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Setting Organizational Key Performance Indicators in the Precision Machine Industry

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The aim of this research is to define (or set) organizational key performance indicators (KPIs) in the precision machine industry using the concept of core competence and the supply chain operations reference (SCOR) model. The research is conducted in three steps. In the first step, a benchmarking study is conducted to collect major items of core competence and to group them into main categories in order to form a foundation for the research. In the second step, a case company questionnaire and interviews are conducted to identify the key factors of core competence in the precision machine industry. The analysis is conducted based on four dimensions and hence several analysis rounds are completed. Questionnaire data is analyzed with grey relational analysis (GRA) and resulted in 5–6 key factors in each dimension or sub-dimension. Based on the conducted interviews, 13 of these identified key factors are separated into one organization objective, five key factors of core competence and seven key factors of core ability. In the final step, organizational KPIs are defined (or set) for the five identified key factors of core competence. The most competitive core abilities for each of the five key factors are established. After that, organizational KPIs are set based on the core abilities within 3 main categories of KPIs (departmental, office grade and hierarchal) for each key factor. The developed KPI system based on organizational objectives, core competences, and core abilities allow enterprises to handle dynamic market demand and business environments, as well as changes in overall corporate objectives.

Keywords: core competence, core ability, SCOR model, key performance indicators, grey relational analysis

Introduction

The precision machinery industry is highly valued and generally acknowledged as one of the basic industries of nations. In Taiwan, the precision ma-

chinery industry has started to face major challenges, which will continue in the coming years. Traditionally, the Taiwan machine industry focuses on machine assembly and maintenance, and employees work in dark workplaces, which are usually warm, oily, and dirty. Such an environment makes building a good and sustainable system difficult. Thus, the traditional machine industry has started to transform itself into the modern precision machine industry in response to globalization and customization (Wu, 2011). In this process of transformation, building a rational mechanism is important in finding out the key factors of core competence, which can be used to train the enterprise talents, to promote the competitiveness of the enterprise, and to encourage the professional accomplishment of employees.

In recent years, the business environment has become more competitive and volatile. Therefore, enterprises need to focus on technological abilities, the soft abilities and management of manpower. The knowledge technology of an enterprise can lead to competitive advantage and in surmounting the competition. Thus, the concept of core competence becomes an important management tool (Lahti, 1999). Spencer and Spencer (1993b) argue that core competence is a management model based on individual capability, and aims to find out and to confirm the needed capability and behaviors for achieving superior excellence. In this way, an enterprise or an individual can enhance working performance, which makes the application of core competence a necessity for the strategic management of an enterprise.

The purpose of this research is to define (or set) organizational key performance indicators (KPIs) in the precision machine industry by using the concept of core competence and the supply chain operations reference (SCOR) model. In competitive and volatile business environments, an enterprise must follow its unique culture and determine its core competence and appropriate KPIs. Focusing on the core competence is the key to achieving outstanding performance (Shih, 2000). Prahalad and Hamel (1990) argued that the most important task of the leader of an enterprise is to discover how to operate the enterprise sustainably and to find out the key factors how to achieve this goal (i.e., the core competence of the enterprise). Thus, the development of the core competence is the best way for enterprises to measure their pursuit of excellence, as well as the key factor for enterprises to run sustainable operations. When the core competence of enterprises is built, the goal of growth must be established to obtain the best advantages of the core competence.

The current research follows three steps. In the first step, we conducted a bench-marking study to collect major items of core competence and to group them into main categories, which will result in the formation of the foundation for the research. In the second step, a case company is analyzed and interviews are conducted to identify the key factors of core competence

in the precision machine industry. The analysis is conducted based on four dimensions (comprehensive, department, management level, and years of experience), and hence, several analysis rounds are completed. Questionnaire data are analyzed with GRA to identify the key factors of core competence (Deng 1989), and complemented with a case company interview to extract the most significant ones. In the final step, organizational KPIs are defined (or set) for the most essential key factors of core competence. In the setting of KPIs, the SCOR model is used as a reference to improve the efficiency of supply chain management for enterprises, suppliers, and customers (Huan, Sheoran, & Wang, 2004).

The remainder of this paper is structured as follows: literature review on the concept of core competence, the concept of core ability, organizational KPIs, and the SCOR model is presented in the second section. The third section presents the research approach, while the fourth section discusses the research results. Finally, the research is concluded in the fifth section.

Literature Review

This section introduces the development of both core competence and KPI and viewpoints of domestic and foreign scholars. In the literature review, the core competence is divided into external profession and internal potential, while the KPI of the organization is combined with the objectives of the organization, such that its vision can be achieved and the competitiveness is enhanced to cope with highly changeable situations.

Core Competence and Ability

McLagan (1997) defines competence as the potential characteristics, knowledge, conception, and behavior of individuals. Boyatzis (1982) explains that competence consists of the fundamental traits that make one achieve excellence in work, and these traits include external and internal dimensions, such as motivation, qualities, self-concept, attitudes, knowledge, skills, and abilities. Chiang (2002) argues that ability refers to potential traits, which have become an effective referential standard related to high work performance in thinking and behavior. Spencer and Spencer (1993b) compare competence to an iceberg (Figure 1), in which the obvious behavior dimensions (such as the profession and skills) are above the water, and the obscure and undetectable psychological traits (such as potentials, characteristics, and self-concepts) are below.

