0,2
12-14	Internal cable routing after a hard fastening switches and repeaters	1,5
12-15	External wiring cable boxes after a hard fastening switches and repeaters	0,9
12-16	The open external cable routing after a hard fastening switches and repeaters	0,4
13-14	Internal wiring of the cable after not hard fastening switches and repeaters	1,5
13-15	External wiring of the cable after not hard fastening switches and repeaters	0,9
13-16	Open external wiring of the cable after not hard fastening switches and repeaters	0,4
14-17	Check the cable after the internal gaskets	0,5
15-17	Check the cable after the external gaskets	0,5
16-17	Check the cable after the open external gaskets	0,5
17-18	Configuring automatic IP addressing	0,1
17-19	Configuring static IP addressing	0,2
17-20	Configuring multiple IP addressing	0,25
17-21	Configuring dynamic alternative IP addressing	0,2
17-22	Configuring static alternative IP addressing	0,3
18-23	Configuring the preferred and alternate DNS server after automatic IP addressing	0,15
18-24	Specifies the name of the IP address through WINS after configuring automatic IP addressing	0,25
18-25	Specifies the name of the IP address in the HOSTS file by after you configure automatic IP addressing	0,3
19-23	Setting the preferred and alternate DNS after static IP addressing	0,16
19-24	Specifies the name of the IP address through WINS after configuring static IP addressing	0,26
19-25	Specifies the name of the IP address in the HOSTS file by after you configure static IP addressing	0,18
20-23	Setting the preferred and alternate DNS after multiple IP addressing	0,15
20-24	Specifies the name of the IP address through WINS after configuring multiple IP addressing	0,25
20-25	Specifies the name of the IP address in the HOSTS file by after you configure multiple IP addressing	0,3
21-23	Setting the preferred and alternate DNS after dynamic alternate IP addressing	0,15
21-24	Specifies the name of the IP address through WINS after configuring dynamic alternative IP addressing	0,25
21-25	Specifies the name of the IP address in the HOSTS file by after you configure dynamic alternative IP addressing	0,3
22-23	Setting the preferred and alternate DNS after static alternate IP addressing	0,15
22-24	Specifies the name of the IP address through WINS after configuring static alternative IP addressing	0,75
22-25	Specifies the name of the IP address in the HOSTS	0,3

	file by after you configure static alternative IP addressing	
23-26	The rest of the work and acceptance of local area network in operation after you configure and specify an IP address through your DNS server	0,5
24-26	The rest of the work and acceptance of local area network in operation after you configure and specify an IP address through WINS	0,6
25-26	The rest of the work and acceptance of local area network in operation after you configure and specify an IP address through HOSTS	0,7

The network diagram is shown in figure 1.

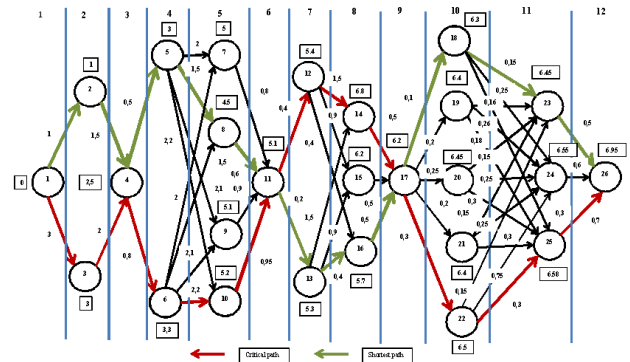


Figure 1: The network diagram

The process of executing the installation and configuration of work includes 12 steps. The stages are divided into two groups: local area network connection and configuration TCP/IP connection.

4. The decision of a problem

The problem can be solved by forward recursion, starting at stage 1 and ending at stage 12..

Stage 1. $f(x_1) = 0$. Node 1.

Stage 2. $f(x_2) = \min_{1 \rightarrow 2} \{0 + 1\} = 1$. Node 2.

$f(x_2) = \min_{1 \rightarrow 3} \{0 + 3\} = 3$. Node 3.

Stage 3. $f(x_3) = \min_{2 \rightarrow 4, 3 \rightarrow 4} \{(1 + 1.5); (3 + 2)\} = 2.5$. Node 4.

Stage 4. $f(x_4) = \min_{4 \rightarrow 5} \{2.5 + 0.5\} = 3$. Node 5.

$f(x_4) = \min_{4 \rightarrow 6} \{2.5 + 0.8\} = 3.3$. Node 6.

Stage 5. $f(x_5) = \min_{5 \rightarrow 7, 6 \rightarrow 7} \{(3 + 2); (3.3 + 2)\} = 5$. Node 7.

$f(x_5) = \min_{5 \rightarrow 8, 6 \rightarrow 8} \{(3 + 1.5); (3.3 + 1.5)\} = 4.5$. Node 8.

$f(x_5) = \min_{5 \rightarrow 9, 6 \rightarrow 9} \{(3 + 2.1); (3.3 + 2.1)\} = 5.1$. Node 9.

$f(x_5) = \min_{5 \rightarrow 10, 6 \rightarrow 10} \{(3 + 2.2); (3.3 + 2.2)\} = 5.2$. Node 10.

Stage 6.

$$f(x_6) = \min_{\substack{7 \rightarrow 11, 8 \rightarrow 11, \\ 9 \rightarrow 11, 10 \rightarrow 11}} \{(5 + 0.8); (4.5 + 0.6); (5.1 + 0.9); (5.2 + 0.95)\} = \min_{(x_5, x_6)} \{5.8; 5.1; 6.0; 6.15\} = 5.1$$

Node 11.

$$\text{Stage 7. } f(x_7) = \min_{11 \rightarrow 12} \{5.1 + 0.4\} = 5.4. \text{ Node 12.}$$

$$f(x_7) = \min_{11 \rightarrow 13} \{5.1 + 0.2\} = 5.3. \text{ Node 13.}$$

$$\text{Stage 8. } f(x_8) = \min_{\substack{12 \rightarrow 14, \\ 13 \rightarrow 14}} \{(5.4 + 1.5); (5.3 + 1.5)\} = 6.8.$$

Node 14.

$$f(x_8) = \min_{\substack{12 \rightarrow 15, \\ 13 \rightarrow 15}} \{(5.4 + 0.9); (5.3 + 0.9)\} = 6.2. \text{ Node 15.}$$

$$f(x_8) = \min_{\substack{12 \rightarrow 16, \\ 13 \rightarrow 16}} \{(5.4 + 0.4); (5.3 + 0.4)\} = 5.7. \text{ Node 16.}$$

Stage 9.

$$f(x_9) = \min_{\substack{14 \rightarrow 17, \\ 15 \rightarrow 17, \\ 16 \rightarrow 17}} \{(6.8 + 0.5); (6.2 + 0.5)\} = 6.2. \text{ Node 17.}$$

$$(5.7 + 0.5) = \min_{(x_8, x_9)} \{7.3; 6.7; 6.2\} = 6.2$$

$$\text{Stage 10. } f(x_{10}) = \min_{17 \rightarrow 18} \{6.2 + 0.1\} = 6.3. \text{ Node 18.}$$

$$f(x_{10}) = \min_{17 \rightarrow 19} \{6.2 + 0.2\} = 6.4. \text{ Node 19.}$$

$$f(x_{10}) = \min_{17 \rightarrow 20} \{6.2 + 0.25\} = 6.45. \text{ Node 20.}$$

$$f(x_{10}) = \min_{17 \rightarrow 21} \{6.2 + 0.2\} = 6.4. \text{ Node 21.}$$

$$f(x_{10}) = \min_{17 \rightarrow 22} \{6.2 + 0.3\} = 6.5. \text{ Node 22.}$$

Stage 11.

$$f(x_{11}) = \min_{\substack{18 \rightarrow 23, 19 \rightarrow 23, \\ 20 \rightarrow 23, 21 \rightarrow 23, \\ 22 \rightarrow 23}} \{(6.3 + 0.15); (6.4 + 0.16); (6.45 + 0.15); (6.4 + 0.15); (6.5 + 0.15)\} = \min_{(x_{10}, x_{11})} \{6.45;$$

$$6.56; 6.6; 6.55; 6.65\} = 6.45$$

Node 23.

$$f(x_{11}) = \min_{\substack{18 \rightarrow 24, 19 \rightarrow 24, \\ 20 \rightarrow 24, 21 \rightarrow 24, \\ 22 \rightarrow 24}} \{(6.3 + 0.25); (6.4 + 0.26); (6.45 + 0.25); (6.4 + 0.25); (6.5 + 0.75)\} = \min_{(x_{10}, x_{11})} \{6.55;$$

$$6.66; 6.70; 6.65; 7.25\} = 6.55$$

Node 24.

$$f(x_{11}) = \min_{\substack{18 \rightarrow 25, 19 \rightarrow 25, \\ 20 \rightarrow 25, 21 \rightarrow 25, \\ 22 \rightarrow 25}} \{(6.3 + 0.3); (6.4 + 0.18); (6.45 + 0.3); (6.4 + 0.3); (6.5 + 0.3)\} = \min_{(x_{10}, x_{11})} \{6.60;$$

$$6.58; 6.75; 6.70; 6.80\} = 6.58$$

Node 25.

Stage 12.

$$f(x_{11}) = \min_{\substack{23 \rightarrow 26, \\ 24 \rightarrow 26, \\ 25 \rightarrow 26}} \{(6.45 + 0.5); (6.55 + 0.6); (6.58 + 0.7)\} = \min_{(x_{11}, x_{12})} \{6.95; 7.15; 7.28\} = 6.95$$

Node 26.

The shortest path is presented on the network diagram by green color. The shortest path includes nodes 1->2->4->5->8->11->13->16->17->18->23->26. The minimum execution time is 6.95 days.

The critical path is presented on the network diagram by red color. The critical path includes stages 1->3->4->6->10->11->12->14->17->22->25->26. Maximal execution time is 13,1 days.

5. Results of research

Results of research allow to draw following conclusions.

1. The network model of installation and configuration works of the local area network organization is developed.
2. Defined stages of installation and configuration works of the local area network organization.
3. The minimum execution time is defined by the forward recursion.
4. Comparison of the shortest and critical paths is made.
5. The received results of modelling allow to reduce financial expenses and to raise validity of accepted decisions in designing information systems of the organization and can be used in the further researches on the given theme.

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ANALYSIS OF THE CORRELATION BETWEEN ENGINE FAILURES AND ODOMETER VALUE OF DIFFERENT KIND OF CARS BY USING BIG DATA ANALYTIC TOOLS

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Abstract: *The topics big data and Internet of Things (IoT) are currently discussed in many industries, especially in the automotive industry which this paper focuses on. Information is the gold of the industrial age and can be won by aggregating and analyzing large amounts of data. This article gives insight into these topics and discusses examples based on the automotive aftermarket, as well as how information about a vehicle's condition and mileage could be used. The target is to validate the hypothesis that there is coherence between specific engine faults and the odometer value of different types of cars. This analysis is based on a large dataset of engine error codes collected by Geotab. Our aim is to use Big Data analysis tools such as Python, Tableau and SPSS to indicate conspicuous engine error codes and validate the coherence. The results show that there is coherence between specific errors and the vehicle mileage. Further interpretation regarding causes is not possible with the given information and indicates further research. Based on the results presented in this paper, improvements can be made by obtaining more detailed error codes and making clear distinctions between different brands and engine types.*

Keywords: *automotive, big data, linear regression, predictive maintenance, OBD diagnosis*

1. Introduction

In the automotive industry, the connection between car diagnostics and big data analytics is currently being intensively discussed. Due to the vehicle diagnosis, errors can be detected and assigned to the different electronic or mechanical components of the vehicle. These errors are stored and coded for further analysis. In addition, it is possible to monitor systems while driving, such as the vehicle's electronic control units (ECU), and to subsequently file errors occurring in the ECUs. The advancement of technology and the continuous connection of the vehicle to the internet enables real-time monitoring of the systems in the vehicle independently of the location of the vehicle. The question is how these data, especially the stored errors in the vehicle ECU, can be used for analysis to reveal unknown technical correlations. Using results and findings from this, car maintenance and fleet management could soon enter a new era through the interaction of vehicle diagnostics and big data analytics. Car manufacturers and service providers can derive measures to enhance vehicle quality based on specific findings about these correlations.

Innovations in maintenance systems and management optimizations in the automotive sector are new on the market. Many German original equipment manufacturers in the automotive industry are focused on the typical preventive maintenance planning based on parameters such as mileage or time intervals.

This can be attributed to a lack of knowledge about big data analytics or aversion to publishing private data in supposedly unsafe databases. Despite all this, collecting data and analyzing is the future, because according to Bartonitz, information is the gold of the digital age [1].

Real-time technologies and IoT are replacing the old methods in many industries. The automotive industry must make sure that it does not miss out the trend of big data analytics. The available data is very important for the automotive industry, especially in the field of after-sale service because analyzing data can lead to improved processes (for example, predictive maintenance) [2, p. 139]. Datasets about vehicle usage contain a lot of information. To handle them efficiently, it is important to understand the meaning of the data. Further, it is helpful to know the origin of the data to understand it better [3, p.70]. It must be clear what can be interpreted from large datasets. Technologies from service providers like Geotab Inc. record vehicle information permanently. Software like Tableau or SPSS can be used to analyze the datasets. By using these technologies properly, value added will become highly visible.

Manowicz states that the acceptance of a new service is one of most important aspects for success. If more product usage information is collected from customers, this data can be used to design better after-sales services [4, p. 59]. To make benefits of predictive maintenance visible, the topic needs to be communicated, because not everybody knows what it means. The ARC Advisory Group explains: "The definition of predictive maintenance involves applying condition-based monitoring techniques to collect and analyze asset data to better understand asset performance and perform appropriate maintenance before impending issues can negatively impact plant performance, availability, or safety" [5]. Simplified, if we compare an industrial company with the human body, the production is the heart. If it stops unexpectedly, it also affects other functions of the company [6].

Nowadays, it is important to keep the downtime of machines and vehicles as low as possible during maintenance. Big automotive suppliers are already using these new technologies to identify causes of certain product characteristics. In summary, there are very few published articles that estimate the maintenance needs of equipment based on recorded vehicle data. Yet, given the similarities between these data sources and the central means of transport for society, we agree with Prytz's [7, p. 140] statement that it is a very important field of research. Geotab is a global leader in telematics, which provides open platform fleet management solutions to businesses of all sizes [6]. Geotab collects more than 2 billion data points every day with their OBD-Dongles (On-Board-Diagnosis). They help companies to access critical business intelligence to increase productivity and improve driving safety. Regarding those technologies and given the provided system by Geotab, this research is about finding out whether it could be used as a system to predict failure of cars engines or parts of it.

2. Literature Review

In many publications, predictive maintenance is presented with regard on big machines and industrial companies. However, in the automotive industry, where prediction is normally done using models that are designed before production, service records and machine data are often not used for predictive maintenance approaches [2, p. 140].

Confirming this, Choudhary et al. state that specifications of the automotive branch make fault prediction and condition-based maintenance a more challenging problem than in other branches. The complexity and operating conditions in automotive technology may do their part [8]. In this paper, we investigate the usability of predictive maintenance in the automotive sector based on typical big data analytics and maintenance procedures currently used in the industry.

2.1 Big Data Analytics

To use predictive maintenance in a rational way, big data analysis is the first keyword. A meaningful definition is given by the McKinsey Global Institute: "Big data refers to data sets whose size is beyond the ability of typical database software tools to capture, store, manage and analyze" [9]. Big Data typically consists of the three Vs: *volume*, *velocity* and *variety*.

At first glance *volume* is the key feature of Big Data. Some experts say that Petabytes are the entrance to big data. *Velocity* stands for the rate at which data is generated or the delivery frequency [10, pp. 1-2]. Here, Geotab uses an algorithm that ensures that important data are not missed, while less important data are not overloading the system. This means the system recognizes which information must be transmitted and which not. Lastly, *variety* is about all the different data and file types that are available. In this case, Geotab has access to a diverse set of data that spans fleets from food delivery to snow plows [11].

The combination of these three Vs in a data set determines the usage of the data and leads to the next step of data analysis: data mining. Data mining is defined as "an ontology-based text mining system for knowledge discovery from the diagnosis data in the automotive domain: the vast amount of knowledge embedded in such data must be discovered for efficient decision-making in several business functions to detect anomalies, improve fault diagnosis, and improve root-cause investigation" [12, p. 565]. This implies that Geotab can help to improve maintenance approaches by data mining, because high data volumes could be discovered and interpreted with the help of their software. In the next step, there is a type of big data analysis which includes the technique of text mining. In this paper, the datasets on engine malfunction in dependence of mileage are analyzed in detail. The main benefit of big data analysis is to understand and optimize a company's processes after making use of the required data. In a case study published by Geotab, relevant data for a regional food delivery company with a fleet of 800 trucks and vans is analyzed. The target of the company in the case study was to optimize the cost of their supply chain operations, while improving the safety and productivity of their fleet. This requires data points like fuel consumption, total distance driven, and the vehicle types that need to be examined. Furthermore, they must examine front-to-back acceleration, side-to-side acceleration and engine idling time, to find out how harshly their drivers use the vehicles. Next the company has been benchmarked with similarly structured businesses, (like fleets) to figure out how to increase the efficiency.

The example presented demonstrates the method of a structured big data analysis, including data mining, data analysis and benchmark analysis. This procedure was applied in the context of this research. We aim to discover Geotab's potential for a predictive maintenance strategy, which monitors the same variables as the example of the food delivery company.

2.2 Predictive Maintenance

Mobley defines predictive maintenance as "a philosophy or attitude that, simply stated, uses the actual operating condition of plant equipment and systems to optimize total plant operation" [13, p. 5].

Especially for the case study, this paper is based on this maintenance approach called predictive maintenance, which brings up new chances to improve maintenance using efficiency and simplicity. This maintenance philosophy ensures maximum maintenance intervals by monitoring the actual condition and operating efficiency of the machine.

Apart from this maintenance approach, there are two other approaches [13, p. 5]. First, one approach is the run-to-failure philosophy. It describes a reactive management technique that demands for machine failure before maintenance action is taken. Only few plants use this "no maintenance" approach of management, but more often this approach is enriched by basic preventive parts like lubrication or other adjustments [13, p. 2].

The next maintenance approach is preventive maintenance. Preventative maintenance systems are time-driven and assume that machines will degrade within a time frame typical of their particular classification. So, machine repairs or rebuilds are made after the mean-time-to-failure (MTTF) indicates the need for maintenance. MTTF is the length of time a device or other product is expected to last in operation [14]. There are many approaches to preventive maintenance, sometimes consisting only of lubrication and minor adjustments, and sometimes including jobs like repairs, adjustments and machine rebuilding. The comparison between reactive (i.e. after failure) and scheduled basis has shown that costs for models like preventive maintenance are three times higher than for run-to-failure philosophies [13, p. 3].

The definition of these two approaches underpins the benefits of predictive maintenance, an efficient maintenance approach that leaves little room for interpretation in scope of maintenance. For the application of predictive maintenance, it is crucial to monitor the right variables like vibration or acoustic particularities to get clear information about the condition of the machine [15, p. 293]. Likewise, this definition shows that the data collected by Geotab could be used for predictive maintenance methods, because variables like vibration or acoustic particularities are relatively easy to find or to integrate in Geotab's data.

In summary, it is conceivable for predictive maintenance to be used in the automotive maintenance sector in near future. Technologies such as over-the-air diagnosis or car-to-X communication are already present and could be used to bring new innovations to the automotive aftermarket. In our investigations on the relationship between odometer and engine faults, we used data mining to get results that contribute to big data approaches, which makes it easier for us to understand contexts that are not directly obvious. This is a clear advantage, because strategies like big data analytics and predictive maintenance combine the strength and experience of traditional industries with new internet technologies [16, p. 16]. This can also be seen in modern factories where operators and machines are closely connected.

3. Approach

3.1 Methods and tools

For our investigations we used the software Tableau V 2018.1.0 and SPSS 25.0. Tableau was used primarily to create graphs, visualize results and to draw first conclusions from optical analysis. However, unlike SPSS, Tableau cannot be used to run statistical tests. For this reason, we used SPSS to analyze the data using statistical tests.

The tools which were used for the analysis, are different plot graphs such as bar charts and scatter plots for analysis. The first is a histogram. It shows an accurate representation of distribution of our data. The second plot is a scatter plot. This plot is useful in finding correlations between two characteristics. The characteristics are

represented through coordinates. If many points arise in correlations, you can use this cluster for an analysis.

Statistics are necessary to determine the validity of a hypothesis. Because there are many kinds of statistic tests, the first step is to decide which one to use. An existing decision matrix helped to identify the right tests to verify the specific hypothesis. The central statistic test used in this paper is a linear regression analysis. For this test, the independent variable is mileage and the dependent variable is engine errors.

3.2 Database

It could be a string or values stored in a data type like .CSV (comma separated values) or .RTF (rich text format). A .csv file with 746276 entries is the raw data used in this research. CSV is a standardized .txt (text) file. The file includes engine failures of 760976 vehicles from the Northern Hemisphere.

Table 1 Example .csv file (Source: Geotab)

<i>Id</i>	<i>Engine</i>	<i>FaultDateTime</i>	<i>Description</i>	<i>Odometer Value</i>
41570	N/A	2017-11-13 20:27:48.438 UTC	Low priority warning light on	548664,0
208446	N/A	2017-07-18 20:04:58.68 UTC	Low priority warning light on	543848,0
208446	N/A	2017-09-13 19:37:54.355 UTC	Low priority warning light on	549056,0
208446	N/A	2017-07-06 16:37:50.023 UTC	Low priority warning light on	543019,0

3.3 Data evaluation

The .csv file was first imported into Microsoft Excel and saved as an .xlsx file. All missing values were filled with the term "(NA)" and the international decimal system has been changed into the German decimal system by replacing periods with commas. We decided to exclude outliers, such as vehicles with a mileage above 500000 kilometers from the analysis. This led to a reduction of the data set to 689123 entries. In the last step, we created divisions, to make file sizes more handleable.

