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How the Organizational Goals Affect Knowledge Management

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How to enhance customer satisfaction and technology innovation have been topics of discussion for some time; however, few studies have explored the two issues by applying the knowledge creation theory, and analyzed their differences in knowledge creation activities. The present study aims to explore how the firm's organizational goal affects its knowledge creation process. Based on Nonaka's knowledge creation theory, questionnaires were developed and sent to Taiwanese firms in various industries, including the manufacturing and service industries. These questionnaires were collected either by mail or interview. Our findings suggest that externalization and combination activities should be emphasized when the organizational goal is innovation, whereas internalization activity should be emphasized when the organizational goal is customer satisfaction.

Keywords: knowledge management; knowledge creation process; organizational goal; innovation; customer satisfaction; SECI

Introduction

Nonaka and von Krogh (2009) pointed out that the knowledge creation theory defines knowledge in three parts: (a) Knowledge is justified true belief; (b) Knowledge is (i) the actuality of skillful action and/or (ii) the potentiality of defining a situation so as to permit action; and (c) Knowledge is explicit and tacit along a continuum. Since Nonaka (1991) introduced the 'knowledge creation spiral' to characterize the tacit-explicit knowledge transformation process in knowledge-intensive firms, the knowledge creation theory shed light on organizational creativity, learning, innovation, and change in organizations (Nonaka and von Krogh, 2009; Rasmussen and Nielsen, 2011).

Over the past two decades, numerous empirical studies have followed their concept, and verified the sequential knowledge creation activities in the process—from socialization (S) to externalization (E), combination, (C) internalization (I), and then back to socialization (S) (hereafter referred to

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as the SECI model) (Dyck, Starke, Mischke, & Mauws, 2005; Sabherwal and Becerra-Fernandez, 2003).

The past empirical studies of the SECI model made several discoveries. Becerra-Fernandez and Sabherwal (2001) discussed that knowledge management (KM) processes would impact perceived knowledge effectiveness. They found that the combination and externalization processes, and not the internalization and socialization process, would affect knowledge satisfaction. Sabherwal and Becerra-Fernandez (2003) further analyzed that different KM processes would influence perceived knowledge effectiveness at different organizational levels. For instance, internalization and externalization processes influence perceived effectiveness at the individual level, while socialization and combination processes exert influence at the group and organizational levels. Schulze and Hoegl (2008) also depicted that the novelty of product ideas generated is influenced both by the positive effect of socialization and internalization processes, as well as the negative effect of externalization and combination processes.

Notwithstanding the rich empirical studies of Nonaka's knowledge creation theory during the past two decades, the main question proposed by Baloh, Uthicke, and Moon (2008) still exists, that is, 'Which knowledge process do they need to nurture?' (p. 436). Empirical studies such as that of Schulze and Hoegl (2006) depicted the crucial processes when facing different product development phases (i.e., concept development, product development). However, their studies focused on a single industry (manufacturing) with a single organizational goal (new product success). In this study, we attempt to put all the industries together to identify the key knowledge activities when facing different organizational goals.

In previous research, organizational goals of innovation and customer satisfaction were respectively applied to discussions about the high-tech industry (Ho, 2011; Tsai & Wang, 2009; Tsai, Chen, & Chin, 2010) and the service industry (Chen & Li, 2006; Lin, Su, & Chen, 2006; Shahina & Zairi, 2009). However, innovation is not limited to the high-tech industry; it also exists in the service industry (Drejer, 2004; Hipp & Grupp, 2005; Castellacci, 2008). As most empirical studies show, technology innovations such as the auto teller machine (ATM) equipment (Jaw, Lo, & Lin, 2010), logistics tracking (Chang, 2003), and e-business (Ramsey, Ibbotson, Bell, & McCole, 2005) play an important role in the service industry. Application of these innovations improved operating procedures in the industry and reduced its service costs. Therefore, nowadays innovation is not a group of segmented factors applicable to the manufacturing industry, the high-tech industry, or the service industry, as in the case of prior studies; on the contrary, innovation has become a catalyst for a firm's success. In addition, although various studies describe how an organization's overall learning efficiency af-

fects its innovation performance (Clifton, Keast, Pickernell, & Senior, 2010; Ho, 2011; Li, Huang, & Tsai, 2009), few studies have analyzed the individual effect of each activity on innovation performance in the knowledge creation process (KCP). Therefore, the primary purpose of our research is to find out which activities in the KCP have a significant effect on a firm's innovation performance.

Customer satisfaction, on the other hand, has been a key factor in measuring the success of a market segmentation strategy (Athanasopoulos, 2000) or employees' service quality in the field of market research. Various studies have explored the relationship between learning and customer satisfaction (Caemmere & Wilson, 2010; Chang & Ku, 2009; Lin et al., 2006); however, few studies have analyzed the individual effect of each activity in the KCP in terms of customer satisfaction performance. Therefore, the second purpose of the current research is to identify which activities in the KCP have a significant effect on a firm's performance measured by customer satisfaction. To summarize, the aim of this study is to identify the activities in the KCP that firms should focus on when they have different organizational goals.

The rest of this paper is organized as follows: the second section reviews prior literature to summarize the development of the knowledge creation theory; the third section explains our research method, and the fourth section discusses our research findings. Future research directions are presented in the final section.

Literature Review

Knowledge Value

Originating from creativity, individual experiences, and organizational learning, knowledge exists in written documents, as well as in routines, tasks, processes, practices, rules, and values that shape an organization (Bhagat, Kedia, Harveston, & Triandis, 2002). Knowledge results from the interaction between individuals and organizations, and is specific to a context defined by particular time and place (Nonaka, von Kroghh, & Voelpel, 2000). Therefore, knowledge management is a type of organization memory, which encompasses a wide range of clear processes, methods, rules, and data, and thus enables people to search for important knowledge among different KM operations (Liu, Chen, & Tsai, 2005).

Organization knowledge is path-dependent, hard for third parties to appropriate, difficult to imitate, and causally ambiguous (Cabrera & Cabrera, 2002); hence, every organization is enabled to create its unique competitive advantage and sustainability (Grant, 1996, Tsai & Li, 2007). In other words, a firm will enjoy more efficiency when its advantage is built on its daily processes and routines, and is created by individuals and groups who

could act autonomously as knowledge creators and transmitters (Nonaka, Toyama, & Konno, 2000; Sabherwal & Becerra-Fernandez, 2003). KM has become a fundamental task of an organization and the main challenge of its members (Pertusa-Ortega, Zaragoza-Sáez, & Claver-Cortés, 2010).

The model proposed by Nonaka (1994) has several characteristics. First, the model includes two important elements for knowledge creation: tacit knowledge and explicit knowledge. Tacit knowledge is highly subjective, idiosyncratic, and deeply rooted in personal experiences. Explicit knowledge, on the other hand, is rational, theoretical, and so-called scientific knowledge, which can be documented (Martín-de-Castro, López-Sáez, & Navas-López, 2008).

Second, in Nonaka's SECI model, tacit knowledge and explicit knowledge are complementary processes. They should not be seen as separate entities, since they are based on the same continuum (Nonaka & von Krogh, 2009). Third, knowledge transformation occurs during its transit, that is, knowledge is deepened and widened not only in the transformation between tacit knowledge and explicit knowledge, but also in the transit between individuals and groups. Sabherwal and Becerra-Fernandez (2003) clearly pointed out that the efficiency of the KCP is determined by the level of effectiveness at individual, group, and organizational levels, which interact continually when the KCP exists.

Lastly, knowledge creation is a spiral system. As Nonaka (1994) stated, 'This spiral illustrates the creation of a new concept in terms of a continual dialogue between tacit and explicit knowledge. As the concept resonates around an expanding community of individuals, it is developed and clarified. Gradually, concepts, which are thought to be of value, obtain a wider currency and become crystallized' (p. 15). Therefore, Nonaka thinks of the KCP as a spiral process, where new knowledge will be continuously created from previous findings.

In Nonaka's SECI model, the transition process is composed of four distinctive activities (Figure 1). The first is socialization, where tacit knowledge is transferred among members through mentoring and peer discussion. Therefore, the members share one mentality, technical skills, and experience. This is generally an intermingled multi-level trial-and-error process full of peer discussions, which is conducive to the next process-externalization. In the externalization process, tacit knowledge is attempted to be articulated into explicit concepts, usually via metaphors, continuous dialogues, and collective actions, in the hope that concrete concepts can be formed and group solutions can be found. The next is combination, which aims at combining different entities of explicit knowledge to bring about or even document new ideas and solutions. Lastly, internalization is the process whereby explicit knowledge is turned into tacit knowledge through learning-

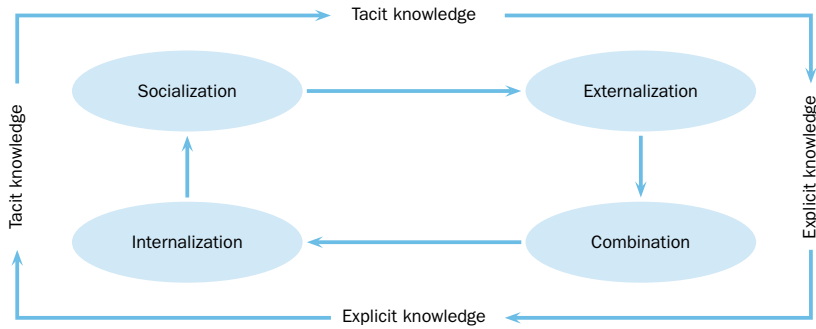


Figure 1 Knowledge Creation Model (adapted from Nonaka and Takeuchi, 1995)

by-doing, a process during which new experiences accumulate (Choi & Lee, 2002; Nonaka & von Krogh, 2009).

KCP and Organizational Goal

Gilbert and Cordey-Hayes (1996) argued that knowledge application is the facilitator of successful innovation. Thus, technology innovation in processes, products, and services helps industries enhance the efficiency of their production activities (Hung, Kao, & Chu, 2008; Miles, 2005; Sirilli & Evangelista, 1998). Ideas for technology innovation grow from visions, metaphors, or any language form into explicit knowledge. Take Matsushita's bread-maker, for example. A manager of the company got ideas about how to make bread from a hotel baker's implicit experience. The manager then translated these ideas into explicit language for their engineers and consequently, the development team combined the engineers' scientific knowledge with the manager's ideas to develop the bread-maker (Nonaka, 1991).

Innovation often first involves concept developments, followed by the organization of these concepts into a product structure (Hall & Andriani, 2003). Matsushita's example illustrates two key activities in an innovation process, namely externalization and combination. The translation of the manager's implicit ideas into explicit language is an externalization activity. The development of the bread-maker based on the engineers' scientific knowledge and the manager's explicit language is a combination activity. Nonaka et al. (2000) further indicated that concept creation in new product development is a process of externalization and converting explicit concepts into more complex and systematic sets of product knowledge is a process of combination. Hence, externalization and combination are the two key activities in the innovation process.

Therefore, the present study proposes the following hypotheses:

H1a *When a firm's organizational goal is innovation, increasing the focus*

on externalization activity in the KCP will increase the firm's performance.

- H1b *When a firm's organizational goal is innovation, increasing the focus on combination activity in the KCP will increase the firm's performance.*

As Peter Drucker (1954) argued, creating a satisfied customer is the only valid definition of business purpose (also cited in Mohr-Jackson, 1998, p. 109). Cater and Cater (2009) also asserted that customer satisfaction is more affected by personal interaction than by price holds. Therefore, customer satisfaction is the main factor of service quality, which involves physical equipment and personnel interaction (Thomas, 1978). Prior research shows that if a firm's customer satisfaction or customer loyalty can be improved, the firm will enjoy significantly positive outcomes in terms of its service quality (Liao & Chuang, 2004; Tracey, Tannenbaum, & Kavanagh, 1995).

In discussions regarding the characteristics of successful programs or how to foster customer satisfaction in organizational activities, Li, Yang, and Wu (2008) pointed out that improved service quality relies on certain critical factors, including a service system (which involves a standardized service process and physical environment) and HR practices (which influence employees' job attitudes and service ability). In short, sharing implicit knowledge among employees through social interaction, followed by knowledge internalization through learning-by-doing, is the main way to enhance customer satisfaction. Therefore, we propose the following hypotheses:

- H2a *When a firm's organizational goal is customer satisfaction, increased focus on socialization activities in the KCP will increase the firm's performance.*
- H2b *When a firm's organizational goal is customer satisfaction, increased focus on internalization activities in the KCP will increase the firm's performance.*

Research Method

Sampling

Each sample represents one firm's knowledge creation activity. Given that our study attempts to identify how KCP works in firms with different organizational goals, we gathered data from firms that come from various Taiwanese industries, including manufacturing and service industries.

Every sampled firm was sent a copy of the questionnaire. Our target respondents were middle managers who are acquainted with the whole KCP in their firm (Lee & Choi, 2003). Middle managers were chosen because

Table 1 Sample Distribution

Industry	Category	Frequency	
Semiconductor and optical industry	IC Design house	2	1.50
	Manufacturing	5	3.76
	Equipment	2	1.50
	Optical	2	1.50
	Others	2	1.50
	Sub-total	13	9.77
High-Tech Industry	Cars	3	2.26
	Software	7	5.26
	Electronic	9	6.77
	Computer	9	6.77
	Peripheral equipment	8	6.77
	Others	3	2.26
	Sub-total	40	30.08
Communication and equipment industry	Communication equipment	6	4.51
	Web equipment	18	13.53
	Communicating products	1	0.75
	Others	1	0.75
	Sub-total	26	19.55
Food processing, house appliances and construction industry	Food processing	11	8.27
	Construction	1	0.75
	appliances	9	6.77
	Others	3	2.26
	Sub-total	24	18.05
Service industry	Medical	3	2.26
	Insurance	4	3.01
	Bank	8	6.02
	Beverage	4	3.01
	Communication	2	1.50
	Others	9	6.77
	Sub-total	30	22.56
Total		132	100.00

Continued on the next page

they are an important trigger for new instructions, which they make by coordinating information gathered from employees following the request of the top manager (Nonaka et al., 2006). The data was collected either by mail or interview. Of the 100 copies of questionnaires mailed, this study received 55 copies and thirteen of them were incomplete. The other 90 copies were fulfilled via face-to-face interviews. Using the two described approaches, we collected data from 132 firms. An ANOVA was then conducted to analyze whether the firms came from the same population by testing the mean dif-

Table 1 *Continued from the previous page*

Industry	Category	Frequency	
Sex	Male	99	75.00
	Female	33	25.00
	Total	132	100.00
Years of service (at the current company)	< 5 years	34	25.76
	< 10 years	35	26.52
	< 15 years	31	23.48
	< 20 years	19	14.39
	≥ 20 years	13	9.85
	Total	132	100.00
Firm Size	< 100	40	30.30
	< 200	17	12.88
	< 500	15	11.36
	< 1000	11	8.33
	≥ 1000	49	37.12
	Total	132	100.00

ferences among the firms; the results were all non-significant differences, which eventually proved to be true. The average tenure of the respondents is 9.9 years, and the ratio of males to females is 3:1. The detailed distribution of the firms is listed in Table 1.

Variables

Independent Variables. Drawing on other researchers' work (Boiral, 2002; Chou et al., 2005; Jordan & Jones, 1997), our questionnaire items regarding a firm's KCP were mainly developed based on the ideas of Nonaka et al. (2000). However, the questionnaire veered away from traditional surveys that ask respondents about the presence of the four knowledge creation activities in their organization; instead, we asked them *how much* their organization values each of the activities. We ran a pilot test on 26 firms to make sure the construction of this questionnaire was appropriate for all firms. The final version of the questionnaire contained nine questions regarding socialization, three questions regarding externalization, seven questions regarding combination, and three questions regarding internalization. Table 2 details the reliability of the pilot test and the revised items.

Dependent Variables. Two types of organizational *goal-innovation and customer satisfaction* were used in this study, where innovation refers to process improvement (Law & Ngai, 2008), introduction of a new product, or a new marketing project. Innovation was assessed using a single item, and respondents were asked to indicate their performance relative to their competitors. Similar to innovation, customer satisfaction was also assessed

Table 2 Survey Items

Construct	Items	Source
Socialization (.732)	(1) Experience-sharing with customers	Nonaka et al., 2000
	(2) Experience-sharing with suppliers	Nonaka et al., 2000; Walter et al., 2007
	(3) Dialogue with competitors	Nonaka et al., 2000
	(4) Information-gathering from the sales force and production sites	Nonaka et al., 2000; Walter et al., 2007
	(5) Informal meetings with competitors outside the firm	Nonaka et al., 2000; Boiral, 2002
	(6) Idea-generation for corporate strategy from daily social life and interaction with external experts	
	(7) Information contact within the department	Boiral, 2002; Nonaka et al., 2000
	(8) Contact between departments	Nonaka et al., 2000
	(9) Expertise demonstrated by a master and acquired through practice	
Externalization (.650)	(1) Concepts created via the Internet	
	(2) Training evaluation (involvement of industrial designers in project teams)	Nonaka et al., 2000; Chou, Chang, Tsai, and Cheng, 2005
	(3) Improvement proposal (adductive thinking)	Nonaka et al., 2000
Combination (.742)	(1) Market information gathering	
	(2) Information gathering from all over the company (e.g., manufacturing and marketing)	
	(3) Construction of manuals, documents, and databases on products and services	
	(4) Planning and holding presentations to transmit newly created concepts	
	(5) Quality and quantity of new patents	Jordan and Jones 1997; Nonaka et al. 2000
	(6) The number of new products	Nonaka et al. 2000
	(7) Quality of documents (e.g., marketing analysis, strategic analysis, and so on)	
Internalization (.653)	(1) Employees' job attitude ('enactive liaising' activities with functional departments through cross-functional development teams and overlapping product development)	
	(2) Employees' job accuracy (experiments conducted and results shared with the entire department)	
	(3) The performance of inter-firm competition (encouraging engagement in facilitation, prototyping, and benchmarking, as well as a challenging spirit within the organization)	

Table 3 Construct Validity – Convergent and Discriminant

Indicators	(1)	(2)	S	E	C	I
S 1. Sharing with customers	0.39	4.24				
2. Sharing with suppliers	0.26	2.75				
3. Dialogue with competitors	0.59	6.77				
4. Sales force and production sites	0.58	6.60				
5. Informal meetings	0.54	6.06				
6. Interaction with external experts	0.45	4.91				
7. Contact within the department	0.62	7.23				
8. Contact between departments	0.69	8.21				
9. Demonstrated by a master	0.49	5.48				
E 10. Concepts created	0.56	6.15	10.45*			
11. Training evaluation	0.65	7.40				
12. Improvement proposal	0.64	7.26				

Continued on the next page

using a single item on a five-point Likert Scale, wherein 1 equaled much worse and 5 equaled much better.

Control Variables. We adopted turnover rate (Cater & Cater, 2009) as the first control variable, which asked the firms to compare themselves to their competitors in terms of their turnover rate on a five-point Likert scale, wherein 1 equaled much lower and 5 equaled much higher. The employees' rotation rate was then used as the second control variable, which also asked respondents about the firm's rotation rate compared to that of their competitors on a five-point Likert scale, wherein 1 equaled much lower and 5 equaled much higher. Firm size was used as the third control variable, which was also based on a five-point scale. Finally, employees' university degree was used as the last control variable. The firms were asked to specify how important a university degree is in recruiting their staff. A five-point Likert scale, wherein 1 equaled unimportant and 5 equaled very important, was also used for this control variable.

Statistics

Confirmatory Factor Analysis (CFA). This study used CFA to examine the convergent and discriminant validity of the scale. The measurement model included 22 items describing four constructs: socialization (S), externalization (E), combination (C), and internalization (I). Table 3 shows the validity results. The items of factor loadings were significant (i.e., $t > 1.96$) to their corresponding construct (Bagozzi, Yi, & Phillips, 1991), with the lowest t -value being 2.75. Moreover, the discriminant validity was tested by different chi-square between constructs (Bagozzi et al., 1991), and most of them

Table 3 Continued from the previous page

Indicators	(1)	(2)	S	E	C	I
C 13. External information gathering	0.53	5.95	29.15*	3.32†		
14. Infor. gathering from company	0.67	7.92				
15. Construction of manuals, documents and databases	0.59	6.76				
16. Planning and holding present.	0.59	6.82				
17. New patents	0.43	4.71				
18. New products	0.39	4.25				
19. Quality of documents	0.51	5.69				
I 20. Job attitude	0.85	9.14	53.85*	39.95*	50.99*	
21. Job accuracy	0.76	8.20				
22. Inter-firm competition	0.35	3.70				

Notes (1) factor loadings; (2) t-value (1.96); $p^* < 0.05$, $\chi^2 = 3.841$; $p† < 0.1$, $\chi^2 = 2.706$.

Table 4 Means, Standard Deviations, Pearson Correlations and Cronbach's Alpha

Item	Mean	SD	1	2	3	4	5	6
1. Satisfaction	3.38	0.71						
2. Innovation	3.33	0.88	0.358**					
3. Socialization	3.55	0.69	0.214*	0.163†	0.648 ^a			
4. Externalization	3.09	0.80	0.184*	0.381**	0.585**	0.650 ^a		
5. Combination	3.50	0.68	0.186*	0.394**	0.465**	0.597**	0.733 ^a	
6. Internalization	3.89	0.71	0.350**	0.151†	0.358**	0.366**	0.401**	0.625 ^a

Notes ^a Cronbach's alpha for each activity on the diagonal and all scale's is 0.886. Correlation is significant at the $p^{**} < 0.01$, $p^* < 0.05$, $p† < 0.1$ (2-tailed).

had a significant effect ($p < .05$). Therefore, the scale has convergent validity and discriminant validity in this study.

Reliability. Cronbach's alphas were used to measure the reliability of the multi-item scale for each dimension. The reliability of the whole instrument was .886, and the reliability of each SECI activity ranged from .625 to .7337 (Table 4). An adequate alpha is one that is higher than .5, although Nunnally (1978) recommended reliability higher than .6. Hence, the measurement instrument is reliable. The same argument of reliability is acceptable according to the standard of Bagozzi and Yi (1988, p. 80) and Baker, Parasuraman, Grewal, and Voss (2002, p. 130).

Pearson Correlation. Pearson correlation was conducted to check the correlation among activities. As shown in Table 4, most correlation variables are significant ($p < .05$).

Common Method Bias. Harman's one-factor test. A principal factor analysis of all measurement items yielded seven factors with eigenvalues larger than

one. These factors accounted for 67.644 percent of the variance. Considering that no single factor emerged as dominant, common method variance is unlikely to be a serious problem in our data (Podsakoff, & Organ, 1986).

Results and Findings

To compare the KCP of the better-performing group (i.e., survey participants who consider their innovation performance 'better' or 'much better' than their competitors) to that of the poor-performing group (i.e., survey participants who consider their innovation performance has 'no difference' or is 'worse' or 'much worse') when innovation is the dependent variable, ANOVA was run to test the mean differences in a firm's emphasis on each SECI activity of the KCP. As shown in Table 5, the mean differences of KCP in a firm's emphasis on both externalization and combination activities between the two groups are significant ($p < .01$). However, no significant difference regarding either socialization or internalization between the two groups is presented ($p > .05$). Furthermore, we ran a regression test to find which SECI activities have a significant effect on a firm's innovation performance. The results are presented in Table 6. Both externalization and combination activities have a significant positive effect on innovation performance ($p < .01$). In sum, H1a and H1b cannot be rejected.

To compare the KCP of the better-performing group (i.e., survey participants who consider their customer satisfaction 'better' or 'much better' than their competitors) to that of the poor-performing group (i.e., survey participants who consider that their customer satisfaction has 'no difference' or is 'worse' or 'much worse') when customer satisfaction is the dependent variable, ANOVA was also run to test the mean differences in a firm's emphasis on each SECI activity of the KCP. Also shown in Table 5, the mean differences of the KCP in a firm's emphasis on both socialization and internalization activities between the two groups are significant ($p < .01$). However, no significant difference regarding either externalization or combination between the two groups is presented ($p > .05$). Furthermore, we ran a regression test to find which SECI activities have a significant effect on a firm's customer satisfaction performance. The results are also presented in Table 6. Only internalization activity has a significant positive effect on satisfaction performance ($p < .01$), while socialization activity has no effect. In sum, H2a is not supported, and H2b cannot be rejected.

Discussion and Conclusion

This study analyzed the SECI activities when firms face different organizational goals. Few firms succeed in improving their KM performance despite substantial resources devoted to it. In their research, Pfeffer and Sutton (1999) examined what leaders do, how they spend their time, and how they

Table 5 The Anova Analysis for Innovation Orientation and Customer Satisfaction

		Dummy	N	Mean	SD	F	Sig.
Innovation orientation	S	0	70	3.456	0.559	3.010†	0.085
		1	62	3.661	0.795		
		Total	132	3.552	0.685		
	E	0	70	2.838	0.678	17.051**	0.000
		1	62	3.382	0.834		
		Total	132	3.093	0.800		
	C	0	70	3.304	0.667	13.265**	0.000
		1	62	3.715	0.623		
		Total	132	3.497	0.676		
	I	0	70	3.810	0.722	1.890	0.172
		1	62	3.979	0.688		
		Total	132	3.889	0.708		
Customer satisfaction	S	0	73	3.443	0.521	4.255*	0.041
		1	59	3.687	0.831		
		Total	132	3.552	0.685		
	E	0	73	2.977	0.681	3.529†	0.063
		1	59	3.237	0.912		
		Total	132	3.093	0.800		
	C	0	73	3.410	0.631	2.742†	0.100
		1	59	3.605	0.719		
		Total	132	3.497	0.676		
	I	0	73	3.712	0.721	10.937**	0.001
		1	59	4.108	0.633		
		Total	132	3.889	0.708		

Table 6 The Regression Analysis of Hypothesis

Item	Innovation		Customer Satisfaction	
	Model 1	Model 2	Model 3	Model 4
Socialization	-0.135	-0.142	0.091	0.064
Externalization	0.296**	0.328**	0.013	0.086
Combination	0.288**	0.279*	0.017	-0.007
Internalization	-0.023	-0.048	0.307**	0.301**
Turnover rate		-0.128		-0.013
Rotation rate		0.101		-0.031
Firm size		-0.051		-0.075
Degree		0.070		0.008
R ²	00.201	0.239	00.132	0.138
F-value	7.926**	4.403**	4.807**	2.238*
Sig. F change	0.001	0.000	0.001	0.030

Notes p** < 0.01, p* < 0.05, p† < 0.1.

allocate resources to close the 'knowing-doing gap' condition. The present study offers important guidelines for firms regarding the question of how to prioritize knowledge creation activities for different organizational goals when facing limited resources and time.

Previous literature has shown that the knowledge creation process is important for new product development (Schulze, & Hoegl, 2006). An empirical study by Lawson, Petersen, Cousins, and Handfield (2009) demonstrated the importance of externalization activities during the development of new products. In addition, total quality management (TQM) should be another type of innovation, as it aims to improve the existing operation processes to become more efficient (Hung, Lien, Fang, & McLean, 2010). Therefore, TQM is also a kind of knowledge creation activity, and its innovation processes also emphasize externalization and combination activities (Hackman and Wageman, 1995; Martínez-Costa & Jiménez-Jiménez, 2009). In the service industry, Leiponen (2006) showed that business service improvements and new service introductions are significantly associated with collectively held knowledge, such as codifying service solutions or team-based competences and procedures. In sum, when a firm's main object is innovation, it should pay more attention to externalization and combination activities. That is, a firm should provide channels to increase intra-organizational interaction and discussion so that more ideas and problem-solving methods can be generated (Nonaka & Takeuchi, 1995).

In addition, when customer satisfaction is the primary organizational goal, internalization activity should be the main process; the reason is that internalization activity helps explicit knowledge to become the tacit knowledge of individuals. Griffith and Sawyer (2010) considered that information processes are passed face to face, thus efficient transfer of tacit knowledge will help improve customer satisfaction. Some researchers have discovered that service firms are more oriented toward external sourcing of knowledge, inter-organizational collaboration, and customer interaction and networking (Howells, 2010; Mansury & Love, 2008). On the other hand, the experiential knowledge of salespeople is gained through serving customers, an individual and psychological process that matches the characteristics of internalization activities in Nonaka and von Krogh's study (2009). In high-tech companies, Reychav and Weisberg (2009) showed that sharing tacit knowledge has a positive effect on enhancing employees' customer goal. Moreover, Howells (2010) declared that customer service is always intangible and perishable. Given these traits, what accumulates from customer service experience is tacit knowledge. The sharing of tacit knowledge among employees is the internalization activity in the KCP. That is, firms should offer HR practices, such as apprenticeship, social interactions, model learning, and simulation training, to enhance knowledge sharing and improve customer satisfaction (Li et al., 2008), as well as employees' work attitudes.