According to the above, competence is the basic key characteristic of achievement and can affect work performance. Maurer and Weiss (2010) assume that competence at continuous learning is a key part of successful work. An organization or an individual may have several competences. Spencer and Spencer (1993a) use the work competence assess-

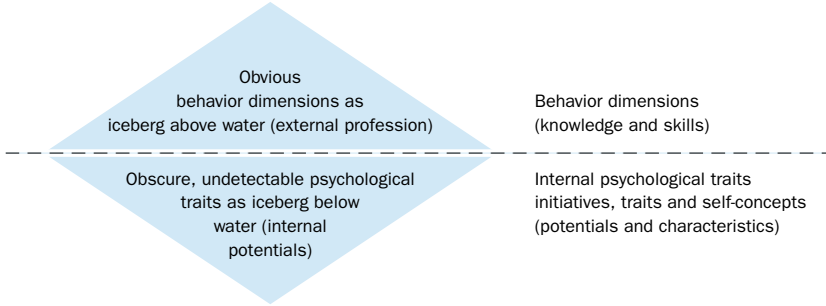

Figure 1 Competence Iceberg Model

ment method to determine the competences that enable high levels of performance among workers. Later, Spencer and Spencer (1993b) propose the concept of the core competence based on these ideas. Core competence emphasizes the connection among individual working behavioral features, efficiency, and performance (Boyatzis 1982; Prahalad and Hamel 1990; Prahalad 1993; Chen 1997; Huang 2001). Prahalad and Hamel (1990) further argue that organizational core competence is the unique intelligence, process, or product related with market competition, which best reflects the content and orientation of an individual, event, and organization. Thus, core competence refers to the competence of an organization or individual that is essential or central to high performance.

In the course of long-term management, an inclusive ability can be composed of the accumulation of core competence and the relevant resources. Ability is a kind of unique characteristics of an enterprise that distinguishes the firm from competitors (the core ability). Cravan (2002) shows that core ability can create a unique value for the customer. Prahalad and Hamel (1990) point out that core ability is the source and basis of continual competition among enterprises. Thus, core ability is the key to sustain an enterprise and to achieve a leading position in enterprise development and strategy.

Organizational KPI and the SCOR Model

Generally, reaching anticipative operational goals can enhance the competitiveness of an enterprise. To evaluate the performance of operational goals, a complete performance evaluation (or management) system is needed. This system can be used to evaluate whether a goal is reachable or not, and to manage an organization in the right direction. The selection of KPIs heavily influences the future performance of an organization (Yeh 2001). Therefore, business managers should strive to find the balance between financial and operational indicators to enhance the future performance of the

enterprise. KPIs are objective-oriented quantitative assessment indicators, which are regarded as a classification of key ingredients in the operations of the enterprise. KPIs are obtained by sampling, collecting, calculating, and analyzing input data from the internal processes of the organization. The key to establishing an effective performance management system in an enterprise lies in the setting of clear and workable KPIs. Chuang (2011) argues that if there are no assessment tools, there will be no performance; if there is no performance, there will be no management. This logic implies that performance management is one part of the management system. In recent years, financial-oriented assessment has been expanded to include non-financial-oriented assessment (e.g., employee rationale, productivity, quality, quit rate, and attraction to professionals).

One of the major changes in modern management is that individual organizations no longer compete as autonomous entities, but rather they compete as supply chains. Instead of manufacturer versus manufacturer, or supplier versus supplier, the current situation calls for supply chains versus supply chains. A supply chain refers to an integrated network of autonomous organizations, which are involved in the different processes and activities that produce value in form of products and services (Christopher 1998). This relationship implies that enterprises cannot simply focus on the internal process. Instead, companies must have a complete set of KPIs that could measure the whole supply chain network, which includes all activities connected with sourcing, manufacturing, and distribution from suppliers to customers. Therefore, the SCOR model (Figure 2) can be helpful when developing a performance management system for an enterprise (Huan et al., 2004).

In the SCOR model, the supply chain consists of several supply chain members (Figure 2). The supply chain process within each supply chain member is separated into five main processes, which are plan, source, make, deliver, and return (Pau & Chang, 2009). To develop and to improve the supply chain and its performance within these five main processes, the SCOR model includes 131 KPIs covering issues, such as customer service, cost control, risk management, and relationship with customers and suppliers (Supply Chain Council, 2010).

Research Approach

The purpose of this research is to define (or set) organizational KPIs in the precision machine industry based on core competence and the SCOR model. A component manufacturer in the machine industry was invited to serve as the case study. The case company was established in Taiwan in 1990. This company has more than 1000 employees, the turnover has already reached NTD 5 billion and is increasing continuously. The supply

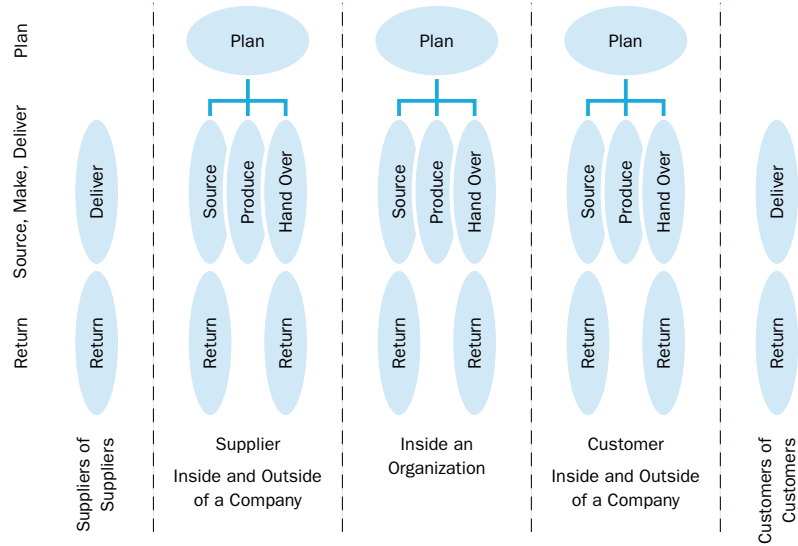

Figure 2 Five Procedures of SCOR

chain operations include sourcing, manufacturing, and distribution. As for machine industry, the demand for talents usually adopts the disciplines of apprenticeship to train the talents. The loss of talents may occur because of the lack of systematic planning, designing, and carrying out the cost of training. The company hopes to transform itself from a traditional machine company that focuses on machine assembly and maintenance into a modern company that centers on manufacturing servitization. In this process of transformation, it is important to build a rational mechanism in order to find out the key factors of core competence, which can be used to train the enterprise talents, to promote the competitiveness of the enterprise and to encourage the professional accomplishment of employees. The research approach in this research was conducted in three steps, which are described below in detail.