4. Results

To test our hypothesis that there is coherence between odometer value and engine faults, we used several structured steps. The correlations will be depicted on graphs using the software Tableau. Statistical results are based on the outputs of SPSS.

4.1 Conduction of graphical analysis

The sum of the entries has been separated into kilometer partitions with the help of the Tableau software. Hence, in each partition there are all entries corresponding to these, separated to the single fault descriptions. Because the data has been aggregated by randomly picking vehicles of different countries all over the Northern Hemisphere, it

represents a balanced sample. We conclude that with increasing mileage there is a decreasing number of faults, because with increasing mileage, the number of entries in the file is decreasing, which can be seen in Figure 1. We can only prove correlation, not causation, because this could be caused by the cars' aging. There are fewer cars with a high odometer value in existence. Further, as shown in Figure 2, there are three main faults which appear most frequently over all partitions. With decreasing frequency of faults:

- 1) Low priority warning light is on (teal)
- 2) General vehicle warning light is on (purple)
- 3) Warning: vehicle battery has low voltage (light green)

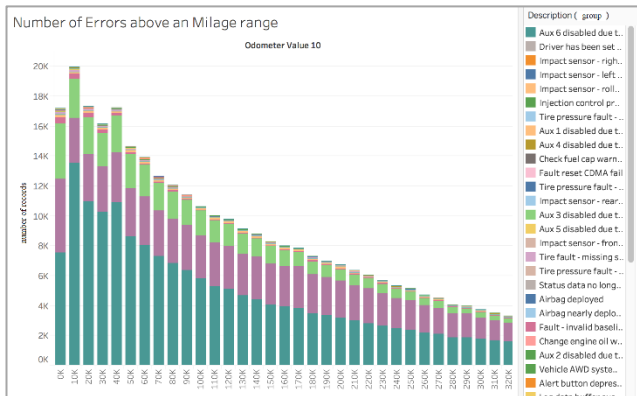


Figure 1: Number of errors above mileage partitions (Source: Authors Tableau analysis)

Of special interest is the frequency of faults. In the Figures 2 and 3 you can see the distribution by percent for all faults in a partition. In Figure 3 you can see explicitly that the fault “General vehicle warning light is on” is more common with increasing mileage, whereas the other faults are decreasing slightly.

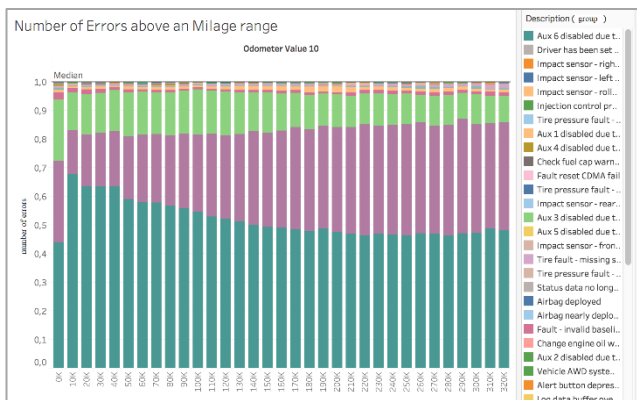


Figure 2: Percentage of errors above mileage partitions (Source: Authors Tableau analysis)

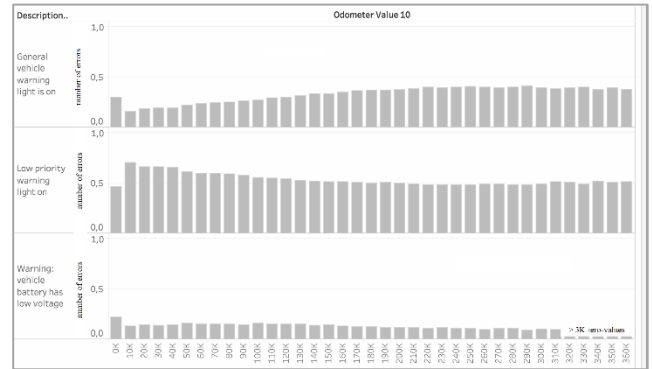


Figure 3: Percentage of top 3 errors above mileage partitions (Source: Authors Tableau analysis)

There is no way to illustrate regression lines or make regression tests with Tableau V 2018.1.0, so further analysis is conducted using the software SPSS 25.0.

4.2 Outcome of statistical tests

With the help of SPSS, correlations between odometer value and the three most common faults are investigated. Here, we used the relative commonness of faults rather than absolute numbers. The difference between using absolute and relative numbers is shown in Figure 4 and Figure 5. While Figure 4 indicates frequency to be decreasing, in Figure 5 the scatter plot seems to have a minimal value.

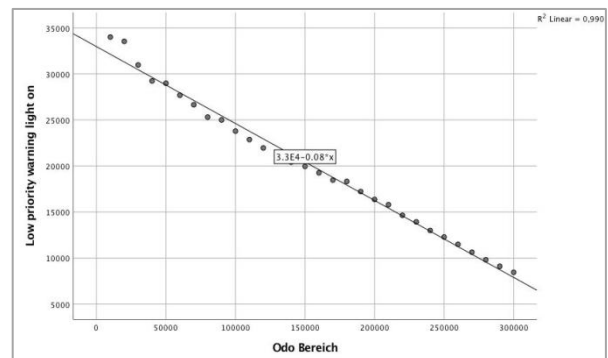


Figure 4: Absolute numbers of the error "Low priority warning light on" above odometer partitions (Source: Authors SPSS analysis)

The null hypothesis describes the exact opposite assumption of a hypothesis. For example, given the hypothesis, “There is a coherence between mileage and the failure of ignition coil”, the null hypothesis is “There is no coherence between mileage and the failure of ignition coil”.

The coefficient of determination R^2 describes the goodness of fit of a regression. The closer the value is to 1, the better the regression line describes the course of the scatter plot. The value for a good fit depends on the specific case of the application [17].

4.2.1 Hypothesis 1: Coherence between the error “Low priority warning light is on” and odometer value

The global minimum of the quadratic regression line as shown in Figure 5 is at 284946 kilometers. Due to a coefficient of determination of $R^2 = 0,635$, one could conclude this is the point of the lowest chance that the fault might appear. However, the ANOVA test (Table 2) says that the null hypothesis can be discarded because the hypothesis has reached significance due to the value of 0.5%. Due to this result, there is proof for correlation between the error and the odometer value.

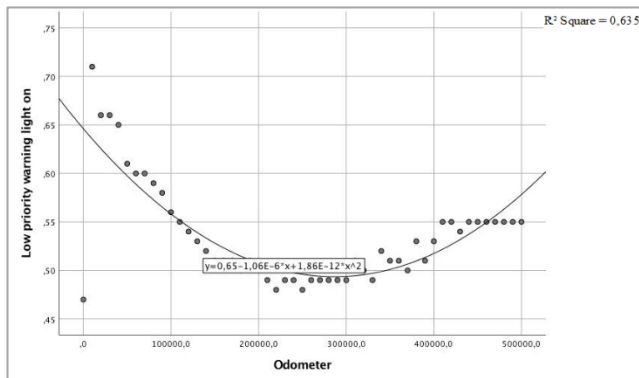


Figure 5: Relative numbers of the error "Low priority warning light on" above odometer partitions (Source: Authors SPSS analysis)

Table 2 ANOVA test of "Low priority warning light on" (Source: Authors SPSS analysis)

ANOVA ^a					
Modell	Sum of squares	df	Means of squares	F	Sig.
1 Regression	0,020	1	0,020	8,602	,005 ^b
Not standardized residuals	0,116	49	0,002		
Total	0,136	50			

a. Dependent variable: Low priority warning light on

b. Predictors: (Constant), Odometer

4.2.2 Hypothesis 2: Coherence between the error “General vehicle warning light is on” and odometer value

A higher coefficient of determination of $R^2 = 0,88$ is shown at the coherence between mileage and the fault “General vehicle warning light is on” (Figure 6). In contrast to “Low priority warning light is on”, this one reaches a maximum at 312227 kilometers. Due to this, there is good correlation in this case as well.

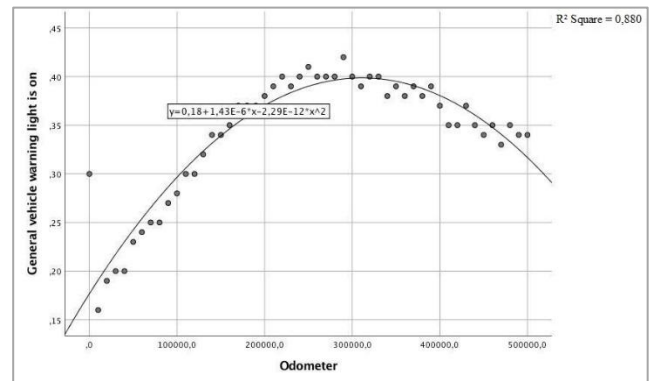


Figure 6: Relative number of the error "General vehicle warning light is on" above odometer partitions (Source: Authors SPSS analysis)

Due to the result of the ANOVA test in Table 3, which shows a significance of 0% for the null hypothesis, the null hypothesis has to be discarded as well. Thus, there is a coherence between the fault “General vehicle warning light is on” and mileage.

Table 3 ANOVA test of "General vehicle warning light is on" (Source: Authors SPSS analysis)

ANOVA ^a					
Model	Sum of squares	df	Means of squares	F	Sig.
1 Regression	0,087	1	0,087	33,684	,000 ^b
Not standardized residuals	0,126	49	0,003		
Total	0,213	50			

a. Dependent variable: General vehicle warning light is on

b. Predictors: (Constant), Odometer

As limitation, it must be stated that both faults correspond to a wide spectrum of engine faults which are summarized by these those two faults. Therefore, it is not possible to imply a real correlation between mileage and the failure of a specific engine component.

4.2.3 Hypothesis 3: Coherence between the error “Warning: vehicle battery has low voltage” and odometer value

Analysis of the fault “Warning: vehicle battery has low voltage” as seen in Figure 7 shows there is a decreasing frequency in dependence of increasing mileage. Due to $R^2 = 0,633$, there is a correlation. As expected, the ANOVA test in this case says that the null hypothesis has to be discarded as well (Table 4).

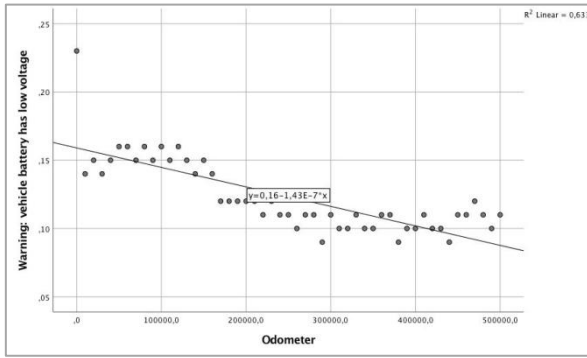


Figure 7: Relative numbers of the error "Warning: vehicle battery has low voltage" above odometer partitions (Source: Authors SPSS analysis)

Table 4 ANOVA test of "General vehicle warning light is on" (Source: Authors SPSS analysis)

ANOVA ^a					
Model	Sum of squares	df	Means of squares	F	Sig.
1 Regression	0,023	1	0,023	84,654	,000 ^b
Not standardized residuals	0,013	49	0,000		
Total	0,036	50			

a. Dependent variable: Warning vehicle battery has low voltage

b. Predictors: (Constant), Odometer

4.2.4 Hypothesis 4: Coherence between the error "Airbags deployed" and odometer value

A lack of correlation is made clear by looking at the correlation between deployed airbags to odometer value in Figure 8, where $R^2 = 0,463$. Airbags usually deploy due to an accident or, in very few cases, due to a malfunction or misinterpretation of the airbag sensor. Because these situations are more dependent on the driver of the car than on the mileage of the vehicle, there is no correlation between error and odometer value. Still after a certain mileage (>320000 km), there is not a significant number of airbag deployments.

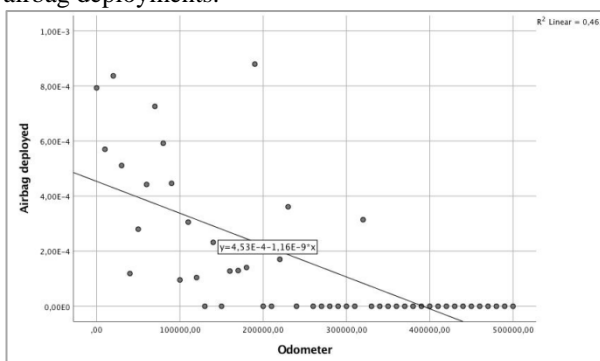


Figure 8: Relative numbers of the error "Airbag deployed" above odometer partitions (Source: Authors SPSS analysis)

4.2.5 Thesis 5: Coherence between the error "Vehicle ABS system failed" and odometer value

Another correlation can be seen by looking at the failures of vehicle ABS systems in Figure 9. A cubic regression line shows a coefficient of determination of $R^2 = 0,746$. Furthermore, the ANOVA test (Table 5) says that the null hypothesis has to be discarded. In addition, there is another value which strengthens the assumption. The T value of the odometer value, which can be seen in Table 6, is not equal to zero, which means that there is plausibly an effect which is significant as well.

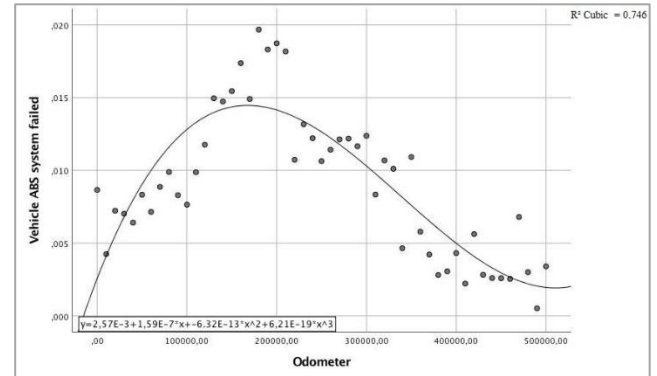


Figure 9: Relative numbers of the error "Vehicle ABS system failed" above odometer partitions (Source: Authors SPSS analysis)

Table 5 ANOVA test of the error "Vehicle ABS system failed" (Source: Authors SPSS analysis)

ANOVA ^a					
Model	Sum of squares	df	Means of squares	F	Sig.
1 Regression	0,000	1	0,000	14,063	,000 ^b
Not standardized residuals	0,001	49	0,000		
Total	0,001	50			

a. Dependent variable: Vehicle ABS system failed

b. Predictors: (Constant), Odometer

Table 6 Coefficients of the error "Vehicle ABS system failed" (Source: Authors SPSS analysis)

Coefficients ^a					
Model	Not standardized coefficients		Standardized coefficients	T	Sig.
	Regression coefficient B	Hour-Error	Beta		
1 (Constant)	0,013	0,001		10,614	0,000
Odometer	-1,584E-08	0,000	-0,472	-3,750	0,000

a. Dependent variable: Vehicle ABS system failes

5. Conclusions

In the given example, it was possible to display relationships between engine failures and odometer value, but they could not be interpreted meaningfully. In this case it is important to take care of the depth of data detail which

has to be analyzed. In data analysis, it is not always clear what one is looking for, but the deeper one is digging, the more likely results will be interesting and the more exciting it becomes. On the other hand, we should look at how well the statistics are working. In this case, the methods are good and have brought a lot of success.

The Automotive sector has the advantage, because they are so close to the datasets. For original equipment manufacturers it is important to act now and use technologies to gain knowledge about failure patterns of their cars, especially of the electrical components. There is an increasing amount of electrical or software errors which can be diagnosed On-Board and solved remotely, the after-sale service will lose employees by predictive maintenance. It will trigger a big debate, but there are solutions. Further, a fleet operator can save money by predictive maintenance and they can invest the money in more vehicles. Predictive maintenance is helpful not only for the fleet operator, but also for commercial vehicles. In road construction, there is a lot of time lost if a vehicle fails. The effect of this is that there are more and longer traffic jams and so more air pollution. Furthermore, predictive maintenance including big data analysis and other tools could be used directly in the private vehicle itself.

In our paper, we presented many advantages of predictive maintenance over other maintenance philosophies like the run-to-failure approach or preventive maintenance. Already when comparing run-to-failure with preventive maintenance a big advantage is remarkable, so a more foresighted approach makes it possible to reduce maintenance costs. For industrial applications, predictive maintenance is already used and makes maintenance more economical, while reliability of the machinery becomes better or remains unchained in worst case. So, the usage of sensor data offers great opportunities for industrial applications and therefore it must be feasible to optimize maintenance in the automotive sector with approaches like this. Especially in the automotive sector, it is possible to use the already existing sensors and data to integrate preventive maintenance features combined with already existing innovations like over the air diagnosis. Considering the usage of predictive maintenance in other industries, the automotive sector is obliged to acknowledge the prospects of this new maintenance approach. Variant focuses, or different containments of the data could influence the investigations and results in a substantial way. This means that big data analytics could not always contribute to better comprehension of difficult issues but in many cases big data analytics could bring the answer to previously unknown questions. In summary, predictive maintenance will bring more efficiency and therefore cost saving factors to many industry branches.

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TOXICITY EVALUATION OF SILVER NANOPARTICLES ON AQUATIC AND SOIL ORGANISMS

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Abstract: The aim of this paper is to assess the ecotoxicity of silver nanoparticles and silver nitrate on aquatic and terrestrial organism as well as compare the sensitivity of selected organisms to the test substance. We also aimed to find out the toxic effect of AgNPs in terms of particle size. Silver nanoparticles (AgNPs) are nowadays used in a wide range of products for its antimicrobial activity. The increasing production and use of nanoparticles results in their higher concentrations in the environment. Therefore, investigating the potential aquatic and terrestrial toxicity of nanomaterials has become an important issue. In this study we investigated the toxicity of two nanosilver suspensions of varying particle sizes (2.7–6.5 d.nm) and silver nitrate on organism representing the aquatic (*Daphnia magna*) and soil (*Folsomia candida*) ecosystem. Experiments were carried out methodologically in accordance with the following standards: OECD 201 (Inhibition of the mobility of *Daphnia magna*) and OECD 232 (Inhibition of reproduction of *Collembola Folsomia candida*). *Daphnia magna* was much more sensitive to AgNPs and silver ions than springtail. The low EC50 ($\mu\text{g}\cdot\text{L}^{-1}$) values show high toxicity to Daphnids.

Keywords: ecotoxicology, *Daphnia magna*, *Folsomia candida*

1. Introduction

Silver nanoparticles (AgNPs) are used as an antimicrobial agent in wide range of commercial products. These products varying from medical devices to consumer goods such as clothes and personal hygiene products. The increasing production and utilisation of silver containing products will surely lead to the release of AgNPs into the environment [1]. One of the main ways of entry of AgNPs into the environment is from washing laundry that contains silver [2]. Despite the increasing commercialization of silver-containing products, little is known about the environmental impact associated with their widespread use [3].

Toxic effects of NPs on the organisms depend on their chemical nature, shape and size. It's supposed, that higher toxicity in nanoparticles form compare to macroscopic form is caused by larger surface. As a rule, the smaller particles have a larger surface and are more toxic [10].

2. Material and methods

2.1. Test organisms

Daphnia magna and *Folsomia candida* were obtained from an in-house culture collection of the Ecotoxicological laboratory of the University of Veterinary and Pharmaceutical Sciences Brno, Czech Republic.

2.2. Inhibition of mobility of *Daphnia magna*

The immobilization test of *Daphnia magna* was performed according to the OECD 202 guideline (CSN EN ISO 6341 – Determination of the inhibition of mobility of *Daphnia magna* Straus). Testing was performed with neonates aged less than 24 hours, which were kept in 100 mL glass beakers. Test beakers were maintained at temperature of 22 ± 2 °C inside a controlled temperature chamber with a photoperiod (16 hours of light and 8 hours of dark). Immobilization of daphnids was recorded after 24 and 48

hours. From the number of immobilized individuals at the test concentrations compared to control, the 48hEC50 value was determined by the probit analysis [4, 5].

2.3. Inhibition of reproduction of *Folsomia candida*

The experiment was carried out as described in the OECD Guideline 232 (CSN EN ISO 11267 – Inhibition of reproduction of *Collembola Folsomia candida*). The results were evaluated as the inhibition of reproduction and compared to the control. The median effective concentration (EC50) was determined after 28 days. For the test to be valid, we followed the criteria stated in the guideline [6, 7].

2.4. Chemicals

Silver nitrate was purchased from Sigma-Aldrich (St. Louis, MO, USA) as a crystalline powder, 99% purity CAS 7761–88–8. AgNO₃ was used as the source of silver ions. The AgNPs with different sizes (AgNPs1: 6.5 d.nm) and (AgNPs2: 2.7 d.nm) were synthesized by aqueous chemical reduction method using gallic acid as a reducing and stabilizing agent [8]. AgNPs were characterized by TEM (Tecnai F20, FEI, Eindhoven, Netherlands) and DLS (Zetasizer Nano ZS90, Malvern Instruments, Worcestershire, UK).

All test solutions were prepared by dilution of the initial dispersion of AgNPs/AgNO₃ in the culture media to the desired concentration. The tests were performed in three replicates at each test concentration and controls.

2.5. Statistical analysis

The test results were evaluated using the software TOXICITA 3.1 software (VUV Ostrava, Czech Republic), by means of regression analysis of data with 95% confidence interval, based on squared deviations of

experimental values from the selected approximation function.

The 48hEC50 values, as well as their associated 95% confidence intervals (95% CI), were determined by probit analysis using a computer program (PROBITY VURH, Vodnany, Czech Republic).

3. Results and discussion

For finding out the toxic effect of AgNPs in term of particle size we produced AgNPs of different particle sizes.

The ecotoxicity of AgNPs and AgNO₃ was determined on two species representing aquatic and terrestrial ecosystem. The influence of selected AgNPs and AgNO₃ on the observed organisms is shown in Figures 1–4, respectively.