In addition, firms can also create an environment that embodies a learning climate and a training system for employees to increase the efficiency of a firm's internalization activities (Castrogiovanni, Urbano, & Loras, 2011; Lambert & Vero, 2013).

Limitations and Suggestions

The results of this study clarify the differences in the KCP for different organizational goals and build up the guidelines for the KCP in different firms so that they are enabled to modify their processes to match their organizational goals. Following our findings, a firm will be able to enjoy more competitive advantages compared to rivals who do not mark out the activities they need most.

However, this study still has some limitations. First, the sample size is small, which is a common problem in the empirical literature about firm performance. Second, the research is based on self-reported data, which might incur the possibility of common method bias; additionally, the reliability of the sample is not higher than .9. However, the tests of common method variance did not find a serious problem in this study. The reliability is about .88. The reason is that the objective of this study includes the manufacturing and service industries; hence, some questionnaire items in this study are fit for the manufacturing industry, but not for the service industry, whereas some are suitable for the service industry but not for the manufacturing industry. This would be the reason why the validity of this questionnaire is relatively low. However, this study also used multiple assessments to detect validity, such as convergent validity and discriminant validity. Future research might use a project-base for KM processes in different industries to strengthen the research design.

As for future research suggestions, this study did not take into account the empowerment of employees when they perform specific knowledge activities. A manager of a learning organization should make it an 'execution-as-learning' organization, where the employees are enabled to collaborate, by making information available, routinely capturing process data, and finding ways to improve (Edmondson, 2008). To achieve this goal, the organization's KM must involve empowerment. Therefore, we suggest that future studies consider the effects of empowerment on the efficacy of KM.

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The Role of Serbian Higher Business Education in Overcoming the Challenges of SME Managers

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In this exploratory study, in-depth interviews with Serbian managers of small- and medium-sized enterprises (SMEs) were conducted to identify their main work-related challenges and the extent to which formal higher business education has helped them to overcome these challenges. Serbian SME managers find the main challenges to be related to HR- and marketing-related issues, followed by country-specific problems, such as dealing with bureaucracy, difficulties in obtaining financial resources, and coping with delayed payments. They see considerable deficits in the current system of higher business education, specifically referring to a lack of practice-oriented teaching methods and insufficient cooperation between the universities and the business sector.

Keywords: business education; SME; managerial challenges; Serbia; learning

Introduction

A country's economic development is significantly influenced by both the amount and success of small and medium-sized enterprises (SMEs) (Birchall & Giambona, 2007), as well as the quality of higher business education (HBE) (Brewer & Brewer, 2010). SMEs form the backbone of the Serbian economy. In 2010, 83,278 Serbian SMEs employed 611,912 persons, while the country's 509 large enterprises provided 412,884 jobs (Statistical Office of the Republic of Serbia, 2012). The challenges that SME managers are faced with differ from those of large enterprise executives. HBE, which we define as tertiary education that includes bachelor and master studies focusing on business-related social science studies (e.g. business studies, management studies, finance, banking, organisation, marketing, and business administration), often focuses on the management of large companies rather than taking care of the specifics of SMEs.

In Serbia, the national higher education scheme is reorganised according to the Serbian National Qualifications Framework (SNQF) for Higher Education in accordance with the Bologna process (Damnjanovic, 2010; EHEA,

2003). This is also an opportunity to evaluate the current situation and effectiveness of HBE in Serbia from the SME managers' point of view.

In the literature, we can find general concerns about the effectiveness of HBE. For decades, authors have been claiming that business schools and business-related university programs often fail to adequately prepare students for a successful managerial career (Livingston, 1971). In this paper, we review the literature on HBE effectiveness, explore the challenges of SME managers with a specific focus on the situation in Serbia, and evaluate to what extent the Serbian HBE, in its current form, contributes to mastering these challenges.

Theoretical Background

Many researchers have been studying the effectiveness of business education at the university level. Therefore, we will review the existing research in this field. Subsequently, we will also discuss the specific challenges that SME managers in general, and in Serbia in particular, are facing.

Effectiveness of Higher Business Education

In a classic Harvard Business Review article, Livingston (1971) strongly criticises existing business education programs and questions the effectiveness of business schools. This article triggered a general discussion about the effectiveness of formal business education, first in the US and later also in Europe. Critical voices (e.g. Brotheridge & Long, 2007; Muller & Porter, 1997; Quelch, 2005) especially questioned the teaching methods that are mainly theory-based (Atwater, Kannan & Stephens, 2008; Benjamin & O'Reilly, 2011; Culliton, 1952; Jurše, 2009; Livingston, 1971; Pfeffer & Fong, 2002; Porter & McKibbin, 1988), the learning environment (Atwater et al., 2008; Muller & Porter, 1997; Stukalina, 2008), and the teaching qualifications of faculty members (Benjamin & O'Reilly, 2011; Bennis & O'Toole, 2005; McGrath Gunther, 2007). Pfeffer and Fong (2002) argue that many management teachers are lacking professional managerial experience, and are therefore often not able to effectively transfer the skills necessary for the managerial profession to the students. On the other hand, McGrath Gunther (2007) advocates a combination of both academic faculty and experienced professionals.

Furthermore, a stream of criticism also revolves around a strongly market-driven education environment. In a competitive climate in which schools focus on profit rather than on student learning (Jurše, 2009), the influence of outside organisations and politics on HBE can increase (Muller & Porter, 1997). Additionally, a trend towards 'edutainment,' emphasizing fun and simple information rather than in-depth thinking and learning, has been identified as an effect of this market-driven education environment (Holbrook, 2004; Jurše, 2009).

A further frequently mentioned reason for the alleged low effectiveness of HBE is poor adaptation of programs to a rapidly changing external environment, as technologies and markets develop at an unrelenting pace (Atwater et al., 2008). Stukalina (2008), for example, argues that curricula, contents, and teaching methods should become more flexible to adapt to the technological, managerial, and pedagogical changes. Moreover, Pfeffer and Fong (2002) point out the importance of connecting business management with other professions, following their observation that cross-functional solutions are often needed in dynamic environments.

Mintzberg and Gosling (2002) even claim that it is not possible to teach management in business schools solely on a theoretical basis, and that only the students with previous managerial experience are able to develop the essential managerial skills. Therefore, different authors call for an integration of multidisciplinary education, teamwork, and managerial practice in HBE (Benjamin & O'Reilly, 2011; Pfeffer & Fong, 2002; Stukalina, 2008).

Higher Business Education in Serbia

In 2003, a modernization process of the higher education system in accordance with the Bologna framework was launched in Serbia. In 2010, the new Serbian National Qualification Framework came into action based on the Bologna model (EHEA, 2003). With the preparation of the new framework, the European Commission played an important role in shaping the new educational system, as well as in the reorganisation of the study programs in Serbia (Jurše, 2009). Through these developments, the Serbian HBE has become structurally comparable with HBE in the European Union. The number of social sciences, business, and law graduates rose from 9,899 in 2009 to 11,216 in 2010 (Statistical Office of the Republic of Serbia, 2013).

However, at the same time research results reveal that students only acquire limited problem-solving skills and competences for implementing theory into practice (Damjanovic, 2010). Further challenges that are shaping the Serbian higher education environment are connected with a changing role of management in society, a changing political and economical environment in Serbia (especially the influence of politics on education), and the increasing internationalization of higher education.

Serbian HBE was also criticised for poor cooperation between business and education sectors (especially regarding the development of education programs according to the real market needs), insufficient cooperation between students and local companies (in real case projects, master theses or seminar papers), and a lack of assistance for graduates to find their first job among partner companies (Damjanovic, 2010). Suggestions for the improvement of the Serbian HBE system include modernization of the general teaching approach, including enhanced teamwork, providing opportunities

for applying problem-solving strategies, and searching, combining and evaluating knowledge from different sources (Smirnov, 2008), reduction of government influence on education, increasing the proficiency of teaching professionals in using modern teaching methods, and offering programs that are more relevant for current labour market requirements (Damnjanovic, 2010).

General Challenges for SME Managers

In today's dynamic, globalised environment, SME management has been increasing in complexity, while in the past, many SME managers often relied mainly on business instinct (Engstrom, 1967). Rutherford, Buller & McMullen (2003, p. 41) argue that 'daily there are more than thousands of firms that do not succeed in business mainly because of their managerial incompetence.' Success of SMEs thereby depends on recognizing key managerial challenges and finding well-defined solutions for those challenges (Rutherford et al., 2003).

Commonly mentioned challenges for SME managers can be categorised into the following (Dearborn & Simon, 1958; Huang & Brown, 1999; Rutherford et al., 2003; Terpstra & Olson, 1993; Walsh, 1988):

- *Marketing and sales challenges* for SME managers include a lack of financial resources for marketing (Weinrauch, Mann, Robinson, & Pharr, 1991), poor marketing knowledge and competences (Huang & Brown, 1999; McGrath & O'Toole, 2011), weak customer communication and public relations, sales, choosing the right target market, searching for the best location, pricing, and competition assessment (Dodge & Robbins, 1992; Huang & Brown, 1999).
- *Human resource management challenges* for SME managers include the complexity of the HR management system and a lack of competences to handle all aspects of it, especially the selection process, HR planning, performance and reward systems, training, paperwork, and skill development of employees (Baird & Meshoulam, 1988; Tocher & Rutherford, 2009).
- *Financial challenges* for SME managers include a lack of knowledge, especially in accounting, financial planning, poor cash-flow, financial resource allocation, approval of credit and loans, and participating in government grant application processes (Dodge & Robbins, 1992; Huang & Brown, 1999). Furthermore, SME managers are usually expected to have more difficulties in cooperating with banks, as well as worse conditions for obtaining credits compared to their large corporation counterparts (Visinescu & Micuda, 2009).
- *General management and SME growth challenges*: During the launch

and growth phases of a company, it is essential for managers to have the ability to recognise the opportunities and customer needs, plan, choose a service or product delivery path, implement new technologies, establish financial control, delegate tasks, communicate effectively, and take the right decisions at the right time (Dodge & Robbins, 1992; Kontinen & Ojala, 2011; Kroeger, 1974; Shane & Venkataraman, 2000). Huang and Brown (1999) argue that many SMEs are usually established by enthusiastic individuals who in later stages of the company's development lack the necessary managerial know-how. Problems may also arise in SMEs because the entire decision-making process and responsibilities are focused on one person (Huang & Brown, 1999; Percy, Visvanathan & Watson, 2010). Further general management challenges for SME managers include inventory planning, cost control, organisational design, and dealing with influences from the external business environment (Dodge & Robbins, 1992). Also, ethical challenges are more frequently experienced, especially in an international business context (Jamnik, 2011).

Although most of the issues outlined above are not country-specific, there are also cultural and institutional factors that can influence the challenges that SME managers are facing.

Specific Challenges for SME Managers in the Serbian Business Environment

In the *Global Competitiveness Report 2012–2013*, Serbia ranked 95th out of 144 countries (World Economic Forum, 2012), and 92nd out of 183 countries in the *Ease of Doing Business* report (The World Bank, 2012). Although the Republic of Serbia is in the process of transition towards a market economy and has been holding the official status of a candidate for membership of the EU since 2011, its culture, business, and society are in many ways still influenced by the communist era, in which Serbia was an integral part of the Socialist Federal Republic of Yugoslavia (Ognjanov, 2006).

In Serbia, flexibility, tradition, interest, knowledge, and experience are highly appreciated business values, as is a communication style that is people-oriented, preferably face-to-face, and very expressive (Ognjanov, 2006; Radonjic, 2010). Building long-term relationships with business partners, gaining trust, and strong personal network connections are seen as essential for managers doing business in Serbia, as relationship building is a highly valued business characteristic (Radonjic, 2010).

Another specific challenge for SME managers in Serbia relates to the legislation and the rule of law. A lack of implementation of the European

laws in the Serbian legislation and a strong influence of ministries on the legislation process were particularly criticised in the report of SIGMA, a joint initiative of the EU and the OECD (OECD, 2011).

The combination of historical heritage, business values, culture, and political and economic environment causes corruption, which is considered an important issue in Serbia. In the 2012 *Corruption Perception Index*, Serbia ranked 80th out of 174 countries (Transparency International, 2012). Bribery and corruption were found to be widespread in the common processes, such as obtaining licences, among the political elites, and in the form of insider deals and money laundering (OECD, 2005; Upchurch & Marinkovic, 2011). It is therefore a challenge for managers to stay independent and avoid illegal businesses in a country where corruption is still considered an important issue in the business environment.

Another highly relevant challenge for the Serbian SME managers lies in obtaining the necessary financing for their business operations and business development. This is due to very high interest rates, unstable political and economic environment, low level of bank trust and high guarantee requirements (OECD, 2005). The most important source of SME financing still comes from internal financial resources, such as owners' equity, family money, and retained earnings (Marchese & Potter, 2006).

Methods

The main goal of the empirical study was to get an inside view of SME managers' challenges in Serbia and to explore to what extent HBE is helping managers to cope with these challenges. Following Hatch (2002), informant interviews were used to identify the main challenges perceived by the Serbian SME managers and the role that HBE plays in helping them to overcome these challenges. Given the exploratory nature of our study, in-depth interviews with key informants were preferred to using a survey-based questionnaire, as richness of data and search for subjective meaning were important for developing the basic understanding of the managerial challenges. The interview were based on open-ended questions regarding the challenges (e.g. 'Please describe at least three of the most important challenges that you are facing as a manager in Serbia and explain how you deal with these challenges?'), higher education (e.g. 'Please describe what kind of methods and education style were used at your university?'), and a combination of both topics (e.g. 'In your opinion, which were the most useful skills that you gained during HBE?'). Finally, the interviewees were also asked to offer some suggestions for the improvement of HBE in future.

The interviews were conducted by the first author during May and June of 2012. As suggested by Davis (2000), two pre-study interviews were held with candidates with a similar profile to the interviewees in the main study.

The semi-structured interview guideline was slightly adapted based on the findings of the pre-study. Pre-study interviews were not subsequently included in the analysis.

Twelve in-depth interviews were then conducted, of which nine had an adequate quality to be used for further analysis and discussion. Due to the time restrictions, two candidates expressed their wish for shorter interviews. The average length of the remaining interviews was 50 minutes (with a range from 30 to 60 minutes); all interviews were conducted in English language. The interviewees were also promised complete anonymity.

The contacts were obtained in different ways. Twelve universities from across Serbia (5 state-run and 7 private) were contacted and asked either for their alumni contacts, or to forward an introductory e-mail to their graduates. Furthermore, e-mails were sent to 172 Serbian SMEs, and finally, connections were also made through the Chamber of Commerce, personal networks, social media including Facebook, Xing, and LinkedIn, and with the assistance of the interviewees. The final interviews were made either via telephone or Skype. All interviewees graduated from programs that focused on economics, management, or business at either a private or public HBE institution in Serbia. Three interviewees graduated at private institutions, while six interviewees graduated at a public university (see also Table 1 for further information about interviewee profiles).

Standard content analysis procedures were used to elicit the main constructs that the respondents referred to in the interviews. The data was arranged into three overall groups according to research framework: managers' challenges, HBE in Serbia, and the role of HBE in overcoming of managers' challenges. The answers of the first group were categorised based on the type of the challenge (e.g. marketing and sales-related challenge, human resource management-related challenge, or growth challenge). In all three groups, the data was compared with theory in an iterative process. Based on these comparisons, the final conclusions were made. Reliability is ensured with a protocol of data collection and analysis procedure and the grounding of interpretation in examples from the interview data (Stiles, 1993). Different verification strategies were used to check validity based on the proposals of Morse, Barrett, Mayan, Olson, and Spiers (2000), namely making sure that the sample includes interviewees who have expert knowledge in the topic, collecting and analysing interview data iteratively, and reconfirming findings with new data.

Results

The results of our empirical research are presented in three sections. First, we summarise the opinions of SME managers regarding key challenges of conducting business and managing organizations in Serbia, and their main

Table 1 The Profile of the Interviewees

Gender		Age group		Industry	
Male	6	21–30	2	Engineering	3
Female	3	31–40	4	Consulting	2
		41–50	2	Tourism	1
		60+	1	Marketing	2
				Publishing	1
Firm size		Management experience		International experience	
Micro	3	1–3 years	4	Europe	4
Small	4	4–6 years	3	Overseas	3
Medium	2	7–9 years	1	No experience	2
		10+ years	1		

strategies to overcome these challenges. Second, we provide an insight into SME managers' perception of HBE in Serbia. Finally, we focus on the SME managers' perception of the role of HBE in overcoming their main challenges. We also include quotes from the interviewees to illustrate the main findings.

Challenges for Serbian SME Managers

Respondents highlighted eight areas of challenges that they face in their role as SME managers: (1) human resources, (2) bureaucracy, government, and legal regulations, (3) payment delays and financing, (4) marketing and sales, (5) business and personal networks, (6) growth of the company, (7) organisation of work, and (8) corruption.

The most frequently mentioned challenges within the area of human resources were the lack of motivation and responsibility of employees, manager's self-motivation, loyalty, lack of eagerness to learn, conflicts between the 'rigid' older generation and 'irresponsible' young generation, employee attraction and selection process, organisation of people, and teamwork. The following quotations illustrate some of these challenges:

You need motivated people, you need very good communication, you need sophisticated management practices and it is very important to have all these things on the table at the same time. [Manager D]

Challenges we were faced with were always a lack of any kind of [break] – well let's say – organisation, yes, self-organisation, self-motivation. Too many people are money- and not result-driven. [Manager G]

We are a small team and if one of us makes a mistake everyone is going to feel it. But the problem is that most employees don't understand that. [Manager C]

SME managers stated that they cope with some of these challenges through asserting their authority, using bonus systems, and organising social events for employees. Managers also referred to the use of mentoring or training approaches. For the employee recruitment and selection process, personal networks are often used in combination with creative interview techniques.

These people are working for a pay-cheque, plus they have bonuses for every effort they make. I think this is the best model for any type of motivation. [Manager F]

To be honest, when it comes to older people, I am managing them through my authority. That's the only way. They do it because I said it and nothing else. [Manager E]

We really like to hire people that are relatives or are children of good workers. So many people are family-connected. [Manager A]

I ask them how many books they read in the last [...] year, which daily paper they read, which weekly paper, which magazine, what are they watching on TV. In let's say five minutes I get a very good picture on what level they are. [Manager I]

The second category of challenges relates to the areas of bureaucracy, government, and legal regulations. The SME managers generally perceived administrative processes in Serbia as very slow, time consuming, rigid, and inefficient. They did not believe that much can be done about it, and have become accustomed to it. Managers also pointed out poor communication between business and politics, particularly when the latter is imposing new policies, no real strategy for business, and a high dependence on personal networks and connections. According to their statements, the legal system in Serbia is strongly focused on protecting big corporations, with SMEs being left behind. Consistent with their view of politics, SME managers see lobbying as a crucial activity for small companies to survive in Serbia.

We actually have a lot of issues with bureaucracy, also with all other similar things, but we are accepting this environment as something that can't be changed. [Manager D]

I think the problem is that we don't have strong enough institutions here in Serbia. [Manager B]

If you have some background and get some scores from a political party, then you can continue with your project and if you don't, you can't. [Manager D]

A further important challenge for Serbian SME managers is managing liquidity. This is particularly due to client payment delays, especially in case of higher amounts. Therefore, they see good long-term relationships with both suppliers and customers as key for survival in business. As the banks demand an excellent historical record, stable accounts, high interest rates, and guarantees in the form of taking mortgages against private property, external credit financing is often not an option for smaller firms.

The liquidity is the main problem. Financing not so much but liquidity is, especially during big business operations. [Manager C]

I am not sure that a lot of people would just have this – let's say – strength to get into all this. It is very uncertain. You really do not know if you will be able to pay this loan. [Manager B]

A fourth category of challenges relates to the area of marketing and sales, and includes finding ways to increase the number of customers, following new trends in marketing, such as direct marketing, as well as dealing with a shrinking and financially limited domestic market and an increasing number of competitors.

How to explain to the people that they can benefit from this type of marketing, you know, the differences between direct marketing and other kind of marketing development in the past. [Manager F]

The market is small and the competitors are too large in numbers [...] small companies, not really a threat, but when you have 10,000 of those small ones, well, that becomes a problem. [Manager C]

The main strategies to overcome the marketing- and sales-related challenges are long-term relationship building, tactical planning, innovative and unique ideas, observation of new trends, combination of modern media and good management of contact lists, and finally – very important in Serbia – strong reliance on the word of mouth.

I established a good web site with social and business network activities, [...] we organise our contact list, call and directly sell our services, [...] our marketing strategy for the first two years is the word of mouth system. [Manager H]

We prepare some programs for them [customers] – usually two days – and we do it somewhere in the mountains. And that is something that only we are doing in Serbia. [Manager I]

Building strong business and personal networks is seen as crucial for a long-term market presence. This includes searching for partners, maintaining good relationship with current business partners and clients, and

participating in business associations. Personal networks are also seen as important for attracting new employees, although less so in the final hiring decision.

If you have connections in a certain company you will be able to get a job or you will be able to get a client and if not, you are in a big trouble. It's really hard to prove yourself by just being a good quality person with great knowledge. [Manager B]

Every recommendation from a family, friends [...] is OK, but at the end of the story I cannot employ somebody that has no experiences in my type of business. [Manager F]

Growth of the company was mentioned only by a few SME managers as the key challenge. The need to prepare short- and long-term plans, future income and cost estimations, and presentations for business partners were, however, pointed out by the respondents. SME managers also used external help, turnaround management programs, different organisational practices, and intuition to choose the right time and way of change.

We had an excellent consultant from England [...] He was here as one of our employees and he knew very well all the processes and all the managers in the company. [Manager E]

You have to have some project manager, some facilitator or any kind of person who has to be out of day to day work or operations and just concentrated on management [...] So we have two educated and dedicated people just for operational management' [Manager D]

The seventh category of challenges relates to the organisation of work. Constant time pressure, delivering the best results in a short time frame, the complexity of work, and attending to all important small details were of managerial concern in this field.

The managers did not see corruption as the main challenge, although they did agree that it is a common characteristic in the Serbian business environment. They also recognised a grey area between lobbying, which they consider as crucial in business, and illegal corruption. Respondents stated that 'direct corruption' rarely happens; more frequently, SMEs are offered businesses in exchange for part of the profit. The managers also acknowledged that taking suspicious offers can make a company dependent, while rejecting them often means losing important market opportunities.

'I will get you this job, but you will have to give me a part of your profit.' And this is how it works here. It's very open. [Manager B]

Once we would start with this, then it's very hard to be independent. [...] Of course it is hard to know that we lost good business. We had so many cases that we lost some part of the market [Manager I]

SME Managers' Perception of Higher Business Education in Serbia

The interviewed SME managers voiced criticism of the teaching methods, curricula, and the quality of the teaching faculty of higher education institutions. During their formal business education, they were provided with a lot of theory and only limited practical experiences, although three alumni from a private university reported the use of practice-oriented case studies as a teaching method. The curriculum was mainly theory-based and the managers generally missed applicable knowledge (e.g. about business start-up, the complex structure of an organisation, project management, 'soft' managerial and communication skills, teamwork, and team decision-making). Programs were considered as old-fashioned. During their time at university, the managers also did not notice much cooperation between higher education and local businesses.

A bunch of old-fashioned methods, tools and techniques that are outdated and completely unrecognised on the market. [Manager G]

We didn't get any experience during college, I didn't have any experience that would be provided from my college such as internship or something like that. [Manager F]

There are no subjects that would teach young managers how to behave, how to talk to people, how to treat their valuable assets – it's human assets, of course. [Manager B]

The best and famous event is the Case Study Show where students solve real company problems every year [...] It's a real company, a real problem. [Manager H]

Managers also complained about the standards in the teaching profession. A common line of criticism referred to professors that often have a solid academic background, but no professional experiences, as well as to the faculty members without sufficient knowledge about the requirements of today's business world and market trends. Three interviewees, however, also expressed satisfaction with some of their former professors, especially those who gave some practical examples or organised guest lecturers.

They don't know really anything about how to make money. They just know things theoretically and they are telling big stories about this and that, but they don't really know how to turn around 100 Euros. [Manager I]

We had both types of them [professors]. And we always liked those who had some experience and also academic knowledge. [Manager E]

Other perceived weaknesses of HBE that were mentioned in the interviews were the lack of business experiences of the students, as well as the lack of cooperation between companies and universities.

Education following some experience in the managerial area can be much more useful and is better accepted than education without previous experiences. [Manager D]

There is no absolutely modern practice or any kind of internship model in most of the universities, both private and state. [...] basically we were depending on ourselves where to go after [studying]. [Manager G]

The Role of HBE in Overcoming the Challenges of Serbian SME Managers

The interviewed SME managers pointed out some positive outcomes of the formal business education, such as the opportunity to access different data, libraries, and web pages, and to learn individually from these sources. Furthermore, they recognised the opportunity to build a strong network of professionals from different programs. Nevertheless, they tend to see formal education only as a first step that provided them with a basic overview of the market system, but did not help them to understand private business practices and to survive as entrepreneurs. Most managers stated that they also needed additional learning, seminars, and experiences.

I met all these people [experts in different areas] during my studies at the university. I mean in different faculties, but in university you can always find the right people to cooperate with. [Manager G]

It made me aware of where to look and how to look and to understand things, but logical conclusion making – no [I could not find it]. [Manager F]

To compensate for what they did not get during their formal business education, managers turned to external education providers, education abroad, seminars and trainings, business networks and business partners, family and friends, self-teaching, and relied on practical experience.

I talked with people from different types of business or with the people with whom I can exchange my ideas and [...] who have some experiences in solving similar problems. [Manager F]

My mother is still in the office so she helps a lot. She has been working here so long. [Manager C]

And every decision I am now making on those things [experiences] that I have learned in the last 20 years. It's not the university, I just forgot about the university as soon as I started working. [Manager I]

Finally, based on what the managers were missing in their own HBE, and on the knowledge and skills they had to acquire additionally, SME managers gave some recommendations for further development of business education. The main proposed improvements were related to changing the curriculum and adding additional courses, modernizing teaching methods, increasing cooperation with the business sector, introducing internship systems, increasing admission requirements in terms of students' experiences, employing more experienced teaching professionals, and introducing psychological evaluations of students at the end of each semester:

It must be not only delivering the knowledge but asking from students to point out the problems and at the same time give you the solutions. [Manager E]

Discussion

The results of the empirical research among Serbian SME managers confirmed many of the findings from the extant literature. No gender-specific differences were noticed in the perception of managerial challenges, which is in line with DeMartino and Barbato (2003). The most frequently mentioned challenges referred to the areas of human resource management, marketing and sales, and general management, which is in line with prior research results, such as, Huang and Brown (1999). As suggested by Dodge and Robbins (1992), the research confirmed that SME managers face challenges such as market assessment, customer contact, competition assessment, and a lack of financial resources for marketing. To overcome these challenges, managers build strong physical and virtual networks among SMEs (McGrath & O'Toole, 2011) and attempt to create and maintain long-term relationships with their customers (Percy et al., 2010). Moreover, managers confirmed that time pressure, decision-making, dynamic and unstable business environment, organisational growth, and choosing the right time for reorganisation were also relevant challenges, which is consistent with the findings of Huang and Brown (1999), Miller and Toulouse (1986), and Ray, Baker and Plowman (2011).

In view of the specifics of the Serbian business environment, the respondents confirmed that the observations of Kovalainen (2006), Ognjanov (2006) and the OECD (2011) concerning inadequate implementation of laws, unfair competition, irrational implementation of rules, high level of bureaucracy, and slow, rigid administration, also play an important role in the operation of SMEs. In Serbia, personal and business networks are also

highly important in the business sector, especially for obtaining financial resources, attracting employees, and to close business deals (as proposed by Ognjanov, 2006; Radonjic, 2010). Further country-specific challenges that were confirmed by our empirical study were general difficulties in obtaining government grant assistance, credits and loans, as well as strict bank policies (Huang & Brown, 1999; Visinescu & Micuda, 2009). One of the major challenges mentioned by the participants that have not been previously covered by the reviewed literature was the issue of payment delays, particularly from large corporations, governmental and public institutions. For many of the most frequently cited challenges, interpersonal competences are needed (for motivating employees and establishing customer relationships, as well as lobbying, overcoming administrative hurdles or ensuring faster payment due to better relationships). Although crucial for SME managers, developing these 'soft' competences is usually not the main focus of HBE programs.