Collection of Major Items of Core Competence

In the first step of the research, a bench-marking study was conducted to collect major items of core competence. These items are grouped into main categories to build the foundation for the investigation of core competences within the precision machine industry in general and the selected case company in particular. The process of selecting bench-marking enterprises and collecting major items of core competence included the following:

1. Select enterprises in Taiwan that have won gold or silver Taiwan Train Quality System (TTQS) medals via the Internet.

Table 1 Item and Classification of Core Competence from 17 Benchmarking Enterprises

(1)	(2)	(3)	(4)	(5)	(6)
1	Research Innovation	SPIL	11	R&D and Innovation	1
2	Innovative Ability	Hiwin Technology Corp.			
3	Innovative Development	Fair Friend Ent. Group			
4	Continual Innovation	Kao			
5	Innovation	CMC Motor			
		TOYOTA			
		TSMC			
		Wowprime			
		Compal Electronics, Inc.			
6	Innovation and Desire for Changes	3M			
7	Reforms and Innovation	Telephone Company Ltd			
8	Cooperation	D-Link	10	Group Cooperation	2
		Fair Friend Ent. Group			
		Hiwin Technology Corp.			
9	Group Orientation	Telephone Company Ltd			
10	Group Success	Kao			
11	Group Work	Wowprime			
12	Relationship with Customers and Partners	TSMC			
13	Harmony	Compal Electronics, Inc.			
		Lianchi Group			
		CMC Motor			
14	Customer First	D-Link	6	Customer Oriented	3
15	Customer First	Fair Friend Ent. Group			
16	Customer Oriented	Kao			
		Hiwin Technology Corp.			
17	Serve Customers	Wal-Mart Stores, Inc.			
18	Services	Lianchi Group			

Continued on the next page

2. Select foreign enterprises with similar viewpoints on core competence via the Internet.
3. Collect items of core competence from the websites of the selected enterprises.

The sample included enterprises from traditional industries and from modern industries, such as services, technology, logistics, and expendable supply manufacturers. In total, 17 enterprises were involved in this benchmarking study, and from these selected enterprises, 59 items of core competence were collected and grouped into 21 main categories (Table 1).

Table 1 *Continued from the previous page*

(1)	(2)	(3)	(4)	(5)	(6)
19	Honesty and Integrity	P&G	6	Honesty and Integrity	4
		3M			
		Kao			
20	Honesty and Integrity	TSMC			
21	Sincerity	DEPO			
22	Fairness	Telephone Company Ltd			
23	Transcendence	Compal Electronics, Inc.	5	Transcendence	5
		TOYOTA			
24	Desire for Success	P&G			
25	Excellence	CMC Motor			
26	Pursuit of Excellence	Wal-Mart Stores, Inc.			
27	Continual Learning	D-Link	4	Continual Learning	6
28	Continual Learning	Fair Friend Ent. Group			
29	Group Learning	SPIL			
30	Initiative	Lianchi Group			
31	Loyalty	Lianchi Group	4	Observation of Discipline	7
32	Trust	P&G			
33	Commitment	TSMC			
34	Observation of Discipline	D-Link			
35	High Motivation	Kao	4	High Motivation	8
36	Active and Initiative	3M			
		Hiwin Technology Corp.			
37	Working Hard	Lianchi Group			
38	Quality Control	Fair Friend Ent. Group	3	Quality Control	9
39	Professional Quality	SPIL			
40	Profession	TOYOTA			
41	Responsibility	D-Link	3	Responsibility	10
42	Responsibility	Jointown Pharm. Group			
43	Honesty and Responsib.	Telephone Company Ltd			

Continued on the next page

Identification of Key Factors of Core Competence

In the second step of the research, we conducted a case company survey to identify the key factors of core competence in the precision machine industry. A questionnaire composed by 4 demographic items (comprehensive, department, management level, and years of experience) and 21 core competence items (derived from the main categories identified in the benchmarking study) was used for data collection. To analyze the key factors of core competence, the respondents were asked to grade a statement for each of the competence items individually on a Likert scale from 1 to 5 (1

Table 1 *Continued from the previous page*

(1)	(2)	(3)	(4)	(5)	(6)
44	Problem Analyzing and Solving	Kao	2	Problem Analyzing and Solving	11
45	Analytic Thinking	Hiwin Technology Corp.			
46	Executive Ability	Jointown Pharm. Group	2	Executive Ability	12
47	Doctrine of Knowing and Doing	Telephone Company Limited			
48	Positive Thinking	Hiwin Technology Corp.	2	Positive Thinking	13
49	Enthusiasm	Lianchi Group			
50	Spirit of Master	P&G	2	Respect for Individual	14
51	Respect for Individual	Wal-Mart Stores, Inc.			
52	Crisis Awareness	Jointown Pharm. Group	2	Quick Response	15
53	Quick Response	SPIL			
54	Adaptablity	Kao	1	Adaptablity	16
55	Leadership	P&G	1	Leadership	17
56	International Perspective	Kao	1	International Perspective	18
57	Satisfaction	Wowprime	1	360 Degree Satisfaction	19
58	Reflection	Hiwin Technology Corp.	1	Reflection	20
59	Cost Consciousness	D-Link	1	Cost Consciousness	21

Notes Column headings are as follows: (1) number, (2) core competence item, (3) sources, (4) number of enterprises, (5) classification of core competence, (6) priority.

– strongly disagree, 2 – disagree, 3 – neutral, 4 – agree, and 5 – strongly agree). Higher scores indicated that more emphasis was placed on the particular competence item. Questionnaires were sent to department managers (e.g., business, administration, production, and R&D), middle managers (e.g., director and deputy manager), and top managers (e.g., CEO and vice president) within the case company. The questionnaires were sent to 42 managers and 42 valid answers were received (response rate of 100%).