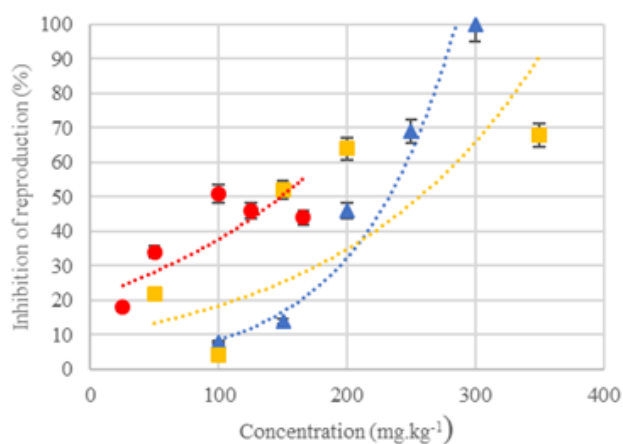


Fig. 1: Dose–response curves of AgNO₃ (■), AgNPs1 (▲) and AgNPs2 (●) for *Folsomia candida*. Error bars correspond to 95% confidence intervals.

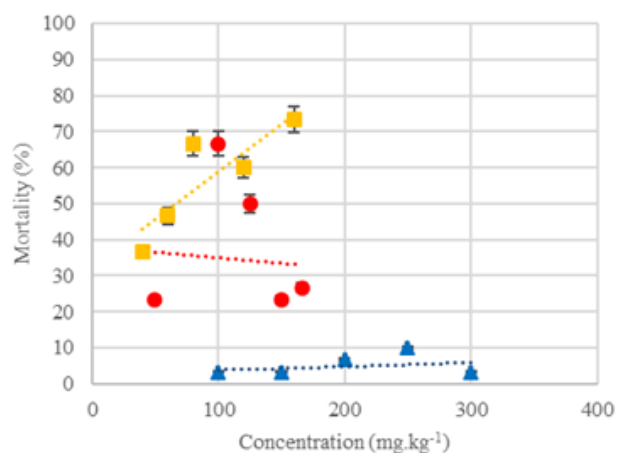


Fig. 2: Dose–response curves of AgNO₃ (■), AgNPs1 (▲) and AgNPs2 (●) for *Folsomia candida*. Error bars correspond to 95% confidence intervals.

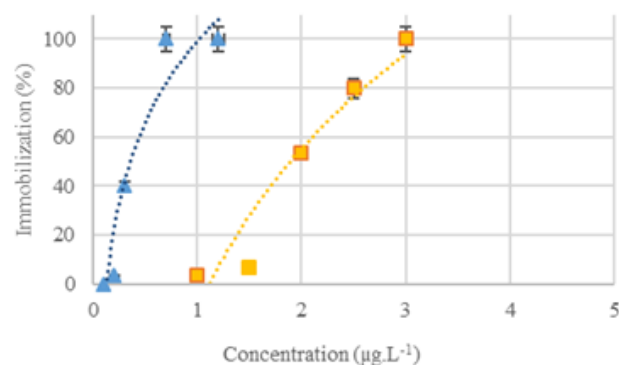


Fig. 3: Dose–response curves of AgNO₃ (■) and AgNPs2 (▲) for *Daphnia magna*. Error bars correspond to 95% confidence intervals.

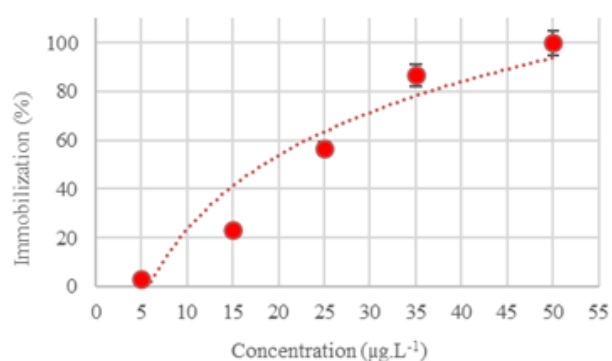


Fig. 4: Dose–response curves of AgNPs1 (●) for *Daphnia magna*. Error bars correspond to 95% confidence intervals.

The results of these tests showed significant differences in the sensitivity of aquatic (µg.L⁻¹) and soil organisms (mg.kg⁻¹). As expected, the smaller sized AgNP had the biggest influence on the reproduction of both organisms: daphnia (48hEC50 = 0.309 µg.L⁻¹) and springtail (28dEC50 = 156.58 mg.kg⁻¹). The 48hEC50 value of AgNO₃ for *daphnia magna* was 1.96 µg.L⁻¹. Similar results were seen in other studies, e.g. the EC value of AgNO₃ for *D. magna* was 1.36 µg.L⁻¹ [1] and 2.51 µg.L⁻¹ [9].

The reproductive parameters of springtail were the least affected by silver nitrate; it's 28dEC50 had a value of 211.52 mg.kg⁻¹ while there was a significant effect on mortality. The LC50 of AgNO₃ was 66.82 mg.kg⁻¹. Results in terms of reproduction indicated higher toxic effect of AgNPs (2.7 d. nm) than AgNO₃. Such differences in toxicity have also been reported in other study with *Caenorhabditis elegans*, where the reproductive output was more affected by AgNPs exposure than AgNO₃ [10]. The AgNPs with average size of 6.5 nm had no significant effect on mortality and it's effect on reproduction was 205.44 mg.kg⁻¹. Gomes *et al* (2013) investigated the toxicity of AgNPs (30-50 nm) on *Enchytraeus albidus* and obtained EC50 of 225 mg.kg⁻¹. The differences among

EC₅₀ values are related to differences in particle characteristics, size and organisms [11].

4. Conclusion

In this study, we have reported the toxicity of silver nanoparticles and silver nitrate on water crustacean *Daphnia magna* and the springtail *Folsomia candida*. The ecotoxicity of silver nanoparticles and ionic form of silver varies considerably according to the test organisms and particle size. The aquatic organisms are much more sensitive to silver nanoparticles and silver ions compared to the terrestrial organisms. The tested AgNPs were found to be harmful to aquatic life at very low concentrations ($\mu\text{g.L}^{-1}$). Due to the toxicity together with the extensive exposure potential of NPs, additional hazard and risk assessment is important.

Acknowledgements

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RISK BEHAVIORS FOCUSING ON SEXTING IN THE CONTEXT OF STUDENTS OF PEDAGOGICAL FACULTY IN TRNAVA AND PRESOV

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Abstract: *The article deals with risk behavior of youth. It provides a brief overview of definitions of risk behavior according to Miovský, Trimpop, Moor and Gullon. Here are some findings of a research survey from November 2017 which we conducted in my research and research internship at the Department of Special Education at the Pedagogical Faculty of the University of Prešov and also in February 2018 at the Faculty of Education of Trnava University. However, we deal with the term sexting and how this term is represented in the consciousness of the students at home and also how they have experienced the risky behavior on the internet.*

Keywords: *risky behavior, sexting, prevention, student behavior*

1. Introduction

Risky behavior is a term superior to antisocial, delinquent behavior etc. It is a complex notion that deals not only with the social sciences but also with the medical branches. Macek [3] states that risky behavior is the kind of behavior that damages individuals both physically, psychosocially or the property of other persons.

The period of puberty and adolescence is very often associated with risky behavior in different forms. The World Health Organization even speaks directly about rider behavioral syndrome in adolescence, which consists of three components: abuse of addictive substances, negative phenomena in the field of psychosocial development and risky behavior in the reproductive region [5].

2. Risky behavior

Now, let's take a look at some of the definitions of risky behaviors. Miovský [4] perceives risky behavior as behavior with increased educational, health and social risks. Formulas of risky behavior are a set of phenomena that can be largely influenced by both prevention and medical interventions.

Previously, the term socially pathological phenomena was used. Social pathology is a science field that deals with the study of socially pathological phenomena. Pathological phenomena can be found across several disciplines - cultural and social anthropology, sociology, ethics etc. In sociology, these phenomena explore the so-called sociology of deviant behavior [2].

For foreign authors, the notion of risky behavior is unambiguous. Trimpop [6] perceives it as a behavior associated with uncertainty arising. Risky behavior is a term superior to antisocial, delinquent behavior etc. It is a complex notion that deals not only with the social sciences but also with the medical branches. Macek [3] states that risky behavior is a kind of behavior that damages

individuals both physically and psychosocially, or property, other persons.

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Gullone and Moor [1] speak of participation in negotiations that brings possible negative consequences and losses. These authors define risky behavior as participating in such behavior that also includes possible negative consequences and losses. However, this risk is offset by the positive effects or gains from risky activities. Sullivan [7] adds suggestive text messages and pictures showing naked or partially exposed children to adults,

which then spread through the mobile or internet. The term Sexting has been researched around the world since 2009 - the United States, Great Britain or China. The National Campaign to Prevent teen and unplanned Pregnancy (USA 2009) describes the prevalence of sexting among young internet and mobile phone users.

The first comprehensive research on sharing sexually-tuned photos with other internet users is Danger of Internet. Communication II (2011), Danger of Internet Communication III (2012), as stated by Kopecký (2012).

3. Sexting – research investigation

3.1 Methodology

As part of my research internship on November 15 - 30, 2017, the research study was carried out with students of the Faculty of Education of the Prešov University in Prešov. The research attended 45 students - 42 girls and 3 boys from various fields and study combinations at the age of 21 - 23 years.

The same research was carried out by the students of the Faculty of Education of the Trnava University in Trnava, where 68 respondents included 65 girls and 3 boys.

3.2 Results of the research

There are the results of the research from Faculty of Education in Prešov. The research attended 42 students and 3 students from various fields and study combinations at the age of 21 - 23 years. In the questionnaire, we focused on knowledge of sexting, cyber-rooming and cyberbullying and surveyed students' experiences and attitudes about these concepts. A total of 35.6% of students think sexting is sex on the internet. 28.9% think it is sexual harassment via SMS, 31.1% of students said they did not know the term sexting and the remaining students (2.2%) think that it is dating. With the notion of cybergrooming, most of the students responded that they did not know (82.2%), 11.1% of respondents said that cybergrooming means that the other person requires to have naked photographs. On the other hand, students have been more familiar with the notion of cyberbullying, with 86.7% of them being bullied over the internet and social networks. I do not know the answer, said 13.3% of the respondents. Answering the next question, 17.8% of the students responded that they would meet someone they know only through the internet, 46.7% might have gone, and 35.6% would not experience such a meeting. It is alarming that 86.7% of respondents have been approached to a personal meeting by a person they knew only on the internet (from different chat rooms, social networks, etc.).

A personal encounter with a person known only through the internet met 44.4% of students and another 6.7% of the meeting originally wanted to come, but eventually changed their minds. Less than half of the respondents (46.7%) think that hanging out with a person known only through the internet is dangerous. Of the interviewed students 6.7% published sexually tuned photos on the internet, as the

reason being puberty and the desire to show how the character changed after a regular exercise. However, 24.4% of responses were sent to another person to send a sexually-tuned photo to another person and the reason for these were answered as for fun, for love, for friend to know what to look forward to, etc.).

There are the results of the research from Faculty of Education of the Trnava University in Trnava. Asked about sexting, 67.6% of respondents write on the internet with sexual content. 28% said 1.5% thought it was unilateral sexual behavior and 2,9% have sex over the internet. 2.2% of respondents reported they are dating for sex purposes. The word "cybergrooming" does not know the whole 77.9% of the students (they did not know the answer), 10.3% of them think they are adult manipulation, 4.4% said sexual relations via the Internet, 2.9% psychological pressure and 1,5% of respondents said something in the virtual world. The term cyberbullying was much clearer to students. 85.3% said it was bullying over the internet, 13.2% did not know and 1.5% said I knew who was on the other side. With a person I know only through the internet maybe I would meet 42, 6%, 30.9% would not meet and 26, 5% would have attended the meeting. Only 79.4% of the respondents knew about the internet, and 20.6% did not. Nearly half of respondents 45.6% had a personal appointment with such a person, 11.8% originally wanted to go to the meeting, but eventually they changed their minds and 42.6% did not accept the meeting invitation at all. More than half of students find such a meeting dangerous. (51, 5%). 44.1% reported possibly and 4, 4% think that it is not dangerous. According to 26.5% of the respondents in such a meeting are threatening to be published on the internet, someone else completely different (identity change), 66.2% are at risk of rape, sexual harassment abduction and 7.3% say they do not know.

4. Conclusions

The results of the research in Prešov clearly show that awareness of the risk of sexual behavior on the internet or sexting is not high. Best of all, students were able to deal with the notion of cyberbullying, where only 90% of them knew the correct answer. Sexting is no longer so unambiguous and awareness in education is lacking this issue. The same is with the notion of cybergrooming where more than 80% of students have no idea what the term means.

Information and awareness in this area may indicate that Slovakia is a strongly religion-based country and many topics are perhaps even taboo today. Although there is probably not much to talk about these problems of modern times, the experience of inviting a person to meet a person only through the internet has less than 90% of respondents, which is a really big percentage. More than half of them decided that they would really go to the meeting and eventually did 44.4%. With the placement of sexually tuned photos on the internet, the girls were much more cautious nevertheless, the result was still zero, which

would be ideal. However, a quarter of the respondents sent such a photo to another person. Students are unaware of the possible risks that may occur when meeting an unknown person or sending sexually tuned photographs.

Certainly it would be advisable to devote this subject to discuss with students or pupils of elementary schools. It is a problem of modern times that need to be addressed and directed to induce desirable behavior and attitudes about risky sexual behavior on the internet. A total of 85% of respondents never published their sexually tuned photos on the internet. The remaining 15% said they had posted their photo in their holiday skirts. One girl said she was busting her for such a photo, and another that she liked. A sexually transmitted photo sent 38.2% of respondents and 61.9% did not. The reason for sending this photo was in 66, 2% of cases of a friend, 22.1% of the occasional sex, 4.4% of the partner pleasure, 2.9% of pleasure and 1.5% purposes, alcohol and hormones.

The same research at the Faculty of Education of the Trnava University in Trnava brought slightly different results. More than 80% of respondents know what cyberbullying is. The term sexting was understood by almost 70% of the respondents, while in Prešov only over 35% of them. In cyberspace, the high percentage of respondents did not know this term (79.9%). Less than 70% of students were able to define the term sexting. Students from Trnava have a higher number of people to meet with a person they know only through the internet (45.6%), with students in Prešov accounting for less than 20% of students. Only 79.4% of Trnava students and 86.7% of Prešov were invited to a personal meeting with a person known only from the internet of which both are alarming. More than 15% of students in the Trnava school have downloaded sexual photos from the internet, as well as more of them have sent a sexually photographed photo to another person.

It is clear that the results are no good. There is a problem that is not talked about as much and students have little or no information about it at all. Concerns however remain and the consequences of misinformation may have real fatal consequences.

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AN ANALYSIS OF SOCIAL RISK FACTORS AT SECONDARY SCHOOLS IN NITRA REGION IN A CONTEXT OF INTERVENTION POSSIBILITIES OF SCHOOL SOCIAL WORK

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Abstract: *The paper objective is to state the results of our study on social risk factors at secondary schools in the Nitra Region. We focused on studying the social risk factors in the context of intervention possibilities of social work directly in a school environment. We base it on an assumption that current possibilities in dealing with the social risk factors in the school environment are not sufficient. The study was conducted by a quantitative method. There were 562 respondents (N=562) who completed the questionnaire. The respondents were the students of Years 3 and 4 of secondary schools. The study asked about the situation, experiencing, personal experiences of the students, but also the experiences from their family and school environments, occurrence of selected social risk factors, and family background. The study results are alarming, and they prove that if we do not adapt changes in the school system, schools will not be able to adequately react and prevent these social risk factors, which essentially relates with their abilities to educate pupils. The results showed that truancy (60.14 %), regular smoking (27.4 %), bullying (9.97 %), regular alcohol consumption (9.79 %), and suicide attempts (6.22 %) were highly frequent among the respondents.*

Keywords: *youth, secondary school, school social worker, expert staff, social risk factors*

1. Introduction

School as an educational institution plays important roles in lives of children and youth. It transmits knowledge and competences to a next generation, contributes to formation of a society's human capital, and significantly influences individuals' opportunities during their lives. It plays an important role in the social and political integration, influences emotions in students, and forms their thinking about the world and important life issues [1]. Lacking appreciation of an emotional aspect of education provides a space in the class for students to shut themselves off, which relates to other problems in the group. Pupils more often prefer solitude, secrecy, are unsatisfied and unhappy, experience anxiety and depression which cause deterioration of school performance and often are a stimulus for bullying and other social risk factors [2]. Not only pedagogical but also expert staff are necessary to meet all functions of school. The legislation of the SR allows the school to employ a school psychologist, school special pedagogue, therapeutic pedagogue, social pedagogue, educational consultant and prevention coordinator as expert staff [3]. Every secondary school has an educational consultant and a prevention coordinator. However, it is important to emphasise that they are pedagogical staff who perform this activity along with their pedagogical activity, often due to a lack of contact lessons or because of extra money. As the studies on this issue show, even despite their participation in the trainings focused on this activity, they do not feel competent in dealing with and preventing social risk factors, and their activity and plan of prevention activities are not effective and beneficial for pupils [4]. There are only few school psychologists employed in 96 secondary schools in the Nitra Region. In the present, based on their education, social workers can work in the position of a social

pedagogue. Many schools do not have these expert staff due to a lack of funding, despite the fact that they realise their important role and benefits for school and pupils [5]. Even though our legislation does not use the term school social worker, in many countries such a worker is a permanent and useful part of school. School social work was established and has its more than a hundred-year history in the USA. Also in Europe, however, it has its roots. From the demographic viewpoint, we can mention Austria where they have been implementing a pilot project on school social work since 2010; thanks to the project, social work has been successfully implemented in 256 Austrian schools, which is 4 % of all schools. The project objective is to make school social work a permanent part and regular offer for pupils and their social environment [6]. The goal of school social work is to act at schools as a communication element between the management, teachers, pupils, families and external institutions with the use of the social work methods. Social workers are in the role of a coordinator of prevention of social risk factors – such as truancy, delinquency, aggression, addictions, bullying, CAN syndrome, etc. School social workers are experts who are able and competent to intervene, if necessary. They bring people to them and create an environment which helps solve problems effectively. By their activities, they contribute to the fulfilment of the nature of school, not only to transmitting knowledge, but also to providing a healthy social system which accepts a student, stimulates his potential, encourages positive emotions, mediates an experience of success, and teaches students an open communication and mutual respect [7].

2. Methods

The study objective was to identify and analyse selected social risk factors in secondary-school students through the optics of social work. We used the quantitative study design, specifically a self-designed questionnaire which studied in which extent the social risk factors are present in the respondents and which social environment they come from. The study was conducted in 2014-2015. The sample consisted of 562 pupils (including 208 men) of Years 3 and 4 of secondary schools in the Nitra Region. We used the purposeful sampling. The data were analysed in the statistical analytical software TAS Enterprise Guide 5.1. For the selected questionnaire items, we used a chi-squared test, and we used the Pearson coefficient to find a dependence between the variables.

3. Results

We include an increasing occurrence of social risk factors among the most serious arguments in favour of activities of expert staff at schools and, in case of social work, for an establishment of a new job position in the school environment [8]. We also demonstrated this by our investigation. We found out that 6.23 % of the respondents were bullied by their classmates and 3.74 % by schoolmates. As many as 24.13 % of the respondents saw their classmates or schoolmates being bullied. The study by Adamík Šimegová and Szeliga (2012), conducted in Slovakia, clarified some specifics of this serious phenomenon and also suggested solutions for the issue of bullying in schools. It is necessary to work with a school group and relationships in the group from its beginning and develop moral prosocial behaviour in pupils. Also, suitable actions include: a direct confrontation of the expert staff with pupil's bullying behaviour, identification of a problem, reconstruction of specific situations, and follow-up systematic individual work with this pupil. If screening of the expert staff, professional diagnosis is absent, bullying among pupils remains largely undetected. One of the reasons is that pupils cannot identify what bullying is and is not. Prior to completing the questionnaire, the pupils were interested in an explanation of the term bullying and its signs. Similarly, during the interviews with the teachers and school managers when discussing the possibility to conduct the study, they stated they did not deal with the issue of bullying in their school, it was not present in their school, and if pupil's behaviour was suspicious, they would not report it just to protect that pupil. They believe that pupils still develop and can become good people despite their aggressive behaviour at the time, they do not want to stigmatise them or label them as aggressors by reporting them, and thus negatively influence their future. Therefore, a professional intervention and diagnosis of bullying in secondary schools are necessary. Furthermore, the study showed that 3.20 % of the respondents used drugs regularly, and 12.28 % of the respondents tried drugs several times. Up to 9.79 % of the pupils admitted they drank alcohol, 27.40 % of the pupils smoked regularly. The nationwide study in Slovakia "Tobacco, Alcohol, Drugs", which is conducted by the Research Institute for Child Psychology and

Pathopsychology every four years, found a decreasing tendency of regular smoking. In 2006, it was 27 % of the respondents, in 2010 26.5 % and in 2014 23.8 % of the respondents. On the other hand, regular alcohol consumption increased from 4 % to 5.7 % and in 2014 to 7.2 % [9]. The WHO states that both genders have been getting closer to the level of harmful drinking which results in damage to health [10]. The ESPAD study repeatedly proved that there are more men among the regular drug users [11]. The research study by Moore from 2015 focused on studying the effects of interventions by a school social worker. They used the content analysis to study 98 intervention programmes. The results showed an improvement of the original status of the students – in their behaviour, experiencing, in their motivation to get rid of the dependency and also in improving their school results. They found a significantly higher effectiveness of the interventions in the poorer groups, because they perceived most that they could achieve something and progress through the intervention [12]. Statistically, our study did not show an influence of gender on the frequency of using drugs. However, it was statistically demonstrable that more women than men had never tried drugs in their lives. Other significant findings show that 6.22 % of the respondents attempted suicide minimally once in their lives, and 14.41 % of the respondents thought about it. The study showed a relationship between family conflicts, domestic violence and suicidal tendencies. A foreign study by Troester from 2012 brings the information about positive results of the systematic long-term interventions of a school social worker in the school environment. The study author studied the effectiveness of the interventions on a six-member peer group of boys, students aged 13-15 years. By the content analysis, he found out that each member had serious problems resulting from their family environments. In these pupils, aggressive behaviour was present, and they were the victims of bullying, domestic violence and family conflicts. The key factors which led to the intervention effectiveness included not only the competences and skills of the social worker but also the established friendly bonds in the group, the possibility to work with their family members and teachers too [13].