The main aim of HBE lies in providing the students with all the skills and competences relevant for their future managerial career (Jurše, 2009). As mentioned already in the literature review, critics doubt that HBE is able to reach this aim (Atwater et al., 2008; Livingston, 1971). The main lines of criticism in the extant literature, particularly the extensive focus on theory and the lack of attention to practical work and experiences, were also emphasized by the Serbian SME managers. Similar to Atwater et al. (2008), the managers also claimed that there is not enough knowledge about the integration of different organisational levels and organisational functions in different environments. In line with Bennis and O'Toole (2005), SME managers perceived the lack of professional experiences of teaching professionals as a problem, making the transfer of theory into practice more difficult (Pfeffer & Fong, 2002). Managers also complained about 'old-fashioned' teaching methods, consequently urging for a combination of managerial practice and modern pedagogical tools to be used in classes. Furthermore, SME managers agree with Damjanovic (2010) that cooperation between business and education sectors is not sufficient and should be better implemented in the teaching plans. In general, our research confirms Livingston's (1971) proposition that students are lacking practical experiences, which in turn lowers the (perceived) quality of HBE. The SME managers also pointed out that theory and classes would be more effective if the students already understood the managerial profession from their own practical experience.

Based on their experiences acquired through both, formal business education and managerial practice, the managers proposed some future improvements for HBE. The main suggestions included the modernization of teaching methods and better connection of the business sector with the

HBE; adding additional courses to the curricula, particularly the courses related to managerial soft skills and the nature of managerial work; raising the requirements regarding student admission requirements and faculty member expertise, especially in terms of previous business experiences. These suggestions support Stukalina's (2008) advocacy for a multidisciplinary and interactive approach to study, Livingston's (1971) and Preffer and Fong's (2002) call for obligatory internships for every business education program, and Engstrom's (1967) and Mintzberg and Gosling's (2002) suggestions to put more emphasis on courses such as managerial soft skills, communication, law, and psychology in business education programs.

This paper presents the first exploratory study of the challenges that Serbian SME managers are facing and whether they perceive HBE as supportive in overcoming these challenges. One of the main limitations of this research, however, is that it is based on the analysis of only nine interviews. Together with the fact that due to a low response rate to the interview requests, the respondents graduated from only two universities, one private and one public, the results cannot be generalised. The selected method of sampling might be one of the main reasons for the low response rate, since the search for candidates and interviews was made via the Internet or telephone and not in person. A lack of personal contact with potential interviewees can be connected with lower trust and can result in a low response rate. Although qualitative research does not generally require a large sample, a more diverse interviewee base would be desirable. Further quantitative research could focus on the differences between the perceptions of alumni from private universities as opposed to the alumni from public universities, and could also reveal whether factors such as industry affiliation, company size, tenure, or international experience also influence the SME managers' views regarding the practical value of HBE.

Conclusion

The results of our research reveal that Serbian SME managers are not fully satisfied with the HBE that they received in Serbia and its capacity to support them in dealing with their daily challenges. Primarily theory-based curricula received most criticism, closely followed by old-fashioned teaching methods, and the lack of practice-oriented teaching. Based on the findings of this study, the following measures could be taken by higher education institutions in Serbia to improve the practical relevance of their programs: (a) including more (full-time or part-time) faculty members with practical business experience, (b) discussing real-world challenges in the classroom (e.g. based on case studies of Serbian companies), (c) stronger focus on developing managerial 'soft' competences (e.g. communication, building relationships, networking, and team dynamics), and (d) intensifying cooper-

ation with companies (e.g. in the form of obligatory internships or student projects for SMEs).

Relevance for practice begins with finding out what practitioners need. This study provides the first step to a better understanding of the specific requirements of SME managers as an important target group for HBE in Serbia.

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The Role of Knowledge Management in Higher Education Institutions: A Case Study from Tanzania

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The aim of the paper was to investigate the role of knowledge management in higher education institutions. The case study was based on the Stefano Moshi Memorial University College (SMMUCo). The study relied on both secondary and primary data; primary data was obtained mainly through a questionnaire, observations, as well as short interviews/discussions with students and lecturers, since the researcher is a lecturer at SMMUCo. The findings show that the current University website and the general state of IT infrastructure is not adequate in supporting the knowledge management activities, for example both students and lecturers pointed out a lack of an information system where they could login to access specific information (e.g. individual course results, lecture notes, news bulletins and updates from the management). The paper concludes by highlighting the development of the knowledge management model, which SMMUCo could implement in order to achieve effective knowledge management. The model suggests that in order to build the knowledge management capabilities, the university should effectively align its key resources, namely: (a) Employees (both academic and administrative staff), (b) University content (e.g. lecture notes, programs, policies etc.), and (c) ICT infrastructure. The use of relevant technologies is highly recommended, since technology is viewed as a resource that can improve knowledge management.

Keywords: information; knowledge; knowledge management; higher learning institutions; information technology

Introduction

One of the current challenges facing the newly established university colleges in Tanzania is the question of how to establish the competencies for knowledge management. Stefano Moshi Memorial University College (SMMUCo) was established in 2007 by the Northern Diocese of Evangelical Lutheran Church of Tanzania (ELCT) as a constituent college of Tumaini University. The College has three campuses, each located in a different area i.e. Masoka, Mwika, and Moshi town. SMMUCo is named in memory and honour of Stefano Moshi who served as the first Bishop of the Evangelical Lutheran Church of Tanzania (ELCT) between 1963 and to 1976.

In the first academic year, which was in 2007/2008, the college had 326

students attending certificate and diploma programs. Since then, SMMUCo gradually increased the number of the offered academic programs, as well as the number of enrolled students. Today, it has more than 2000 students pursuing a variety of certificate, diploma, and degree programs. Given the gradual increase in the number of academic programs and the number of students, the information and knowledge management challenges were inevitable.

One of the ways of effectively managing information and knowledge is by using information systems/technology. However, during the research it was established that the current university website is static in nature i.e. not dynamic, and thus unable to provide specific answers to its users, such as individual student results, real-time news bulletins and updates from the management to mention a few. This can potentially limit the university's ability to meet information and knowledge needs of its stakeholders and above all it can potentially limit the university's competitiveness within the industry. Therefore, in order to effectively compete, the university should effectively leverage information and knowledge across all of its campuses. It is vital to note that reputable universities, such as Oxford and Cambridge have invested heavily in the information and knowledge management systems aimed at improving their ability to generate, capture, and disseminate educational knowledge.

Many authors including Stata (1990), Kim (1993), Davenport and Prusak (1998) agree that carefully managed intellectual resources (especially knowledge) enable companies to develop and maintain sustainable competitive advantage. However, this requires effective use of information and knowledge across the organisational functional units. This fact is emphasized by Buckley and Carter (2000) and Mudambi (2002), who state that knowledge is a resource that enables organisations to deal with uncertainty. Therefore, exploring the concept of knowledge management within SMMUCo and understanding the various existing knowledge perspectives, such as knowledge as a state of mind (mainly evident among lecturers and other executive staff), knowledge as an object (i.e. university documents, reports, etc.), will enable the researcher in developing a tailored methodology of how to effectively leverage a university wide knowledge. Thus, the research sets out the mechanisms and approaches regarding effective leveraging and managing of information and knowledge in higher education institutions, such as SMMUCO.

Research Methodology

Both desk and case study approach were used. Namely, secondary data, such as data from reports, books, and academic journals was used together with primary data, which was obtained primarily via a questionnaire, via ob-

servations, and short interviews/discussions with students and lectures. The use of 'desk and case study approach' had various advantages, for example it enabled the researcher to study real-life events, such as organisational and managerial processes, as well as life cycles, while retaining the holistic and meaningful characteristics of these events. Likewise, the use of a case study provided the researcher with the opportunity to deal with a full variety of evidence, for example the researcher was able to review various documents, make observations, and interviews while at work. The case study approach enabled the researcher to highlight the link between the secondary data and the facts gathered via interviews, observations, and discussions with students and lecturers, which provided a coherent approach leading to the research conclusions.

Examining the Concepts of Knowledge, Management, and Knowledge Management

In order to shade light on the significance of knowledge management, it is vital to discuss knowledge and management as separate concepts, before exploring the meaning of knowledge management.

The Concept of Knowledge

Various authors, including Fahey and Prusak (1998), Dreske (1999), and Vance (1997), define knowledge by differentiating it from data and information. Data is typically defined as raw material or facts and figures, while information is data that has been processed in order to provide a meaning to the user, while knowledge is information that is put to productive use. Nonaka and Nishiguchi (2001), Jordan and Jones (1997), Schubert et al. (1998) have defined knowledge as a justified belief that increases an individual's or an entity's capacity for effective action. The analysis of these definitions implies that knowledge is personalized information related to facts, ideas, interpretation, and judgment or information embedded in the mind of individuals. They also imply that knowledge is unique and context-specific, and is often intangible and elusive. Therefore, given its nature, knowledge should be managed carefully. Knowledge can be classified in different ways, for example, Schubert et al (1998) argue that knowledge is a *state of mind*; in this case, the focus is on enabling the individuals to expand their personal knowledge and apply it to the organization's needs, while knowledge as a *process* is when it is applied to the organisational tasks in order to achieve specific goals. In this case, Schubert puts more emphasis on the organizational processes, because they have the ability to create and add value to organizational activities. However, Carlsson, El Sawy, Eriksson, and Raven (1996) argue that knowledge is more fluid when classified as an *object*, because it is envisaged as 'things' which can be

stored and manipulated according to the needs of the user, while knowledge as a *capability* is described by Carlsson as one with the potential for influencing future actions.

McQueen (1998) classified Knowledge as a *condition of access to information*; this implies the need for the organizational knowledge to be organized in order to enable effective access and retrieval of organisational wide content. This could be argued as an extension of knowledge, as an *object*, because it highlights the need for accessing knowledge objects. Given the different views, i.e. classifications of knowledge, this will inevitably lead to different approaches of managing knowledge; for instance, if knowledge is perceived as an *object* or as a *condition of access to information*, then knowledge management should focus on building and managing knowledge stocks. However, if knowledge is seen as a *process*, then the focus should be on the knowledge flow and on the process of creating, sharing, and distributing knowledge.

Knowledge as a *capability* suggests a knowledge management approach focused on building core competencies, on understanding the strategic know-how advantage, and on creating intellectual capital. Within the university, knowledge can be seen as intellectual capital, this includes human intellect, which includes the technical know-how, trouble shooting capacity, imagination, and managerial skills, which are embedded in the employees of the organisation. Zack (1999) identified three different perspectives of knowledge, namely core knowledge, advanced knowledge, and innovative knowledge. Core knowledge includes the necessary understanding that the organization has, and needs, within the industry in order to remain competitive, while advanced knowledge is defined as knowledge possessed by the knowledge workers. Innovative knowledge is defined as knowledge, which leads to creativity, thus enabling a person to think in a dynamic way in order to achieve the organizational goals and objectives. Zack argues that advanced knowledge leads to the differentiation of firms within industries. However, an organization with both innovative and advanced knowledge can robustly influence the dynamics within an industry; this is due to the fact that they are able to develop new innovative products and services, thus maintaining their market position/share while competitors struggle to adapt.

Nonaka and Takeuchi (1995) argue that justified belief and commitment are the essential characteristics of knowledge. In this case, Nonaka and Takeuchi see knowledge creation as being driven by the flow of information, in relation to the beliefs and commitment of the holder. Their main proposition is that knowledge is related to human action and behaviour. This led Nonaka and Takeuchi to develop a knowledge topology referred to as tacit and explicit knowledge. Tacit knowledge is regarded as the knowledge or

know-how that people carry in their heads. It includes skills, experience, insight, intuition, and judgment. This knowledge is difficult to articulate or write down within organisations; therefore, it tends to be shared among the employees through discussions and personal interactions.

While explicit knowledge is knowledge that can be encoded and made available to others, since it is easily articulated and is transferable from one person to another. In doing so, the recipients add to their stock of tacit knowledge. Therefore, explicit knowledge can be expressed in a form of documentation, such as books, journals, and reports or it can be tracked in databases.

The importance of knowledge cannot be underestimated, as rightly argued by Davenport and Prusak (1998), as strategic resource, which should be carefully cultivated, nurtured, and managed. Davenport argues that we are living in an era in which traditional factors (i.e. land, agriculture, manufacturing, etc.) are no longer the key factors of economic growth. This new era has been defined by Davenport and Beck (2002) as the knowledge based economy, where knowledge is the vital force for economic growth and the source for gaining the competitive advantage

Drucker (1999) describes the companies working in the knowledge based economy as composed of specialists who direct and discipline their own performance through organised feedback from their colleagues, customers, and line managers. Drucker asserts the notion that we live in a knowledge based society where knowledge is the source of power.

The Concept of Management

Brech (1975) describes management as a social process that holds the responsibility for effective economic planning and regulation of the enterprise with the fulfilment of given goals/objectives. However, Stewart (1986) describes management as deciding what needs to be done and then getting other people to do it. To a large extent, management addresses people rather than technical issues, it is more geared to addressing the behavioural and mindset issues of the employees. However, the success of the management activities often depends on the ability to delegate tasks to subordinates, which requires someone who takes the responsibility of the manager. Thus, the role of managers is not to do all the work themselves, but to ensure the people with the skills to carry out the work. Mintzberg (1989) argued that the role of a manager is to plan, organise, co-ordinate, and control organisational activities, while Taylor (1947) depicts the manager as the scientifically trained designer of work. Taylor argued that managerial activities should focus on the design and supervision of the work processes that minimise the effort and skills necessary for an employee to perform his or her work.

The Concept of Knowledge Management

The concept of 'knowledge management' is a recent phenomenon when compared to the concepts of knowledge and management. The idea of combining the two can be traced back to Hansen (2002) who discussed the emergence of communication technologies that create access to computerised networks, which allow real-time communications despite the physical distance. He argued that technologies such as the internet, intranet, email, and the World Wide Web make it feasible for knowledge and management to be combined, thus enabling the concept of knowledge management.

However, over the last two decades, researchers and academics have failed to universally agree on a commonly accepted definition of what knowledge management is, likewise some are not convinced about the practicalities of managing knowledge. Hull (2000) argues that the concept of knowledge management is not merely a passing fad, but is in the process of establishing itself as a new aspect of management. Table 1 illustrates the various perspectives (definitions) of different authors regarding what knowledge management is.

From this analysis, it is clear that the concept of KM has not reached the maturity stage, given that there is no clear or consistent definition from the literature; this goes to show the different approach that exists in relation to the exploitation and managing of knowledge. However, it was worth noting that most of the definitions concentrate on a number of key aspects of managing knowledge, for instance most definitions emphasize the creation of a learning environment, re-usage of knowledge, providing the knowledge for decision making; furthermore, to some extent, they view KM as a set of organisational and operational design principles. Whatever the difference in the various definitions, the majority of authors agree that KM processes enable organisations to capture, store, transfer, and leverage knowledge throughout the organisation and, when aligned with the business objectives, it has the ability to enhance the employee and organisation performance.

The Yard Stick for Measuring Knowledge Management

In order to measure KM at SMMUCo, the researcher used the knowledge management value chain (KMVC) as a yard stick, which was developed by Nonaka and Takeuchi (Morey, Maybury, & Thuraisingham, 2002). The KMVC illustrates the identified knowledge management activities (i.e. knowledge creation, storage, distribution, and application) and how they can contribute toward creating and exploiting knowledge within an organisation. Below is a discussion regarding each of the KMVC activities and how they can be used to enhance, accumulate, and leverage the stocks of knowledge within the university college.

Table 1 Knowledge Management Perspectives

Author	Year	Knowledge Management Perspectives
Nonaka	1994	Knowledge management is the effective use of techniques and tools available to capture, store, transfer, and disseminate the expertise and know-how of individuals and groups within an organisation.
Leonard-Barton	1995	Knowledge management constitute the necessary activities required within a given environment in which people are invited and facilitated to develop, share, combine, consolidate, and apply relevant knowledge.
Ruggles	1998	KM is anything from organisational learning to database management. [From this definition it can be argued that KM refers to the processes of adding or creating value by actively leveraging the know-how, experience, and judgement resident within and outside the organisation.]
Blake	1998	Knowledge management is the process of capturing a company's collective expertise where it resides - in databases, on paper, or in people's heads, and distributing it to where it can help produce the biggest payoff
Cross	1998	Knowledge management is the discipline of creating a thriving work and learning environment that fosters the continuous creation, aggregation, use and re-use of both organisational and personal knowledge in the pursuit of new business value.
Teece	1998	Knowledge management is the systematic process for creating, acquiring, capturing, assembly, sharing, integration, leveraging, and exploitation (using) of knowledge to retain competitive advantage and achieve the organizational goals.
Hansen, Nohria, and Tierney	1999	Knowledge management is getting the right knowledge to the right people at the right time so they can make the best decision.
Earl	2001	Knowledge management is an emerging set of organisational design and operational principles, processes, organisational structures, applications, and technologies that helps knowledge workers dramatically leverage their creativity and ability to deliver business value.
Mertins, Heisig, and Vorbeck	2001	Knowledge management describes all methods, instruments and tools that, in a holistic approach, contribute to the promotion of core knowledge process – to generate knowledge, to store knowledge, to distribute knowledge, and to apply knowledge supported by the definition of knowledge goals and the identification of knowledge – in all areas and levels of the organisation.
Malhotra	2001	Knowledge management embodies the organisational processes that seek synergistic combination of data and information processing capacity of information technologies, and the creativity and innovative capacity of human beings.
Quintas	2002	Knowledge management is the process of continually managing knowledge of all kinds to meet the existing and emerging needs, to identify and exploit the existing and acquired knowledge assets and to develop new opportunities.
Chaffey and Wood	2005	The capabilities by which communities within an organization capture the knowledge that is critical to them, constantly improve it, and make it available in the most effective manner to those who need it, so they can exploit it creatively to add value as part of their work.

Knowledge Creation

The ability to create knowledge has paramount importance in meeting the university's needs. The formalised methods for knowledge creation should be emphasized, for instance the knowledge from past student projects, examination results, past papers, and course materials should be stored in databases for future use by the students and the lecturers. It is vital to note that Choo (1998) argues that knowledge creation begins with an individual in the form of tacit knowledge (knowledge that cannot be easily articulated), thus the university should attempt to codify individual knowledge, thus making it available to others.

Knowledge Storage

The full potential of knowledge within the university can only be realised through the process of capturing, storage, and articulation of data and information, thus making it available to an individual or university wider use. Boisot (1998) argues that the storage of knowledge is vital in the implementation of the full value of knowledge. This is due to the fact that stored knowledge, which is often codified, can be easily transferred within an organisation. Thus, stored knowledge will be able to be used in the teaching and the curriculum development processes, hence adding value to the process of teaching and learning.

However, the challenge lies in capturing relevant, reliable, and valuable knowledge for the performance of specific activities. It is thus vital that, during the knowledge capture and storage process, an evaluation of knowledge is constantly performed in order to assess whether relevant and reliable knowledge is being captured for the required purpose.

Knowledge Distribution

Despite knowledge creation and storage, it would be unthinkable to imagine how the university can leverage knowledge without knowledge distribution. Thus, new knowledge will need to be distributed or shared among individuals with the intention of utilising it. Shared or distributed knowledge could include the following: knowledge about students, subjects, programmes, or lecture notes. Szulanski (2003) highlights a number of factors, which might hinder the effective distribution or sharing of knowledge, some of these include uncertainty concerning the source of knowledge, a culture of intolerance, a lack of trust among the employees, and weak channel(s) of communication

These and other factors highlight the need for the university to create an environment where effective knowledge sharing and distribution can become the norm at all levels. Consequently, the university requires relevant

social and ICT infrastructure, for example a web database, which can be accessed at anytime from anywhere by the students and the employees.

Knowledge Application

So far, the discussed knowledge activities do not necessarily lead to effective leveraging of knowledge; however, effective application or exploitation of knowledge does. In fact, the performance of an organisation depends on the ability to exploit knowledge and resources in order to create products and services.

Pfeffer and Sutton (2002) emphasize the gaps in organisations between what they know and what they do. Namely, despite the fact that they can access and assimilate knowledge, they sometimes do not apply it. Thus, even though they have a relevant system that stores various knowledge objects, there is no guarantee that they will be put to productive use; for this to happen, the management needs to cultivate a knowledge management culture.

Given the KMVC discussed above, it may appear that the knowledge management activities take place in a linear form, but that is not necessarily true. For the sake of simplicity and clarity, the flow of knowledge is depicted as going from one state to another. However, it is possible that some of the activities take place in parallel with each other; consequently, there will be several iterations between different types of knowledge management activities on some occasions.

Summary of Findings & Discussion

Demographic Information of Participants

Table 2 summarizes the demographic information of the participants. A total of 225 responses were received of which 40.44% were female and 59.56% male. The participants were chosen from the 3rd (final) year students' who had recently completed their studies after 3 years of study at SMMUCo. The participants were chosen from various departments, namely the education department (100 students, 44.4%), business studies (40 students, 17.78%), and public administration & management (40 students, 17.78%), among others.

User Trends of SMMUCo University Website among the Respondents

The participants were asked if they ever used the university website and for what reasons. The majority of participants (88.89%) used the SMMUCo website for checking their final exam results at the end of each semester once they have been uploaded in pdf format, this was the only reason cited by the participants, see Table 3.

Table 2 Demographic Information of Participants

Category		Number	Percentage
Gender	Female	91	40.44
	Male	134	59.56
	Total	225	100
Department	Information Technology	15	6.67
	Tourism	10	4.44
	Business studies	40	17.78
	Accounting	20	8.89
	Public administration & management	40	17.78
	Education	100	44.44
	Total	225	100

Table 3 Website Use by the Participants

Reason	Number	Percentage
Download lecture notes/assignment	0	0
Group discussion	0	0
Read SUMMCo news	0	0
Check exam results	200	88.89
Read announcements	0	0
Contact staff/management	0	0

Table 4 Suggested Services by the Participants

Reason	Number	Percentage
Staff finder	50	22.22
Intranet/blackboard	194	86.22
Discussion board	30	13.33
LAN among the SMMUCo campuses	12	5.33
Staff e-mail	30	13.33

Most of the participants pointed to the fact that the university's website has limited data/information, for instance the website has no services where students can download lectures notes, read SMMUCo news and announcements from staff and management. The students often struggle to extract valuable insights from the sea of data available on the website.

The participants were given a list of services/technologies and asked to choose which services they would prefer on the university website. The majority of the participants (86.22%) expressed the desire to have intranet/blackboard services. Given the current advances in the information and communication technology, technologies such as 'staff finder,' 'intranet/blackboard,' and 'discussion board' could help students and employees to share and manage knowledge effectively. For instance, the 'staff

finder' might have information such as names, email addresses, phone numbers and home addresses, job expertise's, and interests. This would encourage the staff to publish their interests and expertise, thus making it easy for the staff to share information. Intranet/blackboard technology could be used to store past papers and lecture notes, thus enabling students to download and store content whenever needed.

Such technologies would not only aid in connecting the employees, but would also help in the delivery of information updates, which would help in speeding up the decision making and effective knowledge leverage across the university.

The Awareness of Knowledge Management Strategy

For effective knowledge management, it is necessary that the knowledge management program is a part of the university strategy. During the research, the researcher was unable to come across SMMUCo literature regarding its knowledge management strategy. Apostolou and Mentzas (1999) emphasize that knowledge management strategy should contain at least some of the following elements:

- Creating a culture of knowledge sharing and learning;
- Leveraging technology for collaboration and knowledge sharing;
- Infrastructure and processes for creating and sharing knowledge;
- Linking intellectual capital with company strategy.

If knowledge management is to become a part of the university strategy, the first step is the need to have a clearly defined KM strategy with its goals and objectives. There should be the desire and the mechanism for leveraging knowledge across the various departments, faculties, and campuses. An emphasis on the role of the 'knowledge community' will also help to increase the level of knowledge sharing, since such informal networks can help in creating a sense of 'togetherness.'

Thus, by precisely stating what knowledge management means in a given work environment, the university can then begin to cultivate a work environment where knowledge and experience can easily be shared.

The Awareness and Understanding of IT by the Staff Members

Most of the staff members in SMMUCo have limited level of awareness and understanding of the use of the information and communication technology. Consequently, such technical aspect inevitably shortens the KM application. This weakness is compounded by the fact that the university has a relatively high number of employees who are not computer literate. Thus, there is a need for the management to take an active role in educating the staff

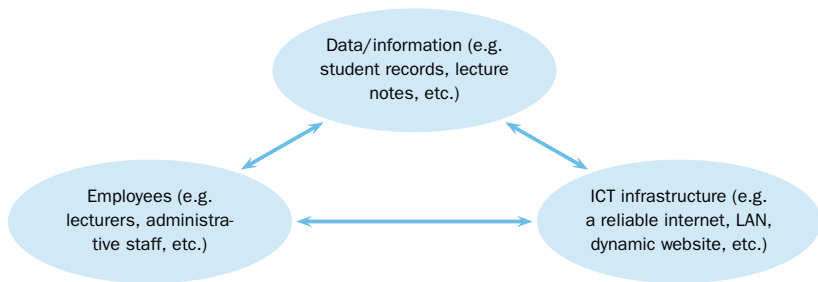


Figure 1 Proposed KM Model

and making them aware about the vital role that computers, together with employees, play in the knowledge management (KM) process within the university.

The Development of a Model for Knowledge Management

Given the above findings, the researcher has proposed a model for knowledge management, which can be applied in SMMUCo. Paramount to the model is the need to achieve compliance of the key resources within the university. For the beginning, the researcher has identified the following three key resources: *Employees* (lecturers/administrative staff), *Data/Information* (student records, lecture notes, etc.), and *ICT infrastructure*. If well aligned, these resources have the ability to effectively leverage information and knowledge across the University campuses. Figure 1 shows the proposed KM model.

The above model is favoured, because the identified resources can be aligned together. Such an approach will enable effective access to the available information and knowledge within the university. For instance, the lecturers within the university will be able to quickly and easily find information e.g. student records, management reports, etc., while students will be able to search for past papers, notes, and other course materials posted by their respective lecturers. This is made possible by the use of relevant ICT infrastructure, for example by having a shared intranet and web databases. The web database can be used for storing various knowledge objects, such as lecture notes, past paper, student records, and exam results. Shared intranet is vital for the dissemination of data/information, thus enabling the stakeholders to have timely access to specific information. Likewise, the use of relevant information technologies will enable the stakeholders (employees, students etc.) to capture, store, and codify tacit knowledge that would otherwise be difficult to capture and store; thus in doing so, it will be possible to share and transfer information and knowledge across the university campuses.

While conducting the research, the lack of information technology was

one of key barriers to knowledge management (KM). For instance, due to the weak internet connection most lecturers were unable to share information via email or download teaching resources from the internet. Therefore, having modern technologies not only will help in connecting the employees, but will also help in the delivery of updated data/information, which will in turn help enhance the quality of teaching and research. Furthermore, the decision making process will also be enhanced/quicker.

If deployed, technologies, such as the intranet/blackboard, 'discussion board,' staff finder' to mention a few, can help the employees and the students to share and manage knowledge effectively. For instance, the 'staff finder' might contain information such as the lecturer name, email addresses, phone numbers and home address, job expertise and interests, among others. This would encourage the employees to publish their interests and expertise, thus making it easy for the employees to share information. Intranet technology could be used to store past papers, lecture notes, and post announcements for the students. Thus, the use of information technology will provide the tools and infrastructure for information access, communication, task management; this will greatly promote the collaboration activities within the university.

Conclusion

Given the demographic information of participants, it is vital to note that both female and male participants value the idea of knowledge management and the implied benefits to their academic studies. This was evidenced due to the fact that the margin of female to male participants was minor. The study also highlighted the need for having a dynamic website capable of providing a diversity of information services to the students, since most of the respondents expressed the need of having the ability to download lecture notes, participate in web group discussions, read news/announcements, contact staff, and, above all, check for individual exam results.

The participants also expressed the desire to have intranet/blackboard services. If deployed, this would greatly help the students and the employees to effectively share and manage knowledge. It is vital to note that the technologies for developing intranet/blackboard services are widely available, thus no longer only available to a few elite universities. Furthermore, given the development of the information technologies, the cost of deploying such technology i.e. buying 'off the shelf' or designing one from scratch is much cheaper when compared to 10 or 15 years ago. Thus, given the nature of knowledge management, it would be a positive start by initially having intranet/blackboard technologies, mainly for sharing and disseminating information.

Although the research was restricted to SMMUCo, a broad perspective

was studied when analysing the concepts of knowledge and knowledge management, and how these can be applied to higher education institutions, especially newly founded institutions. Thus, the results for this study do not provide the answers for knowledge management challenges in all higher education institutions; however, it provides a strong and sound basis for further investigations regarding the dissemination of knowledge in higher education institutions. Likewise, it is suggested that additional research should be performed regarding the application of the proposed model for knowledge management, which should take into account the privacy, ethical, and cultural issues with regards to the concept of knowledge management.