The collected questionnaire data were analyzed using GRA to extract the key factors of core competence. There are three steps in implement the GRA. The first step is the calculation of the grey relational coefficient. The calculation of the grey relational coefficient is shown in Equation (1) (Deng 1989). In this equation, ζ is the distinguishing coefficient. When the value lies between 0 and 1, it shows the difference between two parts. Generally, an average (0.5) is used as value of the distinguishing coefficient, which can be adjusted based on actual conditions. In this research, 0.5 was used as the value of the distinguishing coefficient.

$$r(x_i(k), x_j(k)) = \frac{\min_i \min_k |x_0(k) - x_i(k)| + \zeta \max_i \max_k |x_0(k) - x_i(k)}{|x_0(k) - x_i(k)| + \zeta \max_i \max_k |x_0(k) - x_i(k)|}. \quad (1)$$

The second step is the calculation of the grey relational degree. After

the grey relational coefficients are calculated, the grey relational degree is computed and is equal to the arithmetic mean of the grey relational coefficients. The grey relational degree represents the relationship between two sequences. If the changes in two factors have the same trend, this finding indicates that the extent of synchronous change is high, as well as the extent of the correlation (Deng 1997). The calculation of the grey relational degree is shown in Equation (2).

$$r(x_i, x_j) = \frac{1}{n} \sum_{k=1}^{n} r(x_i(k), x_j(k)). \tag{2}$$

The third step is the determination of the grey relational sequence. This step requires the arrangement of the obtained grey relational degrees from the biggest to the smallest. The final order is the grey relational sequence. Finally, items with similar grey relational degrees are classified (or organized) into the same group.

In this particular study, the collected questionnaire data are processed according to the three steps described above. Firstly, the questionnaire items are analyzed with GRA to get the grey relational coefficient and degree. Thereafter, a linear graph is drawn based on the grey relational degrees, and the items are arranged from big to small (right to left). The items with similar values are then classified into the same group. The linear graph is used to investigate the key factors of core competence that the managers emphasized the most. An item with a high grey relational degree signifies that the managers paid more attention to it than an item with a low degree. Finally, the key factors of core competence are selected from the classified groups in the linear graph one by one by following the recommendation of Daniel (1961) that an enterprise requires three to six key factors to succeed. The analysis is conducted based on four dimensions (comprehensive, department, management level, and years of experience), which require the completion of several rounds of analysis.

In addition, managers of the case company were interviewed since it was difficult to establish the key factors of core competence solely based on GRA results. The issue was that the repeatability of the factors in the different dimensions was low, which led to several key factors exceeding the principle of Daniel (1961). Thus, the most essential key factors of core competence are extracted through interviews based on GRA result. The interviews are designed such that repetition of key factors could be avoided. This step was critical since the analyzed dimensions to some extent included the same key factors of core competence. To cover most of the identified key factors without too much repetition, the interview questions (derived based on GRA result) are used. Interviewees were invited from the involved departments. The managers in each department are organized into

groups of five and one manager is selected from each group. Departments that had less than five managers are excluded. In total, five managers were interviewed, who were four managers from the production department and one manager from the administration department.

Definition of Organizational Key Performance Indicators

In the third step of the research, organizational KPIs are defined (or set) based on the identified key factors of core competence. This study used 131 KPIs included in the SCOR model and 12 internal KPIs related to the career development of the internal staff and the safety in the workplace from the case study as the reference for setting organizational KPI for the identified key factors of core competence (Table 2). To differentiate the KPIs belonging to the SCOR model and the case organization, each KPI was coded (SCOR = 1-131, Internal A01-A-12). The reason why these KPIs were used as the starting point is due to the importance of the supply chain in the global and competitive market environments. Enterprises cannot simply focus on top management and internal process anymore. Firms should have a complete set of KPIs that measure the whole supply chain network and consider all activities connected with sourcing, manufacturing, and distribution from suppliers to customers.

To simplify the setting of KPIs for the identified key factors of core competence, each key factor was handled separately. To begin with, the most competitive core abilities for the identified key factors are established based on the interviews with the five company managers. Then, organizational KPIs are set according to the core abilities within the three main categories of the KPIs:

1. Departmental KPI: Different departments (e.g., production, business, human resources, finance, and IT) in an organization have various duties and responsibilities, and the performance is tracked based on different organizational KPI.
2. Office grade KPI: Different office grades might influence the fulfillment of organizational KPI, as well as the need for common and professional competence that are aimed to achieve organizational KPI.
3. Hierarchical KPI: Each hierarchy in an organization has its responsibility levels, which are vertically and horizontally connected with the power needed to achieve organizational KPI.

Results and Analysis

To begin with, the key factors of core competence in the precision machine industry are extracted. After that, organizational KPIs are set for the identified key factors of core competence.

Table 2 Key Performance Indicators

109	Planning costs for delivering products
112	Orders management costs
113	Orders delivery costs
115	Managers' delivery investment for achieving operational objectives
116	Managers' production investment for achieving operational objectives
117	Managers' planning investment for achieving operational objectives
119	Managers' source investment for achieving operational objectives
120	Days of finished goods inventory
121	Days of raw materials inventory
122	Days of half-finished goods inventory
123	Days of calling back materials
125	Percentage of excessive stock
126	Ratio of the stock that can't serve as maintenance to common stock
127	Fixed assets in production of a supply chain
128	Fixed assets in sourcing of a supply chain
129	Fixed assets in planning of a supply chain
131	Fixed assets in sourcing of a supply chain
A-01	Amount of development patent
A-02	Number of people of internal lecturers
A-03	Number of people and level of improving language ability
A-04	Defect ratio of internal production process
A-05	Amount of improvement proposal in terms of production and management processes
A-06	Employees' satisfaction-dismission rate
A-07	Customers' satisfaction level to products and staff's services
A-08	Rate of occupational accident
A-09	Amount of qualified certificates
A-10	Awards acquired for training
A-11	Complaints from communities
A-12	Error rate of packaging products