4. Conclusions

The foreign studies prove the effectiveness and positive contribution of the school social worker for pupils, teachers and their social environment. With the relevant competences, social workers are a tool to reduction, elimination or prevention of social risk factors. Our study proved a high rate of occurrence of social risk factors in secondary schools in the Nitra Region and an acute need of effective solutions directly in the school environment. We realise that the social worker is one of the possibilities that the school has in the selection of expert staff, but it should have this possibility. The interviews with the school managers and teachers, which we conducted in the preparation part of the study, showed that the teachers, vice-principals and principals of the schools justified the presence of the expert staff in schools. Of course, an acute lack of funding is often a key obstacle. They see solutions

in an enactment of the obligation to employ at least one expert in each primary and secondary school in the Slovak Republic and in allocating the funding to pay this expert from the state budget.

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DIFFERENCES BETWEEN MEN AND WOMEN IN THE LEVEL OF PROCRASTINATION, EMOTIONAL INTELLIGENCE, AND PERFECTIONISM

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Abstract: *The research is concentrated on differences between men and women in adulthood. Our research sample consists of 412 students from various universities, from the University of St. Cyril and Method in Trnava, Comenius University in Bratislava, Trnava University in Trnava with age ranging between 20 and 24. We have used three questionnaires the Multidimensional Scale of Perfectionism, the Procrastination Scale for Students, and the Questionnaire of the Emotional Intelligence We found out that, there is no statistically significant difference in the rate of procrastination, emotional intelligence, and perfectionism among university students.*

Keywords: *perfectionism, procrastination, emotional intelligence, differences between men and women, university students*

1. Introduction

In the previous research, the rate of procrastination in academic field usually reached normal distribution, which implies that procrastination appears in all studying individuals at a different rate, although most often they are characteristic of the average rate of procrastination [1,2]. Several research studies investigating the phenomenon of procrastination [3,4,5,6,7], have not provided evidence for the statistically significant sex differences in the rate of procrastination. In their research, Rabin et al. [8]. proved that females procrastinate at lower rate than males. Haycock et al. [9] are of the opposite opinion as they found out that females have higher tendency to procrastinate than males. Salovey and Mayer [10]. define the emotional intelligence as the individuals' ability to perceive not only their own feelings and emotions but also the feelings and emotions of other people. Petrides [11]. constructed the model of trait emotional intelligence consisted of four main parts – well-being, emotionality. Sociability and self-control. Several researchers believe that there are some sex differences in the rate of emotional intelligence [12,13,14,15,16,17,18]. Regarding sex differences in the rate of emotional intelligence, there are some research studies refuting the existence of differences between males and females in this trait [18]. Perfectionism is the personal trait which makes individuals set excessive standards, demand excellence, struggle for faultlessness, make critical self-evaluations and experience fear of evaluations from the others' side [17]. Perfectionists always perceive their performance as insufficient and all their faults as failure [15]. Stoeber [19] focused on investigating the rate of perfectionism depending on the sex. However, his research results did not empirically validate the differences between males and females in the rate of perfectionism. Similar research conducted by researchers [12,14,15,22,23], also did not prove the statistically significant sex differences in the rate of perfectionism.

Based on above mentioned research studies confirming or refuting sex differences in the rate of procrastination we formulated 3 research questions [2,12, 13,6,22.18,4]:

Q1: Are there statistically significant sex differences in the rate of academic procrastination?

Q2: Are there statistically significant sex differences in the rate of emotional intelligence?

Q3: Are there statistically significant sex differences in the rate of perfectionism?

2. Methods

2.1 Research sample

Our research sample consisted of participants selected for the study via purposive sampling. The main condition for selecting participants, which made them comparable, was being university students at time of conducting study. As we did not specify any particular university, within which the study was to be conducted, the participants were students of Humanities. The research sample included students of University of Ss. Cyril and Methodius in Trnava, students of Comenius University in Bratislava and students of The Trnava University. All participants participated in the study on the basis of informed voluntary consent and they filled in the questionnaires in written form. Following participants' consent with participating in the study, they were provided with all necessary information about the research. The participants were acquainted with their role in the research, with the aim of the research, with research conditions and they were also guaranteed that their participation in the study is anonymous. The original number of participants was 124, but because of missing or incomplete data, 11 participants were excluded from the study. The final research sample consisted of 112 participants. As we intended to investigate also the sex differences in the rate of academic procrastination, emotional intelligence and perfectionism, we tried to include comparable number of males and females into our research sample. The research sample consisted of 58 females and 54 males. The participants

were aged between 20-25, i.e. all were in the stage of the early adulthood.

Table 1. Research sample

Sex	Number	Number %
Female	208	51,79%
Male	204	48,21%

2.2 Materials and instruments

In the research, we used three questionnaire methods constructed to investigate the rate of procrastination, the rate of perfectionism and the rate of emotional intelligence in the academic field. In order to measure the rate of perfectionism we used the Frost Multidimensional Perfectionism Scale [20], for examining the rate of academic procrastination we used the Procrastination Scale for Student Population [21] to evaluate the rate of emotional intelligence we used the Trait Emotional Intelligence Questionnaire for adolescents and adults [11]. Procrastination Scale for Student Population is the modification of original General Procrastination Scale composed [21]. Respondents give their responses to 20 items expressing tendencies to procrastinate. The items are evaluated on a 5-point Likert scale. In the research, we proved sufficient rate of the scale's reliability ($\alpha = 0,81$).

Frost Multidimensional Perfectionism Scale was constructed by Frost et al. [20]. Respondents give their responses to 35 items. In the research, we the rate of Cronbach alpha coefficient was $\alpha = 0,88$.

Trait Emotional Intelligence Questionnaire – Short Form for adolescents and adults is a questionnaire standardized for our population. It consists of 30 items rated by respondents on a 7-point Likert scale.

2.3 Procedure

In our research, we decided for the quantitative research as a research strategy to examine our research questions. In order to collect data necessary for our research we selected the questionnaire method.

Within the statistical analysis we worked with following variables:

- Sex
- Procrastination
- Perfectionism
- Emotional Intelligence

The resulting values of the variables were typed in the SPSS 20 database. Based on the results of variables' normal distribution tests we used either Student t-tests (for normal distributed variables) or Mann-Whitney U tests (for variables not meeting the condition of normal distribution).

3. Research results

In order to make the research results more comprehensive, they are described below the research questions together with tables and charts.

Research question 1: Are there statistically significant sex differences in the rate of academic procrastination?

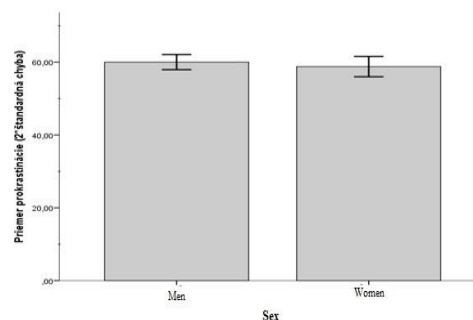
The results of statistical analysis did not prove any statistically significant sex differences in the procrastination raw score, $t(110) = 0,72$, $p = 0,473$, $d = 0,135$.

Table 2: Independent-Samples T-test of sex differences in the rate of academic procrastination (AP)

Variable	Groups	N	M	SD	ta	P	db
AP	Males	208	60,01	7,9	0,72	0,473	0,135
	Females	204	58,77	10,2			

Note. a df = 100. b Cohen's d.

Chart 1: The comparison of average procrastination values (with standard error) in males and females



Research question 2: Are there statistically significant sex differences in the rate of emotional intelligence?

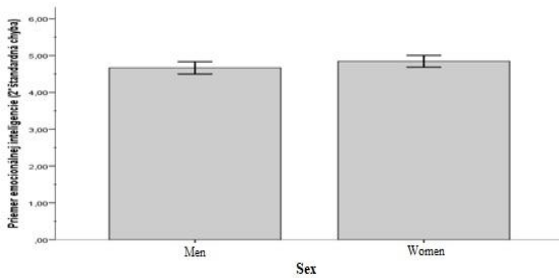
The research results indicated that females reached on average higher values of emotional intelligence than males. However, this finding was not statistically significant and its effect was small, $t(110) = -1,55$, $p = 0,123$, $d = 0,294$ (Table 3, Chart 2), which implies no sex differences in the rate of emotional intelligence.

Table 3: Mann-Whitney U test of sex differences in emotional intelligence (EI)

Variable	Groups	N	M	SD	ta	P	db
EI	Males	208	4,66	0,63	-1,55	0,123	0,294
	Females	204	4,84	0,59			

Note. Mrank- mean rank

Chart 2: Sex differences in emotional intelligence



Research question 3: Are there statistically significant sex differences in the rate of procrastination?

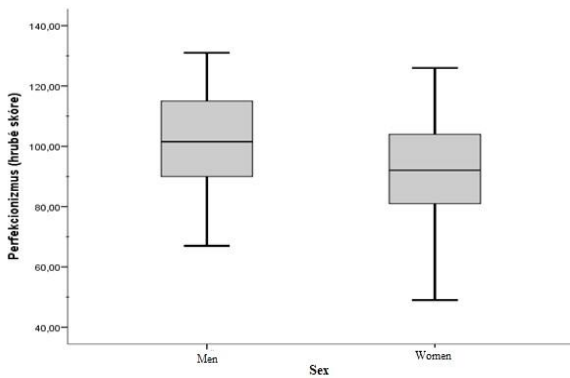
The research results suggested significantly higher average rate of perfectionism in males as compared to females, although the power of the proved difference was small, $U = 1119,0$, $Z = -2,60$, $p = 0,009$, $r = 0,246$ (Table 4, Chart 3).

Table 1: Mann-Whitney U test of sex differences in perfectionism (P)

Variable	Groups	N	Mdn	Mrate	U	Z	p	r
P	M	208	101,5	64,21	1119,0	-2,604	0,009	0,246
	F	204	92,0	48,22				

Note. Mrate- Mean rate

Chart 3: Sex differences in perfectionism



4 Discussion

4.1 Interpretation of Results

Examining our first research question, we investigated whether there are any sex differences in the rate of academic procrastination. The research results indicate no sex difference in the rate of procrastination at students [3,2,22]. Based on our findings as well as the results of previous studies on procrastination, we presume that both males and females procrastinate at the rate showing no statistically significant sex differences. The non-existing sex differences in academic procrastination might be determined by the same status of males and

females in the academic field – the status of a student – whilst at the present, there is the overwhelming idea of gender equality. The gender equality stands for the identical position and the same rights of males and females in all areas, i.e. in the study field as well [23]. This implies that both, males and females, have to complete the same assigned tasks. Both, males and females, participate in different social roles also in non-academic life, they have various out-of-school duties, due to which they postpone their school duties. Unfinished tasks cause time pressure, which students have to manage regardless of their sex. The non-existence of sex differences in the rate of procrastination might be, paradoxically, related to other sex differences. E.g. Tyson and Jackson [24] argue that females are more able to adapt to adverse conditions which is precondition for higher performance [25]. This implies that females are able to manage adverse situations and overcome them, hence the postponement of given tasks is not necessary. On the contrary, males are not able to adapt as well as females. However, according to [26] males are characteristic of higher rate of self-control. This implies that they are able to control their desires on behalf of something more important, hence they finish their first task. The above-mentioned research studies indicate, that there are sex differences in some personal traits. We might assume that neither females nor males procrastinate at higher rate, because both, males and females are characteristic of the traits that can make them procrastinate as well as the traits that can prevent them from procrastinating. It is not empirically proved that either males or females have more traits predicting procrastination.

Investigating our second research question, we examined sex differences in emotional intelligence. The research results imply that neither females nor males are more emotionally intelligent. Our finding contradicts the results of the studies by [16,14,12,13,27], who found that females achieved higher rate of emotional intelligence than males. Although our research results do not support the findings of the above-mentioned studies, they are consistent with the findings of [28]. Mills et al. [29] conducted research with 236 participants and revealed that there are not statistically significant sex differences in the rate of global emotional intelligence. Siegling et al. [23] carried out similar research which also did not prove statistically significant sex differences in the rate of emotional intelligence. Our research results apparently prove that both males and females are able to express their emotions directly using the suitable sentence constructions, they can express their feelings and work with them effectively. Although we did not verify statistically significant sex differences in the rate of emotional intelligence, it is possible that there are some sex differences in the rate of specific factors of the construct. In the study [20], there were also proved no gender differences in the rate of emotional intelligence, however the author noticed deviations in specific factors of emotional intelligence. Similarly, Petrides and Furnham [27] found statistically significant sex difference only in the rate of Sociability

factor. In their common research, Kentoš and Birknerova [26] revealed moderate deviations only in the rate of stress management and self-control, both of which were higher in males. According to this study, both males and females are able, in a certain way, to control and recognize their emotions as well as influence their mood, however males are more able to control their desires and tendencies. As there are studies that did not prove gender differences in the global rate of emotional intelligence but recorded some sex differences in the rate of specific factors of this construct, we assume that if we focused on investigating sex differences in specific factors of emotional intelligence, we could prove some sex differences.

Examining our third research question, we searched for statistically significant sex differences in the rate of perfectionism, which were not proved. It indicates that there are no statistically significant gender differences in the degree of perfectionist tendencies. Our findings are supported by previous research studies by [26, 19], which also did not provide any evidence of gender differences in the rate of perfectionism. In other studies, there were found statistically significant sex differences in the rate of specific factors of perfectionism. E.g. Parker and Stumpf [28] revealed that females reached higher rate of the Organization factor. Mills [29] confirmed, that females achieved higher degree of organization and that males reached higher rate of concern over mistakes. Similarly to the previous research question we suppose that if we focused on investigating sex differences in specific factors of perfectionism, we could prove some sex differences.

4.2 Research limitations

After conducting our research, we revealed several limits that are necessary to be mentioned.

In the first place, we consider the size of our research sample as one of the research limits. The research results would be more precise, if the research sample was larger. The number of participants was not big enough to enable us to generalize our research results to all population of students. This knowledge can inspire our readers and future students to conduct further research in this field.

The second important limitation of our research is the time necessary to fill out all three questionnaire methods. All questionnaires were administered to our participants at once, i.e. the number of items was too high (85 items). Participants responded to all items without making a break, so they could be tired after some time. It could result in some decrease in their attention and interest. Therefore, the research results might be biased and unobjective.

As the third limitation of our research we consider the questionnaires used for collecting the data. The questionnaires contained also the items measuring specific factors of emotional intelligence and perfectionism. However, we think that the number of items measuring specific factors was not enough to evaluate the rate of

these factors reliably. We believe that to gain more reliable and objective findings it is necessary to include more items into the questionnaires or measure the specific factors with more questionnaires.

4.3 Future intentions/directions

Providing that we conduct similar future research, our research sample will contain higher number of students, by which we will compose the research sample that will be more representative of the whole population.

As we did not prove statistically significant sex differences in the rate of procrastination, perfectionism and emotional intelligence, in future research we would aim at investigating relationships among these constructs, which could provide us with better insight into this issue.

It is also of our interest to compare lower-grade students with higher-grade students in their rate of procrastination and to investigate the potential change of procrastination rate during study at the university.

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CONNECTION BETWEEN PROCRASTINATION AND PERFECTIONISM BY UNIVERSITY STUDENTS

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Abstract: *The aim of our research was to find out the connection of procrastination with and perfectionism at university students. The research was attended by 112 students from various universities, from the University of St. Cyril and Method in Trnava, Comenius University in Bratislava, Trnava University in Trnava, Zilina University in Žilina. Two methods were used to achieve the goal within the research section, namely the Multidimensional Scale of Perfectionism and the Procrastination Scale for Students. We found out that there is statistically significant connection between procrastination and perfectionism among students. With the increasing rate of perfectionism, the degree of procrastination decreases at students. In the research, we found out predictors of procrastination among the factors of emotional intelligence and perfectionism. Significant predictors of academic procrastination have been shown by factors: personal standards, hesitation at acting, organized character, sociability.*

Keywords: *academic procrastination, perfectionism, university students, mutual connections*

1. Introduction

The academic procrastination regards students, who delay their study duties and obligations. In the academic field there are lot of activities during which individuals may procrastinate. Making home works, learning for exams, writing academic theses, meeting with a consultant and lot of others belong to these activities [1]. It is necessary to aim the issue of procrastination especially because of its negative consequences as well as for its high incidence in the population. According to the epidemiologic research [2], the rate of procrastination more and more increases. To be able to eliminate procrastination, it is inevitable to find out its preconditions [3,4,5,6,7,8]. One of the preconditions for procrastination is perfectionism, which can be defined as the effort to be faultless [9]. Many experts investigated the relation between perfectionism and procrastination, as individuals with these characteristics are the same in some personal traits [4, 9,10,11,12]. E.g. they are typical of personal traits like being anxious, the avoidance, feeling shameful [13], the fear of making mistakes [12,14]. Another similarity between procrastination and perfectionism is that both constructs, procrastination as well as perfectionism relate to the fear of being unsuccessful [11,12,13]. Both constructs have also in common that both, procrastinators and perfectionists, have irrational beliefs, which some authors regard as their central characteristic [14, 11]. Flett et al. [15] maintain that perfectionism might be a kind of apologize for slower performance or it can be conceived as a kind of self-handicapping strategy. However, this assumption has not been empirically validated yet. Perfectionists are characteristic of having need for more time to finish tasks at higher quality [16]. Frost et al. [17] state that perfectionists have excessive expectations and, as a consequence, they postpone their tasks, duties or decisions, as they assume that their performance is to be higher later than now, i.e. they begin to procrastinate[18].

The main aim of the research is to examine whether there is the relationship between academic procrastination and perfectionism. We also focus on investigating whether the factors of perfectionism predict the academic procrastination as well. When formulating our hypothesis we follow the research of [18,19,20], who focused on the relationship between procrastination and perfectionism.

H: There is statistically significant relationship between perfectionism and academic procrastination.

In their paper, Frost et al. [21] studied the relationship between procrastination and particular factors of perfectionism. Therefore, we stated a research question:

Q: Which of the particular perfectionism factors predict academic procrastination?

2. Methods

2.1 Research sample

Our research sample consisted of participants selected for the study via purposive sampling. The main condition for selecting participants, which made them comparable, was being university students at time of conducting study. As we did not specify any particular university, within which the study was to be conducted, the participants were students of Humanities. The research sample included students of University of Ss. Cyril and Methodius in Trnava, students of Comenius University in Bratislava and students of The Trnava University. All participants participated in the study on the basis of informed voluntary consent and they filled in the questionnaires in written form. Following participants' consent with participating in the study, they were provided with all necessary information about the research. The participants were acquainted with their role in the research, with the aim of the research, with research conditions and they were also

guaranteed that their participation in the study is anonymous. The original number of participants was 124, but because of missing or incomplete data, 11 participants were excluded from the study. The final research sample consisted of 112 participants. As we intended to investigate also the sex differences in the rate of academic procrastination, emotional intelligence and perfectionism, we tried to include comparable number of males and females into our research sample. The research sample consisted of 58 females and 54 males. The participants were aged between 20-25, i.e. all were in the stage of the early adulthood.

Table 1: Research sample

Sex	Number	Number %
Female	58	51,79%
Male	54	48,21%

2.2 Materials and instruments

Within our research we formulated operational definitions of two constructs – procrastination and perfectionism.

The academic procrastination was defined, consistently with other experts, as “conscious postponing of important duties and obligations”.

Perfectionism was defined consistently with multidimensional construct as “setting extremely demanding goals” [21]. However, the effort to be the best conceals, on the other hand, the danger of higher sensitivity to life difficulties [10].

For the purpose of measuring the degree of perfectionism at students, we used the Frost Multidimensional Perfectionism Scale [17,21] and the rate of academic procrastination was measured with Procrastination Scale for Student Population [2].

Procrastination Scale for Student Population is the modification of original General Procrastination Scale. The scale is a unidimensional self-report questionnaire translated to the Slovak language and respondents give their responses to 20 items on a 5-point Likert scale according to how appropriately each item describes their behaviour. The Cronbach α coefficient as the indicator of the scale internal consistency was $\alpha = 0,85$.

Frost Multidimensional Perfectionism Scale was constructed in 1990 on the basis of multidimensional construct of perfectionism proposed by Frost, Marten, Lahart and Rosenblate (1990). F-MPS is consisted of 35 items and respondents give their responses on a 5-point Likert scale ranged from 1 – strongly disagree to 5 – strongly agree. The scale includes 6 dimensions: Concern over Mistakes, Doubts about Actions, Personal Standards, Organization, Parental Criticism and Parental Expectations. The reliability of the scale in term of its internal consistency was examined by Cronbach α coefficient indicating high internal consistency ($\alpha = 0,85$). As we the Slovak version of the scale was not available,

we made its translation from the Czech version of the scale. The Slovak translation of the scale was validated by the reverse translation.

2.3 Procedure

We initialised our research in September 2018. The questionnaire methods used for data collection were administered to students who agreed with the participation in the research and who met the defined research conditions. The data were collected for the period of 2 months. After collecting the data, they were statistically processed and analysed. In our research, we decided for the quantitative research as a research strategy to verify our research hypothesis and research question. In order to collect data necessary for our research we selected the questionnaire method, which enabled us to collect big amount of data for quite short time. The questionnaire methods used in the research were focused on investigating academic procrastination and perfectionism.

Within the statistical analysis we worked with following variables:

- Procrastination
- Perfectionism
- Perfectionism factors: Personal Standards, Concern over Mistakes, Parental Expectations, Parental Criticism, Doubts about Actions and Organization.