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Insafing: New Promising Form of Intellectual Communication

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The article explores a new form of intellectual communication built in accordance with an in-advance-prepared sense scheme. This type of communication utilizes the elements of Activity Organizing Games called Insafing. The article suggests a retrospective review of the scientific researches, particularly, the researches of the Russian scientific schools that served as the basis for Insafing technology development. Furthermore, the scientific and methodological fundamentals of Insafing based on the Theory of Dynamic Information Systems (TDIS) and the methods of cognitive engineering are discussed. The article also provides an example of Insafing application to tourism industry development in an urban area.

Keywords: Insafing; communication; intellectual communication; Theory of Dynamic Information Systems (TDIS); cognitive engineering; Activity Organizing Game (AOG); scheme techniques; knowledge management

Introduction

We remain to be the heirs of the intellectual tradition formed in the classical antiquity. In Plato's dialogues, the main character, Socrates, demonstrates his communication skills that can be described as the following: (1) The interlocutor is suggested to discuss a topic, e.g. 'what is beauty;' (2) A specific cloud of senses and content is created, relative to which problem questions and hypothetical definitions are formulated; 3. In comparison with his interlocutors, Socrates shows the best knowledge of the subject and the best ability to use it; he strictly criticizes their attempts to go beyond

the scenario of his argument; (4) The variety of conclusions appears to be limited and only one true conclusion remains (Plato, 1961).

Sophists went along a slightly different path, collecting conventional methods of building an accurate argument. Socrates was distinguished from sophists by his ability to reason at the level of God-inspired art guided by the Pythagorean geometry (Rozhanskij, 1989). Plato set the problem of geometrical substantiation of an argument (Plato, 1971). However, antique geometry could not provide the basis for argument substantiation. Even in the 17th century, B. Spinoza's experience of the geometrical substantiation of ethics did not form into a separate value (Spinoza, 1957).

Aristotle's logic is laid into the basis of the intellectual culture, because it provides simple and handy algorithms of knowledge presentation in the form of syllogisms (Aristotle, 1978). However, thinking, speaking, and writing are linearized. The transition from reasoning to practice is difficult and could only be implemented with considerable distortions. On the one hand, Aristotle's logic is poor for solving tasks, which are diverse in sense and content. On the other hand, it is underdeveloped in formal mathematical respect, so that mathematical logic appears. Thus, the contemporary prospects of the intellectual communication development are between Scylla and Charybdis, both remaining in the bounds of Aristotle's logic and trying to apply the achievements of modern mathematics and logic, which may lead to enormous difficulties in the formalization and mathematical treatment of content-rich materials (Razumov, Ryzhenko, & Sizikov, 2009).

This paper is devoted to our experience of the theoretical construction and practical application of the new forms of knowledge presentation. Our theoretical outcomes are based on numerous research experiments on devising the universal methods of knowledge presentation for tasks in different fields of science, education, and project development, including the symbols of ancient philosophy, dialectics formulas, as well as the developments in the systematic and cybernetic approach.

The first outcome is the categorical systematic methodology (CSM) (Razumov, 2004). It enables the development of cognitive patterns for knowledge presentation. CSM can be applied to a wide range of tasks where it is necessary to make the transition from content-rich knowledge to its formalization and consequent construction of a mathematical model using the CSM apparatus.

The next outcome is the Theory of Dynamic Information Systems (TDIS) (Razumov, 2004) – a mathematical theory, which has a solid ontological basis, as well as physical interpretations. TDIS is useful for intellectual communication, because it allows the reconciliation of the requirements of sense and content peculiarity of knowledge with its form-mathematical organization. And finally, the application of the TDIS apparatus in different

communication (cognition, teaching, business) offers the possibility of using TDIS as a basis for original communication technology – Insafing.

The article is arranged as follows. First, it reviews the topics related to the history of communication management, which played an important role in this research. The historical review is specified and supplemented with the ideas of contemporary scientific schools studying the field of communication management. A special attention is paid to the thought-activity approach and activity organizing games (AOG) created by the school of Georgy Shchedrovitsky. In order to combine the theoretical developments based on the TDIS with AOG practice, we had to implement a special research aimed at the formation of cognitive engineering and creation of special technologies for sense scheme development (Ryzhenko, 2012b). Furthermore, the article describes a new communication technology – Insafing – and discusses further possibilities of its application.

Historical Background of Communication Management

Communication management has been considered a separate subject of scientific research and practice since the appearance of neuro-linguistic programming (NLP), public relations (PR), political discourse, as well as different technologies allowing for people management by working on the level of communication. The researches of David Meerman Scott (2011), Igor Reichman (2013), Eric Enge, Stephan Spencer, Jessie Stricchiola and Rand Fishkin (2013), Fred Reichheld and Rob Markey (2011), Mark van Hoecke (2002), and Teun van Dijk (2008) are congruent with the conception of thought-activity as the basis for business games development. The effectiveness of a game depends on the base scenario. Scenario development requires a certain abstract model providing the answers to the following questions: who, with whom, and according to what rules interact, what determines the result, and how the result is manifested. However, the technologies suggested for practical application were not well elaborated at the conceptual level; thus presenting a problem for the communication management.

When analyzing the experience of the authors of this paper in strengthening the schemes of communication management at the conceptual level, we questioned the possibility of devising a form of intellectual communication based on an innovative interdisciplinary model enabling project development and research on a wide range of scientific and study materials. This paper presents the approach to intellectual communication management utilizing the Theory of Dynamic Information Systems (TDIS), which is being developed by the Omsk scientific and methodological school. TDIS explains the operations in ontologically comprehended structures: decoding (specification), folding¹ (synthesis), and mutation (shift of categories) (Razumov,

2007). These operations determine the rules of communication management in a business game called Insafing. Insafing differs from the aforementioned communication technologies, because both, the office stage of problem solving as well as the process of communication, are arranged in accordance with TDIS apparatus.

There are a number of relevant researches in this field. Very useful are the works of James Austin (1975), Michael Foucault (1970–1971), Georgy Shchedrovitskiy (1995), and Randall Collins (2002). Sense, as a product of thinking, is considered to be an element of social action. Shchedrovitskiy (1995) views sense not just as understanding, but as certain inner commands directing humans' behaviour in the process of communication.

The conception of intellectual systems, developed by Iosaf Ladenko (1990) and Dmitry Pospelov (1989), is valuable in this respect. In an intellectual system, senses emerge and are transmitted among the members of the system. In this process, a shared sense field is created. Perception of a phenomenon becomes a collective act and the members of the system use the same concepts. Guided by further development of this conception, we interpret an intellectual system as a system, which elements use special data processing tools and are able to form senses in the process of interaction, thus ensuring the achievement of intended outcomes in a given area (Ryzhenko, 2012a). The Insafing technology helps to form intellectual systems; its universal cognitive basis can be applied to solving almost any management problem.

Development of Communication Management Technologies in Russia

Georgy Shchedrovitskiy (1929–1994) is the leader of an original logical-methodological research area. Since 1970s, he had been developing the thought-activity approach and, on its basis, the theory and practice of activity organizing games (AOG). Nowadays, his ideas are expanded in the works of his followers: Petr Shchedrovitskiy, Oleg Anisimov, Sergey Popov, Oleg Alekseev, and others.

Georgy Shchedrovitskiy and Aleksandr Zinoviev were ideological and organizational leaders of the Moscow Logical Circle (later called the Moscow Methodological Circle). After Zinoviev's emmigration from USSR, Iosaf Ladenko (1933–1996) took his place. While developing the scientific school of 'intellectual systems,' both Ladenko and Shchedrovitskiy emphasized schemes as a tool of cognitive communication. However, there was a difference in the suggested scheme application. Implementing AOG, Shchedrovitskiy (1995) used schemes as a tool for visualizing reasoning. However, he did not pay attention to the problem of methodology and the logic of schematization. Ladenko (1990) and his followers used schematization

of traditional logic (circular schemes, diagrams). They applied cybernetic flowcharts or 'organigrams' and considered schemes as a form of knowledge presentation and communication in intellectual systems (a complex including the research subject, research group, tasks, cognitive tools and techniques).

In the interest of combining the AOG practice with the ideas in the field of intellectual systems, the members of the Omsk scientific and methodological school – the authors of this paper – are working on the development of intellectual scheme-technique. Intellectual scheme-techniques are a combination of the categorial-system methodology with the TDIS apparatus conveying sense and content of the research subject in the form of a scheme, while at the same time complying with the requirements of logic and mathematics (Razumov, 2004; Razumov, 2007; Razumov et al., 2009; Ryzhenko, 2012b). The development of intellectual scheme-technique allowed us to create an innovative technology of intellectual (sense) communication that is implemented on the Internet (<http://thoughtring.com>) and corresponds with the research on ontological engineering.

TDIS explains the structures and the essence of informational functioning in a group of communicating subjects. Furthermore, TDIS relates to management, because it can be applied to and can serve as a basis for developing a universal approach to solving any management problem at the informational level. TDIS is inherently aimed at the synthesis of ontology, mathematical models, physical representations and their expression in the form of geometrical schemes. Its application allows the combining of problem solving (including scientific, learning, and project development problems) by means of scientific methods with output representation in the form of a categorial scheme, which presents a digraph. In spite of the scientific rigidity of the schemes, they can be easily utilized if a manager uses the existing type schemes as a frame for material related to his/her problem (Razumov, 2007; Sizikov, 2009).

Cognitive Engineering and Sense Schemes

The term 'sense scheme' is a word-by-word translation of the Russian word collocation 'mysl'² scheme. TDIS applications development led to the formation of a scientific discipline 'cognitive engineering' (Ryzhenko, 2012b). The scope of this science is the formation of senses in intellectual systems, whose elements are the subjects of creative communication; and its method is the transformation of information into senses by means of TDIS. Cognitive engineering employs the so-called sense schemes – geometric structures that are akin to semantic networks but are constructed with the help of a special DIS2 standard, which includes the above-mentioned operations of folding, decoding, and mutation. The cognitive engineering ap-

plication related to intellectual communications design and management is called Insafing.

Insafing is a form of intellectual communication consisting of the elements of activity organizing games and relying on in-advance-prepared sense schemes. Insafing includes an office stage and a gaming stage. In the first office stage, a sense scheme for further communication is built. For this purpose, we use the software Cognitive Assistant (Lunacharskiy & Ryzhenko, 2011). Consequently, communication strokes simulating TDIS foldings and mutations happen sequentially. Participants' speeches are filmed. In the final office stage, reports and video recordings are analyzed; and on the basis of this analysis, the final reports are prepared and posted on the First Sense Network website (<http://thoughtring.com>).

An Example of Insafing Application

The contemporary form of seminar and conference organization arises from the traditional work at universities and science academies, which stems from medieval and ancient forms of communication. However, the degree of efficiency of a traditional form of communication cannot be high because of the limitations related to a fixed time limit of an event.

Insafing, as a new form of intellectual communications on setting and solving management problems, relies on the idea that interaction is based on an in-advanced-prepared sense scheme of the discussed problem. This scheme is simplified to a list of simple questions and a clear procedure of arranging participants' interaction. In this case, the participants of communication play certain roles identified in the corresponding positions in the sense scheme. They make their speeches short and concise in accordance with the intellectual system thus dramatically increasing the degree of its efficiency.

The range of Insafing application is almost unlimited. We have successfully applied it for: devising a strategy of Omsk Region development, determining operation factors for holding the Investment Forum of Siberian and Far East Cities, designing a profile of a village with a population of 5000 people, as well as tourism industry development in a number of Siberian and Far East cities. Those who studied the basics of Insafing successfully employ it as a project development technology. Scientific rigidity of Insafing enables the development and management of large-scale projects. The sense scheme in Insafing bears certain indices, which enable Insafing to function as a cognitive framework suitable for arranging communication on any issue. When this framework is applied to a specific material, the indices are substituted by the terms characterizing the different aspects of the object in question. In addition to the unlimited variety of topics, which Insafing can be applied to, this technology also allows for building sense schemes

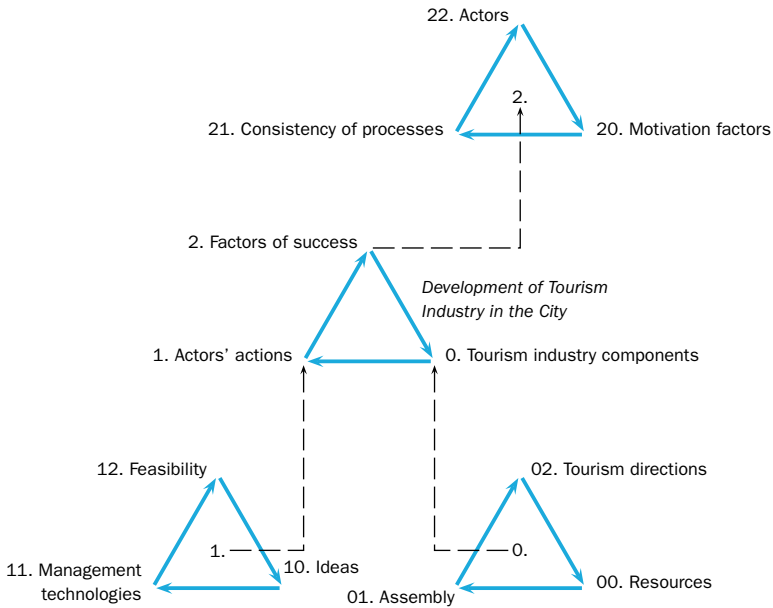


Figure 1 Sense Scheme 'Development of Tourism Industry in the City'

and arranging intellectual communications at all levels of Maslow’s hierarchy of needs. It helps to identify the basic senses and values of a group of participants. The sense scheme in the case of tourism industry development had the following structure (Figure 1).

In each position of the sense scheme numbered with a two-digit index is an actor who attempts to answer his question. In the process of communication, the actors in the group answer a common group question, which reflects the folding of actors’ positions in the group. The questions that the participants of communication answered in the corresponding positions (places) of the sense scheme are presented in Table 1. The scheme and the questions were formulated as a result of data analysis received from the participants of the All-Russian conference on international and domestic tourism.

Both, in Figure 1 and in Table 1, the positions in the sense scheme are numbered in ternary arithmetic (modulo 3). The answers to the questions make it possible to produce a detailed description of the subject area as a result of intense work of approximately thirty experts during a work-day (sometimes, however, Insafing may take two working days). The sense scheme itself can easily be created using the ‘Cognitive Assistant’ software (Lunacharskiy & Ryzhenko, 2011).

As a result of Insafing application, the interest for project development in

Table 1 Insafing Sense Scheme 'Development of Tourism Industry in the City'

To develop tourism industry in the city	On what conditions and how can tourism industry be developed in the city?
0. Tourism industry components	What components of tourism industry can and should be developed in the city?
00. Resources	What do we have and what should we obtain or attract in order to develop tourism industry in the city?
01. Assembly	How should the structural components of tourism industry be connected with each other?
02. Tourism directions	What tourism directions should be offered by tourism industry?
1. Actors' actions	What actions should be undertaken for tourism industry to develop?
10. Ideas	What creative and original ideas can be used to develop tourism industry in the city?
11. Management technologies	What are the advantages and disadvantages of modern management technologies?
12. Feasibility	What prevents tourism industry in the city from development?
2. Factors of success	On what conditions and under the influence of what factors will tourism industry develop in the city?
20. Motivation factors	What motivates the subjects (who exactly) for developing tourism industry in the city?
21. Consistency of processes	Inconsistency of what processes (in the society, business, management, etc.) prevents tourism industry from development?
22. Actors	Who is able to successfully develop tourism industry in the city? What qualities should people possess to be able to develop tourism industry? Where can such people come from?

the area of tourism has increased in different territories of Siberia and Far East, Russia. The following projects should be mentioned: 'Siberian Route' and 'Chekhov's Route' aimed at creation of a tourist route following the way of the Russian author Anton Chekhov (end of XIX–beginning of XX century) through Siberia to Sakhalin island (see <http://thoughtring.com/ViewForm.aspx?id=119>). Currently, the authors of this paper are using Insafing in consultations on creating inter-regional agro-industrial cluster. The project information analysis and presentation is created with the help of an algorithm used in the scheme and the table.

The implementation of Insafing in different problem-solving situations proved that the work on solving a problem should begin with finding the answers to following three indexed questions: 0 – what is the object of our work; 1 – what tools do we need to work with this object; 2 – what outcome do we plan to get, and in what larger system can it be incorporated.

Theoretical and Methodological Side of Insafing

Both parts of Insafing: office stage (development of communication sense scheme) and communication itself refer to the field of knowledge management. The process of knowledge reception and transmission is facing the problem of knowledge association with the underlying informational processes. This science field touches upon the research and development performed in the field of artificial intelligence (Ladenko, 1990; Pospelov, 1989; Reichheld & Markey, 2011; Shchedrovitskiy, 1995). We would like to point out that this field of research has kept a fundamental cognition problem unsolved: concord of sense-content and form-mathematical method of reality description. To be more precise, the automatization of reasoning was devised and implemented for the first time in the XIV century by Ramon Llull (Gardner, 1958). He constructed a device consisting of connected mobile metal circles of categories.

The next step is considered to be the development of 'logical machines' in the XIX–XX century. However, this research was limited only to solving the logical queries and reached an end. The automatization of calculations was first implemented by Blaise Pascal (1642–1662) in his arithmometer. Later, this device was further developed by Gottfried Leibniz (1646–1716). The end of the Second World War brought about a dynamic growth in the field of calculus research and provided the basis for the consequent ubiquitous process of computerization. In spite of the success of these fields, the automatization of calculus did not contribute to the automatization of reasoning. The discrepancy between the research in sciences and humanities is becoming increasingly broader. The field of management appears not to use the methodology concurring with the sense-content and the form-mathematical approach in order to solve any kind of scientific problem. In this case, Insafing application is to reconcile the art of management with the theory of decision-making.

Unfortunately, the rational acts of communication and management comply with the logic of Aristotle; however, the achievements of the mathematical logic are of no appropriate use in this case. Based on TDIS, Insafing facilitates the creation of new logical constructs allowing the transmission of comprehensive volumes of information to the level of knowledge. The technology of Insafing provides a way to counteract the fragmentation of the manager's activities.

Knowledge is a product of cognition. At first glance, it would appear that if a person comprehends the sense of a piece of information, it has that same sense. However, sense is formulated in a person's consciousness as a result of deciphering the informational signals. So, knowledge is a part of information, understood and interpreted by a person. On the account of

the process of computerization, the afore-mentioned discrepancy between the automatization of both calculus and reasoning provoked a discord between the acceleration of information growth and the retention of the former speed of information transmission to knowledge. This is clearly displayed in the present day management problems on both small (sole proprietor) and big scale (multinationals and governments). Discursive practices are widely dispersed in the process of communication. These practices require the circulation of information currents, but they do not reach the level of knowledge and are therefore considered as a manipulative art of the communicator. Thus, the acute problem of knowledge management arises. Its solution requires the development of new intellectual technologies, which could be useful in organizing communication. Part of these technologies is Insafing, which is the focal point of this paper.

A full-blooded industry dealing with creating and transmitting information with the help of computer technology arose in the modern open information society. The information volume growth rate is higher than the rate of its comprehension by different communities. It accelerates the creation of ephemeral senses (simulacra) and the activation of the technologies of mass conscience manipulation. Human cognitive abilities cannot keep up with the possibilities provided by the information age (Razumov et al., 2009; Ryzhenko, 2012b; Simon, 1978). The technology of Insafing not only implies the examination of different positions of a given problem, it also suggests in which larger system the analyzed activity will be integrated, and which values and senses it is connected to.

The emerging post-modern culture influences the field of management. The post-modern approach suggests the pluralization and proliferation of positions, as well as the rejection of the dictatorial style. This reaction can be explained with the crisis of the rational culture, including mathematics and logic. Discourse practices and management aimed at arranging the intellectual group communication are far from science.

The prevailing situation is bringing to life the necessity to create tools that would allow for an efficient knowledge management, both at the level of information packing as well as at the level of communication and transmission of senses. These tasks could be solved with the help of Insafing, based on the development of new knowledge management models. Particularly, we had to diverge from the traditional approach of ontological to cognitive engineering (Ryzhenko, 2012a), and from the traditional logic to the so-called 'logic of senses' (Ryzhenko, 2012b, p. 39), a part of intentional logics. Cognitive engineering is devised as a tool for knowledge management and creation of new objects. Cognitive engineering, developed on the basis of TDIS, is opening new ways for the use of mathematical applications for knowledge management at the level of mathematical modelling.

It enriches management with serious scientific ideas that could be safely applied to practice.

Relation of Theoretical Fundamentals to Insafing Application

The sense scheme creation in Insafing employs the afore-mentioned 'sense logic,' whereas the game stage uses the intellectual communication practices to correlate the participants' standpoints. Let's take a look at 'sense logic.' The table and the sense scheme are built upon the operation of decoding developed in TDIS. Decoding implies that Insafing is devoted to a specific topic, which is determined by the source category. In the example discussed earlier, the category was to develop a tourism industry in a city. This category is specified by a group of three categories (first level decoding). Each of these categories serves as the basis for generating new triad categories (second level decoding), etc. The scope of this paper is focused on the second level decoding. Naturally, any other topic can be developed using this model, for instance, low-rise apartment building in n-district, etc.

At the game stage, the participants transform their own pre-communication (or pre-Insafing) opinions into one common understanding of the project situation; hence the probability of implementation of the generated knowledge increases multifold. The transference to the game stage of Insafing supposes the use of the potential of information currents. Even though the participants are not aware of these currents, they connect them. The theoretical and methodological basis of Insafing is in this case the functional aspect of TDIS. We can shortly describe them in the following way. DIS can be presented as a digraph with two types of edges (leading and controlling). The process of information functioning in the digraph is one of re-distribution of two types of resources (assets and liabilities) between its nodes. There are three ways of re-distribution (Razumov, 2007; Sizikov, 2009):

- A_s – sum of assets in liabilities along the controlling edges of DIS;
- A_t – transformation of liabilities into assets in some nodes of DIS;
- A_d – distribution of assets along the leading edges of DIS.

Related to management through decision making, A_s provides local build-up of resources up to the required volumes, which are sufficient for decision making in the corresponding local places. Herein A_t displace the decision making acts. Essential in this case is the fact that decision making in DIS can occur simultaneously in more than one node, thus, potentially providing for a harmony driven environment, allowing for a prototype of management implementation as monitoring with the help of an imitation model (Sizikov, 2009). A detailed description of the application of this mechanism to management presents a research topic that can be explored in a separate paper.

In Insafing, it is important to affix the positions suggested by the formal model to the participants. In all triads, consisting of nine categories of second level decoding (indexed 00, 10, 20), the categories answer the following questions: what is it, what objects do we deal with, and what notions do these objects designate. Categories indexed 01, 11, 21 answer the following questions: what actions should be taken considering the objects, what mechanisms are we dealing with. Categories indexed 02, 12, 22 answer the following questions: what results are we getting and how to analyze and evaluate them. In Insafing, this could be presented by the move from a sense scheme to a table displaying the questions corresponding with a specific category on the scheme. There are two options: (1) the sense scheme is created by the moderators at the office stage and provided to the participants; (2) the sense scheme is generated as a part of the group work.

Managers, as well as specialists in other fields holding a higher education degree, can easily utilize Insafing technology. However, strictly defined scientific foundations imply the standardization of the process of preparing and making management decisions.

Insafing includes two stages: analysis and synthesis. Analysis unfolds through topic specification and decoding, which is implemented during sense scheme creation. At the end, nine participants become experts on the topics corresponding with the categories designated with double digit indexes. The transition to synthesis begins with the work at the level of the triads. Participants report on each of the three triads, accounting for the opinions of the three experts on the questions suggested by the first level decoded categories. Finally, the three experts, who reported the integrated answers to the category questions, combine the efforts to prepare and communicate a final report on the topic of Insafing, reflected in the initial category. An expert position should not include merely a single participant. The principle formulated earlier is dispersed at all levels of communication.

The peculiarity of Insafing at the functional level of working with information currents is the idea of the two forms of information – active and passive, together with the idea of the three stages of the functioning of information. Namely, in any communication each participant should realize that all communicators go through the acts of: receiving (A_s), understanding and creative interpreting (A_t), and transmitting information to other communicators (A_d). In Insafing, the participants are aware of each of these acts. The theoretical understanding and the practical development of this skill provide for the concurrence of the informational processes with the mechanisms of working with knowledge. In management, the role of the unconscious is discussed in many aspects. The examination of the three stages of information functioning in TDIS allows for the extension of these mech-

anisms to the behaviour of both individuals and groups. In this case, the acts (A_s) dominate at the level of the unconscious; the acts (A_t) refer to the manifestation of the unconscious; while the acts (A_d) present the transition to conscious actions – to making well-grounded decisions.

Theoretical and Practical Groundwork: Some Prospects for Insafing Development

This paper describes a simple example of Insafing organization. Its theoretical and methodological basis implies the use of only one TDIS operation – decoding. This allows for sense scheme construction on a given topic, group work, and, as a result, the acquisition of the project fundamentals. This work requires between 4 and 6 hours. The full version of Insafing includes the two additional TDIS operations: mutations and folding. Understanding the practical application of Insafing requires the provision of mathematical definitions. DIS at the level n^1 has 3^n nodes and 3^{2n-1} leading and controlling edges. The n -enumeration of its nodes $0, 1, 2 \pmod{3}$ allows for the leading edge to be directed from node N_1 to node N_2 (respectively, controlling edge in the reversed direction) specifically when $\sum_2 - \sum_1 = 1 \pmod{3}^3$ (Gantmacher, 1988). Connected mutation of DIS, as a digraph, presents a shift of its nodes. This shift does not break DIS geometry and connection topology between its nodes. However, it provides for a new way of DIS formation with the help of triad decoding of any initial category.

The set of all connected mutations of DIS at the level $n \geq 1$ forms an algebraic group M_n related to their super-positioning. In this case, the quantity of the elements is $3(3^{n-1})^3$.

Specifically, DIS at level 1 (standard triad) has three connected mutations providing the reversion of the triad to 0/3, 1/3, 2/3 parts of a full turn. DIS at level 2 has 648 connected mutations.

Therefore, if we take the scheme presented in picture 1, we can get a few more schemes, every one of which reveals a new aspect of the discussed problem. The new triads of categories, in this case, are given new names, which did not exist at the initial stage of work, resulting in a huge heuristic effect.

Consequently, based on the definitions referring to the basic sense scheme, we can construct five additional sense schemes. All of these new sense schemes act as the initial sense scheme and present a specific aspect of understanding the topic. As a result of the mutations, six new groups of categories appear. At this point, we use folding, the operation opposite to decoding. Folding provides a collective name for the original triad of categories. This heuristic mechanism in Insafing enables the search of six new categories, every one of which suggests an original idea, stage or direction in the project development.

Insafing: Overcoming the Discrepancy between Science and Communication Practice and Management

The rift between science and the practice of communication and management arises from the fact that science, in its origin and to present day, functions in 'unrealized imperfection.' This is exemplified by the following. Assuming that the titles of the categories represent the exact content of the underlying material, we would have to work out ($n!$) combinations in order to calculate all variations of the topic. Paradoxically, the more titles we specify, the more categories we get. The discourse of all variations becomes impossible. Therefore, scientific findings receive limited applications in the practice communication and management; as the basis we use experience, intuition, and instruction.

TDIS, cognitive engineering, and Insafing allow for the shift from unrealized to realized imperfection. This means that we can determine in advance the full set of possible combinations. TDIS permits the limitation of the factorial of all possible combinations to a smaller set of ontologically comprehensive elements of DIS class systems. In relation to this, an important function of Insafing is personnel training in order to work with new intellectual technologies connecting information and knowledge, as well as providing new forms of knowledge presentation, differing from the logic of Aristotle.

It is critical to point out the 'multi-objectiveness' of Insafing. The experience of the researchers (Lunacharskiy & Ryzhenko, 2011; Ryzhenko, 2012a, 2012b) shows Insafing to be effective both for faculty members teaching TDIS as well as for the practitioners solving a specific problem, who are unaware of the logic and mathematics.

Insafing for Knowledge Management and Intellectual Technologies Development

The transition from extensive to intensive models of economics and their emergence at the innovative level of development are impossible without the creation of new intellectual technologies. Constructive proposals for the agreement between the form-mathematic and the sense-content technologies of calculus and reasoning should be established at the basis of these new technologies. All of this calls for a systematic approach in the form of an interdisciplinary project, integrating mathematics, physics, and philosophy. The value of the scientific findings has to be assessed based on their ability to emerge at the level of new strategies of intellectual communication and management.