Key Factors of Core Competence

The collected questionnaire data are analyzed using the GRA to extract the key factors of core competence. The analysis is conducted according to the three steps of GRA. Firstly, the questionnaire items are analyzed to obtain the grey relational coefficient and degree (steps 1 and 2). Thereafter, a linear graph is drawn based on the items grey relational degrees and the items are arranged from big to small (right to left). The items with similar values are then classified into the same group (step 3). Finally, the key factors of core competence are selected from the classified groups one by one according to the principle of Daniel (1961). The analysis is conducted

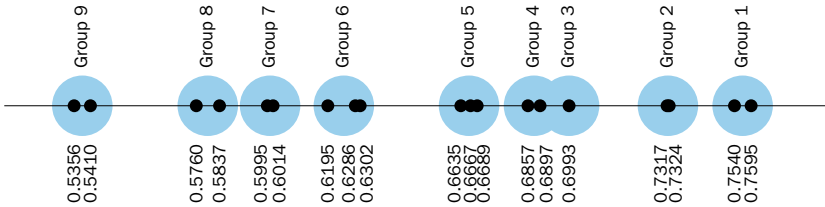

Figure 3 Grey Relational Linear Graph for Comprehensive Analysis

based on four dimensions (comprehensive, department, management level, and years of experience), and thus several analysis rounds were completed.

In the 'comprehensive' analysis, the 21 questionnaire items were classified into 9 groups according to the closeness of the grey relational degrees (Figure 3). The key factors of core competence were selected one by one from the groups that had the highest grey relational degrees (from right to left) based on Daniel (1961). In Group 1, 'quality control' (0.7595) and 'R&D and innovation' (0.7540) were selected. In Group 2, 'group cooperation' (0.7324) and 'customer oriented' (0.7317) were selected. In Group 3, 'responsibility' (0.6993) was selected. The selection of key factors stopped since the number of key factors would have exceeded six (Daniel, 1961) if the three factors in Group 4 had been selected. In summary, the 'comprehensive' analysis showed that the key factors of core competence in the precision machine industry included quality control, R&D and innovation, group cooperation, customer orientation, and responsibility.

The GRAs for the other dimensions (department, management level, and years of experience) followed the same procedure, but are not fully reported in this paper. However, the results of these analyses are presented in Table 3. As can be noted, the repeatability of the key factors in the different dimensions is low, which resulted in a number of factors exceeding the principle of Daniel (1961). This finding implies the difficulty in establishing the key factors of core competence solely based on GRA results. Instead, the most essential key factors of core competence are extracted through interviews with the five department managers (one production manager, and four administration managers) within the case company. Two interview questions based on GRA result were used, (1) 'What do you think about the 9 key factors of core competence selected by top managers and managers with over 16 years of experience?' and (2) 'What do you think about the key factors of core competence selected by your department that were not selected by top managers and managers with over 16 years of experience?' Overall, the conducted interviews covered 13 of the identified key factors of core competence (Table 4).

The interviews with the five department managers resulted in 13 key fac-

Table 3 Key Factors of Core Competence Based on Each Dimension

Comprehensive		Quality Control	R&D and Innovation	Group Cooperation	Customer Orientation	Responsibility	
Department	R&D	Quick Response	360 Degree Satisfaction	Continual Learning	Adaptability	Self-Reflection	Excellence
	Business Department	Quick Response	360 Degree Satisfaction	Adaptability	Self-Reflection	Cost Consciousness	Respect for Individual
	Administration Department	Quick Response	Quality Control	R&D and Innovation	Continual Learning	International Perspective	
	Production Department	Quality Control	R&D and Innovation	Responsibility	Excellence	Observation of Discipline	Problem Analyzing and Solving
Management level	Top Managers	Quick Response	360 Degree Satisfaction	Customer Orientation	Adaptability	International Perspective	Problem Analyzing and Solving
	Middle Managers	Quality Control	Group Cooperation	R&D and Innovation	Adaptability	Executive Ability	
	First-Line Managers	Quality Control	Group Cooperation	Adaptability	360 Degree Satisfaction	Customer Orientation	Continual Learning
Years of experience	1–5	Quality Control	Group Cooperation	R&D and Innovation	Observation of Discipline	Honesty and Integrity	Positive Thinking
	6–10	Group Cooperation	360 Degree Satisfaction	Customer Orientation	International Perspective		
	10–15	Quick Response	Responsibility	International Perspective	Executive Ability		
	16 and above	Quick Response	Responsibility	Continual Learning	Adaptability	Excellence	

Table 4 Key Factors of Core Competence in Terms of Different Departments and Views

Top managers*	Production departments	Administration departments
Quick Response (A)	Quality Control (C)	Quick Response (A)
360 Degree Satisfaction	R&D and Innovation (C)	Quality Control (C)
Customer Orientation	Responsibility (B)	R&D and Innovation (C)
Adaptability	Excellence (B)	Continual Leaning (A)
Self-Reflection	Observation of Discipline	International Perspective
Excellence (B)	Problem Anal. and Solving (B)	
Continual Leaning (A)		
Responsibility (B)		
Problem Anal. and Solving (B)		

Notes Key factors of core competence marked with 'A' means that they are the same ones selected by top managers and managers with over 16 years of service and by managers from administration departments. Key factors of core competence marked with 'B' means that they are the same ones selected by top managers and managers with over 16 years of service and by managers from production departments. Key factors of core competence marked with 'C' means that they are the same ones selected by production and administration departments.
* And managers with over 16 years of service.

tors of core competence that comprised one organization objective, five key factors of core competence, and seven key factors of core ability (Figure 4). The core competence of the enterprise emphasizes the connection among the individual performance, working behavior, working efficiency, and performances, and further reaches the enterprise's objectives, such as creating corporate values, improving competitiveness, and creating corporate cultures. Thus, the key factors of core competence can train the internal staff to have the core ability through education. Training can improve competitiveness, which can result in achieving the overall objective of 'excellence.'