The resulting values of the variables were processed and analysed. The research hypothesis was tested by parametric tests. The research question was tested with Pearson correlation analysis and linear regression analysis (stepwise method of selection).

3. Results

In order to make the research results more comprehensive, they are described below the research hypothesis and research question.

Hypothesis: There is statistically significant relationship between perfectionism and academic procrastination.

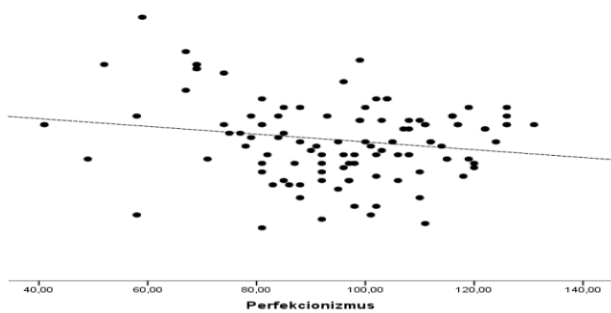
The results of the analysis indicate small, negative and marginally significant relationship between perfectionism and procrastination, $r = -0,192$, $p = 0,043$ (Table 2 and figure 1). These results support what our research hypothesis predicted.

Table 2: The relationship between procrastination and perfectionism

		Perfectionism
Procrastination	Pearson Correlation	-,192*
	Sig. (2-tailed)	,043
	N	112

*. Correlation is significant at the 0.05 level (2-tailed)

Figure 1: The relationship between procrastination and perfectionism



Research question: Which of the particular perfectionism factors predict academic procrastination.

As to the perfectionism dimensions, the results showed significant relationship of the procrastination with the organization, $r = -0,471$, $p < 0,001$, personal standards, $r = -0,392$, $p < 0,001$, and doubts about actions, $r = 0,267$, $p = 0,004$. In the first step, the regression model was entered with Organization.

The organization predicted the degree of procrastination at statistically significant rate, $F(1,110) = 31,38$, $p < 0,001$, $R^2 = 0,222$. Adding personal standards into the regression model resulted in increasing predictive power of the model, $\Delta R^2 = +0,066$, $\Delta F(1,109) = 10,04$, $p = 0,002$. Similarly, adding doubts about actions into the regression model resulted in significant increase in predictive power of the model, $\Delta R^2 = +0,075$, $\Delta F(1,108) = 12,68$, $p = 0,001$. Organization and Personal standards predicted the rate procrastination in negative direction, whereby the Organization was stronger predictor of the procrastination than Personal standards ($\beta = -0,730$, $\beta = -0,385$, $p < 0,001$ for Organization and, $\beta = -0,467$, $\beta = -0,275$, $p = 0,001$ for Personal standards). Doubts about actions predicted the degree of the procrastination in positive direction and at the similar rate as personal standards ($\beta = 0,729$, $\beta = 0,274$, $p = 0,001$). All three predictors explained together in total 36,2% of the procrastination variance.

Table 3: Regression model of the academic procrastination predicted by Organization (O), Personal Standards (PS) and Doubts about Actions (DaA)

Variables entered in the model	B	Beta	T	ΔR^2	ΔF	P
O	-0,730	-0,385	-4,757	+0,222	31,38	<0,001
PS	-0,467	-0,275	-3,393	+0,066	10,04	0,002
DaA	0,729	0,274	3,561	+0,075	12,68	0,001

Note. a after adding in the model following the organization. The model including Organization, Personal Standards and Doubts about Actions explained 36,2% of the procrastination variance.

4. Discussion

4.1 Interpretation of Results

The research was conducted to examine the relationship between procrastination and perfectionism at university students. Verifying our research hypothesis, we investigated the relationship between academic procrastination and perfectionism. We assumed, that there is statistically significant relationship between academic procrastination and perfectionism. We found out that there was small, negative and marginally significant relationship between perfectionism and procrastination at students. The higher rate of perfectionism students achieved, the lower rate of procrastination were they characteristic of. The results showed their significant relationship which means that our research hypothesis was supported. This finding is consistent neither with our research hypothesis nor with the research we followed [2,10,18,22,17]. Our research findings indicate that individuals with higher rate of perfectionism have lower tendency to procrastinate. Laznibatova [22] reports, that perfectionists are very competitive, they want to win and achieve their goals. Especially this fact might be the reason for lower rate of procrastination. Following this statement, we assume that these individuals do not want to allow themselves to make hasty decisions and to postpone their tasks. One consequence of such kind of decision might be failure and lower performance or the defeat. Dixon et al. [23] maintain, that if perfectionists do not succeed in achieving set goal, they begin to feel guilty and ashamed. Based on this statement we assume that if perfectionists want to avoid experiencing these feelings, they have to use all their strengths, work at a given task and do not postpone it. If they postponed their tasks, there would be lack of time to finish the task, so their performance would be not as perfect as they expected and as it is usual for them. Mills and Blankstein [24] argue, that perfectionists are self-focused, purposeful and conscientious. Based on this we assume that if perfectionists truly were self-focused, purposeful and conscientious, they would not postpone their duties, because it would not be consistent with their beliefs and main personal trait.

Examining our research question, we searched for predictors of academic procrastination among perfectionism factors. We found out that the rate of academic procrastination was in statistically significant relationship to three procrastination factors – organization, personal standards and doubts about activities. We revealed that all three factors increased the predictive power of the (regression) model. In her paper [22,24] also confirmed that factors organization, personal standards and doubts about activities are predictors of procrastination. The lower rate of organization and personal standards factors predicted higher degree of procrastination. The lower rate of procrastination means that individuals are not systematic, have no sense of order, are not able to accord their time with their duties and to set priorities. Our conception of the organization follows from the assumption of Frost, Martin, Lahart and Rosenblade [21], who defined this factor as the attempt at maintaining order,

structure and organization. According to Gallagher et al. [25], students are not able to plan their time and duties, think they have enough time and postpone their tasks until the latest moment. Especially these lacks might influence students with regard to the rate of procrastination. Doubts about activities express individuals' beliefs that they are not successful in completing tasks [4, 6, 21]. I.e. individuals do not believe they are able to complete the given task and think of the failure in advance. Based on this we suppose that individuals might be afraid of starting to work at completing the task, because it might prove their lack of capabilities and this might, in our opinion, make them procrastinate. The low rate of personal standards predicted procrastination. Personal standards stand for individuals' demands on themselves, based on which they evaluate themselves [17, 21]. Nugent [26] reports that perfectionists who set themselves high personal standards are not able to accept their own failure. We assume, that lower rate of accepting individuals' own failure result from the fact that after failure they evaluate themselves negatively. If individuals have low rate of personal standards, they do not set high demands on themselves and beliefs about their performance. Based on that we assume that if they do not succeed in completing a task, they do not perceive that too negatively, because they did not even expect to achieve better result. I.e. there is nothing to prevent them from starting to procrastinate. Our findings are different from those of Frost et al. [21, 17], which confirmed only the relationship between procrastination and factors Parental Expectations and Parental Criticism.

4.2 Recommendations for the practice

Currently there are lot of ways used to reduce procrastination. The rate of procrastination can be decreased via counselling process, either individually or within the group [26, 24]. Ferrari et al. [1] maintains that the issue of procrastination relates to behavioural, cognitive, and emotional components and therefore it is necessary to focus on all three components and to combine methods aimed at these three areas.

In our view, dividing tasks to smaller tasks could also help avoid procrastination. E.g. if students have to write a seminar work, they compose time schedule at first in which they will have assigned one chapter on each day. This way they will gradually complete partial goals that will lead to completion of the main goal. The partial goals will not be perceived by students as complicated and frightening and the time needed for completing partial goals will be shorter, so there will be no reason to postpone the tasks. From our own experience we know that if students have lot of school duties, they cannot concentrate on the only one. While completing one task they think also about other tasks that they are going to complete later. As a consequence of this situation, students are not able to work effectively, completion of the task takes them more time and under the time pressure they postpone the task. Therefore, it could be helpful if students learn to concentrate only on the task they work at and after

finishing this task they should shift to completing other tasks.

4.3 Research limitations

During conducting our research, we revealed several limits that are necessary to be mentioned.

In the first place, we consider the size of our research sample as one of the research limits. The research results would be more precise, if the research sample was larger. The number of participants was not big enough to enable us to generalize our research results to all population of students. This knowledge can inspire our readers and future students to conduct further research in this field.

In the second place, some participants might be not motivated enough to fill in the questionnaires thoroughly. It is possible that less motivated students responded to questionnaire items indifferently and showed no interest in sincere and attentive responding.

Last but not least, the use of self-report scales also has lots of disadvantages. Respondents evaluate themselves on the basis of their own consideration, without any control or any rules set in advance. That means that the responses to the items are subjective in their nature and the results might lack objectiveness.

4.4 Future intentions/directions

Providing that we conduct similar future research, our research sample will contain higher number of students, by which we will compose the research sample that will be more representative of the whole population.

It is of our interest to compare lower-grade students with higher-grade students in their rate of procrastination and to investigate the potential change of procrastination rate during study at the university.

Within future research we intend to examine the relationship between academic procrastination and trait emotional intelligence. We suppose that there is statistically significant relationship between academic procrastination and trait emotional intelligence. We assume that the factors of emotional intelligence are preconditions for procrastination.

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CZECH LITERARY EDUCATION AS A MEANS OF REFLECTIONS ON GENDER ISSUES

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Abstract: *The paper focuses on some views of Czech language and literature teachers concerning the possibility of inclusion of current gender issues depicted by literary texts into the classes of literary education at lower secondary school. As a research tool a non-standardized questionnaire has been used. We present partial results of teachers' views considering their own potential to influence the process of literary education reflecting gender issues. Furthermore, we interpret the results of the questionnaire items that focused on evaluating school readers as a set of texts suitable for a reflection of gender issues. The presented information offer a basic insight into the subject under consideration.*

Keywords: *gender, literary education, teachers, literature for children and youth, school readers*

1. Introduction

Striving for equality between people is one of the basic requirements that society has towards education. The participation in the educational process of young generation obliges each teacher to realize the relevance of this requirement and its transfer to practice. In the context of co-educational schooling, the acceptance and declaration of equality between women and men becomes the primary prerequisite for the fulfilment of such a democratically conceived education. Even though there is hardly any doubt in the Czech Republic today about the need for gender equality, the public seems to scorn a meaningful debate about gender issues. [12]. Teachers do not consider erudition in this area to be the necessary competence for their profession. To think of boys and girls in the class as two distinct entities is so natural to them that it is rare to question gender stereotypes (which is the main means of achieving equality between men and women).

In academic sphere, however, the interest in the subject has been increasing over the last decades, also as a result of foreign research [1]; [10], with various scientific disciplines contributing specific general knowledge into the general discussion [9]. Since 1990 the main scientific institution in this field has been the research department of Gender & Sociology of the Institute of Sociology at the Academy of Sciences of the Czech Republic which also publishes the transdisciplinary journal *Gender and Research*. The institution cooperates with a number of non-profit organizations and foreign and Czech university departments specialized in gender studies (FHS UK in Prague and FSS MU in Brno).

2. Contemporary Concept of Literary Education

The basis for the study of gender issues (which is a domain of sociology) in the context of contemporary literary education is the content of the educational area Language and Language Communication to which literary education belongs as one of the components of the Czech Language and Literature programme. From the description of the

educational area mentioned in the government curriculum document entitled *The Framework Educational Program*

for Basic Education, it is clear that literary education should also develop critical thinking of children and as well as their values and attitudes [2]; [4].

The actual content of such teaching is realized through literary texts which also have the potential to promote emotional, ethical and patriotic education as well as the education for tolerance of otherness [5]; [17]. Essential to our research is the fact that with literary characters appearing in the texts the authors demonstrate different forms of male and female features (their characteristics, behaviour, interests, appearance ...). Male and female readers thus become acquainted with the "social image of femininity and masculinity, relate to it, and build up their gender identity." [14] Confronting themselves with literary characters they are led to find that being a man or a woman also means controlling a "symbolic code of its own given cultural and historical context" [15]. The contemporary translations and Czech literature for children and youth offer a relatively varied range of male and female characters in terms of gender characteristics. Literary education thus becomes a potential space for reflection on gender issues, it may be a space for the discussion questioning gender stereotypes with the aim of achieving gender equality [8].

3. Methodology of research

On the basis of the theoretical theses, we set the main objective of the research - to describe the current state and the possibilities of the involvement of gender issue in the classes of literary education at lower secondary schools. As a research tool to achieve this goal, we used a non-standardized questionnaire addressed to the teachers of Czech language and literature at lower secondary schools in four regions in the Czech Republic. We sent a questionnaire through e-mail to a total of 514 directors of primary schools who subsequently distributed it among the

teachers of Czech language and literature. We received 121 completed questionnaires.

Table 1: Distribution of respondents by demographic criterion

<i>Gender</i>	<i>Frequency</i>
Male	8
Female	113
Σ	121
<i>2nd field of study</i>	<i>Frequency</i>
Humanities	63
Other	58
Σ	121
<i>Years as a teacher</i>	<i>Frequency</i>
Less than 10 years	26
11 years or more	95
Σ	121
<i>Region</i>	<i>Frequency</i>
Jihomoravský	48
Liberecký	27
Vysočina	25
Plzeňský	21
Σ	121

The final version of the questionnaire had a total of 34 different items that surveyed the information from three identified areas, namely:

- Teachers' views on the inclusion of gender issues in literary education classes,
- Teachers' views on their own didactic skills to reflect gender issues in literary education classes,
- Teachers' experience with the inclusion of gender issues in literary education classes.

Similar topics were also considered by Kusá in her dissertation entitled *Pedagogical Reflection of Multicultural Education in Literary Texts at Lower Secondary Schools*. Therefore, some of the questionnaire items used in our research we have adjusted from the Kusá's questionnaire to [7].

4. Gender issues and the teacher of literary education

The main subject of education has traditionally been the teacher whose task it was to convey specific knowledge to pupils [11]. The same was true for teachers of literary education. In the currently preferred constructivist and communicative concept of literature teaching, the pupil becomes an independently reasoning human being. The role of the teacher of literary education is related to the willingness to discuss with the pupil the text, to respect their different views and ways of interpreting the text, and possibly to complement them [16]. The function of the teacher in literary education is therefore primarily to encourage pupils to discuss and formulate their own opinions [3]. In an attempt to discuss gender issues with students, however, there is a risk that teachers will encounter the limits of their own stereotypes about women and men, thus limiting their behaviour, perception and evaluation of reality [13]. In this context, the following statement was presented to the teachers in the questionnaire:

- Teacher's ideas about the role of men and women in contemporary society have a significant impact on how they work with gender-sensitive texts.

Respondents should indicate the degree of their agreement or disagreement on the 1-5 scale (from "totally agree" to "totally disagree"). The average rating for this item is 2.02 which corresponds to the "I more agree than disagree" answer. It is clear from Figure 1 that 92 (76.1%) of 121 teachers indicated the answer "I totally agree" or "I more agree than disagree". Only 7 (5.85%) teachers answered "I more disagree than agree" and "I totally disagree".

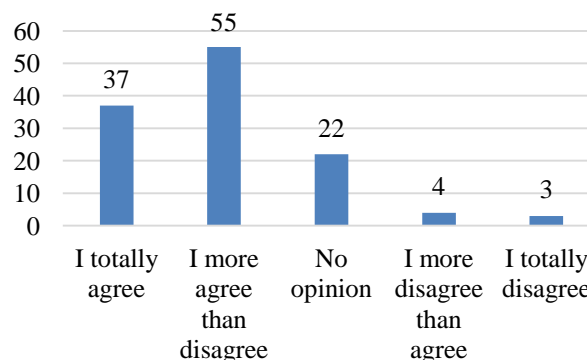


Figure 1: Influence of teachers' gender ideas on their work in literary education

It is clear from the above results that most teachers are aware that their own opinion on gender relations in society has a significant impact on the way in which texts are interpreted. This view was confirmed to a certain extent in the following questionnaire item:

- What are the problems when reflecting gender issues in the class of literary education?

Teachers were offered 7 specific areas (see Table 1), which could be problematic when reflecting gender issues in the class of literary education. They could mark even more answers and also add more answers, which was used by one respondent only who suggested the option "to explain to them (the pupils) the importance of the topic".

Table 2: Representation of responses in individual problem areas

<i>Answer</i>	<i>Frequency</i>
Selection of suitable literary texts	77
Not to influence pupils by teachers' opinions	42
To raise pupils' interest in the discussion of the topic	37
To learn more about gender theory	33
Selection of appropriate teaching methods	28
To respect all views and attitudes of pupils	27
Choice of appropriate forms of teaching	23
Other answers	1
Missing data	0

It was the answer "Not to influence pupils by teachers' opinions" that the teachers of literary education have

chosen as the second most frequent one. The most frequent item, however, has been the answer "Selection of suitable literary texts ". Being able to choose a suitable and stimulating text for interpretation and subsequent communication in class is one of the important competencies of the teacher of literary education [3]. This competence is closely related to the teacher's choice of a suitable didactic method in order to exploit the potential of the literary work to develop the aesthetic but also value dimension of the pupil's personality. In this context, the following statement was offered to teachers:

- The choice of the teaching method has a significant influence on the achievement of the goal of literary education in which gender issues are dealt with.

The option "I totally agree", "I more agree than disagree", were marked by the total of 75 (62%) respondents surveyed. Only 6 (5.01%) respondents do not consider the teaching method to be important. The average rating of the item is 2.29 placing it between "I more agree than disagree" and "No opinion".

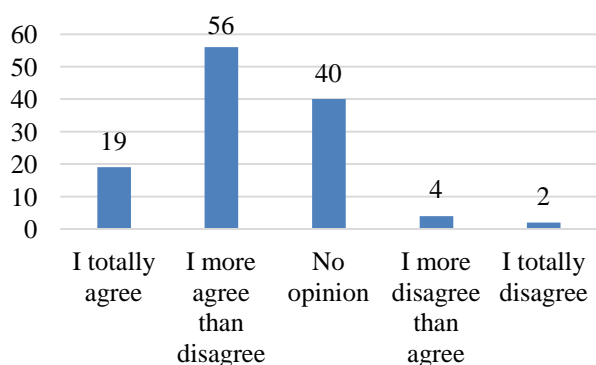


Figure 2: Influence of teaching methods on achieving the tasks of literary education

5. Gender Issues and School Readers

Although teachers should not restrict the selection of texts to school readers, the readers are in many cases one of the main teaching aids in literary education classes [6]. In the questionnaire, we included two items concerning teachers' opinion on the effectiveness of readers when searching for stimulating texts reflecting gender issues:

1. The readers you use in literary education classes include enough texts to reflect gender issues.
2. Does your reader include predominantly the texts displaying literary characters in their stereotyped gender roles?

The first item was scaled. The teachers could once again express the degree of their agreement or disagreement on 1-5 scale. A significant number of the teachers marked the option "No opinion", this option corresponds to the average rating of 3.32. A total of 41 (33.9%) of 121 teachers were not able to comment on the school readers'

texts that could be of use for the reflection of gender issues in literary education lessons. It is therefore confirmed that the selection of samples is the most important problem for teachers, they probably do not even know the criteria the text should fulfil to be able to reflect gender issues. A total of 25 (20.7%) of the respondents think that the readers contain enough (or sufficiently enough) suitable texts. More than 55 respondents (45.4%) think that the readers are not suitable to reflect gender issues.

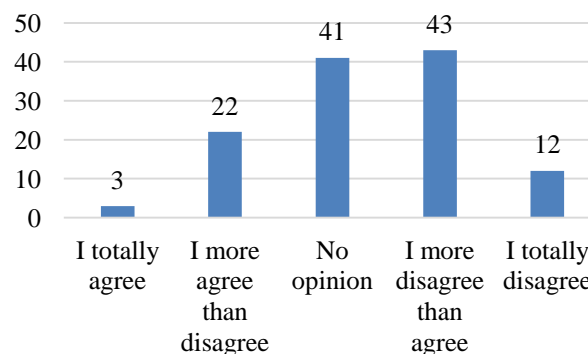


Figure 3: School-readers as a potential source of gender-related texts

In the second item, we offered teachers "yes", "no", "no opinion". Most respondents, 72 (59.5%), rate readers as predominantly gender stereotyped. The opposite view is held by 22 (18.2%) respondents, which is a much smaller part. A total of 27 (22.3%) of respondents do not know the answer to this question.

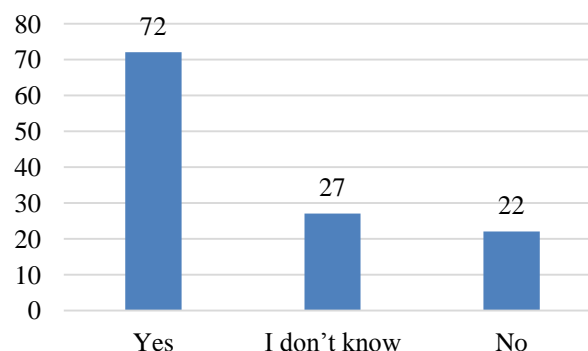


Figure 4: School-readers as source of gender stereotyped / non-stereotyped texts

6. Conclusion

The findings resulting from the questionnaire survey can become a significant incentive to further explore gender issues in the Czech literary education. It is important, that the teachers are aware of their potential to influence the process and form of their work with texts reflecting gender issues. Teachers may, albeit unconsciously, with their own attitudes concerning the issues, select texts for interpretation and choose methods that reinforce gender pupils' stereotypes instead of removing prejudices and encouraging them to develop their own opinions. The

greatest obstacle to the reflection of gender issues in literary education is the teachers' lack of knowledge of texts suitable for interpretation, which is, we suppose, most likely due to a limited insight into the whole issue. Since the readers used do not include enough texts to reflect on gender issues, or they represent predominantly stereotypical images of men and women, the impact of this deficiency on pedagogical practice is even more important.