New intellectual technologies will be disseminated if they can be implemented in new information technologies. The booming IT-Industry involves people into communication processes diverse in their content, scale, and

speed; however it does not facilitate the improvement of their group research skills. Insafing is not a simple Activity Organizing Game, developed on the basis of TDIS, it helps form a new culture of managers' creative activity. A culture that facilitates the development of modern calculating tools concurring with intellectually heavy communications of people. Insafing gives a new approach to knowledge management integrating the achievements of the IT-Industry with the new proposals for the strengthening of the human intellect. The topic of this paper has a strong connection with the tasks necessary to implement innovations in business with the help of science and interdisciplinary research.

Insafing is safely applied to management schemes development for objects such as: corporations, clusters, cities, regions of the Russian Federations. For instance, its application in the project 'Omsk – the Entry Region to the Russian Federation' shortened the time and reduced the resources for project development and considerably increased the reliability of the results.

Conclusion

Insafing may be used for the development of conceptual documents in a given research area, reconciliation of different attitudes of experts regarding a given problem, development of strategies and performance of in-company consulting. It is taking on a special significance in education, because it not only allows the creation of a conceptual definition of a research area, but it also helps train the personnel who understand the problem and are ready to implement the ideas elaborated in the process of communication.

Insafing technology can be learnt and mastered by both students and professors specializing in various fields of study. In case of the training of future managers, the emphasis is on the action part arranged as an activity organizing game. In small groups involving 3–5 people, Insafing suggests that each participant individually works through all sense scheme positions on a given task.

The base methodology of Insafing is universal; it is intensively developing as a scientific program. The technological decisions for preparing and implementing Insafing can be applied to different problems from different fields of science, education, and project development.

Future research of Insafing development involves a variety of aspects such as: strengthening the fundamental basis of Insafing and developing TDIS and its applications, improving the Internet project First Sense Network (<http://thoughtring.com>) and Cognitive Assistant software, which have a common TDIS base described in this paper. Interdisciplinary research team formed by the authors of this paper continues improving Insafing for its application to the process of arranging communication on different projects

and consulting in various fields. Another aspect that needs further research is the development of tutorials for teaching future managers and other specialists on how to use Insafing in communication management.

Notes

- 1 In TDIS, folding is the operation opposite of decoding, which happens when it is necessary to choose a category as a name for a developed triad of categories.
- 2 The Russian word 'smysl' is close to the English word 'sense' meaning 'substance or gist', but it has a more philosophical interpretation in the aspect of rendering objective substance or knowledge conceived by a subject.
- 3 \sum_i – sum of the digits in N_i ($i=1,2$)

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Government's Restructuring Pay Policy and Job Satisfaction: The Case of Teachers in the Ga West Municipal Assembly of Ghana

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This paper examines the 'aftermath effect' of the new civil service pay policy on job satisfaction among the teachers in Ghana. The study found that income, personal growth, bonus and organizational type had both direct and indirect effects on job satisfaction. The two-way analysis, as well as the multi-variate analysis of variance, indicated that gender, age group, and educational background also played a role in determining the level of satisfaction among the teachers. The high unemployment rate (11%) and the implementation of the Single Spine Salary Structure (SSSS) for the public sector in 2010 are also contributing factors to the retention of teachers.

Keywords: job satisfaction; management; single-spine-salary-structure; MANOVA; stepwise regression; Ghana

Introduction

The teaching profession in most developing countries leaves much to be desired. The conditions of service compared with other sectors raise many questions about the increasing importance of the teaching profession. Ghana, like most developing countries is faced with similar challenges. There is a strong correlation between job satisfaction and performance (Danchev & Ilgun, 2013).

In this study, therefore, we explore the relationship between job satisfaction and performance by drawing from other studies of related factors in relation to job satisfaction theories and models. As a result, job satisfaction factors were contextualized in Ghana using teachers in the Ga West district as the unit of analysis. This was done in view of understanding the impact of government's restructuring pay policy on job satisfaction. Job satisfaction, as a concept, is understood in different ways by different researchers; for instance, Lawler states that the generality of job satisfaction is informed by the difference between all things an employee feels he should receive from his job and all those things he actually does receive (Lawler, 1973). Locke

views job satisfaction as the pleasurable emotional state resulting in the appraisal of one's job as achieving or facilitating the attainment of one's job values (Locke, 1969).

Paul Spector describes job satisfaction as the degree to which employees like (satisfaction) or dislike (dissatisfaction) their jobs (Spector, 1985, 1997). However, there are other theories and concepts with different dimensions. For example, Evans revealed that the lack of general agreement in ascribing a definite definition to the concept (job satisfaction) may lead to misunderstandings among the researchers and that may influence the construct validity of job satisfaction measurements (Evans, 1998). Notwithstanding, in this study, we define teacher satisfaction operationally as the willingness to stay at post given competing alternatives.

The salaries of teachers in Ghana accounts for less than 35% of the public service wage bill to government despite the fact that the sector employs more than 75% of the total public service workforce (Domfeh, 2013). Given the same level of qualification, the workers in public health and security services (such as the police) are well remunerated than their counterparts in the teaching field. In fact, the lowering condition of service and incentives has seen the mass exodus of trained teachers to other sectors deemed lucrative thereby creating further shortage in the number of trained teachers in the various second cycle institutions (GNAT & TEWU, 2009). It was against this backdrop that in 2006 the Kufuor's administration, in consultations with various stakeholders, engineered a mechanism to halt these itinerant tendencies by introducing a uniform pay structure. The philosophy of this uniform pay structure was based on individual qualification with minor differences as may be determined by other factors.

In June 2007, an Act of Parliament (Act 737, 2007) established the Fair Wages Salary Commission (FWSC) with the mandate to ensure fair, transparent, and systematic implementation of government's public service pay policy dubbed 'Single Spine Salary Structure' or SSSS. However, the policy was implemented by the Mills administration on January 1st, 2010. Among others, the policy was to minimize disparities, discrepancies, and distortions in salaries of the public sector, and to make the public service budget easier and manageable for estimation and forecasting (FWSC, 2009, 2013). However, the question whether this new policy has succeeded in injecting stability into the teaching profession is an important issue that has not yet been explored. For this case, several questions need to be answered. For instance, do income and incentives have any correlation with the job satisfaction of teachers and for that matter, performance? Are there other (hidden) factors that ought to be considered? Are there differences in the level of satisfaction between male and female teachers? Do educational background and location of the school have an impact on the satisfaction of

teachers? These and other questions shall form the basis of this research. It should be noted however, that problems encountered in job satisfaction research are due to the numerous and various instruments used to measure this phenomenon (Evans, 1998). That notwithstanding, the focus of this study is to explore and examine these avalanche of instruments to determine the most suitable and influencing factor in predicting job satisfaction among the teachers in the Ga West Metropolis in Accra, Ghana.

Based on the perspectives elaborated, the study in a nutshell seeks to achieve the following objectives:

1. To identify the factors that affect (directly and indirectly) job satisfaction among the teachers in the Ga West Municipal Assembly.
2. To assess the impact of age, gender, educational background and schools' location on the level of satisfaction taking cognizance of the recent salary restructuring policy.
3. To make policy recommendation based on these findings to the District education Directorate and beyond to enhance the general output of teachers in the metropolis.

Review of Literature

Theories on Job Satisfaction

Over the years, various scholars have attempted to elucidate the term 'job satisfaction.' These attempts created different distinctions, especially between *affective* and *job satisfaction* with yet another strand called *job cognitive*. The most famous of these job satisfaction models is that of Locke. Locke's Range of Affect Theory is premised on the fact that satisfaction is determined by the difference between what one desires in a job and what he actually has on the job (Locke, 1969). In fact, several theories on job satisfaction have been put forward; the dispositional theory is of the view that most people have natural dispositions that allow them to gravitate towards certain level of satisfaction regardless of their jobs (George, 1992; Judge & Locke, 1993; Staw & Cohen-Charash, 2005; Staw & Ross, 1985; Watson & Slack, 1993). Yet, Judge, Kluger, Locke, and Durham (1998) proposed a theory similar to the dispositional theory, but extended their argument to the effect that there are four core self-evaluations that determine one's disposition towards job satisfaction: self-esteem, general self-efficacy, locus of control, and neuroticism (Judge et al., 1998). Another popular theory, the equity theory, examines how fairness is viewed by persons with regards to social relationship (Cosier and Dalton, 1983). The discrepancy theory on the other hand, sheds light on the source of anxiety and dejection. It states that a person who has not fulfilled a given responsibility may have feelings of anxiety and regret for non-performance and that such individuals tend to

have dejection for their jobs for not being able to achieve their aspirations and dreams (Locke, 1969, 1976).

Herzberg, Mausner, and Synderman (1959) proposed two-factor theory (the *Motivator Hygiene Theory*) in an attempt to contribute to this discourse. Their theory deals with motivation and job satisfaction in an organisation. However, Frederick's Hygiene factors encompass variants of environmental conditions, such as supervisory practices, company policies, pay, and other related conditions at the workplace. Yet, this theory (Herzberg two-factor theory) has been criticized in several dimensions. For instance, Ngimbudzi (2009) argued that what Herzberg considers as 'satisfiers' may be treated as 'dissatisfiers' in other contexts and that the 'satisfiers' failed the generalization test. Moreover, Robbins & Judge (2008) advanced five main critiques (i.e. methodological limitedness, unreliable and questionable measurements, theory inconsistent with other studies and assumptions on productivity with less emphasis on its relationship to job contentment) to this two-factors theory. Meantime, the Job Characteristics Model (JCM) proposed by Hackman and Oldham (1974) is the most used framework for understanding the impact of a particular job feature on job satisfaction and outcomes. Indeed, five core job satisfaction characteristics (feedback, autonomy, task significance, task identity, and skill variety) are identified with the model. These characteristics are seen to be relevant on three critical psychological states (knowledge of the actual results, experienced responsibility for outcomes and experienced meaningfulness) with eventual effect on the outcome of the work (work motivation, absenteeism, job satisfaction etc.). The core characteristics, according to the authors, may be grouped together to form a *motivating potential score* (MPS) for a job, or even be an indicator of how a particular job is likely to be affected by the attitudes and behaviour of employees.

Generally, these theories have some limitations, especially in terms of empirical proofs. Nevertheless, Maslow's (1954) Needs theory has been the most relied on theoretical framework, which may be attributed to the fact that Maslow's model deals with five levels of human needs such as physiological, safety or security, self-actualisation, ego, and social dimension.

Job Satisfaction Instruments

Several and diverse job satisfaction instruments have been used in conventional researches of this nature. For example, the Job Descriptive Index (JDI) (Roznowski, 1989; Smith, Kendall, & Hulin, 1969), the Minnesota Satisfaction Questionnaire (MSQ) (Weiss, Dawis, England, & Lofquist, 1967), the Job Diagnostic Survey (JDS) (Hackman & Oldham, 1974), the Job in General Scale (JIG) (Ironson et al., 1989), the Global Job Satisfaction (GJS)

(Pond & Geyer, 1991; Quinn & Shepard, 1974; Rice, gentile, & McFarlin, 1991) and the Job Satisfaction Survey (JSS) (Spector, 1985) are some of the tools employed. Whereas some of the surveys assess the global job satisfaction without reference to any specific facets (e.g. JIG, GJS), others use the facet approach (e.g. JDI) or a combination of both approaches (e.g. JSS, MSQ) (Fields, 2002; Spector, 1997).

Yet, there are also instruments that are used to measure only one specific job satisfaction dimension. Examples are the works done on satisfaction with the Work Schedule Flexibility Scale (Rothausen, 1994) and the Pay Satisfaction Questionnaire (Heneman & Schwab, 1985). This variety of the instruments provides researchers with several alternatives for effective research. On the other hand, it makes research results incomparable. Additionally, these instruments require careful selection in order to reflect the objectives of a particular research. In view of this, Spector argued that instruments and their scales sometimes do not represent the research sample. He claimed that job satisfaction instruments are general, and as such developed for typical organizations such as white collar and/or businesses, and may not always be applicable for all samples (Spector, 1997). Moreover, there are instruments that are developed based on a specific organizational sector (e.g. medical doctors/other staff in the health service sector). Indeed, instruments for this group may not reflect aspects of other organizational sectors (e.g. white-collar, teachers, police officers). In a confirmatory analysis, Astrauskaite, Vaitkevicius, and Perminas (2011) identified eight sets of variables in their studies. These include organizational type, work hours, level of appreciation, bonus, desire for personal growth, job philosophy, age, and gender. Their results showed that most of these variables had significant statistical effect with high Cronbach's alpha and reliability.

Meanwhile, Astrauskaite et al. (2011) and Spector (1997) pointed out that teachers differ from typical employees in many ways. They argued that instruments usually used to measure such job satisfaction dimensions as appreciation, communication, coworkers, fringe benefits, job conditions, nature of work, organization itself, organizational policies and procedures, pay, personal growth, promotion opportunities, recognition, security and supervision may not always be applicable to analyze job satisfaction in the teaching field. Nevertheless, some researchers (Rosser, 2005; Sharma and Jyoti, 2009; Tillman and Tillman, 2008) believe that these factors may be used in studying job satisfaction among teachers. The consensus on these dimensions is specifically, on supervision, work itself, promotion and recognition, because these are important dimensions in measuring the teachers' satisfaction with their work (Rosser, 2005; Sharma and Jyoti, 2009; Tillman and Tillman, 2008). Moreover, several researchers have used the

same measurements or dimensions but with different wording (synonym). For instance, Kreitner and Kinicki (2004) defined job satisfaction with the synonym 'motivation,' which he argued contains those psychological processes that cause the arousal, direction and persistence of goal directed voluntary actions. Motivation depends on integrating both intrinsic and extrinsic factors to have committed employees. Similarly, Board (2007) emphasised the importance of incentives (tangible) and injecting efficiency and effectiveness as means to increasing performance for task not performed before, to encourage 'thinking smarter' and to sustain and maintain both quantity and quality to achieve goals. Primary factors, such as recognition, rewards and incentives are vital for motivating employees. Aarabi, Subramaniam, and Akeel (2013) confirmed this assertion by using payment, job security, promotion, freedom, friendly environment, training, and employee job performance to measure organizational motivation, and found positive relationship among these factors. On reward and recognition/appreciation (which comes in various forms, e.g. income/pay, bonus, fringe benefits etc.), other researchers proposed keeping high spirit among employees in order to boost their morale; this may directly impact performance and output through job satisfaction (Ali & Ahmed, 2009; Baron, 1983; Barton, 2002; Danish & Osman, 2010; Flynn, 1998; Forson, Jakkaphong, & Carsamer, 2013; La Motta, 1995; Lawler, 2003; Morris, 2004).

Most researchers, in an attempt to use quantitative method, have mainly employed an analysis of variance in order to look at the differences between variables on job satisfaction and gender or other related variable depending on the research questions. With the use of this approach, Zhongshan (2007) reported that job contentment among Chinese teachers increased as they advanced in age and decreased among younger teachers. This view has been supported in related studies to imply that the older the teachers are, the higher the probability that they will be satisfied with their profession, while the contrary stands for younger teachers (Bennel & Akyeampong, 2007; Greensberg and Baron, 1995). Other factors such as marital status, number of years on the job, type and nature of school (private or public), location of school (remote or rural) and promotion/appreciation from studies conducted in the UK, Greece, China and Tanzania have supported this notion albeit mixed results (Bennel & Akyeampong, 2007; Crossman and Harris, 2006; Dinham and Scott, 2000; Greensberg and Baron, 1995; Koustelios, 2001; Zhongshan, 2007).

Meanwhile, most research works on teacher job satisfaction in Ghana have relied heavily on qualitative approach, even though some have used simple cross tabulation and frequency distribution. However, these approaches only elicit responses, consequently it is not possible to capture the predictive strengths and impacts of the variables being measured within

a given theoretical framework (Azornu, 2012; GNAT & TEWU, 2009; Ohene-Kunto, 2012).

It is evident from the above that most research works were interested in investigating only the differences in job satisfaction in relation to gender, age etc. In fact, fewer of these works have actually attempted investigating the predictive strengths of the so-called variants of job satisfaction/motivation in a regression model, let alone use path analyses to establish such effects directly or indirectly. Consequently, this research work considered these limitations and used a combination of multivariate multiple regression (stepwise), path diagram and analysis of variance to capture the predictive nature of these variables, as well as the impact of other categorical variables on job satisfaction simultaneously. The factors used in this study are however drawn from the four main classifications of environmental, strategic employee recognition, individual, and psychological dimensions taking stock of the six main models of job satisfaction discussed in the literature.

Conceptual Framework and Research Model

Having reviewed the various theories on job satisfaction (motivation), the variables below were identified as bearing profound relationship with job satisfaction, and were thus incorporated into our research model to outline their relationship (direct and indirect) with the dependent variable. Note that for simplicity in the path diagram, the study was limited temporarily to six continuous variables (Burns & Burns, 2008; Stevens, 1996; Tabachnick & Fidel, 2013) but included other categorical variables subsequently as shown in the brackets. Conceptually, the variables used are described below:

- *Endogenous variable:* Job Satisfaction.
- *Exogenous variables:* Income, Personal Growth, Bonus, Appreciation, Work Freedom, Organizational type (Age, Gender, Location and Educational background).

Hypothesized Theoretical Equation

Based on the research model above, six structural equations were derived as shown below:

$$Y_{\text{job satisfaction}} = \alpha + \beta_1 \text{income} + \beta_2 \text{organisational type} + \beta_3 \text{personal growth} + \beta_4 \text{bonus} + \varepsilon_1 \quad (1)$$

$$Y_{\text{personal growth}} = \alpha + \beta_{13} \text{income} + \beta_7 \text{appreciation} + \beta_5 \text{bonus} + \varepsilon_2 \quad (2)$$

$$Y_{\text{income}} = \alpha + \beta_8 \text{work freedom} + \varepsilon_3 \quad (3)$$

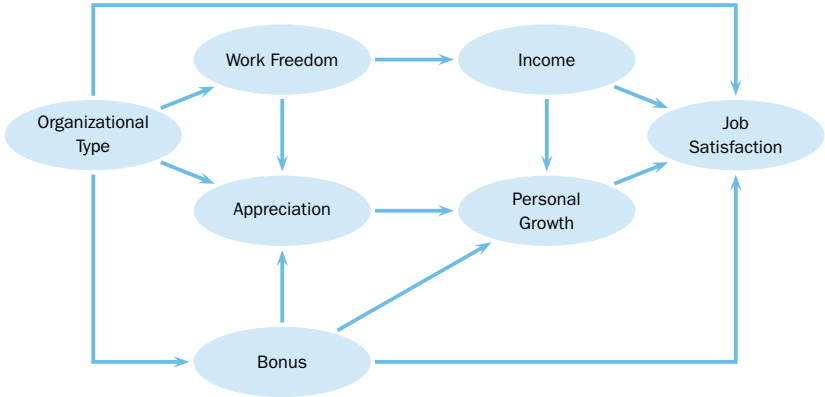


Figure 1 Conceptual Framework and Research Model

$$Y_{appreciation} = \alpha + \beta_{10}work\ freedom + \beta_{12}organisation\ type + \beta_6bonus + \varepsilon_4 \tag{4}$$

$$Y_{work\ freedom} = \alpha + \beta_9organisational\ type + \varepsilon_5 \tag{5}$$

$$Y_{bonus} = \alpha + \beta_{11}organisational\ type + \varepsilon_6 \tag{6}$$

Where α , β and ε are the constants, standardized coefficients and error terms respectively.

Statement of Hypotheses

Based on the vast literature available and the conceptual framework in relation to the structural equations presented above, we hypothesized that the set of exogenous variables identified has direct and indirect links with the endogenous variable (Job satisfaction). In order to aid in testing this general hypothesis, specific hypotheses (H1–H6) below were pursued.

- H1 *Income, organizational type, personal growth, and bonus have positive and direct effect on job satisfaction.*
- H2 *Income, appreciation, and bonus have direct and positive effect on personal growth but indirect effect on job satisfaction through personal growth.*
- H3 *Work freedom directly affects income negatively, but indirectly affects job satisfaction through income, appreciation, and personal growth.*
- H4 *Work freedom, organization type, and bonus directly affect appreciation positively but indirectly affect job satisfaction through personal growth positively.*
- H5 *Organizational type directly affects work freedom negatively but indi-*

rectly affects job satisfaction through income, appreciation, and personal growth.

- H6 *Organizational type has positive direct effects on bonus with simultaneous positive direct and indirect effects on job satisfaction through appreciation and personal growth*

Research Methodology

Sample Size and Unit of Analysis

The data used was obtained from survey conducted using random sampling technique to select eight basic schools in the Ga West Municipal Assembly in the Greater Accra Region of Ghana. There are different views on sample size for these kinds of analyses, but the recommendation in most cases is to have large sample size. In view of this, Stevens (1996) recommended at least 15 participants per predictor in order to have a reliable equation in the case of factor analysis. Tabachnick and Fidel (2013) then provided a formula for calculating sample size requirements, taking into consideration the number of independent variables; thus, $N > 50 + 8m$ (where m denotes the number of independent variables). In line with these and other requirements (Yamane, 1967), a total of 600 self-administered questionnaires were distributed among the elementary schools with random selection of respondents. 436 ($\approx 73\%$) of these questionnaires were adequately completed and returned. The questionnaire was divided into two parts; the first part captured the demographic characteristics of respondents with the level of measurement being nominal/dichotomous on gender, location of school, educational qualification, age, marital status and type of school. The second part encompasses questions that sought for answers in order to be able to measure the views and perceptions of respondents.

Job satisfaction is an issue rooted in psychology, especially within organizational behaviour or science. In measuring job satisfaction, a scale of 1–10 was used with 1 being the lower and 10 being the highest level of satisfaction among the teachers. For other items, the advice of Kerlinger (1978) and Gall, Gall, and Borg (2007) on five-point likert scale type of questions was adhered to (1 – strongly agree, 2 – agree, 3 – strongly disagree, 4 – disagree and 5 – undecided).

Data Analysis

Data was analyzed in two different ways in line with the research objectives using IBM SPSS PASW version 18. In the first part, we tried to establish the causal relationship between the set of exogenous variables and endogenous variable in stepwise multiple regression models based on the hypothesized structural equations from the conceptual framework. The rationale

for doing this was to figure out how much each variant contributed to the determination of the level of satisfaction by computing path coefficients.

In the second part, we used both two-way analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA) to analyze the effects of the other categorical variables (gender, age groups, educational background, and location of the schools) on job satisfaction. In all cases, the assumptions guiding the use of these methods were strictly observed. Diagnostic checks were performed on all of the assumptions to avoid violation upon which violated assumptions observed were corrected.

Empirical Results and Discussion

Demographic Characteristics

Aggregation of the responses from the survey indicated that out of the 436 self-administered questionnaires completed and returned (from the eight randomly selected schools), 185 came from male respondents, representing 42.1% while 254 (57.9%) came from females. About two-thirds (264) of the respondents, representing 60.1% were aged between 18–40 years, whereas 21.6% were within the age cohort of 41–49. The remaining 17.8% were above 51 years of age. The educational qualification ranged from senior secondary school leavers (having received on the job training through induction courses) to few master degree holders. 197 (44.9%) of the respondents were teachers cert. 'A' holders and 103 (23.2%) were SSS graduates. Again, 96 (21.9%) were diploma certificate holders and the remaining (10%) were bachelor and master degree holders. Additionally, 200 (45.6%) of the respondents reported the location of their schools to be in peri-urban centers, while 171 (39%) had their schools located in rural centers. The remaining respondents (68; 15.5%) were from schools located in urban centers.

Diagnostic Check for Multivariate Assumptions

We facilitated diagnostic checks using both graphical and statistical approaches to ensure that there was no violation of critical assumptions. Preliminary descriptive statistics, especially for the six main variables indicated critical violation of assumptions; specifically, preliminary correlation matrix and tolerance, and variance inflation factor (VIF) indicated minor multicollinearity between bonus and income ($r = 0.763$), which was a concern. The mean score of the selected variables was between 4.75–2.42 with a standard deviation of 1.86–1.042. On skewness and kurtosis, the distribution was negative but within the acceptable range of ± 1 . The Pearson correlation coefficient (r) between income and personal growth was high ($r = 0.720$) and a test of normality using Kolmogorov-Smirnov and Shapiro-Wilk indicated that the selected variables were highly significant ($p < 0.01$),

Table 1 Descriptive Statistics and Correlation Matrix (N = 436)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
(1) Income	1					
(2) Bonus	0.685*	1				
(3) Personal Growth	0.669*	0.683*	1			
(4) Organizational Type	0.449*	0.457*	0.609*	1		
(5) Appreciation	0.469*	0.459*	0.577*	0.471	1	
(6) Work Freedom	-0.181*	-0.207*	-0.255*	-0.102**	-0.201*	1
Mean	4.300	4.440	4.660	4.510	3.910	2.400
Std. Deviation	1.523	1.529	1.487	1.617	1.795	1.035
Skewness	-0.274	-0.278	-0.393	-0.194	0.077	0.466
Kurtosis	-0.571	-0.568	-0.453	-0.835	-0.937	-0.41

Notes * $p < 0.01$; ** $p < 0.05$ (2-tailed).

suggesting violation of the assumption for normality. Note that this is a common phenomenon with a large set of data (Pallant, 2011). We used another statistical measure (Cooks Mahal Distance) to check for normality, linearity and outliers, and observed outliers in most of the variables. This might have affected the distribution trend; hence the data was trimmed to resolve the assumptions violated accordingly. Table 1 shows the descriptive statistics after resolving the violated assumptions.

After trimming the data set for outliers, the distribution was fairly normal. The P-P and Q-Q plots are a confirmation of this. On linearity and homoscedasticity, the residuals had linear relationship with the predicted dependent variable and were almost the same for all the predicted scores.

Predictive Strength Assessment

We assessed the predictive strength of the variables identified. The coefficients for the direct and indirect effects for the various latent variables (β) were estimated in relation to job satisfaction. There was significant number of direct and indirect relationship as recorded in the path diagram and summarized in Table 2. Note that the ultimate attention was on the manifest variable (job satisfaction) with recursive direction (see Figure 2). The bivariate correlation between the endogenous and exogenous variables indicated that there was a significant relationship between them. The product moment Pearson coefficients were $r = 0.434$, $r = 0.370$, $r = 0.450$, and $r = 0.422$ for income, organizational type, personal growth and bonus respectively, and all the variables were statistically significant ($p < 0.01$ two tailed). Note, however, that the change component presented in the last section of Table 2 is the difference between total correlation and total effects. A summary is presented in Table 2.

From the path diagram (Figure 2) and in accordance with the baseline

Table 2 Summary of Direct, Indirect and Total Effect and Correlation Coefficients ($N = 436$)

Variables		Corr.	Effects			Change
Dependent	Independent		Direct	Indirect	Total	
Job Satisfaction	Income	0.434	0.164*	-0.135	0.029	0.405
	Organizational Type	0.370	-0.130*	-0.210	-0.340	0.710
	Personal Growth	0.450	-0.450*	-	-0.450	0.900
	Bonus	0.422	-0.252*	-0.353	-0.605	0.183
Personal Growth	Income	0.669	0.299*	-	0.299	0.370
	Appreciation	0.576	0.334*	-	0.334	0.242
	Bonus	0.683	0.683*	0.103	0.786	-0.103
Income	Work Freedom	-0.181	-0.181*	-	-0.181	0.000
Appreciation	Work Freedom	-0.199	-0.109*	-	-0.109	-0.090
	Organizational Type	0.475	0.471*	0.322	0.793	-0.318
	Bonus	0.464	0.307*	-	0.307	0.157
Work Freedom	Organizational Type	-0.102	-0.102*	-	-0.102	0.000
Bonus	Organizational Type	0.457	0.457*	-	0.457	0.000

Notes * $p < 0.01$.

stepwise regression, the influencing relationship with direct linkage to job satisfaction accounted for over 26% in the cross variable variance. Income, organizational type, personal growth and bonus were all statistically significant ($p < 0.01$) with direct path coefficients (pc) of $pc = 0.164$, $pc = -0.130$ and $pc = -0.450$ and corresponding indirect effect of $pc = -0.135$, $pc = -0.210$, and $pc = -0.353$ respectively, for income, organizational type and bonus respectively. This accounted for a total effect of $pc = -0.029$, $pc = -0.340$, $pc = -0.450$ and $pc = -0.605$ for the respective variables (Table 2). When personal growth was used as the dependent variable to establish the causal relationship to job satisfaction, the bivariate correlation revealed significant Pearson coefficients of $r = 0.669$, $r = 0.576$, and $r = 0.683$ respectively. Income, appreciation, and bonus showed direct path coefficients ($pc = 0.299$, $pc = 0.334$ and $pc = 0.683$ respectively), with an indirect effect of 0.103 on bonus. The model (Figure 2) accounted for 59.9% of the cross variance explanation and as such it was an improvement over the first equation (1). Our finding suggests that teachers perceive income, work appreciation and bonus as the main factors relevant for their advancement especially, for personal growth. Additionally, the existence of these factors guarantees the extent to which teachers may be satisfied (thus serves as intervening factors). This is consistent with earlier theories and results in the literature (Danchev & Ilgun, 2013; Forson et al., 2013; Ngimbudzi, 2009).