In Figure 4, the five key factors of core competence are in order from left to right, and are connected to five or more items of core ability. First, the core competence 'R&D and innovation' can cultivate the internal staff to get 'international perspectives,' 'problem analyzing and solving,' '360 degree satisfaction,' and 'quick response.' Second, the core competence 'responsibility' can train the internal staff to have 'observation of disciplines,' 'problem analyzing and solving,' '360 degree satisfaction,' 'self-reflection,' and 'adaptability.' Third, the core competence 'continual learning' can teach the internal staff to obtain 'problem analyzing and solving,' '360 degree satisfaction' as well as deep characteristics like 'international perspectives,' 'observation of disciplines,' 'self-reflection,' 'adaptability,' and 'quick response.' Fourth, the core competence 'customer orientation' can nurture the internal staff to acquire 'international perspectives,' 'problem analyzing and solving,' '360 degree satisfaction,' 'self-reflection,' and 'quick response.' Finally, the core competence 'quality control' can educate the inter-

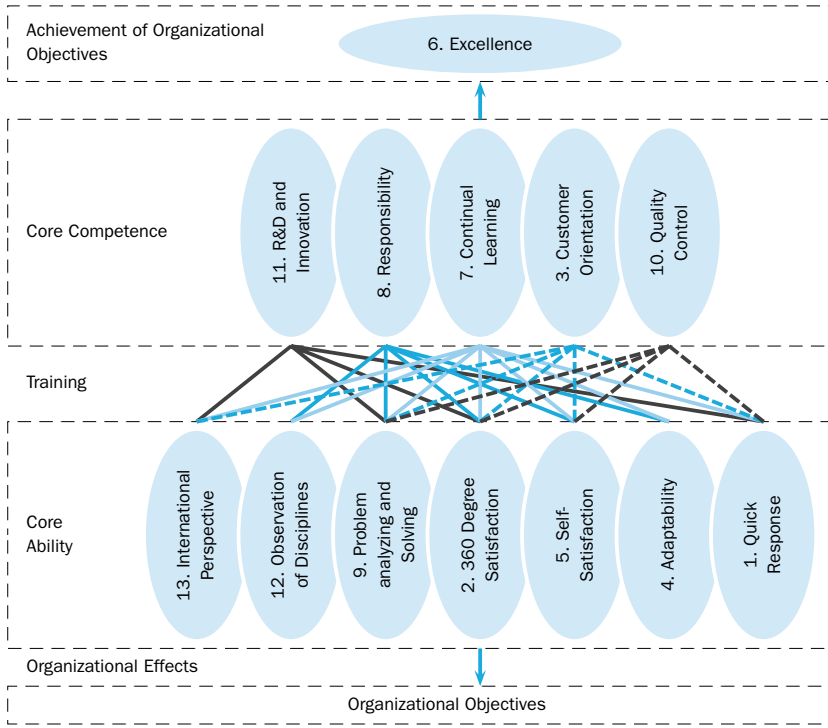

Figure 4 Key Factors of Core Competence and Organizational Objectives

nal staff to learn 'problem analyzing and solving,' '360 degree satisfaction,' 'self-reflection,' and 'quick response.'

Organizational key Performance Indicators

This study uses the 131 KPIs included in the SCOR model and 12 internal KPIs related to career development of the internal staff and safety in the workplace from the case study as the reference for setting organizational KPI for the identified key factors of core competence (Table 2). To differentiate the KPIs belonging to the SCOR model and the case organization, each KPI was coded (SCOR = 1-131, Internal A01-A-12). All the internal KPIs and 85 of the KPIs included in the SCOR model satisfied the need of organizational KPIs. Thus, this research considered 97 KPIs.

To simplify the setting of KPIs for the five identified key factors of core competence, each key factor is handled separately. To begin with, the most competitive core abilities for the identified key factors are established. As shown above, this knowledge was gained from the interviews with the five company managers. After that, organizational KPIs are set based on the core abilities within the three main categories of KPIs (departmental, office

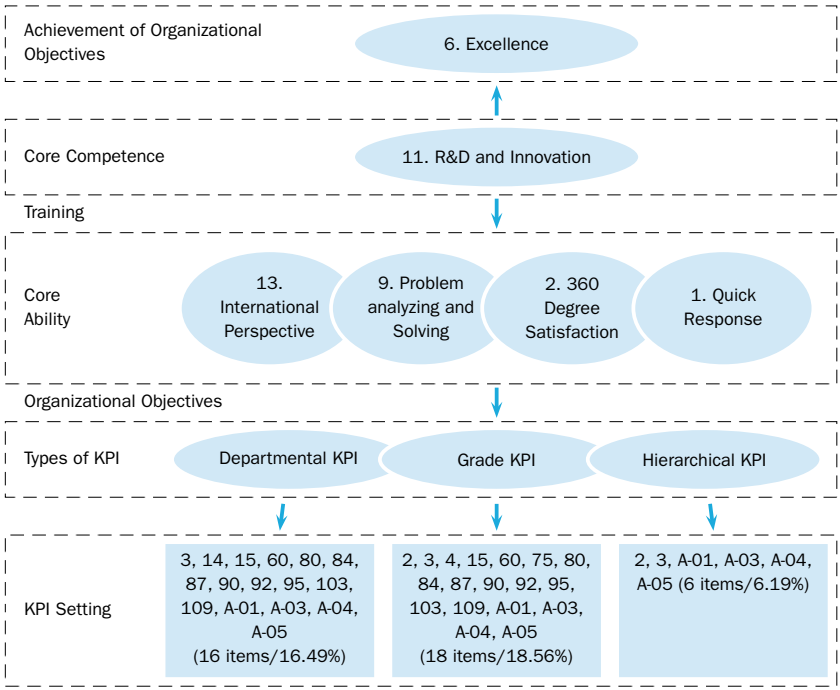

Figure 5 Setting of KPI for Core Competence R&D and Innovation

grade, and hierarchal). Below, each identified key factor is addressed in detail.