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POSSIBILITIES OF DEVELOPING SOCIAL COMPETENCE IN PUPILS WITH SPECIFIC LEARNING DISABILITIES

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Abstract: *The contribution emphasizes the importance and possibilities of developing social competencies with focus on pupils with specific learning disabilities in the common classroom. Developing the social competencies in this target group is essential because it significantly determines their ability to create and maintain high-quality human relationships, to carry on effective communication, to manage stress and stressful situations, and to help them find effective strategies in solving the problems and situations arisen with which they often meet in consequence of their disorders. The aim of the contribution paper is to point out the need to develop social competencies in pupils with learning disabilities and to analyse the training program as one of the tools for their development.*

Keywords: *specific learning disorders, emotional and social problems, social competences, training of social competences*

1. Introduction

In recent years, there has been a growing interest in the issue of specific learning disorders. However, the solution to these issues is focused first of all on the formal aspect of care provision (legislation, integration, creation of an individual educational plan, re-education) on pupils with this disorder, but less attention is paid to the impact of learning disabilities on their personality and behaviour. Thanks to our experience and the work with such pupils, we have verified the fact that learning disabilities do not cause problems to the pupil only within the range of the diagnosed disorder, id est, problems in reading, writing, grammar rules or counting, but that these pupils also have reduced social competencies compared with their intact classmates. Decreased social skills also affect the quality of their interpersonal relationships, teamwork, and, last but not least, their successful inclusion and lifelong orientation. Just these problems often make the life of the pupil more difficult than the disorder itself.

1.1 Student with specific learning disorders

At present, there is no uniform terminology and universal definition of specific learning disabilities. This disunity in the domestic and foreign terminology is explained by the variety of symptoms, the variety of etiological causes, as well as conceptual and theoretical backgrounds that individual authors base on [1]. Different terminology brings problems in diagnostics and consequently in inadequate and incorrect correction. However, the problems of defining specific learning disorders and its adequate perception both by the professional but also the lay public, is, however, the foundation from which all further steps are spooled in the care of individuals with these disorders.

Learning disorders are a comprehensive identification of a diverse group of disorders with obvious problems in the acquisition and use of skills such as speaking, speaking, reading, writing, mathematical reasoning or counting [2].

In spite of the above mentioned terminological inconsistency in the literature we meet with the following common features:

- individuals with learning disorders in standardized intelligence tests achieve the scores within a standard,
- have significant learning disorders, resulting in a significant discrepancy between their real learning study results and the expected outcomes with respect to their intelligence and age,
- specific learning disorder is the primary cause of learning disorders, the cause of school problems and the cause of various problems in emotional and social field.

Among the basic types of specific learning disorders belong dyslexia (reading disorder), dysgraphia (writing disorder), dysortography (orthography disorder), and dyscalculia (mathematic capacity disorder). Among less known and frequent learning disorders belong dyspraxia (disorder of motoric functions), dyspinxia (drawing disorder), dysmusia (a disorder of muscular abilities). These types of disorders can occur in individuals independently, however, more frequently they create a complex of disorders (most frequently, dyslexia, dysgraphia, dysortography). They also occur relatively often along with an attention disorder syndrome or disorder attention syndrome connected with hyperactivity [3].

The specific learning disorders are considered the problems in the area of speech, visual and auditory perception, problems in the right-left and spatial orientation, problems in time orientation, perception disorders and rhythm reproduction, disorders in in process automation, disorders rapid enumeration, disorders in the development of gross and fine motorics, movement coordination, disorders in the perception of the body case, concentration disorders, behavioural problems and others [4].

1.2 Emotional and social problems of pupils with specific learning disorders

Specific learning disorders are a major obstacle in acquiring knowledge, but even more alarming is the whole range of unfavourable consequences that this diagnosis is bringing with itself. Researches and experience of experts confirm that in pupils with specific learning disabilities. Investigations and expert experience confirm that in pupils with specific learning disorders, more frequently as compared with intact pupils occur various problems in emotional and social region that have a negative impact on their personality [5]. In addition of primary problems which are typical for individual learning disorder syndromes and causing learning disorders and learning deficiencies in education, a frequent target of criticism is also the pupil's behaviour as a response to his emotional and social problems.

The emotional and social problems of pupils with special learning disorders have either:

- biological causes, where are incorporated, for example, delayed reactions and responses, inadequate reactions, inadequate mimics being observed by peers in the team, and may have a negative impact on their behaviour towards a pupil with special learning disorders,
- they are a reaction to dysfunction itself when we talk about secondary symptomatology [1].

In specific learning disorders we most frequently encounter emotional problems, such as anxiety, frustration, depression, resignation (as a reaction to the tasks assigned), increased sensitivity to any criticism, egocentricity, low self-confidence, self-esteem, and problems to cope with situations requiring a higher level of frustration tolerance [6], [7], [8].

Pupils with specific learning disorders, compared to intact pupils, have more often problems in social interactions of pupils with relationships being manifested first of all in insufficient acceptance by other peers in the issues of creating and maintaining friendships, in feelings of hostile atmosphere during social interactions.

Matějček and Vágnerová [9] attribute the relationship issues and problems in the social interactions of pupils with specific learning disorders just to the deficits in partial functions. The deficiency in motoric and spatial orientation can affect the pupil's problems in estimating personal distance in personal contact, which can be reflected in the problems in social relations. Another problem is the problem in distinguishing emotions, by which incorrect reactions to different emotions can be caused. Such a problem can also cause failures in establishing and maintaining friendly relationships. Selikowitz [10] is also stating that children with specific learning disorders are more often exposed to hostile relationships than intact children, and this problem leads to child's defensive reactions - avoiding school.

The investigations have brought also a detection that a dyslexic pupil is not primarily rejected, but his social status depends rather on what his behaviour is. In this connection, we can talk about dyslexia as an obscure social disadvantage, which, in combination with other disorders, can cause relationship problems, however, the disorder itself is not an indicator of problems in interpersonal relationships [9].

Zelinková [11] in her publication is following from the investigations from which it results that 34 - 59% of children with specific learning disorders have a problematic social interaction with their peers. They are not able to intuitively choose such a method of behaviour that could be suitable for the situation given. They are unable to choose a suitable reserve from a classmate while communicating or to remember the name of their friend. In children with specific learning disorders should much more intensively be practiced social skills - greeting, establishing a contact, thanks, suitable reserve in communication, so that these otherwise natural manifestations be automated. By her research Zelinková [4] is supporting her statement individuals with specific learning disorders have reduced social competencies, in particular communication competence and the ability to cope in adequate measure with the corresponding set of rules, therefore, she recommends that the focus be given on developing these deficient areas.

2. Social competence training as a tool for its development

We understand social competence as the general ability of an individual to successfully and effectively solve social situations, adapt to the situation arisen and choose effective forms and procedures of behaviour. It is the ability of an individual to regulate his/her own behaviour, which allows an individual to express his/her emotions and needs in an adequate manner, to effectively cope with different social situations and demands within the social interaction, as well as to achieve personal or interpersonal goals [12], [13]. Hupková [14] proposed a structure of social competence consisting of five areas and their individual elements. These include *social motivation* (social needs, social interests, aspirations, values and ideals, social attitudes), *social qualities* (dominance, affiliation, cooperativity, openness, empathy, reflexivity), *social capabilities* (capabilities of social perceptions, social communication, assertive communication, managing interpersonal conflicts and other stressful situations, creativity), *social knowledge, social experience and social behaviour* (assertive, pro-social, cooperative).

Social competencies of an individual can be best and most intensively developed by a high-quality theoretical as well as practical preparation, whose integral part are mainly trainings of social competencies.

Training is a systematically planned approach that influences group processes and group behaviour, and where participants have the opportunity to develop social competences based on their own experience [15], [16].

Developing social competences through training is best done in a small training group. Working in small groups within the framework of these trainings is characterized by unique specific features. It is precisely these that create optimal conditions for finding effective ways of behaviour, developing interpersonal relationships, and gaining new forms of social behaviour [14].

For effective functioning of the group, it is important to have a positive group atmosphere that shows the nature of relationships within the group (between pupils mutually, between the coach and the pupils) and the actual survival of these relationships. Just a positive group atmosphere is often a motive for group membership, for a pupil it is an important source of positive survival of oneself, or others, life, and overall satisfaction of their needs [16].

In preparing the training of social competencies, it is necessary to consider a few basic conditions, which are subsequently a starting point for the content and implementation of the training. This applies mainly to the timetable, organizational and social conditions. Last but not least, it is necessary to create conditions that contribute to creating a favourable emotional climate in the group and adequate psychological security for challenging experimentation with behaviour in social interactions of different types and levels.

The contentual orientation of the training programmes should be diverse and these programs should meet the requirements, interests, current needs and goals of the group. At the same time, their structure should be in line with the main principles of pupil education and take into account and respect the specificity and individuality of each pupil's personality as well as pupils with specific educational needs.

It is necessary to structure the training of social competences into several stages and to maintain certain rules and procedures in its management, orientation or facilitation, respectively [17].

The structure of training:

1. *Heating up the group* should be carried out at the beginning of the meeting in order to gain a sense of security and certainty among the participants in the group and their orientation in a new situation. For heating up a group are desirable to develop the so-called heating exercises to release and break down the stress.
2. *Instruction*. Each group meeting should be focused on a certain social competence. The trainer should give a task to explain the need of using this skill in social interaction as well as its advantages.
3. *Modelling* consists in transferring social capability through a living or symbolic model and then in its practicing by pupils.
4. *Role playing* is a central component of the training of social competencies. The task of the pupils is to play

short scenes simulating real scenes from their lives. After the pupil has practiced the given behaviour, his skills are enhanced by strengthening.

5. *Strengthening*. Strengthening can take the form of a positive or negative feedback, reward, or free discussion, discussion in smaller groups, or a form of assessment by means of criteria that characterize a given social competence [14].

The choice of training methods should be carefully considered in advance and their orientation, goal, demands for psychic and participants's age, duration, group size, and application in certain stages of the group's development should be carefully taken into account.

Trainings of social competencies should be conducted under the guidance of a trainer who should be a learned expert with a certain level of knowledge, skills, abilities and attitudes that predict the effective achievement of the goals specified.

When working with a target group of pupils with specific educational needs, it is very important for the leader of the training group to know all specialties and peculiarities of these pupils so that he could subsequently take into account, direct and adapt work in the group.

3. Conclusions

The prerequisites for successful work with pupils with specific learning disorders are especially timely and correct diagnosis and timely provision of a special pedagogical and therapeutic care. An important prerequisite for a good mastering of pupils with specific learning disorders is also an adequate approach taken by the family and school, which should be aimed at minimizing the secondary manifestations of specific learning disorders and creating optimal conditions that will help a pupil with specific learning disorders to his better integration. These conditions can be achieved by creating such learning strategies and styles that will lead to the development of a pupil with specific learning disorders and which will not have a negative impact on his psychic. In classrooms with integrated pupils with specific learning disorders, we recommend that you carry out trainings in social competences as well as introduce in education activities and exercises aimed at strengthening social skills, which will be subsequently reflected in the quality of interpersonal relationships in the classroom and the overall positive climate of the class.

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EXPERIENCING COMPETENCIES BY ADULT EDUCATORS. THE REVIEW OF A PHENOMENOGRAPHIC RESEARCH.

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Abstract: *The paper is focused on competencies experienced by adult educators. It is based on the results of a phenomenographic research carried out in 2017 and 2018 in Poland. The paper presents the basic steps in a phenomenographic research, illustrated with an actual research based on 20 interviews with adult educators, representing various professions. The subject of the research is experiencing competencies by adult educators. The purpose of the research was to identify the ways adult educators experience and understand their competencies.*

Keywords: *competencies, adult educators, adult learning*

1. Introduction

The purpose of the research was related to the need to explore adult educators' competencies which they experience during their work. It was the researcher's intention to deliver scientific foundations to develop a scope of recommended or required competencies (competency profile) of an adult educator. The importance of the awareness of competencies of adult educators who face the need to improve their professional skills is worth mentioning. Adult education is becoming more and more important, so it is necessary to ensure the highest possible quality of professional standards of educators who support adult learning. The awareness of adult educators' competencies helps to ensure the best possible performance in their everyday professional practice.

2. The research problem

The researcher has formulated the research problem as follows: What is the way adult educators experience their competencies and how do they understand them?

The research was focused on the ways adult educators understand and experience their competencies. The researcher has interpreted the reality in the framework of the explored phenomenon on the basis of adult educators' statements registered during the reconstruction of their experiences. The researcher's role was also to develop the outcome space consisted of individual and collective ways of understanding and experiencing competencies. The researcher's intention was to get to know the nature of the explored phenomenon (competencies of adult educators) as it appears in the awareness of educators who took part in the research.

3. The main steps in a phenomenographic research

A phenomenographic research starts with data collection and leads to the final outcome which is called "the outcome space". A researcher prepares a structure of an interview and carries out a certain number of interviews (some authors claim it does not usually exceed 20) [1]. The interviews are – as a matter of fact – semistructured, which means the researcher can add more specific

questions to identify exact understanding of a phenomenon of each interviewee [2].

It is worth mentioning that no assumptions are made by the researcher with regard to the phenomenon so that the actual understanding of its nature can be presented by each interviewee individually [3]. Having collected a sufficient amount of data (when the ways of understanding the phenomenon are repeated in subsequent interviews) the researcher can move on to the next step – sorting out data and its analysis.

The analysis starts with grouping various ways of understanding of the phenomenon. Similarities and differences are identified, and groups of similar conceptions are formed by the researcher. Conceptions are the ways of individual understanding whereas categories represent the so-called collective understanding of a phenomenon. The researcher is constantly revisiting that collected data so that the emerging nature of the outcome space is clear and justified. The steps of the research lead to giving names to categories. The outcome space may be illustrated as a table, image or diagram and it serves the purpose of depicting how each category relates to each other [4].

The number of categories should be limited so that the final picture of the outcomes can be manageable and understood.



Figure 1: Main steps in the research

They research leads to identification of conceptions (reflecting individual ways of understanding or experiencing the phenomenon) and categories (that reflect collective ways of understanding and experiencing the phenomenon).

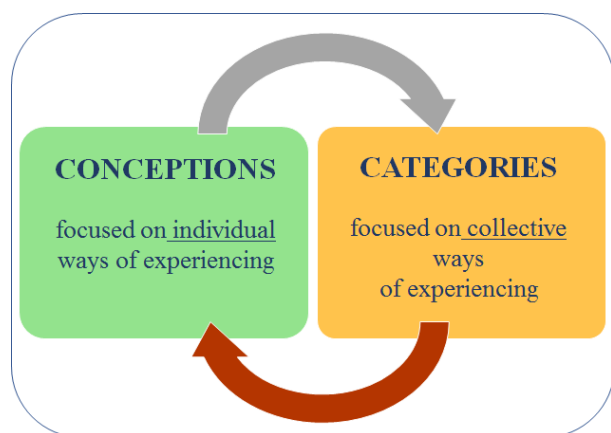


Figure 2: Conceptions and categories

These two are interdependent and stand as a basis of the final outcome space consisting of semantic and functional categories of understanding and experiencing.

4. A review of the research carried out in 2017-2018

The researcher carried out her research between August 2017 and March 2018, with participation of 20 adult educators in various locations in Poland. Experiencing competencies was explored in the research on the basis of individual interviews with professionals who act in the role of adult educator. The reconstruction of the ways adult educators who took part in the research was the basis for the researcher to separate conceptions that reflect various ways of understanding and experiencing competencies.

A technique of semistructured interview was applied in the research. Individual interviews were based on a few questions and had a form of a dialogue in which interviewees shared their reflections with respect to their own experience and to understanding of the phenomenon “competencies”. The researcher was posing questions related to competencies and the ways of their conceptualization by adult educators who took part in the research.

Individuals who were involved in various forms of support of adult learning, took part in the research, no matter what

kind of preparation for this role they had. The basic principle to be qualified to the research sample was the actual involvement of educators in adult education. Purposeful sampling has been applied so that greatest possible diversity could be ensured. The following criteria were taken into consideration: gender (10F and 10 M); age (28 – 69 y.o.a.); area of professional practice (profession); type of education (formal, non-formal); geographical type of area (rural, urban, regional diversities); level of education (basic, vocational, secondary, tertiary); place of education.

5. Research findings and the outcome space

Sorting out data was based on looking for similarities and differences and led to identification of conceptions, groups, categories and subcategories of description. The outcomes of the research reflect the effects of experiencing reconstructed competencies as described during interviews. The ways of understanding of the phenomenon “competencies” appeared as the result of statements of interviewees.

The outcome space has been created – in accordance with the phenomenographic methodology – with conceptions that reflect individual awareness of educators and – both interdependent and diverse – categories of description, that reflect collective awareness related to the ways of experiencing and understanding a given phenomenon. The given groups of categories – semantic and functional – form, together with individual conceptions, the outcome space.

The description of the outcome space is related to the ways of understanding and experiencing competencies by adult educators. Semantic categories (related to understanding of the phenomenon) and functional categories (related to experiencing of the phenomenon) form the outcome space. The researcher has identified three semantic categories based on eleven individual conceptions: personal, capacity and activities.

In the collective awareness of educators „competencies“ appear as being aware of one’s own assets, personal capacity and the ability to apply it in practice. Semantic categories correspond with functional categories that have been sorted out on the basis of statements related to situations that exemplify experiencing competencies. These are: mission and role, attitude, resources, classes and goals.

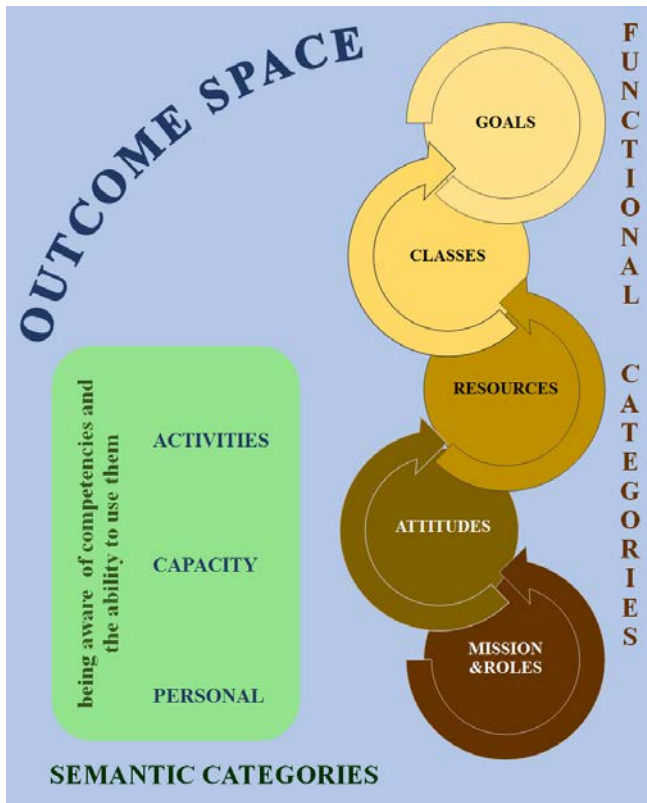


Figure 3: Outcome space

Functional categories were related to experiencing of competencies in the context of one's own mission and role of an educator, his or her attitude, the resources that are used in the course of work that leads to the achievement of planned results. Functional categories consist of more than 200 various components. The examples of functional ways of experiencing the given phenomenon – competencies of adult educators – are: passion, love, leadership, responsibility, sense of humour, conscientiousness, honesty, interest, assertiveness, patience, flexibility, inclusive approach, prudence, improvisation, reflection, analysis, planning, problem solving, space management, active listening, interpersonal skills, communication, relationships, openness, respect for others' experience, linguistic skills, demonstrating practical applicability etc. The researcher has decided to form groups of subcategories to make that final picture understood and manageable.

Semantic categories were related to the awareness of competencies that covered personal aspects, the capacity and the ability to make use of it in practice. Eleven conceptions have been identified, incl. activities (behaviors), experience, attitudes, skills (capabilities), knowledge, vocational education, qualifications, level of education, predispositions, talents and individual features.

Eighteen categories cover: mission, role, attitude (to self), attitude (to other people and to work), self-development, resources (educator's tools), ICT resources (information and communication technology skills), professional resources,

preparation, space, climate, relationships, adjustment (to specific needs etc.), practice, ways of communication, methodology, learning outcomes and goals.

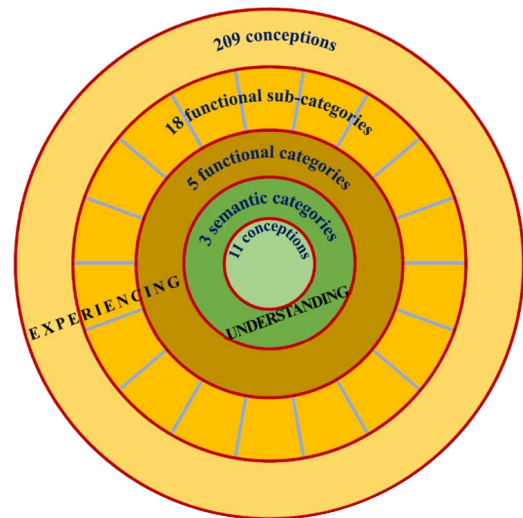


Figure 4: Experiencing and understanding of the phenomenon

Conclusion

Semantic categories correspond with functional categories. All of them have been sorted out on the basis of reconstruction that appeared during interviews and they also were based on the experience of educators.

In the image presenting the outcome space one can notice a sequence of components of educational process. The sequence puts the educator with his or her role and mission in the beginning of the process. This helps to create the attitude which allows to take care of educator's resources. The resources are applied in practice while teaching. The classes result with objectives that reflect the sense of the whole process.