However, models three, five and six did not show any significant change. The effects of work freedom, organizational type and bonus on appreciation

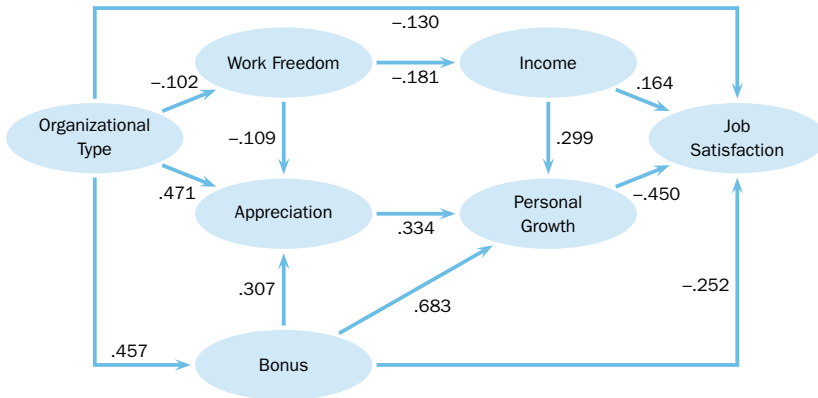


Figure 2 Path Coefficients of Structural Equation for Hypothesis Testing

also reported significant mix of direct and indirect effects (Figure 2). A direct path coefficients of $pc = -0.109$, 0.793 and 0.307 were recorded with an indirect effect of 0.322 on bonus yielding a total effect of -0.090 , -0.318 and 0.157 for these variables respectively. The model (Figure 2) accounted for 30.8% of the cross variable explanation in the variance. However, organizational type (used as a proxy for job philosophy), bonus and personal growth had weaker effect on job satisfaction with negative coefficients. In other words, though they were relevant, they were not strong in deciding the level of contentment, while the presence of appreciation and bonus did. These findings were indeed, consistent with theories in the literature (Judge et al., 1998; Herzberg, 1959; Hackman and Oldham, 1974; Maslow, 1954).

Figure 2 is a path diagram showing the standardized path coefficients (betas) of the effects among the hypothesized direction (direct or indirect) to job satisfaction. It should be mentioned that the path diagram shown here is without the estimated total effects as that has to be computed separately together with other parameters such as the coefficient of determination in the stepwise regression analyses.

Impact Assessment of Categorical Variables

The study moved a step further to assess the impact of age and gender on the level of job satisfaction taking into account the interaction effects in a two-way analysis of variance. This would be followed by MANOVA to assess the impact of educational background and the location of school on combined dependent variables selected from the most predictive factors in the stepwise regression. This is to investigate if any of the age groups and gender determine job satisfaction.

A test on one of the assumptions on homogeneity of variance is conducted using the Levene's test of equality of error variances. A more stringent significant level was set ($p < 0.01$) to evaluate the subsequent results of the two-way ANOVA. We found a non-significant level of 0.418 larger than 0.01, implying this assumption is not violated. A two-way between-groups analysis of variance was conducted to explore the impact of gender and age on the level of job satisfaction. Teachers were divided into five groups according to their ages (i.e. Group 1: 18–24 years; Group 2: 25–32 years; Group 3: 33–40 years; Group 4: 41–49 and Group 5: 50 and above). The interaction effects between gender and age group were not statistically significant, $F(4, 423) = 0.492, p = 0.741$. On the other hand, there was a statistical main effect on gender and age groups, $F(1, 423) = 8.440, p = 0.004$; $F(4, 423) = 3.821, p = 0.005$ with a relatively small effect size (partial eta squared = 0.020; 0.035 respectively). Since gender variable had less subcategory, we were unable to estimate the post-hoc comparison using Tukey HSD test. The post-hoc comparison on the different age groups indicated the mean scores for the years 18–24, 25–32 and 50+ groups ($M = 28.60, SD = 6.094$; $M = 25.65, SD = 4.920$; $M = 25.75, SD = 6.178$) were significantly different from the age groups ($M = 26.77, SD = 5.918$; $M = 26.62, SD = 5.706$), implying the level of contentment among these age cohorts was higher than the latter. The age groups 33–40 and 41–49 ($M = 26.77, SD = 5.918$; $M = 26.62, SD = 5.706$) were insignificant. The results are both consistent and inconsistent with other studies that suggest age and gender does determine teachers' level of satisfaction. Younger teachers are poised to be satisfied with the teaching profession holding other conditions constant, as opposed to what other researchers have suggested (Bennel & Akyeampong, 2007; Crossman & Harris, 2006; Dinham & Scott, 2000; Greensberg & Baron, 1995; Koustelios, 2001; Ngimbudzi, 2009; Zhongshan, 2007).

A two-way multivariate analysis of variance is estimated to assess the impact of location and educational background on three of the variants of job satisfaction identified from the stepwise regression. The Box's Test of Equality of covariance matrices indicated a significant value less than 0.001, implying the assumption on homogeneity of variance has been violated. Other preliminary assumption testing was conducted on linearity, normality, univariate and multivariate outliers without serious violation. Three of the dependent variables were used: organizational type, personal growth, and bonus. The independent variables were location and educational background. Levene's test of equality of error variance indicated one of the dependent variables (bonus) has a significant level larger than 0.001 with the remaining two violating the assumption on homogeneity of variance. To deal with this, the pillai trace is reported in place of the wilk lambda. The in-

teraction effects between location and educational background on the combined dependent variables were statistically insignificant, $F(3, 406) = 0.011$, $p = 0.221$. There was a statistically significant difference between education on the combined dependent variables, $F(12, 1224) = 2.579$, $p = 0.002$; Pillai trace = 0.074; partial eta squared = 0.025. When the results of the dependent variables were considered separately, the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of 0.017 (i.e. dividing .05 by the combined DVs), was the bonus, $F(4, 408) = 2.424$, $p = 0.016$, partial eta squared = 0.023. The post-hoc comparison using Tukey HSD on the different educational background on bonus indicated holders of SSS/Induction courses on Teachers' cert. 'A' and Bachelor degree were significantly different. That is, teachers with these educational backgrounds are satisfied with the teaching profession. There is a lot of soundness in this finding as unemployment rate in Ghana is relatively high, around 11% (see <https://www.cia.gov/library/publications/the-world-factbook/geos/gh.html>), as the youth might be less concerned about changing jobs. In addition, the introduction of the Single Spine Salary Structure (SSSS) by the Fair Wages Salary Commission (FWSC) could be a contributing factor to the retention of teachers in recent times. An inspection of the mean score indicated that SSS/Induction course, bachelor degree and Cert. 'A' holders reported the following level of job satisfaction ($M = 3.95$, $SD = 1.722$; $M = 4.86$, $SD = 1.134$; $M = 4.67$, $SD = 1.533$), and the Diploma and Master's degree holders reported ($M = 4.46$, $SD = 1.271$; $M = 4.00$, $SD = 1.633$), which were insignificant.

Conclusion and Policy Recommendation

The findings and results confirmed the hypotheses postulated in the beginning of the study. There are both positive and negative relationships between the independent variables identified as possible factors relevant in determining the level of satisfaction among the teachers. Though it was pointed out that there are numerous challenges with regards to having definite instruments to measure the level of satisfaction among a group of people and the work engaged in, triangulating and adopting items from numerous theories and frameworks put forward by other researchers could have a lot of soundness by confirming these theories.

In this study, we found the type of organization, the income level, and the desire for personal growth to be the key determinants of job satisfaction among the teachers in the Ga West Municipal Assembly in Ghana. Meanwhile, income level in this study context is defined as teachers' basic pay excluding other fringe benefits and incentives. The type of organisation discussed in this study refers to the teachers in the public sector and the philosophy. Work freedom is the time available to teachers after their official

duties on the job. Bonus contains the incentives and fringe benefits introduced by the new salary structure. Appreciation is the social recognition teachers enjoy as mentors and as the source of knowledge in the society. Personal Growth is explained as the manner in which the sector serves as a launch-pad for both career and academic advancement.

There was a negative effect on the type of organization, which implied the causal relationship was weak. Other key factors such as appreciation (recognition) and the work freedom one has on the job did not have direct effects, but worked through other factors in establishing their relationship to job satisfaction. These factors are equally relevant in determining teachers' level of satisfaction. This finding is consistent with other studies especially in line with income, incentives, and performance (Danchev & Ilgun, 2013).

In assessing the impact of age and gender on the level of job satisfaction among the teachers, a two-way analysis of variance was used. The results indicated gender was a key determinant in the teachers' level of satisfaction. However, the study was unable to establish which of the gender categories was more satisfied with the teaching profession. This is an area that can be studied in subsequent research using either qualitative or quantitative research approach to unearth which specific gender is satisfied with the profession. The study also established that teachers with SSS/Induction course, Cert. 'A,' and bachelor degree including certain age cohorts were relatively satisfied with the teaching profession. This result is consistent with other studies in the literature (Bennel and Akyeampong, 2007; Crossman and Harris, 2006; Dinham & Scott, 2000; Greensberg and Baron, 1995; Koustelios, 2001; Ngimbudzi, 2009; Zhongshan, 2007). The astronomical high unemployment rate of 11% and the SSSS implemented in 2010 could have possibly created a fertile ground for the youth to find a cause to remain satisfied with the teaching profession. However, since this study could not establish how this level of satisfaction translates into job performance or output, it is recommended to perform further studies in order to unearth this relationship. Though, since its inception, the new salary structure has succeeded in stabilising the movement of teachers out of the profession, it is too early to forecast if the trend will continue considering the numerous industrial strike challenges the policy is currently facing (Adoboe, 2013). Additionally, one of the key measures in the new policy was to link payment to productivity, which should reflect in the Gross Domestic Product (GDP) in the subsequent years. However, this link is yet to be established. Government expends more than 70% of its revenue on this new pay policy with less than 30% left to cater for infrastructure, water, electricity etc., which cast doubts on its sustainability (Fosu, 2013; FWSC, 2013).

In conclusion, the knowledge of the results presented in this study is rel-

evant in diverse ways. These results would help policy makers to know the exact factors on which to focus in order to attract the best candidates for the teaching profession, as well as retain existing teachers. Additionally, the impact of the pay restructuring policy could be assessed using job retention as the measure of its success or failure. Where teachers are seen to be dissatisfied with their job, the level of apathy is high, which adversely affects their general output. In addition, the results can also serve as a framework within which the Ga West Municipal Assembly (Ghana Education Service) can work to improve the teaching profession, to establish efficient job environment, to increase the level of satisfaction not only in the greater Accra Region of Ghana, but even other African nations with similar problems, to emulate for better employee performance, and to enhance productivity.

Acknowledgements

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Entrepreneurs' Expectations and Students' Competencies According to the First Stage of the Synergy Project Evaluation

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The article presents the results of a research on students' competencies self-esteem. The research was conducted in the years 2009–2012, on a sample of 1,831 students, under the project called 'SYNERGY – MCSU Faculty of Economics students' competencies development by gaining practical knowledge.' co-financed by the European Union from the European Social Fund. The purpose of the research was to pinpoint the areas of competencies that are considered to be essential for business and determine the level of students' self-esteem in the identified areas. The main objective of the article is to show the competencies that are desirable from the business point of view, but are, in the opinion of the students, at a rather low level and require special attention and development. The paper presents the key findings of the study: the lowest self-esteem level was observed in the area of knowledge needed by the employers, the highest in the attitudes wanted by the labor market. Positive relationship was found between the level of competence self-esteem and the respondents' year of study.

Keywords: competencies; education; learning; knowledge management; labor market demands; self-esteem; students; Synergy project; Moodle

Characteristics of the Synergy Project

Introduction to the Project

Appropriate education of students is a prerequisite for an increase of their competencies, which are understood as a synthesis of knowledge, skills and attitudes (Čiarnienė, Kumpikaitė, & Vienažindienė, 2010, p. 438). Shaping the competencies leads to the increase of the competitive advantage gained in the labor market and can be an effective way of enhancing the employability level of the graduates (Jayawardena & Gregar, 2013, p. 89). Nowadays, in times of crisis, it has become undoubtedly clear that the labor market is a place with strong competition, employers' market (Acelandu, 2013, p. 141). Developing competencies is also important from the busi-

ness point of view, since it helps the business to sustain and grow. To build the right competencies, it is essential to know the market needs (Sanghi, 2009, p. 14). Well prepared graduates become more efficient workers; better students' education reduces the costs of preparing new employees for work.

The project called 'SYNERGY – MCSU Faculty of Economics students' competences development by gaining practical knowledge,' realized by the Department of Economics Maria Curie-Skłodowska University (MCSU) is an attempt to meet the expectations of the employers, graduates and students, and also to improve the practicality of education. The project is implemented over the period of five years, from October 2009 to September 2014. It is co-financed by the European Union from the European Social Fund under the Operational Programme Human Capital. Detailed information about the Synergy project are available at www.synergia.umcs.lublin.pl.

The recipients of the project are both students and graduates of business studies, who can participate in a number of activities: lectures conducted by practitioners, trainings, practical projects, and internships.

In the area of evaluation, the project team conducted the activities to explore self-esteem of participants' competencies. This publication presents detailed results of the 1st stage of the research of the students' competencies self-esteem. In addition, the evaluation process is aimed to monitor the increase in the level of students' competencies and graduates' career, and identify the deficiencies in competencies desirable from the employers' point of view.

One of the initiatives of the project is The Entrepreneurs Council, a unit where representatives of the entrepreneurs gain the opportunity to exchange experiences and good practices between science and business. Furthermore, the Council influences the design of the study programmes. The Council consists of the representatives of the Faculty of Economics and the representatives of business and local government. It cooperates with the Department of Economics in the area of:

- research (implementation of advisory services, conferences, seminars, workshops, undertaking joint projects, practical use of research results),
- education (consulting training plans and curricula, organization of internships and students' practice, support in the development of teaching materials, organization lectures conducted by practitioners, organization of study visits),
- promotion (including promotion of the Department of Economics and partners, popularization of knowledge and education, popularization of good practices in the area of education and business cooperation).

The Project enabled the achievement of additional objectives resulting from close cooperation between the science and the business sector for example:

- development of a training programme in the area of using specialized IT tools in the enterprise management,
- arranging the Academy of Entrepreneurship,
- co-organization of an international conference Technology Innovation and Industrial Management 2012 (TIIM 2012),
- creation of *International Journal of Synergy and Research* (IJSR).

Main Aims

The main goal of the Synergy project is to minimize the competence gap of the students of the Faculty of Economics by increasing the level of practicality in education (Culkin & Mallick, 2011, p. 365). The achievement of the main target is possible due to the milestones, which include:

- increasing the level of mathematical knowledge by conducting additional courses,
- better preparation of graduates to enter the job market by providing specialist trainings,
- strengthening the practical elements of learning, thanks to cooperation with the representatives of business and business supporting institutions,
- establishing The Entrepreneurs Council, as a consultative body of the MCSU Faculty of Economics Programme Council,
- conducting selected classes by practitioners,
- providing practical skills by organizing internships for students,
- implementation of practical projects by students in enterprises and institutions,
- increasing the level of contacts between students and potential employers via workshops and panel meetings,
- implementation of an IT system for collecting the information about the level of graduates competence in order and adjust the curriculum to the needs of the job market,
- the use of IT tools in order to facilitate the cooperation between science and business representatives.

Main Offered Activities

The project activities are prepared for three target groups: students of the Faculty of Economics, entrepreneurs, and local authorities. The students of

the Faculty of Economics participating in the project have the opportunity to take part in:

- scientific conferences,
- compensatory courses in mathematics,
- trainings in starting and running a business,
- interpersonal trainings,
- trainings in the area of investing and stock markets,
- trainings in computer accounting,
- trainings in analytical tools (spreadsheets),
- internships in enterprises or institutions,
- practical projects carried out for companies or institutions,
- lectures, projects, and seminars conducted by business representatives.

Representatives of business and business-related organizations cooperating in the Project, gain the ability to:

- solve their problems through outsourcing consultancy projects to students,
- develop the graduates' competencies profile,
- recruit the best students and graduates,
- assess the potential employees during the internships.

These benefits, as well as the ability to use the knowledge of the wide academic community and an opportunity to increase the efficiency of the new employees' recruitment process, are can be achieved without additional financial costs. At present the organizers of the Synergy project cooperate with approximately two hundred institutions: small, medium, large companies and organizations.

IT Supporting Tools

Reaching the above goals was possible by using ICT tools such as a web page equipped with content management system (CMS) and The Virtual Platform of Cooperation (WPWWE) based on course management system MOODLE. Mentioned tools were also used to perform research on students' competencies self-esteem.

The Synergy Project Homepage

The homepage of the Synergy project is available at www.synergia.umcs.lublin.pl. It is based on open source blogging system WordPress, which can be also used as a powerful Content Management System (CMS). WordPress

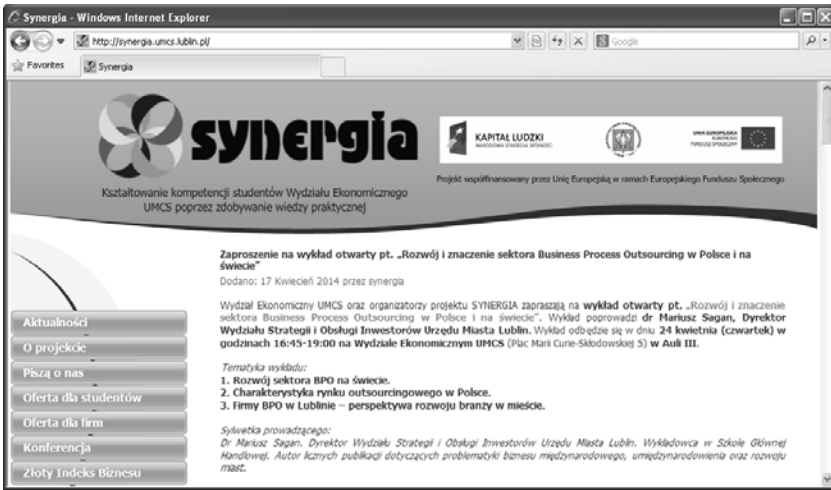


Figure 1. Main Page of the Synergia Project

is an easy and flexible tool that can be extended by thousands of themes, plugins, and widgets. The homepage of the Synergia project is displayed in Figure 1.

The web page is used to publish: news, information about the Project, offers for students and business organizations, useful hyperlinks, and project gallery. The page has been used for four years and it turned out that CMS system meets almost 100% of the project team needs. Thanks to WordPress flexibility, new requirements were easily implemented with the installation of plug-ins.

The main advantages of WordPress based web page discovered during the Synergia project realization are as follows:

- good documentation,
- scalability (a lot of useful plugins),
- short time of implementation,
- low cost of administration,
- great scope of graphic projects (themes), and
- ease of use and administration.

The Synergia web page is a very helpful tool in the area of project promotion and communication with partners and participants.

The Virtual Platform of Cooperation (WPWWE)

The SYNERGY project Virtual Platform of Cooperation is available at www.platforma.synergia.umcs.lublin.pl. The platform is based on MOODLE (Mod-

ular Object-Oriented Dynamic Learning Environment), a very popular, open source e-learning tool.

WPWWE is the main ICT tool supporting the realization of the Project. The platform serves as a communication portal between: the Department of Economics, the organizers of the Project, the Project participants and the business representatives. Using the WPWWE platform the participants are able to:

- apply to the project,
- apply to the specific project services,
- get access to the project databases: trainings, job offers,
- download supporting materials,
- search for employers,
- verify own knowledge and competences,
- quickly communicate with other participants and project staff,
- gather participants' opinion about the project services,
- assess the quality of project activities,
- provide the information about the acquired competencies, and
- indicate their needs that can be met during future Project activities.

Interface of the Virtual Platform of Cooperation is displayed in Figure 2.

The WPWWE is divided into four areas: download area, e-courses, electronic job fair, and project evaluation (management area). Using the download area, the participants can obtain all the documents required to join the project, download forms and templates, gain training supporting materials.

The e-courses area contains all the materials published by the trainers conducting the courses offered by the Project. Using the tests stored in this area, the teachers can also check the level of participants' knowledge at the begging and at the end of the course.

In the electronic job fair area, students can find job offers derived from the most popular job websites. The representatives of the business and project participants can also prepare or upload own announcements and information about offered and wanted jobs.

Using the evaluation area, the project staff can, for example: collect information about the participants, gain the participants' opinions, explore the students' preparation for the labor market needs, know the demands presented by the employers and the employees, collect information about the career of the graduates, monitor the progress of the project tasks and generate reports about delays and deviations from the plan.

In the area of students' competences self-esteem, the Virtual Platform was used to collect their opinion about possessed knowledge, skills and



Figure 2 Interface of the Virtual Platform of Cooperation

presented attitudes. Using the standard functionalities of MOODLE systems, in quite short time and with no extra costs, the organizers of the project collected data from approximately 2000 students. Virtual Platform tools can also generate simple reports presenting data analysis and summary that helps to plan future project activities.

Self-Assessment of Business Students' Competencies

Methodology of the Research

One of the 'SYNERGY – MCSU Faculty of Economics students' competences development by gaining practical knowledge' project aim is to implement the system for collecting the information about the level of students', graduates' competencies in order to fit the needs of the employers and adapt the curriculum to the needs of the job market. Before entering the project, the students were asked to complete a questionnaire assessing the level of their competencies, understood as a synthesis of knowledge, skills and attitudes. The research was conducted in the years 2009–2012. The key areas of knowledge, skills, and attitudes have been developed based on the feedback from business representatives cooperating in the project and on the analysis of the literature (Bencsik, 2010, pp. 13–14; Marzo-Navarro,

Pedraja-Iglesias, & Rivera-Torres, 2008, p. 286). The proposed areas were further verified by the experts in the field of human capital management, counselors and representatives of recruitment agencies.

In order to perform the research, the project team constructed a questionnaire consisting of three closed matrix questions (block of substantive questions) and respondent characteristic questions. Three substantive questions were related to the basic components of the competencies: knowledge, skills, and attitudes.

Closed-matrix questions enabled the assessment of the level of students' competencies on a scale of 1 to 5 (where: 1 – very low, 2 – low, 3 – average, 4 – high, 5 – very high). The measurement was performed using an electronic questionnaire, so that it was possible to reach a large number of respondents in a relatively short time and with no additional costs.

At the beginning, the respondent assessed the level of knowledge in the following areas identified by the key business representatives: production, marketing, sales, customer service, logistics, finance, accounting, taxation, banking, insurance, law, human resource management, project management, information technology, and business practices. Respondent assessed the individual areas by assigning ratings on a scale of 1 to 5, meaning the level of possessed knowledge.

In order to examine the level of skills possessed by the students, the researchers developed an exhaustive list (Bencsik, 2010, pp. 13–14; Vázquez-Bllrgete, Lanero, & Raisiene, 2012, p. 31). Its composition has been coordinated with the representatives of the business. This component consisted of the following skills:

- analytical thinking,
- communication,
- constructive criticism,
- coping with stress,
- creativity,
- decision-making,
- group work,
- knowledge of foreign languages,
- learning speed,
- making judgments and inferences,
- openness and adaptability,
- planning and work organization,
- preparing reports and presentations,
- public speaking,
- self-presentation,

- synthetic thinking,
- the use of knowledge in practice,
- using basic IT tools,
- using IT specialist tools, and
- using mathematical tools.

Attitudes recognized by the business representatives to be the most important from the labor market point of view belonged to the following areas: assertiveness, efficiency, entrepreneurship, ethics, honesty, independence, intuition, loyalty, orderliness, reliability, responsibility, self-improvement, and development.

The researchers didn't differentiate the significance of the above knowledge, skills, and attitudes areas. It was assumed that note 5 (very high) fully meets the requirements of the labor market. Maybe some differentiation is necessary and can be performed during the 2nd and 3rd stage of the research, and it is worth to ask the business representatives for some differentiation/gradation. The final level of possessed knowledge, skills, and presented attitudes was calculated as arithmetic mean (M) of the particular areas of the above components.

The respondents' characteristic questions were: field of study, level of study, year of study, gender, and place of residence.

Filling in the questionnaire through the use of an electronic version of the questionnaire, which was published on The Virtual Platform of Cooperation (WPWWE) took no more than 10 minutes.

The Research Sample Characteristics

The research involved 1,831 respondents, students of the Faculty of Economics, participating in the Synergy project. Detailed description of the research sample is presented in Table 1. Among the respondents, 33% were students of economics, 30% of management, 37% of finance and accounting. The vast majority of the respondents were bachelor's degree students (1540 respondents, 84%), while students of the master studies accounted for 16% of the respondents. Among the largest group of respondents were the students of the second and the first year of BA studies, respectively 64% and 17%.

The studies involved 1190 women (65%) and 641 men (35%). Among the respondents, 53% were residents of urban areas, while the remaining 47% of students came from rural areas.

Main Results of the Research and Conclusions

Having the right knowledge, skills, and attitudes can make it easier to find a job; furthermore, the salaries can be related to possessed competencies (Kelly, 2010, p. 650–657), more competent workers, especially in the

Table 1 Characteristics of the Research Sample

Respondent characteristics		Number of respondents	Percentage of respondents
Field of study	Economics	603	33
	Management	556	30
	Finance and Accounting	672	37
Undergraduate degree	I	1540	84
	II	291	16
Year of study	I	320	17
	II	1167	64
	III	53	3
	IV (1st year of masters)	126	7
	V (2nd year of masters)	165	9
Gender	Female	1190	65
	Male	641	35
Place of residence	City	976	53
	Village	855	47

**Figure 3** Self-Assessment of Business Students' Competence

area of communication, can be more satisfied with the work (de Grip et al., 2009, p. 599–601). General self-esteem level of competencies had quite positive average rating (arithmetic mean) of 3.34 (see Kakkonen, 2011, p. 234). The study showed that among the three components: knowledge, skills, and attitudes that make up the competencies of students, the highest score received the component of attitudes ($M = 3.96$). Skills gained average rating of 3.42. The level of knowledge was assessed the lowest ($M = 2.64$). The results of the self-assessment of business students' competence are presented in Figure 3.

Significant is the fact that the realm of attitudes and the level of students' competencies received the highest average rating, while the level of possessed knowledge was rather low. This assessment seems to contradict the common opinion that sometimes universities provide students with a large amount of unnecessary knowledge, which is usually not reflected in the level of skills and does not lead to practical use of the acquired knowledge, or for shaping suitable attitudes of the graduates.

The results of self-esteem level of students' knowledge in selected areas are presented in Figure 4. The highest level of self-esteem refers to the areas of: computer science ($M = 3.05$), customer service ($M = 3.00$), finance ($M = 2.95$), and accounting ($M = 2.91$). The areas where the knowledge was



Figure 4 Self-Assessment of the Level of Students' Knowledge in the Selected Areas

at the lowest level include: logistics, human resources management, project management, and production. In these areas, the average rating (arithmetic mean) on a scale of 1 to 5, was respectively 2.40, 2.33, 2.33, 2.29.

Based on the obtained results, it can be concluded that the students evaluate low the level of their knowledge resources. Low average rating of 2.64 may result from the relatively large representation of the students of initial years of studies (the first and the second year), who are starting to gain expertise, among the respondents. The representatives of undergraduate studies rated the possessed level of knowledge at 2.56, while the respondents representing the master studies assessed it at 3.04. Another reason for the low assessment of the level of knowledge may be the fact that the respondents were asked about their knowledge in specific areas. Perhaps having acquired the general knowledge during participation in the basic courses held during the first years of the studies, the students were not always able to classify it into a specific area.

The research of the students' skills self-esteem indicates that the students exhibit the highest level of practical application of knowledge in the areas of: using basic IT tools, communication, teamwork, openness to change and adaptability (compare with Bencsik, 2010, pp. 13–14). In these areas, the level of self-esteem was (arithmetic mean): 3.94, 3.87, 3.84, 3.80. The lowest marks received the following areas: self-presentation ($M = 3.31$), using mathematical tools and techniques ($M = 3.05$), public speaking ($M = 2.83$), using specialized tools ($M = 2.43$) (compare with Marzo-Navarro et al., 2008, p. 286). The results of self-assessment of students' skills in the selected areas are illustrated in Figure 5.