The most competitive core abilities for the identified key factor of core competence 'R&D and innovation' include 'international perspectives,' 'problem analyzing and solving,' '360 degree satisfaction,' and 'quick response' (Figure 5). After the setting of KPIs (see Table 5) based on the core abilities, the departmental category contained 16 items (16.49% of total KPIs), the office grade category contained 18 items (18.56% of total KPIs), and the hierarchical category contained 6 items (6.19% of total KPIs). Based on the setting of KPIs for the core competence 'R&D and innovation,' the result emphasizes the achievement of works and departmental missions. Organizational KPIs include types related to cost, correctness of the documents, and completeness of products. Although, the hierarchical category only contains six items, these items are mostly related to important decisions like cost control, complaints, and patents.

The most competitive core abilities for the identified key factor of core competence 'responsibility' are 'observation of disciplines,' 'problem analyzing and solving,' '360 degree satisfaction,' 'self-reflection,' and 'adaptability' (Figure 6). After the setting of KPIs (see Table 5) based on the

Table 5 Setting of KPIs within 3 Main Categories

(1)	(2)			(3)			(4)			(5)			(6)		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
2		•	•		•	•		•						•	
3	•	•	•	•	•	•	•	•	•	•	•	•			•
5						•									•
6						•									
7				•	•	•				•	•	•			
10				•	•	•									
11				•	•			•		•	•			•	
12				•	•					•	•			•	
13				•	•					•	•			•	
14	•	•		•	•					•	•		•	•	
15	•	•		•	•		•	•		•	•		•	•	
16				•	•		•	•					•	•	
17				•	•								•	•	
18				•	•					•	•			•	
20				•	•			•							
21				•	•			•					•	•	
25				•	•			•							
26				•	•			•					•	•	
35				•	•	•		•	•					•	
37				•	•	•		•	•					•	
39				•	•	•	•	•	•		•			•	
40				•	•	•	•	•	•		•			•	
41				•	•	•	•	•	•		•				
42				•	•	•	•	•	•		•				
44						•			•						
45				•	•	•	•	•	•		•				
46				•	•	•	•	•	•		•			•	
47				•	•	•	•	•	•		•				
48				•	•	•				•		•			
49				•	•	•					•			•	
54				•	•	•					•			•	
55				•	•					•	•			•	
56				•	•					•	•			•	
57				•	•					•	•			•	
58					•					•	•			•	
59				•	•					•	•			•	
60	•	•		•	•		•	•			•			•	
61				•	•					•	•			•	
62				•	•					•	•			•	

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Table 5 *Continued from the previous page*

(1)	(2)			(3)			(4)			(5)			(6)		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
63				•	•					•	•			•	
64				•	•					•	•			•	
65				•	•					•	•			•	
66				•	•					•	•			•	
68				•		•							•		•
69					•									•	
70					•										
71					•										
72				•	•										
73				•	•										
74				•	•										
75		•		•	•					•					
76				•	•					•					
77					•									•	
78				•	•									•	
79				•	•										
80	•	•		•	•						•			•	
81					•						•			•	
82					•									•	
83					•			•			•				
84	•	•			•						•			•	
87	•	•			•						•			•	
88					•						•				
89					•						•				
90	•	•		•	•					•	•				
92	•	•		•	•					•	•				
95	•	•			•						•				
103	•	•			•	•					•	•		•	
107						•									
109	•	•			•										
112											•				
113											•				
115						•									•
116						•									•
117						•									
119						•									•
120						•									•
121				•	•									•	
122				•	•									•	

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Table 5 *Continued from the previous page*

(1)	(2)			(3)			(4)			(5)			(6)		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
123				•	•									•	
125					•									•	
126				•	•									•	
127						•									
128						•									
129						•									
131						•									
A-01	•	•	•							•	•	•			
A-02							•	•	•						
A-03	•	•	•	•	•	•	•	•	•	•	•	•			
A-04	•	•	•	•	•	•	•	•			•		•	•	•
A-05	•	•	•	•	•	•	•	•			•		•	•	•
A-06					•		•	•	•						
A-07								•		•	•	•			
A-08				•	•	•	•	•	•						
A-09				•	•	•	•	•	•						
A-10				•			•	•	•						
A-11				•	•	•									
A-12											•			•	

Notes Column headings are as follows: (1) SCOR KPI coding, (2) R&D and Innovation, (3) Responsibility, (4) Continual Leaning, (5) Customer Orientation, (6) Quality Control; (a) Departmental KPI, (b) Office Grade KPI, (c) Hierarchical KPI.

core abilities, the departmental category contained 60 items (61.86% of total KPIs), the office grade category contained 76 items (78.00% of total KPIs), and the hierarchical category contained 36 items (37.11% of total KPIs). Based on the setting of KPIs for the core competence 'responsibility,' 'responsibilities' account for the highest percentage of KPIs in all the categories. The potential motivation and attitude that involve human behaviors have huge influences on an organization, and the KPI to be achieved includes cost control, reaching rate of delivery, and planning ability.

The most competitive core abilities for the identified key factor of core competence 'continual learning' are 'international perspectives,' 'observation of disciplines,' 'problem analyzing and solving,' '360 degree satisfaction,' 'self-reflection,' and 'adaptability' (Figure 7). After the setting of KPIs (see Table 5) based on the core abilities, the departmental category contained 36 items (37.11% of total KPIs), the office grade category contained 29 items (29.90% of total KPIs), and the hierarchical category contained 17 items (17.53% of total KPIs). Based on the setting of KPI for the core