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DISCUSSIONS ABOUT DARWINISM IN POLISH THOUGHT AT THE TURN OF 19TH AND 20TH CENTURY – ITS PHILOSOPHICAL AND HISTORICAL CONTEXT

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Abstract: *The aim of this article is to characterise discussion about Darwinism among Polish intellectuals between 19th and 20th century. Main goal is to examine arguments which were used by opponents and proponents of theory of evolution to find out if they were similar to those used during “eclipse of Darwinism” as described by Ernst Mayr.*

Keywords: *Darwinism, eclipse of Darwinism, creationism, Poland*

1. Introduction

In history of biology period between the 19th and 20th century is often described as an „eclipse of Darwinism”, i.e. period when Darwin’s theory of natural selection was marginalised and mostly rejected in favour of other evolutionary theories like neo-Lamarckism, orthogenesis and mutationism. As Ernst Mayr explained, this rejection was mostly caused by ideological and philosophical background of the Victorian intelligentsia. Most scholars from this era were devoted Catholics and didn’t want to accept theory which implied that human beings were mere product of random natural forces (like natural selection). Apart of dominance of Christian dogma, also popularity of essentialism was important factor in rejecting Darwin’s theory. Because of influence of essentialism, species were seen as entities with unchangeable ‘essences’. Darwinism, because of its vision of monophyletic and gradual evolution, clearly contradicted the idea of constant ‘essences’. Those naturalists who still accepted essentialist paradigm tried to find a way to compile the idea of evolution with the notion of unchanging nature of species – this resulted in theories that postulated evolution as a discontinuous, progressive and polyphyletic process. And those who didn’t agree with materialistic and atheistic agenda of some of Darwin followers tried to put elements of idealist philosophy into theories of evolution by proposing that the whole process was teleological in nature and guided by metaphysical (internal or external) forces.[1] In this article I will try to address the question of whether ‘eclipse of Darwinism’ is accurate label to describe situation among Polish intelligentsia in 19th century.

2. Situation of Poland at the end of 19th century.

What is important to remember while discussing situation of Polish science at that time is that Poland didn’t exist as a country and its territory was partitioned by Austria, Russia and Prussia. Thus Poles were focused on trying to regain their independence and preparing uprisings against their occupiers rather than discussing new scientific ideas. After failure of January Uprising in 1864 situation changed – intellectual elites were no longer occupied by plans of revolution so they could focus on what was new in philosophy and science at that time – and theory of

evolution was one of the major topics that they took interest in.[2] But still, reception of Darwinism differed among territories. Theory of natural selection was most popular in Kingdom of Poland which was under Russian control – there in Warsaw Main School zoologist Benedykt Dybowski was teaching about Darwin in his lectures. After Dybowski was exiled to Siberia (because of his involvement in January Uprising), Darwinism was widely discussed in left-leaning magazines like *Głos* and Warsaw’s intellectual circles – which treated Darwin as a symbol of liberalism and positivism [3]. On the other hand, in Grand Duchy of Posen (Prussia) and Galicia (Austria), where Church had much bigger influence, reception of Darwin was non-existent or throughout hostile. Most of arguments against Darwinism came from Galicia where not only Catholic intellectuals fought it but also – Austrian government, which was afraid that Darwin’s ‘survival of the fittest’ will inspire Poles to prepare another uprising.[4] When we analyse discussion about theory of evolution in Poland at that time, it is easy to see that it was deeply connected with political and ideological agendas. For example one of the earliest Polish critics of Darwin – Fr. Feliks Wartenberg (his anti-Darwinian article was published in 1866) – pointed out that theory of evolution is mostly used by Polish communists in their fight against Church.[5] This accusation was partially correct as most of Polish proponents of Darwinism were liberals or socialists who interpreted Darwin using Marx, and largely came from proletariat or middle-class. On the other hand, its opponents were mostly nobility, bourgeoisie and clergyman – all of which had good relations with occupiers.[6] But let’s try to separate political context from discussion about Darwin and focus on arguments for and against it – to find whether they were similar to those characteristic for ‘Eclipse of Darwinism’, i.e. whether they were based on essentialist philosophy.

3. Critics of Darwin

Generally disputes over Darwin that occurred around 1900 in Poland can be divided into two periods. First, which can be called period of „public debates”, occurred between 1860s and 1880s, when theory of evolution was widely discussed not only by naturalists, but also by laymen in non-

scientific press. Second, which started in 1890s and ended with First War World, was mostly limited to discussion among biologist, who at that point largely accepted evolution of organisms and were now debating over which theory describes it in the best way.[7] The most vicious attacks on theory of evolution came from the “public debate” era. And because in those debates engaged mainly people without scientific background, Darwin’s theory was mostly misrepresented and sometimes confused with unrelated philosophical systems like German idealism. Besides broad nature of discussion, also lack of proper literature played role in the quality of presented arguments. Darwin’s books weren’t available in polish language until 1874 when partial translation of *Descent of Man* was published (*On the origin of species* was translated in 1885). The knowledge on Darwinism mostly came from German naturalists like Karl Vogt and Ernst Haeckel. Because of that critics like Wartenberg tended to look on Darwin’s theory through Haeckelian (i.e. monistic) interpretation.[8] The problem of misrepresentation of Darwin was recognised by one of the most influential polish philosopher of that era – fr. Stefan Pawlicki. In his work *Materyalizm wobec nauki (Materialism and science)* from 1870 he defends Darwin arguing that most of his critics didn’t understand true nature of his theory – mostly because all their information about it were acquired at second hand. According to Pawlicki, Darwin wasn’t an atheist (how Polish critics suggested) – in contrary, last pages of *On the origin of species*, where he is declaring that Higher Power was responsible for creation of first organisms shows that he himself was a strong believer in God. In Pawlicki’s mind whole theory of evolution was built with presupposition that God exists and is controlling evolution of species. As he writes, if one assumes existence of law of natural selection then he should also assume existence of a lawmaker (i.e. God) who created it and is actively applying it to nature. Pawlicki had no problem with Darwin. Instead, he had an issue with his German followers – according to him their proclamation of atheism was contradictory to the whole theory of evolution –without God there was no one to control natural selection.[9] Pawlicki became more critical of Darwin after the publication *Descent of Man*. For him it was a sign that Darwin joined monists and renounced God. Pawlicki stated that in atheistic interpretation theory of evolution becomes pantheistic because without God’s control over selection nature is playing that role by herself – which is nonsensical and blasphemous. But at the end the main point which Pawlicki disagreed with was Darwin’s hypothesis that humans evolved from apes. Pawlicki argued that human intellect, with its ability of self-recognition and abstract thinking, could not evolved from animal brain that wasn’t capable of any of those feats. Thus, those core differences contradict the idea that one could originate from another. Pawlicki’s counter-argument clearly showed his essentialistic background. His reasoning was based on Aristotle’s and St. Thomas Aquinas’s notion that there are three types of souls: vegetative, sensitive and rational, which also constitute differences between plants, animals, and humans. The fact

that differences between them are irrefutable was for Pawlicki strongest argument for impossibility of ape to human evolution.[10] Pawlicki’s analysis popularised (especially in Galicia) problem of evolution and as a result provoked exacerbate discussions between its critics and proponents.[11] There were three major strategies that polish anti-Darwinists adopted in their efforts to discredit theory of evolution. Some, like historian Romuald Swierzbieński, similarly to Pawlicki used metaphysics to refute Darwin’s ideas.[12] Others, like mathematician Tadeusz Skomorowski, limited themselves to popularising arguments and lines of reasoning of such scientists like St. George Mivart [13]. Third strategy concentrated on linking Darwinism with dangerous social movements. Good example can be seen in Władysław Zaborski’s *Darwinizm wobec rozumu i nauki (Darwinism as compared to science and reason)* from 1886. This published in Cracow (in Galicia) book combined all strategies listed above. Zaborski used similar arguments to Pawlicki, and also appealed to such authorities like Louis Agassiz and Jean Louis de Quatrefages. But at the end, he viewed Darwinism as destructive and immoral philosophy which prime principal – natural selection – was approving ruling of the strong and elimination of the weak. To link it with socialist movement, Zaborski was pointing to the Paris Commune as an example of what will happen if country adopts atheistic doctrines of Darwin.[14] This argument, based on the fear of anarchy, was proven to be very effective in country which was already struggling for its independence.

4. Defenders of Darwin

Galicia, where anti-Darwinian movement was dominant, quickly became a centre of polemics about Darwin. In 1872 anonymous reviewer criticised Pawlicki’s articles describing them as so ill-informed and poorly researched, that he didn’t saw them as threat to Darwin’s legacy.[15] One of the most prominent Darwinist who engaged in polemics was zoologist Henryk Hoyer. In 1876 he wrote an article *Krytyczny pogląd na Darwinizm (Critical view on Darwinism)*, in which claimed that there was possibility to merge Darwinism with Christian Dogma. Hoyer believed that science and religion were two different fields of knowledge and one couldn’t overthrow another. He even saw the possibility of merging those two domains, and claimed that God’s plan of creation could be even more impressive if explained by gradual evolution guided by His will. But to accept this, Polish Christians should first properly understand Darwin’s theory. Hoyer was especially baffled with claims of some Christians that theory of animal origins of humans was immoral. As he argued, this accusation was nonsensical because all people started their lives as toad-like embryos and somehow no one is claiming that embryology was also blasphemous. Hoyer believed that Darwin’s theory only partially explained process of evolution, and there was still much to discover – and, because theory was purely materialistic, there was still place for metaphysics, especially in explaining phenomena like evolution of human mind, and rise of first organisms on earth.[16] At the end of “public

debate” period, in 1890s, Hoyer became disappointed with creationists’ resistance against Darwinism. As he still believed that theory of evolution should be expanded and corrected, he found Christian attacks counter-productive – mostly because critics didn’t propose any better explanation for evolution.[17] In similar vein, in 1882, another influential Warsaw-based naturalist, Bronisław Rejchman, summarised discussions with creationists. Rejchman, like Hoyer, believed that Darwinism could co-exist with religion because it didn’t tackle any metaphysical issues. He also refuted arguments that theory of human origins was immoral, pointing out that Christian Dogma claims that all human came from murderer Cain, which should be more problematic than ape ancestry. But at the end he didn’t see point in engaging in discussions with creationists who, according to him, didn’t want to conduct civilised discourse but rather preferred to insult everyone who didn’t agree with them. In such circumstances, as Rejchman concluded, Polish Darwinists should no longer engage in any public debates.[18] One year after Rejchman was calling for retreat of evolutionists from public debates, the most famous polish Darwinist (and most outspoken one), Benedykt Dybowski, who in 1877 returned from Siberia, began to teach zoology in University of Lviv (Galicia). Contrary to Rejchman and Hoyer (who criticised socialist and monistic interpretations of Darwin), Dybowski saw Darwin’s theory not only as a great scientific work, but also as a useful philosophy that could validate such ideas as socialism [19] and feminism [20], and help to fight against chauvinism, classism and religious fanaticism [21]. His lectures quickly gained popularity among students, but also drew attention of creationists. During his 1885 inaugural lecture, Dybowski proclaimed “the end of teleology” in natural sciences, which clergyman who were present on his speech understood as “end of theology”. This caused massive controversy – right winged and Christian newspapers started calling for Dybowski’s resignation. Dean of University of Lviv, being under pressure, tried to forbid Dybowski from teaching evolution. Dybowski ignored this ban and continued to teach about Darwin’s theory. Another attack came in 1899, when Christian newspaper accused Dybowski and his colleague prof. Józef Nusbaum (also prominent Darwinist) of spreading atheism among youth. This time students themselves defended both scientists refuting those accusation as lies.[22] But such situations slowly became rarity, as with the end of 19th century the idea of evolution became widely accepted not only by scientists but also by some Christian philosophers. This fact was caused by growing popularity of orthogenesis, mutationist and neo-Lamarckian theories. However, Both Nusbaum [23] and Dybowski [24] argued that these theories were unscientific and metaphysical in nature and as such should be rejected. Anti-Darwinians, on the other hand, saw them as a possibility to re-interpret theory of evolution in less materialistic terms.

5. Change of approach

At the beginning of 20th century, some philosophers found inspiration in idealistic writings of notable polish poet

Juliusz Słowacki. Słowacki imagined that human souls were at some point trapped in primordial crystals, and with power of their will they slowly transform into living organisms – animals, plants and at the end in humans. The idea that Słowacki’s vitalistic philosophy could be better interpretation of theory of evolution than Haeckelian one was disseminated by philosopher Wincenty Lutosławski in 1909. It met with criticism from Nusbaum who saw it as another version of Lamarckism.[25] But in spite of this disapproval some scholars, like economist Michał Szuca, saw it as a theory superior to Darwinism [26]. Aside from Słowacki, another source of inspirations came from Germany – where fr Erich Wasmann created his theistic theory of evolution. Wasmann saw evolution as a process guided by internal metaphysical forces that God granted all living organisms – natural selection in his interpretation wasn’t a creative force, but destructive one that mostly served to control populations. In his theory he also rejected animal ancestry of humans arguing that evolution was a polyphyletic process in which homo sapiens evolved independently from any other species. Wasmann became well known from his famous debate with monists in 1907, which was reported in polish newspapers by fr Feliks Hortyński, who later became main populariser of his theory. [27] Among polish Christians Wasmann quickly became a symbol of reconciliation between science and religion. For example fr. Kazimierz Lutosławski praised him as an one of the most talented biologists in his generation (more so than Haeckel), who thanks to his genius was able to recognise true nature of evolution and place it in God’s creation plan [28]. Other philosopher, fr Aleksander Mohl, claimed that Wasmann theory was the most probable one, and as such should be considered being closer to truth than its Darwinian and Haeckelian [29]. This change of attitude of polish clergy towards idea of evolution wasn’t only caused by writings of Wasmann and other non-Darwinian evolutionists. Church itself began changing its attitude toward science. Thanks to two encyclicals written by Pope Leo XIII – *Aeterni Patris* (1879) and *Providentissimus Deus* (1893) – bible started being treated as metaphorical text which could be interpreted through St. Thomas Aquinas’s philosophy. This new approach caused a rebirth of Thomistic philosophy of nature, which focused on integrating scientific ideas into Christian dogma rather than battle against them. In Poland this reformation was represented by fr. Kazimierz Wais based in University of Lviv, and fr. Franciszek Gabryl from Jagellonian University.[30] Wais and Gabryl wrote their main works on evolution at the beginning of 20th century. They expressed scepticism towards Darwin’s theory and repeated many of the Pawlicki’s arguments – mainly pointing to the metaphysical gap between apes and humans that didn’t allow evolution from one into another. But both of them proposed their ways of how the idea of evolution could be reconciled with the notion of God’s creation. Wais suggested two alternatives: according to first one, new organisms were actively created by God and that was seen as evolution; in the second one (preferred by Wais), God created first organisms with imputed plan of their

development which was ending with the form that He intended for them. [31] Gabryl on other hand suggested that God could create only first organisms that later were evolving according to his plan in the ways described by Carl Nageli or Lamarck. Also, he insisted that humans weren't product of evolution – they were directly brought to existence by God. [32] In the end, neither Gabryl [33] nor Wais [34] didn't fully accept theory evolution, arguing that because opinions on it were still split among the scientists, there was no need to abandon old creationist world-view.

6. Conclusions

Discussions about Darwinism in Poland never reached the same point as polemics in western countries – there were no polish counterparts of Butler/Darwin or Wasmann/Haeckel disputes. Most of opposition against Darwin came from creationists, not from non-Darwinian evolutionists – like in the west during the “eclipse”. Polish positivists limited themselves to popularisation of theory of evolution – constant opposition against creationists caused them rather to inform about new theories than trying to show their superiority over Darwin. Of course there were exceptions like Adam Chałupczyński who saw evolution as theological process[35], but the most influential biologists like Nusbaum and Dybowski were strict Darwinists. On the other hand, anti-Darwinists remained strict creationists. Non-darwinian theories could help them see that essentialistic interpretation of evolution was probable. But still, even their propositions were labelled as hypothetical, and no one really wanted to fully accept evolution. In conclusion, “eclipse of Darwinism” occurred in Poland, but only in the sense that arguments that were used against Darwin's theory remained based on essential philosophy.

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NAZI PLUNDERED ART – HOW AND WHY THE DEFINITION OF NAZI PLUNDERED ART HAD DEVELOPED AND WHAT CONSEQUENCES HAD ARISEN FROM?

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Abstract: *During the WWII a lot of works of art changed their location and ownership. From Nazi point of view, they were legally confiscated especially to the Jews and those, who were considered the enemies of the Third Reich. Their transfers from the place of their origin to Nazi hands became part of the purification of German culture. This phenomenon of politically newly born cultural process created a very effective political tool for the mass influence. Even if the prominent Nazis gave impression of a unanimous political force in their public speech, but in reality, they were very divided in their opinion on methods, means and forms. To fulfill their concept of pure German culture, they abused their power for looting, plundering and ruining the European culture.*

Keywords: *World War II, plundering, artworks, cultural policy transfers of works of art, NSDAP*

1. Introduction

I use this opportunity of this conference to share with you my research experience today. I have been working for more than 15 years now in so-called provenance research. Even if this kind of such inquiry has been already approved as a scientific discipline by several academic institutions, there are still many scholars and members of public who might not be aware of its real meaning.

Well, as you know, WW II became one of the worst world conflicts of the 20th century, started by Nazi occupation of Europe. The culture and the art (in particular) took a central stage in this war. Millions of works of art, musical instruments, books, archives and other pieces of cultural assets were transferred from their homeland to different parts of Europe by force and even now, more than seventy years after WWII, some of them remain to be returned home. These silent witnesses of those days are still waiting for their way back, to the houses of their original owners or their legitim heirs. Due to the Nazi cultural policy before and during WWII hundreds of thousands works of art had been either completely destroyed or plundered, spoiled, looted or legally confiscated by the Nazi institutions. Some works of art had been sold or donated under the duress and even after the war, some hundreds of those artworks were looted again, this time by the liberators. And so, the main task of the above-mentioned provenance research is simply to find, document, identify and finally transfer these specific cultural objects to the hands of the original owner or his/her rightful heirs. To be successful in this field, the different areas of provenance research must be employed, among others the knowledge of law, art history, history and archival science are highly recommended in this area. And sometimes, if one is really lucky, some hidden or forgotten piece of art can be still discovered in the public or private museum, in the auction house or by coincidence. But still, too many injustice haven't been solved until these days and they are still waiting for the final and fair solution. The reason, we must

ask WHY this happened, can be at least partially answered by this lecture. In epitome, we need to point to one of many social values that contributes to the creation of the state – to the culture.

2. The German culture during Weimar republic

In democratic societies the culture has always been one of the most important distinctive features of each nation. Those who created the culture in the past as well these who do it nowadays could/can benefit of the very freedom in their production. Their artwork presented to the public could express their gut feeling or could be subject to various influences of certain period or could simply reflect the reality. In other words, the democracy offers a full advantage of so-called creative freedom to the author and a wide range of possibilities to the public which can choose what satisfies him. Sometimes the art can be used as a political instrument to introduce either the author's attitude towards the policy or the societal climate in the society. We may have a dispute over the role of the culture in the society, but we can never underestimate the phenomenon of culture in the individual societies and nations as it was done by the European countries towards the Germany of 20th and 30th years.

Weimar Republic brought to German culture freedom of expression. New artistic movement either from different part of Europe (like Impressionism, Cubism, Dadaism etc.) or from Germany, as it was the case of Expressionism, started to flow to different cultural activities throughout the country. The state policy in the sphere of culture was merely supported and there was a good background for the development of this so-called modernity as well [1]. That could probably continue in that way if Adolf Hitler wouldn't seizure a power in 1933 and started not only to dominate in the political, economic and social life, but especially in the domain of culture.

The purpose of this paper is to present the significance of culture, respectively art in the Nazi Germany and their influence in the society by using culture and art as a political tool for mass manipulation and gaining control over Germany and occupied territories. This could help to better understand the fact why Nazi plundered, looted and confiscated art.

From time immemorial the art became a trophy of war for those who won the battle or war. The battles of Napoleon, the emperor of France, could be a good example of many transfers of artworks in the early 19th century. Simply said – he won, he took. Even if in this case we can also speak about the art looting, it has nothing to do with the systematic pillage of cultural assets pursued by the NS members and Nazi army before and especially during WWII. The idea of their Führer and his collaborators was not only to purify the art to be racial pure but also to gather such art from other territories occupied by Nazis which on one hand led to the elimination of freedom in the field of art creation and on the other hand to the destruction of valuable art collections first in Germany and later in occupied Europe. German culture became a tool by which the political identity of German society was easily influenced [2]. The nation should share according to the state cultural policy the same attitudes, beliefs and ideas which, as it was expected, should lead to the undifferentiated behaviour of all individuals [3].

3. Purification of German culture

When the National Socialists seized the control under the country in 1933, the measures against the culture of Weimar Republic had already been achieved as well as a new plan to restore a healthy and glory future of the pure Aryan culture was already launched by Adolf Hitler himself. His autobiography, *Mein Kampf*, a Nazi Bible appealed to German nation for a cultural revolution, which should be built up on the foundation of the Aryan race – the most perfect one among human races. Hitler warned the nation against the degeneration in the fine art represented by the avant-garde and innovative trends in the art of Weimar Republic. The Führer proclaimed that historical period as a lapse of time proved a real crisis which would be saved only by the drastic actions leading to the purification of culture from that time on, totally controlled and dominated by the National Socialists. Hitler convinced Germans of being the real guardians of culture whose duty is to spread it among other nations. That “cultural mission” based on nationalistic and racist foundations also proved the necessity not only to satisfy such demand but also to fulfil that task [4].

Among those who were headed for a high prestigious post in the NS party belonged also Alfred Rosenberg and Joseph Goebbels. Both formed a part of the closest Hitler’s collaborators and soon they became the true rivals in gaining favour with Hitler and a predominance in the party.