The above analysis shows that in order to make the maximum use of



Figure 5 Self-Assessment of the Level of Students' Skills in Selected Areas

the skills possessed by the students, the teaching process, especially in the early years of studies, should enable the realization of group tasks, using simple IT tools, such as a web browser, instant messenger. Due to relatively high level of openness to change and adaptability presented by the respondents (Čiarnienė, et al., 2010, p. 441), it is worth to differentiate, diversify the process of gaining skills, for example, by using activating teaching methods such as brainstorming, task forces, project method or simulations (Buzzetto-More & Mitchell, 2009, p. 87).

The study programmes should also include courses to ensure the development of skills such as self-presentation, which plays a crucial role in the recruitment process, as well as to prepare the graduates, including future managers, analysts, and financial managers to conduct public speaking. The graduates of economics studies should have the ability to think logically and use mathematical tools in practice (Abraham & Karns, 2009, p. 355) in order to be able to base the conclusions or decisions on relevant numerical foundations, often generated in an automated way by IT tools. An important fact is also to enable the students to learn the commonly used advanced IT tools, such as: ERP systems, BI applications and applications that support electronic data interchange (EDI) in a new innovative ways (Barnatt, 2009, p. 55). The ability to use specialized IT tools can be one of the ways to adapt the students' competencies to the employers needs.

The respondents presented a relatively positive opinion about the at-

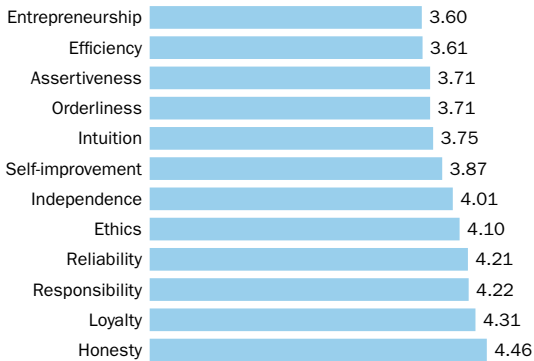


Figure 6 Self-Assessment of the Level of Students' Attitudes in Selected Areas

titudes required by the employers, in particular: honesty, loyalty, responsibility, and integrity (Roman, Maxim, & Manolică, 2013, p. 1639). Self-evaluation of the above areas was respectively at the level of (arithmetic mean) 4.46, 4.31, 4.22, and 4.21. The characteristics of self-assessment of students' attitudes in the selected areas are illustrated in Figure 6. In general, the area of presented attitudes has been assessed much higher than skills or knowledge. The attitudes considered to be the least developed were: regularity ($M = 3.71$), assertiveness ($M = 3.71$), efficiency ($M = 3.61$), entrepreneurship ($M = 3.60$).

The analysis of these data leads to the conclusion that the students of economics can be considered as honest, loyal, responsible, and reliable. At a slightly lower level, the students assessed the following characteristics: systematic, assertiveness, operability. Students also characterized themselves as having a low level of perception of the market needs, as well as the ability to grasp opportunities, and willingness to take the risk of running their own business. Consequently, it is important to systematically shape attitudes by introducing regularity, and rhythm to the way in which the content of the study programme is passed on to students. In the case of part-time students, it is crucial to design the mandatory training programmes and additional activities in a way that ensures an adequate distribution of content at a time, such as weekly classes, regular meetings with the supervisor, tutor, or a representative of the business.

The key issue is to develop an attitude of entrepreneurship and entrepreneurial culture (Kumara & Sahasranam, 2009, p. 24), for example by organizing meetings, seminars with entrepreneurs, presentations of case studies and implementation of practical projects that require contact with the business environment (Kirby & Humayun, 2013, p. 30–31). Entrepreneurship education can be also helpful in the area of promoting innovative and entrepreneurial attitudes (Culkin & Mallick, 2011, p. 364).

Table 2 Self-Assessment of Competencies among Business Students According to Students' Gender

Area	Female	Male	Total
Knowledge	2.60	2.71	2.64
Skills	3.41	3.44	3.42
Attitudes	4.04	3.83	3.96
Competencies	3.35	3.33	3.34

Table 3 Differences in Self-Assessment of Competencies among Business Students According to Students' Gender

Component	Total		Female		Male		t	p†
	M	SD	M	SD	M	SD		
Knowledge	2.64	0.68	2.60	0.67	2.71	0.70	-3.456	0.001
Skills	3.42	0.54	3.41	0.53	3.44	0.57	-1.098	0.272
Attitudes	3.96	0.55	4.04	0.51	3.83	0.58	7.905	0.001
Competencies	3.34	0.49	3.35	0.47	3.33	0.52	0.882	0.378

Notes M – arithmetical mean, SD – standard deviation, t – t-test value, p – significance level. † Two-tailed.

Incorporating the practical elements into the study programmes involves additional administrative issues: the selection of personnel, construction of meetings schedules, costs arising from the need to provide adequate salary for professionals, business people that would like to share their experience accumulated over many years. Although faced with many organizational costs or problems, it should be stated that the most important goals in the educational process must be the well-being of the student, which can be manifested through a formation of appropriate competencies that are commonly desired in the job market, are problem oriented, and defined with the help of the business representatives (Nirenberg, 2012, p. 23). Furthermore, it should be mentioned that guest lecturers provide a new and wider perspective; consequently, such activities are useful and appreciated by the students (Rajaratnam & Campbell, 2013, p. 719–720).

The study also made it possible to answer the question whether the level of presented knowledge, skills, and attitudes depends on gender, place of residence, year of study, or respondent's field of study?

The results show that both investigated women and men have similar levels of self-esteem of presented competencies (M female = 3.35 and M male = 3.33, see Table 2) (compare with Čiarnienė et al., 2010, p. 441; Kakkonen, 2011, p. 237).

The significant differences were observed in the area of knowledge (M female = 2.60; M male = 2.71) and in the area of attitudes (M female = 4.04; M male = 3.83). Men assessed higher the level of possessed

Table 4 Self-Assessment of Competence among Business Students According to Students' Year of Study

Component	I	II	III	IV	V	Total
Knowledge	2.12	2.66	2.91	2.94	3.12	2.64
Skills	3.25	3.40	3.68	3.62	3.67	3.42
Attitudes	3.94	3.90	4.19	4.20	4.20	3.96
Competencies	3.10	3.32	3.60	3.59	3.66	3.34

knowledge, but women stated to have higher level of presented attitudes (Table 3).

The results also indicate that the level of students' competencies is higher in the last years of studies (compare with Kakkonen, 2011, pp. 235–235). All components: knowledge, skills, and attitudes were rated lowest by the students of the first year, the arithmetic mean was, respectively, 2.12, 3.25, 3.94. The level of competencies achieved an average rating of 3.10. The highest level of competence was declared by the last year students, whose self-esteem is at a level of 3.66 (knowledge component $M = 3.12$, skills component $M = 3.67$, attitudes $M = 4.20$). Self-assessment of competence among business students according to students' year of study is shown in Table 4.

The average level of competencies among the students of the first and the second year of bachelor studies is significantly lower than among the students of masters studies ($F = 54,56$, $df = 4$, $p = 0,001$). The differences in self-assessment of competencies among business students according to the year of study are shown in Table 5.

The biggest difference can be observed in the area of knowledge ($F = 89,72$, $df = 4$, $p = 0,001$). The smallest difference, but still statistically significant, was observed in the area of attitudes ($F = 20,63$, $df = 4$, $p = 0,001$).

The inhabitants of urban areas have assessed higher the level of their competencies ($M_{city} = 3.39$; $M_{village} = 3.28$). The level of students' competencies according to the place of residence is shown in Table 7.

There were significant differences in the self-assessment of competence resulting from the place of residence of students. Statistically significant differences were observed among all three components of competencies: knowledge, skills, attitudes (Table 8).

The respondents from urban areas have assessed higher the level of all three components of competencies, than the residents of the rural areas.

Presentation of the level of students' competencies self-assessment according to the field of study is presented in Table 9. Self-esteem among the students of Management and Economics developed almost at the same level, gaining an average of 3.30. Presented slightly higher level of

Table 5 The Differences in Self-Assessment of Competencies Among Business Students According to the Year of Study

Component	Total		I		II		III		IV		V		F	df	p	Post hoc
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD				
Knowledge	2.64	0.68	2.12	0.70	2.66	0.63	2.91	0.52	2.94	0.54	3.12	0.50	89.72	4	0.001	1 < 2, 1 < 3, 1 < 4, 1 < 5; 2 < 3, 2 < 4, 2 < 5
Skills	3.42	0.54	3.25	0.56	3.40	0.53	3.68	0.45	3.62	0.48	3.67	0.52	26.09	4	0.001	1 < 2, 1 < 3, 1 < 4, 1 < 5; 2 < 3, 2 < 4, 2 < 5
Attitudes	3.96	0.55	3.94	0.58	3.90	0.54	4.20	0.39	4.20	0.45	4.20	0.47	20.63	4	0.001	1 < 3, 1 < 4, 1 < 5; 2 < 3, 2 < 4, 2 < 5
Competencies	3.34	0.49	3.10	0.48	3.32	0.47	3.60	0.36	3.59	0.42	3.66	0.43	54.56	4	0.001	1 < 2, 1 < 3, 1 < 4, 1 < 5; 2 < 3, 2 < 4, 2 < 5

Notes M – arithmetical mean, SD – standard deviation F – one-way analysis of variance Anova test value, df – degrees of freedom, p – significance level, post hoc – results of Tukey HSD test (e.g. 1 < 2 means that average in group of students of the 1st year was lower than in group of students of 2nd year.

Table 6 Differences in Self-Assessment of Competencies among Business Students According to Field of Study

Component	Total		Economics		Management		F&A		F	df	p	Post hoc
	M	SD	M	SD	M	SD	M	SD				
Knowledge	2.64	0.68	2.58	0.71	2.61	0.66	2.71	0.67	6.56	2	0.001	1 < 3; 2 < 3
Skills	3.42	0.54	3.40	0.57	3.40	0.52	3.46	0.54	3.03	2	0.049	1 < 3
Attitudes	3.96	0.55	3.91	0.58	3.93	0.53	4.04	0.51	11.68	2	0.001	1 < 3; 2 < 3
Competencies	3.34	0.49	3.29	0.51	3.31	0.47	3.41	0.48	9.63	2	0.001	1 < 3; 2 < 3

Notes M – arithmetical mean, SD – standard deviation F – one-way analysis of variance Anova test value, df – degrees of freedom, p – significance level, post hoc – results of Tukey HSD test (e.g. 1 < 3 means that average in group of students of Economics was lower than in group of students of Finance and Accounting.

Table 7 Self-Assessment of Competence among Business Students According to the Students' Place of Residence

Component	City	Village	Total
Knowledge	2.68	2.58	2.64
Skills	3.50	3.34	3.42
Attitudes	4.00	3.92	3.96
Competencies	3.39	3.28	3.34

Table 8 Differences in Self-Assessment of Competencies among Business Students According to Students' Place of Residence

Component	Total		City		Village		t	p†
	M	SD	M	SD	M	SD		
Knowledge	2,64	0,68	2,68	0,68	2,58	0,67	3,193	0,001
Skills	3,42	0,54	3,50	0,54	3,34	0,54	6,133	0,001
Attitudes	3,96	0,55	4,00	0,55	3,92	0,54	2,962	0,003
Competencies	3,34	0,49	3,39	0,49	3,28	0,48	4,862	0,001

Notes M – arithmetical mean, SD – standard deviation, t – t-test value, p – significance level. † Two-tailed.

Table 9 Self-Assessment of Competence among Business Students According to the Students' Field of Study

Component	Economics	Management	Finance and Accounting	Total
Knowledge	2.58	2.61	2.71	2.64
Skills	3.40	3.40	3.46	3.42
Attitudes	3.91	3.93	4.04	3.96
Competencies	3.29	3.31	3.41	3.34

competence has been assessed by the Finance and Accounting students ($M = 3.41$).

The study also showed that there were significant differences in the self-esteem level of students' competencies according to the field of study (Table 5, see p. 116).

The average level of knowledge and attitudes among the students of Finance and accounting is higher than among the students of Economics and Management ($F = 6,56$, $df = 2$, $p = 0,001$). In the area of skills, we can also observe one significant difference. Namely, in the group of students of Economics the average level of skills is lower than in the group of Finance and Accounting students ($F = 3,03$, $df = 2$, $p = 0,049$).

Some differences between the level of self-esteem of the students of Economics and Management, and the representatives of the Finance and Accounting may result from the recruitment process. For several years, the Department of Economics MCSU observed that in the selection procedure

there are two or three times more candidates for one place for Finance and Accounting than for the other economic fields of study. Therefore, the selection is stricter. As a result, Finance and Accounting gets the candidates who obtained better secondary school results, so they should have a higher level of competencies.

Further Research

After the entrance evaluation, the project organizers plan to perform three additional stages of research about students' competencies: output evaluation, employer's opinion, career evaluation. All stages of the research are presented in Figure 7.

The first stage of the Synergy project evaluation enabled the identification of the areas of knowledge, skills, and attitudes that are desirable from the business point of view. Gathered data showed that there are some deficiencies in students' competencies according to the market needs. Due to the student's profile analysis, some changes in the study programmes were prepared, and extra activities for students were offered. During the Synergy project, the students improved their competencies by participating in the above activities, and either realizing projects for companies or attending internships.

The second stage of the research will be to explore the students' competencies after finishing the participation in the Synergy project. Up to now, approximately 2000 students attended the Project. The data presenting the increase of their competencies are being collected and analyzed. At the second stage of the research, students fill in the same questionnaire like in the first stage, but after taking part in extra activities, and after finishing the project. The analysis and the conclusions resulting from the second stage of the research will be published at the end of the year 2014.

The third stage of the research will be to evaluate what is the level of graduates' adjustment to the employers needs. During this stage, the employers, that employ Faculty of Economics graduates, will be asked to fill in an electronic questionnaire concerning:

- specialist knowledge of employed graduate (presented level and desired level),
- skills of employed graduate (presented level and desired level),
- attitudes of employed graduate (presented level and desired level).

Employers will also be asked to recommend some activities such as: closer cooperation between education and business, more practical preparation, conducting study programmes in foreign languages, practical trainings in enterprises for the lecturer. Gathered data will help to improve the potential of the Faculty of Economics and its graduates.

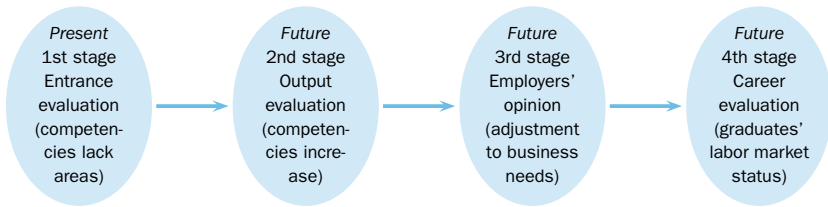


Figure 7 Stages of the Research on Students' and Graduates Competencies

The final stage of the research will be to know the graduates' labor market status, namely whether a graduate has the employment, carries on own business or is unemployed. During this stage, the collected data will also show what kind of knowledge, skills, and attitudes helped the students in their career.

Summary

Conducted research indicates that students assess their present level of competence (on a scale from 1 to 5) on an average of 3.34. Among the competencies defined as the collection of: knowledge, skills, and attitudes, the lowest score was obtained by the component of knowledge, mainly in the areas of logistics, HR management, project conducting, and production. Slightly higher scores obtained the areas related to information technology, quality of customer service, and knowledge of finance and accounting fundamentals and standards. It seems very important to prepare good courses, and teach the students about the logistics processes and the use of new technology in logistics; human capital management including: the recruitment process, building career development paths, and methods of motivation. It is also essential to present knowledge related to project management for example: PM methodology, IT tools supporting the management process, and PM success factors and risks. Above-mentioned activities, implemented in the area of knowledge, may be a way to remove or reduce the competence gap between the employers' requirements that are confirmed by the job offers and the business students or graduates competencies, confirmed by the Bachelor or Master diploma.

In the opinion of students, their level of skills is relatively high (3.42 on a scale 1 to 5), higher than the level of knowledge, where the average rating was 2.64. In most cases, the areas with the greatest shortages are: self-presentation, the use of mathematical tools and techniques, public speaking, and the use of specialized IT tools. In turn, the areas of using the basic IT tools, communication, teamwork, openness to change and adaptability received the highest scores. Therefore, it is important to develop the practical skills through the implementation of project tasks, discussions of

case studies, and allowing students to use their full potential including: openness, teamwork and communication skills. In the process of developing their skills, the students should use more IT tools and attempt to establish cooperative relationships with the representatives of business or government. (Holtzman & Kraft, 2010, p. 56). Advanced analytical tasks require good knowledge of mathematical foundations and proficient usage of popular, standard IT tools for example spreadsheets that help to collect, validate, analyze, and easily apply sophisticated analyses to large data sets (McClure & Sircar, 2008, p. 374).

Mentioned activities should use the students potential exhibited in a relatively high level of computer knowledge and enable to increase and develop knowledge in the areas of human resource management, production, skills, which were assessed relatively low.

In the area of competences components, the highest note was given to attitudes. That component gained an average rating of 3.96. Top rated attitudes include: honesty, loyalty, responsibility, and reliability. According to the students' opinion, young graduates are loyal to their employers and clients, and can take full responsibility for their actions. Relatively low self-esteem level was observed in the following areas: regularity, assertiveness, efficiency, and entrepreneurship. Therefore, the design process of educational paths should focus on the development of knowledge, skills, and attitudes such as regularity and willingness to start own businesses not only for students of business but also of non-business subjects (Kuckertz, 2013, p. 69).

Young people without experiences can be more susceptible to the influence of senior workers, firm clients or formal and informal opinions; therefore, in the initial phase of work, they should be supported by highly experienced workers with high seniority. The efficiency of new worker, especially inexperienced graduates, is rather low but employers can use their creativity and develop willingness to quickly adapt to the workplace (Roman et al., 2013, p. 1639–1640).

While the development of knowledge and skills in selected areas can be seen in the short term, at the level of a course, the shaping of attitudes requires long-term plans, which should consist of a coherent set of activities: lectures, tutorials, laboratories, projects, seminars, internships, study visits spanning the entire studies programme. In order to minimize the gap between the businesses requirements and the offer of the universities, it is necessary to exchange knowledge and experiences, as well as staff between science and business (Bencsik, 2010, p. 17; Abraham & Karns, 2009, p. 355). Shaping the attitudes should be coherent during the study period and work time. Therefore, the same attitudes that were formed during the education period should be strengthened by the employers in or-

der to have a worker with a strong backbone. The university should help their students to develop those competencies that best foster employability (Teijeiro, Rungo, & Freire, 2013, p. 286–295; Jackson, 2010, p. 30).

The research also showed that there were no significant differences between the level of competence self-esteem among male and female students. The only significant differences were observed in the area of knowledge and attitudes. The attitude component was rated higher by women, while men stated to have a higher level of possessed knowledge. There were also some differences in the self-assessment of students' competence level according to the respondents' place of residence or field of study. The inhabitants of urban areas assessed higher the level of all three components of competencies, than residents of the rural areas. Finance and Accounting students stated to have a slightly higher level of competencies, which is probably due to the higher level of competition during the recruitment stage.

There is also a positive connection between the level of competence self-esteem and the respondents' year of study. The competencies were rated quite low by the first year students. The highest level of competence was declared by the last year master's degree students. These data clearly show that during each year of study, students acquire new knowledge, skills, and form attitudes, which make up an increase in the level of substantial competencies that are useful and desired by the future employers.

Performed analyzes show that we need to improve the students' competencies especially in the areas of knowledge and skills. Therefore, it is necessary to strengthen the cooperation between education (science) and business in order to prepare an analysis of the labor market requirements and implement the collected needs in the study programmes. Mentioned activities should transform the students into graduates sought by the employers.

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Treading the Risks in International Management

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Multinational companies are making significant investments in high-risk developing countries lured by the lower factor cost and growth potential. Much research has deliberated on the risks related to such international business, and in particular the country risk. However, there are only a few empirical and theoretical studies that examine the managerial response of multinational companies to the contingencies in international management. This paper aims to fill this gap and specifically addresses the question of why a tighter integration of a subsidiary is still desirable despite the progression of agile networks. The empirical results of a comparative case study are discussed and a framework that articulates the dynamic approach of the parent company headquarters is presented. A map of factual events was created and juxtaposed with the hypothesized reasoning behind the observations.

Keywords: international management; high-risk; multinational; headquarters; case study

Introduction

Multinational companies are choosing to make large investments in the developing countries and according to the recent UNCTAD statistics (2013) this investment has grown by several times in the period between 2003 and 2013. Such investment can be regarded as result of the global strategy of companies (Buckley, 2007; Hansen, Pedersen, & Petersen, 2009; Schoenherr, et al., 2012) or as a symbol of the deepening globalization (Farrell, Memes, & Schulz, 2004; Matthyssens, Pauwels, & Quintens, 2006; Kagitci, Vacarelu, & Fratila, 2013). Actually, it is more about the opportunities created by entering the foreign markets and being able to generate new knowledge or achieving savings through lower labour costs, since many companies that claim steps toward adopting a global strategy actually differ in the understanding of terms like 'global.' A broad definition of globalization – 'a process leading to greater interdependence and mutual awareness [...] among economic, political, and social units in the world' – would suggest that globalization has a long history accompanied by a sharp rise in the income inequality between the West and the rest of the world

(Stiglitz, 2006; Jones, 2010; Vogli, 2013), whereas some prefer the ontology to be arbitrated to India, China, and Russia or even retain continuity on a platform where multinationals rarely had to adjust or innovate their strategies in response to the competition from locally-owned firms, due to the limited competition. Nevertheless, as Bartlett and Ghoshal (2002) suggest, managing risk is one of the primary objectives of firms operating internationally and often such endeavours are fraught with difficulties. Companies can be affected in unexpected ways leading to huge problems and losses as they are exposed to a variety of risks that Andersen and Schröder (2010) categorized as strategic risks, operational risks, economic risks, and hazardous risks. Theoretically, a company should link risk management with the investments and the growth decisions, and risk management should be treated as a strategic business process wherein the top management assesses the consistency of the business activities with the stated strategic objectives. However, in practice, managers may make decisions for which they believe are strongly supporting the firm's strategy; however, oftentimes that is not the case. Challenges emerge because few managers understand the full demands of the company's strategy and its implications for international operations (Lovallo & Kahneman, 2003; Klohs, 2012). In addition, the process of globalization is not uniform across all industries and there are substantial differences in the extent to which developed and developing economies have been integrated into a single global market.

Thus, we infer that there is a need for an overarching approach in order to comprehend the enterprise-wide risk instead of splitting the risks. Much research has deliberated on the risks in international business, country risk in particular, as well as the level of political and economic uncertainty, which can impact the investments. Some studies of country risk analysis and assessment have also surfaced; namely, a country risk analysis representing the potentially adverse impact of a country's environment on a multinational corporation's cash flows and the probability of loss due to the political, economic, and social upheavals in a foreign country (Hallikas, Virolainen, & Tuominen, 2002; Vij & Kapoor, 2007). However, there are only a few studies that examine the managerial response of the multinational companies; therefore, in this paper we have brought to fore the cases of two prominent European multinational companies that are trading the risks in their India operations. The significance of India is a key aspect to consider, since it has been ranked as a promising country for business operations; furthermore, the Finance Minister of India has recently pitched India as an attractive investment destination with imminent reforms (Chidambaram, 2013).

This paper focuses on the following two research questions:

1. How companies respond when faced with risks and challenges of international management?
2. Why a tighter integration of a subsidiary is still desirable despite the progression of agile networks?

Initially, we included the relevant literature review and then proceeded with the section on empirical research. The results of the comparative case study have been analyzed and a framework has been developed.

Literature Review

A substantial portion of the international management theory focuses on the established multinational corporations and since risk is inherent in such international ventures, there is extensive literature available on risk management across disciplines such as finance, economics, strategic management, supply chain management, and international business. However, the existing literature is more normative and contrasted by positivistic assumption shaping the qualitative approach with interview-observation approach presented in this paper. At the same time, it is worthwhile to review the literature based on the fact that firms today are engaging in international business activities earlier in their organizational cycles and the existing guidelines can lead to a framework.

In today's dynamic markets we are facing unprecedented turbulence; therefore, uncertainty can be regarded as the key risk driver. This uncertainty coupled with complexity within a supply chain gives birth to chaos (Childerhouse et al., 2003; Lee & Jung, 2013). Often the managers fail to develop a proactive approach, due to the fact that if a risk never materializes, the expenses incurred on risk assessment and management activities are hard to justify to the top management. Altay and Ramirez (2010) report that despite the risks, 95 percent of the Fortune 500 companies are not equipped to manage a disruption that the company has not previously experienced. Moreover, the country risks ripple down from the macro level to the company level as embodied in the strategy, relationships, collaboration, operations, cultural patterns, and so on (Cavusgil & Deligonul, 2012). In order to better understand the manifest risks, it is imperative to establish a process by tracking the risk-exposure from the country to the company level in the context of the prime contractor's global supply network. The recent global financial crisis has significantly raised the research interest in the corporate risk disclosure around the world and triggered the regulatory reforms and responses from various government agencies. Risk disclosure covers a broad set of information on risk sources, as well as means of risk management varying in location, scope, and nature (Dobler, Lajili, & Zéghal, 2011; Gates, Nicolas, & Walker,

Table 1 Additional Review for Risks in International Management

Authors	Focus Area
Wade (2012); Ristuccia (2013)	Strategic risk management
Wyk (2010); Monro (2011)	Political risk
Lodh and Nandy (2008)	Country risk
Hult, Craighead, and Ketchen (2010)	Real options perspective
Casson and Wadeson (2012)	A new model of the multinational enterprise as a coordinator of supply chains

2012). In general terms, risk disclosure shall reduce the information asymmetry between the managers and the outsiders by providing the users of financial reports with information on the risks a company faces and on how these risks are managed (Linsley & Shrides, 2006). Still, in practice there is only piecemeal evidence on the attributes and determinants of risk disclosure. According to Dobbler et al. (2011), an international investigation of risk disclosure is missing and is highly warranted. Therefore, when considering a more objective conceptualization of risk, we can identify the definition of risk as a chance of danger, damage, loss, injury, or any other undesired consequences (Harland, Brenchley, & Walker, 2003); furthermore, it should be noted that risk can include both quantitative and qualitative losses (Manuj & Mentzer, 2008). For example, the quantitative losses may be lost sales due to stockouts, while the qualitative losses may be the loss of brand equity or the termination of a business relationship. Miller (1992) highlighted that the risks of firm internationalization cannot be represented with a single dimension nor with multiple independent dimensions, but instead must be seen as multiple, interdependent concepts. On the other hand, both Cheng, Hou, Ho, and Westerlund (2011), and Oetzel, Bettis, and Zenner (2001) have preferred to include the detailed components of country risk although acknowledging that such risk measures are poor indicators of significant risks. Many additional references that allude to or cite the aspects of risks in international management are displayed in Table 1. Real options theory represents a promising theoretical perspective with which to evaluate the relationship between international operations and organizational risk, while the supply chain viewpoint dwells on different types of risks such as supply risks, security risks, macro risks, and so on.

When companies operate in unfamiliar environments abroad, they are often exposed to new types of risks and complexities that can threaten business performance, as well as mask new opportunities. India, in particular, is rated as a high risk country with high political risk, economic risk, and socio-cultural risk; however, the prospects for conducive, corporate growth coupled with rapid infrastructure development lure the management to con-

sider large investments. Since it is the management's role to identify, assess, and manage risk, the managerial response is closely tracked and is expected to have sound foundation, justification, rationale, and use of tools such as scenario planning.