Alfred Rosenberg, as an architect and a former student of a very famous Estonian painter Vilhelms Purvītis, was very experienced in the art. When he left Riga for Berlin he worked first as an editor of “*Volkischer Beobachter*” and later even as the editor-in-chief of that Nazi propaganda newspaper. More to that, he organized different institutional activities in the field of culture and in 1928 he became a founder of the National Socialist Society for German Culture. As a principal ideologist of the party he urged to the absolute aryanisation of culture. To get support among the members of the Nazi party, he used the newly founded Society as a political tool by which he tried to spread his ideas. The same year, he renamed the Society as a Militant League for German Culture and divided it into the specialized sections focused one by one on different areas of culture as fine arts, music, theatre, literature, physical education and dance and of course architecture. This League opened its branches in many German towns. League’s members throughout Germany emphasized the need of the healing and purifying of national culture freed from the Bolsheviks and Jews. The Militant League called for a modern leader-state which could restore and assure the culture in line with the true German spirit and wouldn’t lead the society into the cultural, social and political chaos as it was done during the Weimar Republic [5]. To prove the decadence of culture during Weimar, the League’s members, among them for example Professor Paul Schultze - Naumburg, sharply criticized the contemporary arts and spoke about the collapse of German culture, using in his lecture the photos of bodily deformed or mentally retarded patients and comparing them to the paintings of avant-garde artist. When Hitler became a Chancellor in 1933 the League reached more than six thousand members already and it seemed like the people and the nation are ready for the cultural revolution. Rosenberg himself believed that he would play a principal role in shaping the cultural policy of the Third Reich but so did Joseph Goebbels.

As a minister of National Enlightenment and Propaganda, Goebbels was appointed to this post by Adolf Hitler in March 1933 [6]. To Goebbels the culture was one of the most important resources of propaganda by which he could reach a control of the spiritual life of the German nation. Apart of the Ministry he also headed the Reich Propaganda Directorate of the NSDAP. These two posts allowed him to gain influence in the Party, too. To strengthen his position, he established the Reich Chamber of Culture, subdivided into 6 professional chambers for Theatre, Radio, Music, Fine Arts, Press and Literature. The implementation of the Act on the Reich Chamber of Culture prescribed the conditions under which the people of culture could practice their professions [7]. This institution seemingly resembled Rosenberg’s Militant League and gave Rosenberg a reason to start a campaign against the Propaganda Minister which he launched immediately in 1933. This campaign wasn’t a real devoid of conflicts nevertheless it brought many disagreements and competition between these two men and their close supporters [8].

At the beginning Goebbels, unlike Rosenberg, was not so dogmatic. He was fond of modern art and adored German expressionists. His private flat was decorated by Nolde [9], Barlach, Heckel and many other avant-garde painters. He believed that the works of German Expressionist artists must exemplify the Nordic spirit and can show the progress and modernity of the National Socialists. However, to win the decisive voice in the shaping of cultural policy of the Third Reich and because of the faction led by Rosenberg who despised the Expressionists, Goebbels abandoned publicly in the short time these newly born artistic movement and secured his position in the control over the German cultural life by exercising the post of Minister of Propaganda and that of President of Reich Chamber and Director of Reich Propaganda Directorate of the Party [10]. He loudly contributed to the campaign on the degenerate art which emerged from Nazi cultural propaganda against contemporary artists just prohibited by the Nazis and promoted the paintings and sculptures done in traditional manner and reflected the values of racial purity and obedience.

Rosenberg's career didn't stagnate either. In 1933 he was appointed the head of the Office of Foreign Affairs of the NSDAP, but he played just a little practical part in this role. The ideological disputes over the modern art between Goebbels and Rosenberg [11] were finally settled in 1934 when Hitler publicly declared that there would be no place for modernist experimentation in the Reich. By this decision Hitler resolutely confirmed his leading role in the formation of cultural policy. However, other disputes between these two men continued during the next years.

The occupation of France by Germany brought new opportunities, especially for Rosenberg, who was appointed for a head of so-called Hohe Schule der NSDAP. Rosenberg supposed to establish a research institute filled with cultural material on the opponents of the Nazi ideology. For that reason, he developed the Einsatzstab Reichsleiter Rosenberg (ERR) project whose staff joined the SS in the search for cultural movable assets, including artworks, books, archives, musical instruments and other cultural assets. The ERR task was to find out the prominent private Jewish collections, first in the occupied France, later in Benelux, Poland, Baltic States, Greece, Italy and on the territory of the Soviet Union.

Rosenberg as a head of the ERR was directly involved in the massive looting of art and its transfers to Germany, on the territory of the Ostmark and Protectorate of Bohemia and Moravia. As he was again facing to the different rivals as some companies, this time represented by the SS-Einsatzgruppen, Adolf Hitler designated his ERR as the only official art organisation acting in the area of art spoliation and confiscation (in other words in plundering and looting) in the occupied countries. For that reason, the ERR was authorized by Hitler to sequester all precious books, manuscripts and libraries, important archives belonging to Masonic lodges, Jews, Social Democrats and

Communists as well as the other opponents of the Nazi ideology and especially all valuable cultural movable property originated from the Jewish families or enemies of the Reich. Except of this, the Nazi also stole and plundered the belongings of people deported to Nazi concentration camps and of those who had the opportunity to emigrate.

It seems like the main looting and plundering of works of art must be linked with the beginning of WW II and the occupation of European countries, including Austria and Czechoslovakia. However, the proclaimed cultural ideology built on the purification of German arts by destroying the image of art as an elite source intended for a select intellectual audience, was proposed as a wide access to culture for all citizens much earlier. For that reason, the art was adjusted to the political situation and mass propaganda. A worker, a soldier or a simple still life picture was proposed to the broad auditorium and presented as a good example of the Aryan art. On the other hand, the modern art of 20th and 30th was presented as that of the degenerated art related to the authors of Jewish or Bolshevik's origins. For that reason, such kind of art was prohibited for the exhibition or for public sale and had to be either destroy or sell under the state control. The looting of cultural valuables belonged to Jews, emigrants and enemies of Nazi Germany was plundered and transferred to the state storage since the publishing of Nuremberg Laws in 1935.

4. Conclusions

By Hitler's rise to power in 1933 it was supposed to implement a new model of the NS cultural policy. On public a new definition of the pure German culture which reflects the old German traditions, pure race and love to the nation was widely presented in the speech of the prominent Nazis like Joseph Goebbels, Alfred Rosenberg, Robert Ley, Hermann Goring, Rudolf Hess, Heinrich Himmler and many others, nevertheless, in the Party, there were different disputes among the significant institutions and agencies as well as the individuals who tried to gain the power and influence the formation of the German cultural policy for their own advantage and profit and that contributed to frequent conflicts and clash of personal ambitions.

In fact, there was no individual cultural policy at all. The whole artistic creation was under the control of the state authorities, administrative controls and ideological oversights. The art born during the WWII in Germany reflected only a strong sense of national unity, ideal state or brave heroes always loyal to their Führer and all this only in a real representation. No impressions, no expression, no cubes, no inventions, just simple and easily readable paintings and clearly defined pictures could reach the audience. Such culture represented the creation of the reality desired by the Nazis and helped to influence ideologically the whole nation.

Plundering and looting of arts and other cultural assets was presented either as a necessity for the purge of newly

occupied territories or as a need to obtain valuable pieces for the people of the Third Reich who deserve it. Often the plundering was explained as a return of objects d'art looted to the German nation in the past or confiscated to the Jews according to the racial law, which in fact was considered as a legal act of expropriation. Under such pretext or excuse the millions of cultural assets, art included, were moved away and transferred from their homeland to Germany or its incorporated territories. Looting and plundering became one of the most important parts of Nazi cultural policy.

Joseph Goebbels had a very large impact on the cultural policy inside the Third Reich. According to him the culture should serve to the popularization of the NS ideology and could justify, in a very easy way, the political steps taken by the Nazi government and Führer in particular. The strict centralization and institutionalization of the cultural system brought into the existence many examples of authority disputes and disagreement, especially if some institutions tried to operate in favour of a prominent individual. However, according to the custom habits, if any controversy appeared, that was only the Führer who had the last word.

Alfred Rosenberg, on the other hand took part in the practical use of cultural policy. His ERR was involved in the gigantic and very significant thefts and his staff operated nearly in the whole occupied Europe. The plundering of art and book collections are in many cases associated with Rosenberg's ERR, even if there are many other institutions, like Gestapo, SS or Einsatzgruppen and we can't forget the individuals who serve Nazis as good agents for looted art. On behalf of the purification of Aryan culture, hundreds of artworks were destroyed, lost or hidden until these days. Because of cultural ideology many people lost their property but also their lives. In the name of healthy racial Aryan culture, the Nazis transformed it into one of the most important and influenced pillars of their power and policy and the consequences arisen from that plundering envisage not only the fully opening of the archives but also the depositories of many museums and galleries where the silent witnesses of WW II are still waiting for their way home.

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SOCIAL SERVICES FOR PEOPLE WITH MENTAL DISORDERS IN SLOVAKIA

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Abstract: *In this paper we present the situation of the mentally ill in Slovakia based on statistical data and research. Further we clarify social services focused on people with mental disorders, which are rehabilitation centers, supported housing facilities and social services homes. Subsequently, using the mapping method we have summarized the rehabilitation centers for people with mental disorders operating in Slovakia, the activity of which we also present in the paper.*

Keywords: *mental disorders, social services, Slovakia*

Introduction

Currently there is an increasing number of people suffering from mental illness. Healthcare and social services try to react to this evolving trend. One of the reactions is the creation of a National Mental Health Program, which calls for prevention of mental health, development of community services and destigmatization of mental illnesses. Slovakia is coping with the linking of healthcare and social care under multidisciplinary teams; only a few facilities operate this way. There is still a lack of social services for this target group and there is stigmatization by the public as well.

1. The incidence of mental disorders in Slovakia

The international classification of diseases identifies a number of areas of diseases, whereby mental disorders and behavioral disorders are designated as “F” and are divided into groups: F00-F09: Organic mental disorders including symptomatic, F10-F19: Disorders of the psyche and of behavior caused by the use of psychoactive substances, F20-F29: Schizophrenias, schizotypal disorders and delirium disorders, F30-F39: Emotivism disorders (affective), F40-F48: Neurotic disorders, stress-related disorders and somatoform disorders, F50-F59: Behavioral disorders with physical disorders and factors, F60-F69: Disorders of personality and adult behavior, F70-F79: Mental retardation, F80-F89: Psychological development disorders, F90-F98: Disorders of behavior and emotivism usually beginning in childhood and adolescence, F99-F99: Not specified mental disorders [1].

At the moment there is no complete overview of the epidemiological situation in the field of mental health in Slovakia. The state of mental health can be assessed only based on a targeted collection of data in specific areas. Information on the number of sick people acquired from the data of the National Health Information Center related only to that part of the population, which visits professionals (psychiatrist, psychologist). The hidden number of sick people is not examined [2].

According to the National Health Information Center there were 1 800 277 examinations with a diagnosed disorders performed in psychiatric outpatient clinics in 2017. A total

of 374 167 people (687.4 for 10 000 people) were examined with a set diagnosis. The most common cause of outpatient treatment was affective disorders (30.7 %), followed by neurotic, stress-related and somatoform disorders (25.6 %) and organic mental disorders including symptomatic disorders (18.4 %). When comparing the absolute data for the period of 2009 - 2017, the number of people with a newly diagnosed mental disorder in outpatient clinics increased by 1.6 % and in relative terms calculated for 10 000 people by 1.3 %. Overall in 2017 71 274 patients were diagnosed for the first time with a disorder. The most common were neurotic, stress-related and somatoform disorders, followed by affective disorders, disorders of the psyche and behavior caused by using psychoactive substances, especially alcohol. There were 43 009 hospitalizations (79.1 for 10 000 people) for mental disorders and behavioral disorders at psychiatric wards of clinics, whereby 37 % of hospitalizations were for the first time for the patients. The highest share (57 %) was due to disorders of behavioral and emotivism [3].

There are healthcare and social services for people with mental disorders. There are a few types in the field of social services that focus primarily on people with mental disorders. However, in social services facilities not primarily focused on people with mental disorders there are clients, who in addition to the main reason for their placement in given facility, often suffer from mental disorders. This led us to conduct a research, where we investigated the proportion of clients with mental disorders and the most common mental disorders in facilities for seniors, social services homes, emergency housing facilities and “half way there“ homes. 5.1 % of the respondents accounted for clients with mental disorder in the range 0-10 %; 6 % accounted for the 11-20 % range; 10.3 % for the 21-30 % range; 7.7 % for the 31-40 % range; 10.3 % for the 41-50 % range; 12 % for the 51-60 % range; 10.3 % for the 61-70 % range; 10.3 % for the 71-80 % range; 11.1 % for the 81-90 % range and 17.1 % for the 91-100 % range. We questioned the social workers which mental diagnoses are the most frequent. According to the respondents, dementia is in the first place, reported by 52.1 % of the respondents. Depression was in the second place, reported by 33.3 % of the respondents.

Alcohol addiction was in the third place, reported by 17.1 % of the respondents. Behavioral disorders - socialization disorders, socialized behavioral disorders are in the fourth place, reported by 13.7 % of the respondents [4].

2. Types of social services for people with mental disorders

The Law on Social Services No. 448/2008 Coll. defines several types of social services and facilities for people with severe disabilities. We will focus on those that can be specified for people with mental disorders. These are especially rehabilitation centers and supported housing facilities, as well as social services homes.

▪ Rehabilitation center

Rehabilitation centers provide social services to a person dependent on the assistance of another person; to a person, who is weak-eyed and to a person, who is deaf or has severe bilateral hearing loss. The rehabilitation center provides: social rehabilitation, social counseling, assistance when a person is dependent on the assistance of another person and in the case of residential form of social services, accommodation, meals, laundry, cleaning, ironing and maintenance of clothing. Social counseling is provided also to the family or another natural person, who provides assistance to the natural person dependent on the assistance of another person in the home environment, for the purpose of cooperation in social rehabilitation.

▪ Supported housing facilities

Supported housing facilities provide social services to a person older than 16 years of age until the retirement age, if this person is dependent on the assistance of another person and on the supervision, under which he or she is able to live an independent life. If the natural person reaches the retirement age while social services of the supported housing facilities are provided to him or her, these services are continued to be provided to him or her. Supervision is the guidance and monitoring of a person in the course of self-provision, care for his or her household within the facility and basic social activities. The extent of supervision provided in an supported housing facility is determined in hours or through a summary of tasks, for which the natural person requires supervision. In addition to supervision, a supported housing facility also provides accommodation, social counseling, assistance in exercising the person's rights and legally protected interests, conditions for preparing food and social rehabilitation.

▪ Social services homes

Social services homes provide social services in a weekly residential or outpatient form to a person until he or she reaches the retirement age, if this person is dependent on the assistance of another person and his or her dependence level is at least V, or the person is blind or practically blind and his or her dependence level is at least III. Social services homes provided assistance for people dependent on the assistance of another person, social counseling, social rehabilitation and in case of the residential form also accommodation, meals, cleaning, laundry, ironing and

maintenance of clothes and personal equipment. Occupational therapy and interest activities are also provided. If the social services home doesn't provide nursing care pursuant to § 22, nursing care is also provided. If the natural person reaches the retirement age while social services of the social services home are provided to him or her, these services are continued to be provided to him or her [5].

3. Rehabilitation centers for people with mental disorders in Slovakia

One of the types of social services that can be focused on people with mental disorders is a rehabilitation center. We have mapped rehabilitation centers for people with mental disorders in Slovakia. We had a chance to personally visit some of them.

▪ Happiness

The Happiness civil association of relatives and friends was established in 1997 in Košice. In 2004 a daily outpatient social service for people with mental disorders - a rehabilitation center, was established within Happiness. The goal of the Happiness rehabilitation center is the development of practical social skills (empathy, communication, assertiveness, conflicts resolution), the development of independence by training practical skills (the ability to manage finances, shopping, independent meals preparation, cleaning, independent travel), improving self-esteem, overcoming isolation (actions aimed at the presentation of the rehabilitation center to the public) and forming of public opinion in the field of overcoming prejudices against them.

The activities implemented by the Happiness rehabilitation center can be divided into individual (social counseling, implementation of an individual plan, etc.), group (morning community, painting, educational activities, music therapy, etc.) and community (social work with the client's families and wider public, whereby their goal is to integrate the clients into society, the prevention of social exclusion, overcoming prejudice and stigmatization and spreading awareness in the field of mental health) [6].

▪ Facilitas

The Facilitas, NGO was established in Košice in 2002. Facilitas provides social services in the form of a rehabilitation center.

Its activities are focused on the rehabilitation of social and work habits. In the center, the clients can go to a studio, social room, kitchenette, music therapy room or a sports and relaxation room. The activities in the studio are focused on painting, collages, work with clay, sewing and weaving carpets. In the kitchen, the clients have an option of training self-service in preparing and serving coffee, tea, preparing meals for a social event in the facility, as well as training to re-heating and serving meals. The social room is a space for discussions and lecturer, work with computer, book therapy, board games and billiards. In the music therapy room the clients can renew their neglected

interests in the field of music, play an instrument and improve their cognitive memory functions by learning and repeating the text. The sports and relaxation room offers the opportunity to play table tennis, rehabilitation of coarse and fine motor skills, activation for movement, healthy lifestyle and a positive attitude towards own health [7].

▪ **Integra**

Integra is a civil association established in 1994 in Michalovce. The impetus for its establishment was the non-existence of services in the community for patients leaving the psychiatric hospital. Integra is a provider of social services in the form of a rehabilitation center as well as a supported housing facility.

The Integra rehabilitation center is a facility providing an outpatient social service in a daily form to people with mental disorders. Its activities are focused on rehabilitating social and work habits and on restoring the highest achievable level of personal development and physical performance. The clients can attend the following workshops: an art-ceramic workshop, a tailor workshop and kitchen. The activities in the art-ceramic workshop is focused on working with ceramic clay, painting, making candles, work with paper and carpet weaving. The activities in the tailor workshop are focused on sewing simple products (pillows, bags, toys, Christmas decorations and patchwork) and minor repairs of own clothing. In the kitchen, the clients learn to create a menu, how to cook, they learn how to manage money and make purchases. [8].

▪ **Bridge**

The Bridge, NPO, is providing community services - social services for adults with mental disorders in Bratislava. It is a registered provider of social services in the form of a rehabilitation center and supported housing facilities.

The daily program of the rehabilitation centers is available to the clients from 8 a.m. to 4 p.m. during business days. The structure of the program is designed to broadly support the restoration of self-reliance of clients and their repeated integration in the society. The clients learn to create their daily schedule, set personal plans and goals, manage basic household works (cleaning, shopping, preparing meals and handling of office work) and they have the opportunity and support to develop their social life. Regular contact and communication with other clients and workers helps them to develop social and communication skills, it introduces new impetus and expands their interest in their surroundings. The varied repertoire of activities in their daily schedule leads to a meaningful use of their free time, developing their creativity and improving their self-image. Regular attendance and program create a daily schedule, which is often disturbed in mental disorders and it is the condition for a successful adaptation to the everyday life in the society. The activities of The Bridge are perceived as accompanying the client on his road to independence,

supporting him from his stay in the hospital, so that he can manage the problems of everyday life and achieve his goals as much as possible [9].

▪ **Wings**

The Wings association of relatives, friends and people with mental disorders operates in Bratislava and from 2005 it is providing social services in the form of a rehabilitation center.

The Wings rehabilitation center is designed for people with mental disorders who have overcome the acute phase of their disease. It offers a wide range of therapies and activities daily from 9 a.m. to 5 p.m. The goal of the rehabilitation center is to help people with mental disorders to regain, but also gain new skills and abilities, they lost due to their disorder, and which will help them to return to a full and independent life again. The center implements this goal in the form of a regime therapy, a precisely scheduled daily program with a wide range of different therapies, so the clients can train and develop their talent and skills to the full. The spectrum of therapies is wide. The rehabilitation center offers art therapy, a ceramic workshop, work with wire, a computer club, movement activities, an English club, animated workshop, equine therapy, discussion with a psychologist, cognitive exercises and group meetings [10].

▪ **Dolphin**

The Dolphin civil association for mental health in Zvolen offers since 2008 social services in the form of the Dolphin rehabilitation center. It was established based on the need and demands of the people with mental disorders.

The activities of the Dolphin rehabilitation center are focused on rehabilitation, free time activities, making social contacts and assistance with organizing of a day (cooperation with the family), complex professional social services, advocating rights and interests of people with mental disorders, preparing informative activities and organizing meetings with experts in the field of psychiatry, psychology and social work. Each client is under the professional supervision of a staff team (the client has an individual plan), which is lead by professional employees and social staff. The clients learn to create a daily schedule, determine a personal plan and goals, manage basic household work and they have an opportunity and support to develop their social life and interest in others or events in their surroundings [11].

▪ **G+N Support**

The G+N Support was established in 2001 in Rimavská Sobota. It is a registered provider of social services in the form of a rehabilitation center and a supported housing facility.

The goal of the rehabilitation center is to improve the quality of life of people with mental disorders, support the development of practical skills, development of social skills, finding and developing the client's potential,

integration into the ordinary life, prevent the deepening of mental disorders and reduce the need for further psychiatric care.

The rehabilitation center offers social prevention (activities aimed at minimizing antisocial problems), social rehabilitation (the development of social competences, i.e. restoration of social and work skills) and work therapy (activities focused on the restoration, rehabilitation, mitigation or improvement of a particular social condition of the client). Work therapy is done in 4 therapeutic workshops: a ceramic workshop (work with clay), a tailor workshop (manual work, sewing), a woodworking workshop (making wood toys) and kitchen (preparing simple meals). Activities in the rehabilitation center are basically divided into morning activities (focused on manual activities in individual workshops) and afternoon activities (focused on mental and social skills and activities) [12].

Conclusion

Man is a bio-psycho-socio-spiritual being and mental health plays an important role in addition to the physical health. Therefore it is necessary to provide quality social services to people with impaired mental health. One of the types of social services, which can be focused on people with mental disorders, is a rehabilitation center. Happiness, Facilitas, Integra, Bridge, Wings, Dolphin and G+N Support are the rehabilitation centers in Slovakia that are focused on people with mental disorders. Their nature is social rehabilitation, which is focused on promoting self-reliance through training skills, by activating abilities and empowering self-help habits, in practicing household care and in basic social activities.

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