Research Methodology

The case methodology utilized in our paper relies on multiple sources of evidence and aims to bring new insights. Two European multinational companies were selected, since these companies are facing formidable challenges in their Indian operations and, more importantly, the data for research could be collected with lesser hassles. As Yin (2008) indicates, the access to information is a key factor in conducting case study research and it is also preferred to have more than one case to back up a research. We also attempted to find out whether there is a basis for generalization by comparing the empirical results with the existing theories or surveys. The primary sources enabled us to structure the case studies, examine the relation between the literature studies and manifest as a qualitative survey. According to Jansen (2010), a qualitative survey is the study of diversity that does not count the number of people with the same characteristics (value of variable), but it establishes the meaningful variation (relevant dimensions and values) within that population. In this study, inspiration is sought in the methodical approach used in connection with multiple case studies and it is the choice of the qualitative interviews that opened up the possibility of gradations, regular interpretations, and specifications of important issues, regarded as a combination of theoretical deductive and empirical inductive methods (Sjöström, Johansson, Asplund, and Alricsson, 2011). The data was collected by interviewing the executives in India, as well as people at different organizational levels. Additional data was provided by a private agency, apart from visits by the post-graduate candidates to the channel partners, and other sources such as committee reports, newspapers, and electronic sources. Since it was possible to follow the case organizations for a limited period only, the empiricism is based to an extent on historical data, events that occurred before the initiation of a formal case. The two selected case companies stand out from their peers, due to the initial jolt they experienced and the continuing impact on the bottom-line financial results. We used multiple informants, as well as archival data to crosscheck the pertinent information and ensure the reliability of data obtained. Also, with the hope of enhancing internal validity, other factors that could serve as alternative explanation for the observed patterns were recorded. A map of factual events was created and juxtaposed with the hypothesized reasoning behind these observations.

Empirical Investigation and Findings

In this section, we present the two case studies developed from systematic efforts and perseverance. The purpose here is to describe the situations and unfold them in order to gain insights and learning.

Company A

Company A is a subsidiary of the European multinational company XYZ and is a leading producer of athletic shoes, apparel, and accessories. Company A, a reputed brand in the sports equipment industry, was acquired by XYZ in 2005 in order to challenge the market leader. The combination of Company A and XYZ accelerated XYZ Group's strategic intent in the global athletic footwear and apparel markets and today (2012–2013 figures) the revenue of XYZ has reached over €14 billion. As of 1 January 2012, XYZ employed over 46,000 people and recorded a profit of over €1100 million. XYZ operates in Europe, the Americas, and Asia, and the combined entity of Company A and XYZ offers a complete portfolio in key sports categories.

The Indian operations of Company A and XYZ merged in 2011 and in the meantime, Company A was already enjoying a head-start over rivals. Company A was appreciated for its performance and even regarded as a star performer. When Mr. P became the Managing Director of the combined entity in India, few eyebrows were raised considering that he had the necessary credentials and was an 'old hand,' having joined the company in 1995. Mr. P initiated a rapid expansion plan of brand A (Company A) in India under his own authority and the plan seemed to substantially enhance the brand image. The number of stores grew from just 100 in 2003 to over 800 in 2011. As such XYZ Group was looking at India as a global manufacturing hub since 2004, after establishing similar operations in China. The strategic business plan of XYZ called the 'Route 2015' included India as one of the key markets.

The shock came when XYZ Group announced that it had uncovered a fraud of the magnitude of €125 million at the Indian operations of Company A. Subsequently, the Managing Director Mr. P left the company along with more than ten other senior employees and the Chief Operating Officer. The XYZ Group stated: 'Mr. P has been charged for financial irregularities and a criminal complaint has been registered for investigation by the Indian law enforcement authorities.' Three different agencies viz. the Income Tax department, the Serious Fraud Investigation Office (SFIO) under the Corporate Affairs Ministry of India, and the Economic Offences Wing of the police force, recorded the findings at the Company A. The probe revealed that the governance and operations in the company were mismanaged and there was gross non-adherence to the guidelines of the business procedures in the firm. Mr. P was accused of stealing products, setting up secret

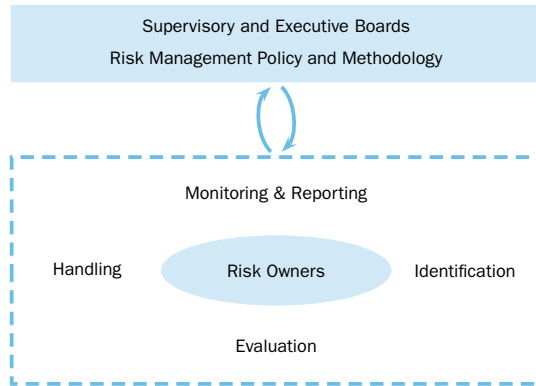


Figure 1
Central Risk Management
System at XYZ Group

warehouses, fudging accounts, and engaging in fictitious sales for years. As such, a prominent multinational like the XYZ group contemplates operational risk that includes fraud, legal risks, and failed internal processes, and the company already had a risk management system in place; however, Mr. P himself being a ‘risk owner’ subjugated the established system. Another dimension to this is that there is a deviation between the formulated central risk policy and the risk management systems implemented in country units, which in itself can be treated as a country risk. While a fraud risk is the chance of a perpetrator or perpetrators committing fraud, which has an impact on the organization, the word ‘honesty’ can be interpreted differently, that is, honest behaviour to one person could be seen as dishonest by another and unless somebody in an organization clearly sets out what is honest or dishonest, each employee will have his/her own interpretation. It is noteworthy that when Mr. P was projecting star performance figures the Company A didn’t notice the treading operational risks and only when some stakeholders demanded the payment of dues did the fraud risk issue become conspicuous. Figure 1 depicts the risk management system of the company. According to the risk and opportunity report of the company (2010), XYZ Group defines risk as the potential financial impact caused by the occurrence of an external or internal event or series of events that may negatively impact the ability to achieve the business objectives. Risk is categorized as strategic and operational, compliance-related and financial. In order to facilitate the effective risk and opportunity management, the company has an integrated system, which focuses on the identification, evaluation, handling, monitoring, and reporting of risks and opportunities with the aim of adding value through a risk-aware decision-making framework.

Financial accounting at Company A was conducted locally and IT systems were based on SAP AFS (SAP Apparel and Footwear Industry Solution).

The individual financial statements were transferred into a central consolidation system based on SAP SEM-BCS (Strategic Enterprise Management-Business Consolidation Services Solution). However, the ERP system in the Indian operations of the Company A lacked reliability, because trained and competent people were not put on the job and several post-implementation issues remained unresolved. One executive mentioned, 'It was difficult for the company to reconcile the figures and present the details for the investigating agencies. This shows that the system data leaves a lot to be desired. The company has finally just provided a break-up of the €125 million attributed to parallel accounting that inflated sales, goods invoiced but not despatched, goods returned and pending inspection, secret warehouse bills, and interest lost on franchisee referral programme.'

Following the allegations of irregularities at Company A, the parent XYZ company headquarters announced top management change in India with Mr. EH, a national of parent country, moving in to head the Indian operations. Mr. EH immediately declined the proposal of shutting down the operations of Company A, but announced a restructuring plan supporting the business model change. Mr. EH said, 'We are looking at new possibilities since FDI laws in India have changed. We are ensuring that there is going to be an internal control mechanism across all verticals, a comprehensive system that can be established by working with our parent company headquarters.'

Company A decreased the number of stores in India by two-thirds and plans to develop a business model that caters to the emerging countries. The company declared a voluntary retirement scheme that has been accepted by more than 30% employees. Further, the company designed a zero tolerance policy against involvement in fraudulent practices by any of its franchise partners and suppliers. Nonetheless, the corporate risk assessment data indicates that between 2010 and 2013, the risk profile is changing. For example, the likelihood of occurrence and potential financial impact of legal risks was moderate in 2010, but such risks have become likely and significant respectively as of date. Similarly, the risks related to non-compliance have changed from unlikely in 2010 to likely. The company restated the accounts with an overall decrease in profit by over 9 percent for the XYZ Group. The subsidiaries are brought closer to the parent company by refining the Group policies, particularly the risk management policy that outlines the principles, processes, tools, risk areas, key responsibilities, reporting requirements, and communication timelines within the Group. As an action plan emanating from the risk mitigation review meeting, the Company A now requires all employees to participate in a special Code of Conduct training. Earlier, the participation in such compliance programmes in Indian operations was need-based and the seriousness was of a routine nature;

however, now the reports are directly evaluated by the parent company in Europe.

Mr. EH has some specific experience in the supply chain network design in emerging countries and hopes to utilize that experience in India as well. The modified business model includes a portfolio of contracts to be used in supply chains to persuade the retailers with different levels of risk aversion to select unique contracts. Basically, this results in risk being transferred to multiple retailers. The new management team of Company A re-examined the network design decisions taken after the Company A and XYZ merged, since these decisions could have an impact on the performance since they determine the supply chain configuration. The disruption risk, procurement risk, inventory risks, and systems risks have now been duly considered. In conjunction with the so-called global operations team, the company is attempting to transform into source facility in addition to enabling a demand-driven supply chain that leverages the existing short lead time production models to improve availability without excessive inventory. Company A is building a chained network in order to implement flexibility and mitigate the risk of demand fluctuation; however, the parent company prefers an integrated structure and hence longer chains that have the advantage of effectively pooling available capacity but are increasing the difficulties in coordination are being established. With the guidance of the parent company headquarters, there are also future plans of moving forward with a global procurement solution that would effectively link the Indian operations in the overall integrated structure.

Company B

Company B, a mobile network operator in India, is a joint venture between the Nordic (Northern European) PQR Group and the Indian LMN Group. Company B offers mobile voice and data services based on the GSM technology and its services are commercially available in six circles with over 30 million customers in India. In early 2009, PQR Group decided to make investments to the tune of over €1 billion and take majority stake (67.25 percent) in Company B. The PQR Group was gladly given the necessary approval by the Indian Foreign Investment Promotion Board considering that PQR is an established provider of telecommunication services worldwide with revenues of more than €10 billion and employing 32000 people. With a high stake and the support of PQR Group, Company B grew rapidly through a lean operation model and an effective strategy with a focus on excellence in mass market distribution, enhanced services, and cost efficient operations.

The shock came in February 2012, when the Supreme Court of India ordered the cancellation of all 122 unified access services issued in January 2008 and directed the Telecom Regulatory Authority of India (TRAI)

to make fresh recommendations for the telecom spectrum auction route, reasoning that the 2G licenses were allotted in an unconstitutional and arbitrary manner. Reacting to this telecom scam and sudden cancellation of all licences, PQR stated, 'This pertains to actions that happened much before we entered India. Since we have not caused any of the faults found by the courts, it is obvious that our investment must not be jeopardized.' However, this was the beginning of a feud between the European PQR Group and the Indian LMN Group over risk management and control of Company B. The PQR Group wanted to scrap the joint venture outright, but this move was strongly rejected by LMN; consequently, litigations and disputes followed. The parent company headquarters decided to directly oversee the developments in India and the CEO of PQR became the key liaison. Company B had risk management system in place, but only the highlighted risks were reviewed in quarterly business meetings. Actually, a similar system was followed by PQR Group as well and ad hoc risk management decisions were taken or more often left to the country managers. Nevertheless, PQR was aware that operating across multiple markets exposed it to a range of financial, regulatory, operational, and reputation risks and, therefore, planned to integrate systematic risk management with Group's business processes. PQR certainly realized that there was a substantial risk that Company B will not be able to continue operations in India and yet, lured by the India phenomenon, PQR kept raising the investments. Later, in 2012 auction, Company B actually won back the licenses and spectrum in six circles, although it had to discontinue its operations in Kolkata and Mumbai.

In October 2012, PQR and LMN reached an agreement to amicably settle all disputes and the business of Company B was transferred to a new entity controlled by the PQR Group. In a European press statement, the PQR Group CEO said, 'An extraordinary turnaround operation was followed and very early on we left no doubt about our intentions to stay and secure our future operations in India that will be one of the world's biggest growth markets for years to come.'

PQR decided to implement the learnings from India across eleven countries, mainly implementing the sustenance model developed by Company B. With 'group industrial development (GID)' initiative, the headquarters is setting up central teams that will travel and work with local operations in order to push the new models, such as the tower profitability model, the tracking system, and so on. The Chief Financial Officer of Company B, along with fifteen other employees, has been moved into units of GID that review sourcing, managed services, markets, and project management. As in previous years, the headquarters is working on systematically reducing the risk in the supply chain in 2013–2014, but in a more structured manner. The lo-

cal risk managers now have to coordinate the risk management processes and interact with the parent company in addition to evaluating the level of integration and percolation of Group's strategy and business plans.

Discussion and Conclusion

This section discusses the results coming from the comparative analysis of the cases. The considerations are organized and also a framework is generated. The cases make it apparent that when actually faced with risks and challenges in international management, the companies do not really follow the ideal steps and in fact, practitioners may not even follow the risk management policies of the company in letter and spirit. Our research shows that companies don't tread the risks systematically and item-wise, they tend to reduce the risks by taking drastic steps when the situation comes to 'crossing the bridge.' Both companies, A and B, had a risk management system in place before the incidents actually occurred; however, the methods of tackling the risks were quite different than expected and the gap between the central risk policy and its implementation at the country level became clearly visible (see Table 2). In the past five years, multinationals have traced the model of networks and regarded the role of parent company headquarters as designing process architecture instead of exerting direct control. However, analysis indicates that the need for more local commitment to transfer best practices and to promote parent company values and conduct necessitates companies to seek more control over their foreign subsidiaries.

Furthermore, risk mitigation and practices that call for or lead to bringing the subsidiaries closer to the parent company are the reasons for tighter integration of subsidiaries. At best, multinationals can experiment with 'subsidiary democracy' or selecting best operating practices initiated collectively by their subsidiaries. PQR is already in the process of forming effective teams that contain representatives from each subsidiary, as well as headquarters that deliberate on common interests. Ultimately, the dynamism of the parent company headquarters matters (see Figure 2), though futuristic multinationals are seen moving from ethnocentric approaches to geocentrism. Subsidiaries can move to incremental upgrading, but even that depends partly on having a headquarters that is willing to provide adequate support.

In the era of agile networks, it would be surprising to record that multinationals can turn back to the vertical model where knowledge flows top-down from headquarters; however, this strategy can still prove desirable, although the issue arises whether it is pragmatic to back-track from transnational or global path to the traditional multinational conduit. The focus would then again be on leveraging the strengths rooted in the parent country,

Table 2 Summary of Case Results

Category	Case A	Case B
Type of Company	Multinational	Multinational
Entry mode in India	Franchising	Joint Venture
Risk management system in place	Yes	Yes
Cause of impact	Fraud risk Operational risk	Strategic risk Operational risk
Specific reason for the situation	Risk owner became the perpetrator of fraud	Cancellation of licenses Telecom scam
Awareness of risk	Not because of prior risk assessment	Sudden, country risk
Risk Profile	Changing, unlikely to likely event	Changing, moderate to high occurrence
Response to risk	Passive at company level Forceful parent company headquarters	Reactive, subdued Influential parent company headquarters
Subsidiary control	Increased	Increased
Risk management mechanism	Refined, more involvement of headquarters	Changed, more interaction with parent company
Financial reports	Restated the accounts	Delays
Business model	Changed Transferring risk	Business transferred to new entity
Supply chain risk	Design reformulated; disruption risk, procurement risk, and system risk included; toward sourcing facility	Structured
Risk Mitigation	Employees to participate in special code of conduct training; Chained network for implementing flexibility	GID initiative Integrated system
Investments in India	Continued, focused	Continued, long-term enhanced
Rationale for further investments	FDI laws in India have changed	India phenomenon

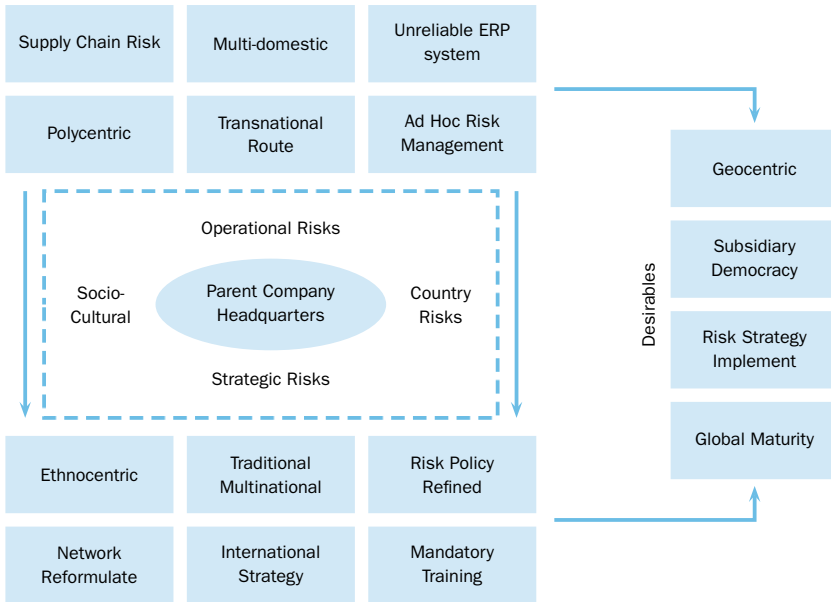


Figure 2 Framework of Actions by the Parent Company Headquarters

centralized configurations, and practices dictated from the headquarters.

Considering that agile networks focus on loosely coupled structures and are entities developed from interactive collaboration of a number of companies shaped in a particular way to fulfil a business objective (Gore & Panizzolo, 2012), differentiated network, such as global factory can significantly stabilize the risks in international management. According to Buckley (2011), the development of the global factory provided new opportunities for new locations to enter the international business and emerging countries, such as India, are subcontracting production and service activities from the brand-owning multinationals. At the same time, multinationals retain the control, for example, at Company A the headquarters' Operations team is planning to assume end-to-end responsibility for the supply chain after reviewing the local processes that can be integrated into a desired structure. Chopra and Sodhi (2004) have already showed that by understanding the variety and interconnectedness of the supply chain risks, the managers can tailor balanced, effective risk-reduction strategies. Then, the risk management as such can be relegated to a unique platform wherein the Chief Risk Officer (CRO) would be expected to rigorously question the assumptions underlying the business strategy and validate the same using benchmarking data, competitive data, and sector analysis. We suggest the following propositions:

- P1 *Multinational companies operating in emerging economies are more likely to seek a greater control of their subsidiaries and favour tighter integration instead of loose structures.*
- P2 *Managerial perceptions play a critical role in determining the inter-connectedness of the supply chain risks in emerging countries and may therefore underpin the sustainability of operations.*
- P3 *The risk management decisions tend to be holistic, qualitative, and subjective rather than assessment-driven, quantitative or adherent to predetermined criteria.*

This paper indicates that the investments in India and other high-risk emerging countries are driven by their potential for growth and subsequent returns, rather than a judicious risk evaluation and rational criteria. For instance, the threat of operational risks to organizations in India is known and supply chains are often vulnerable (Chopra, Meindl, & Kalra, 2011; Reddy & Raju, 2013) and still companies take only limited precautions resulting in increased risks and even losses. A recent, comprehensive survey – India Risk Survey 2013 – launched by the Federation of Indian Chambers of Commerce and Industry (FICCI & Pinkerton, 2013) aims to vindicate this risk prevalence and attempts to recognize the risk factors faced by the public and private companies while operating in India. The widely recognized FICCI report 2013 regarded the operational risk as focusing on the risks arising from people, systems, and processes through which the company operates, and has now made an operational risk assessment in the dimensions of information and cyber security, corporate frauds, business espionage, and intellectual property theft, or in other words, technology breakdown, compliance failures, legal exposures, and process disruptions. Supply chain fraud can cover the entire breadth and depth of an organization, affecting activities and relationships both inside and outside the organization. Implications for managers are clear in that they need training on systematic risk assessment and reduction. Moreover, the understanding of measures that promote awareness and help build an anti-fraud culture is imperative. Future research that provides insights into the phenomenon, as well as and conclusive evidence and propositions would be of interest.

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Abstracts in Slovene

Kako organizacijski cilji vplivajo na upravljanje znanja

Wei-Shong Lin, Jui-Ling Huang in Margaret L. Sheng

Vprašanje kako izboljšati zadovoljstvo strank in povečati tehnološke inovacije je predmet razprav že nekaj časa, vendar pa so le redke študije omenjeno področje raziskale z uporabo teorije ustvarjanja znanja ter posledično analizo razlik v povezavi z aktivnostmi za ustvarjanje znanja. Predstavljena študija poskuša raziskati kako organizacijski cilj podjetja vpliva na proces ustvarjanja znanja. Na osnovi Nonakove teorije ustvarjanja znanja so bili razviti vprašalniki, ki so bili poslani tajvanskim podjetjem delujočim na različnih področjih, vključno s proizvodno in storitveno industrijo. Vprašalniki so bili nadalje zbrani preko pošte ali razgovora. Naše ugotovitve so pokazale, da bi morale biti v povezavi z inovacijo poudarjene dejavnosti eksternalizacije in kombinacije, medtem ko bi morale biti dejavnosti internalizacije podarjene takrat kadar je organizacijski cilj zadovoljstvo strank.

Ključne besede: upravljanje znanja; proces ustvarjanja znanja; organizacijski cilj; inovacija; zadovoljstvo strank; SECI

IJMKL, 3(1), 3–22

Vloga srbskega visokošolskega poslovnega izobraževanja pri premagovanju izzivov managerjev manjših in srednje velikih podjetij

Maja Kočevar in Dietmar Sternad

V okviru predstavljene raziskovalne študije so bili izvedeni poglobljeni intervjuji s srbskimi managerji manjših in srednje velikih podjetij (SME) s ciljem določitve ključnih poslovnih izzivov in stopnjo vpliva njihove formalne visokošolske izobrazbe na premagovanje teh izzivov. Srbski SME managerji so kot ključne izzive opredelili izzive na področju kadrovske in trženjske zadeve, katerim so sledili problemi specifični za državo, kot na primer problematika birokracije, težave povezane s pridobivanjem finančnih virov in soočanje z zamudami pri plačilih. Izpostavljene so bile pomembne pomanjkljivosti v sedanjem sistemu visokošolskega izobraževanja, in sicer predvsem v povezavi s pomanjkanjem praktično-orientiranih metod poučevanja in nezadostnim sodelovanjem med univerzami in poslovnim sektorjem.

Ključne besede: poslovno izobraževanje; manjša in srednje velika podjetja; managerski izzivi; Srbija; učenje

IJMKL, 3(1), 23–42

Vloga upravljanja znanja v visokošolskih institucijah: študija primera Tanzanije

George Lawrence Kinyata

Cilj članka je raziskati vlogo upravljanja znanja v visokošolskih institucijah. Študija primera je izvedena v Stefano Moshi Memorial University College (SM-MUCo), in sicer se je zanašala tako na primarne kot tudi sekundarne podatke. Primarni podatki so bili pridobljeni z uporabo vprašalnikov, opazovanja, ter tudi z izvedbo kratkih intervjujev/razprav s študenti in predavatelji; raziskovalec je namreč predavatelj na SMMUCo. Rezultati raziskave so pokazali, da trenutna spletna stran univerze in splošno stanje informacijske infrastrukture ni primerno za učinkovito podporo aktivnosti upravljanja znanja, na primer tako študenti kot tudi predavatelji so izpostavili manko informacijskega sistema v okviru katerega bi se lahko enovito prijavili in dostopali do specifičnih informacij (npr. rezultati pri posamičnih predmetih, zapiski predavanj, novice, obvestila s strani vodstva). V zaključku članek izpostavi razvoj modela upravljanja znanja, ki bi ga SMMUCo lahko implementiral s ciljem učinkovitejšega upravljanja znanja. Model predlaga, da bi morala univerza, v kolikor bi želeli vzpostaviti zmogljivosti upravljanja znanja, učinkovito uskladiti ključne vire kot so: (a) zaposleni (tako akademski kot tudi administracija), (b) univerzitetne vsebine (npr. zapiski predavanj, programi, politike, itd.), ter (c) IKT infrastruktura. Uporaba relevantnih tehnologij je priporočena, saj je ravno tehnologija tisti vir, ki lahko izboljša upravljanje znanja.

Ključne besede: informacija; znanje; upravljanje znanja; visokošolske institucije; informacijska tehnologija

IJMKL, 3(1), 43–58

Insafing: nova obetajoča oblika intelektualne komunikacije

Yury P. Dus, Dmitry Yu. Pominov, Vladimir I. Razumov, Leonid I. Ryzhenko,
Victor P. Sizikov in Vasily G. Tsoy

Članek raziskuje novo obliko intelektualne komunikacije, ki je oblikovana v skladu z vnaprej pripravljeno shemo. Takšen tip komunikacije uporablja elemente iger za organizacijo aktivnosti, ki se imenuje Insafing. Članek podaja retrospektiven pregled znanstvenih raziskav s poudarkom na raziskavah ruskih znanstvenih šol, ki so predstavljale osnovo za razvoj Insafing tehnologije. Poleg tega se razprava dotakne znanstvenih in metodoloških osnov za Insafing, ki so osnovane na teoriji dinamičnih informacijskih sistemov (TDIS) ter metod kognitivnega inženiringa. Članek ponuja primer uporabe Insafinga s ciljem razvoja turistične industrije v urbanem okolju.

Ključne besede: Insafing; komunikacija; intelektualna komunikacija; teorija dinamičnih informacijskih sistemov (TDIS); kognitivni inženiring; igre za organizacijo aktivnosti (AOG); tehnike sheme; upravljanje znanja

IJMKL, 3(1), 59–77

Vladno prestrukturiranje plačne politike in zadovoljstvo na delovnem mestu: primer učiteljev v Ga West Municipal Assembly, Ghana

Joseph Ato Forson in Rosemary Afrakomah Opoku

Članek se posveča pregledu vpliva nove plačne politike javnih uslužbencev na stopnjo zadovoljstva na delovnem mestu med učitelji v Gani. Raziskava je pokazala, da imajo zaslužek, osebnostna rast, bonus in tip organizacije tako neposreden kot tudi posreden vpliv na stopnjo zadovoljstva na delovnem mestu. Tako dvosmerna, kakor tudi multivariatna analiza, sta pokazali, da spol, starostna skupina in izobrazba prav tako vplivajo na stopnjo zadovoljstva med učitelji. Visoka stopnja nezaposlenosti (11%) in implementacija enotne plačne strukture (SSSS) javnega sektorja v letu 2010 prav tako vplivata na stopnjo zadržanja učiteljev.

Ključne besede: zadovoljstvo na delovnem mestu; management; enotna plačna struktura; MANOVA; postopna regresija; Ghana

IJMKL, 3(1), 79–99

Pričakovanja podjetnikov in kompetence študentov v prvi fazi evalvacije projekta Synergy

Lukasz Wiechetek in Nada Trunk Širca

Članek prikazuje rezultate raziskave stopnje samozavesti študentov glede njihovih kompetenc. Raziskava je bila izvedena v letih od 2009 do 2012 na vzorcu 1,831 študentov v okviru projekta z naslovom »SYNERGY – razvoj kompetenc študentov MCSU Fakultete za ekonomijo preko pridobivanja praktičnega znanja«, ki je bil sofinanciran s strani Evropske unije, in sicer z Evropskega socialnega sklada. Namen raziskave je izpostaviti področja ključnih kompetenc vezanih na podjetništvo in določiti stopnjo samozavesti študentov na identificiranih področjih. Glavni cilj članka je prikazati katere kompetence so sicer zaželeno z vidika podjetništva, vendar pa so v očeh študentov še vedno na dokaj nizkem nivoju ter posledično potrebujejo dodatno pozornost in razvoj. Članek prikazuje ključne ugotovitve izvedene raziskave, in sicer je bila najnižja stopnja samozavesti ugotovljena na področju znanja, ki ga zahtevajo delodajalci, najvišja stopnja samozavesti pa je bila ugotovljena v povezavi z odnosom kot ga zahteva trg dela. Poleg tega se je pokazala pozitivna povezava med stopnjo samozavesti vezane na kompetence ter leto študija obravnavanega deležnika.

Ključne besede: kompetence; izobraževanje; učenje; upravljanje znanja; zahteve trga dela; samozavest; študenti; projekt Synergy; Moodle

IJMKL, 3(1), 101–123

Upravljanje s tveganji v mednarodnem managementu

Amol Gore and Pekka Kess

Na podlagi vabljenih nižjih faktorskih stroškov in potenciala rasti, multinacionalna podjetja izvajajo pomembne investicije v visoko tvegane države v razvoju. Veliko raziskav je razpravljalo o tveganjih povezanih s takšnim mednarodnim podjetništvom ter zlasti o tveganjih povezanih z državo, toda le malo empiričnih in teoretičnih raziskav se posveča problematiki managerskega odziva multinacionalnih podjetij v nepredvidljivem mednarodnem managementu. Članek poskuša zapolniti omenjene pomanjkljivosti in se posveča vprašanju zakaj je močnejša integracija podružnic še vedno zaželeno kljub razvoju in širjenju agilnih mrež. Prikazani so tako empirični rezultati primerjalne študije primera kot tudi okvir za dinamični pristop sedeža matične družbe. Oblikovan je zemljevid dejanskih dogodkov, katerega smo postavili nasproti hipotetičnemu razmišljanju na podlagi opazovanja.

Ključne besede: mednarodni management; visoka stopnja tveganja; multinacionalen; sedež matične družbe; študija primera

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