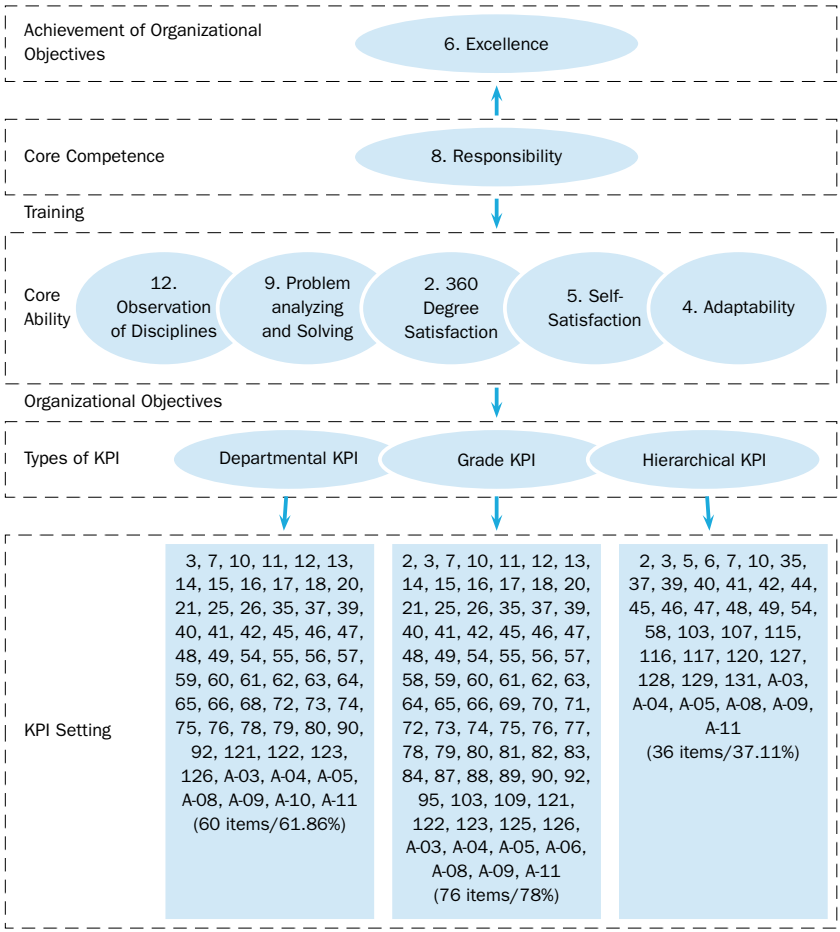

Figure 6 Setting of KPI for Core Competence Responsibility

competence 'continual learning,' regardless of the type of department, the spirit of continual learning is required to meet the demands of individual and organizational growth, and the need for learning based on the office grade results in cost control.

The most competitive core abilities for the identified key factor of core competence 'customer orientation' are 'international perspectives,' 'problem analyzing and solving,' '360 degree satisfaction,' 'self-reflection,' and 'quick response' (Figure 8). After the setting of KPIs (see Table 5) based on the core abilities, the departmental category contained 27 items (27.86% of total KPIs), the office grade category contained 47 items (48.45% of total KPIs), and the hierarchical category contained 7 items (7.22% of total KPIs). Based on the setting of KPI for the core competence 'quality control,'

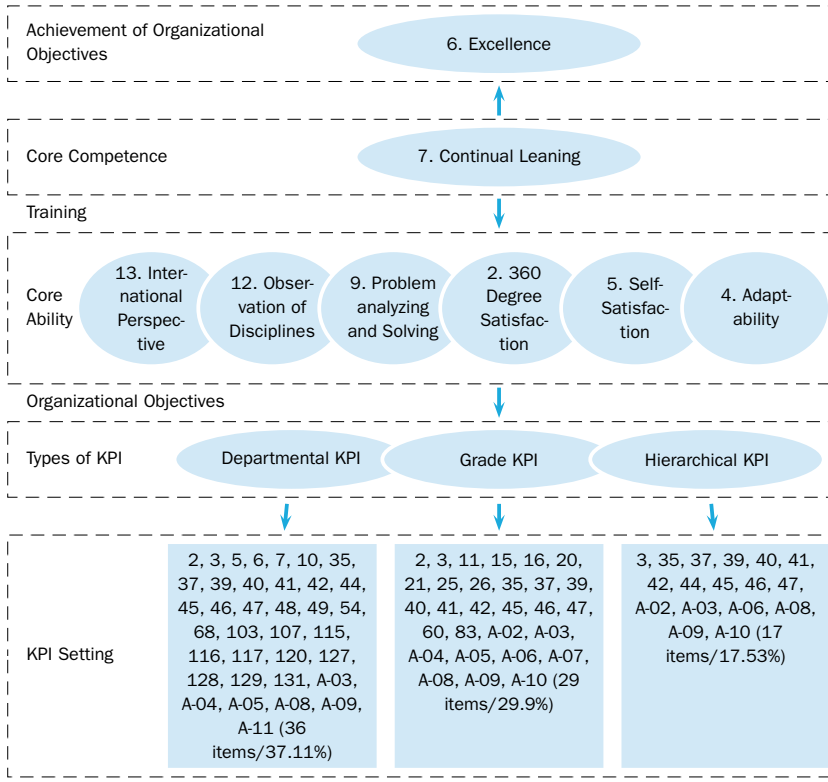

Figure 7 Setting of KPI for Core Competence Continual Learning

the activities involved in the customer orientation emphasizes people's satisfaction of product quality from taking orders to delivery and customer satisfaction of the services. Although there are only seven KPIs in 'hierarchical KPI,' these KPIs are mostly related to the management of costs, funds, and human resources, which show the differences of KPIs between office grades and hierarchies.

The most competitive core abilities for the identified key factor of core competence 'quality control' are 'international perspectives,' 'problem analyzing and solving,' '360 degree satisfaction,' and 'quick response' (Figure 9). After the setting of KPIs (see Table 5) based on the core abilities, the departmental category contained 9 items (9.28% of total KPIs), the office grade category contained 47 items (48.45% of total KPIs), and the hierarchical category contained 9 items (9.28% of total KPIs). Based on the setting of KPIs for 'quality control,' this core competence affects production as well as the supply chain, documents, and data accuracy. This result implies that each of the different office grades should be connected with quality control

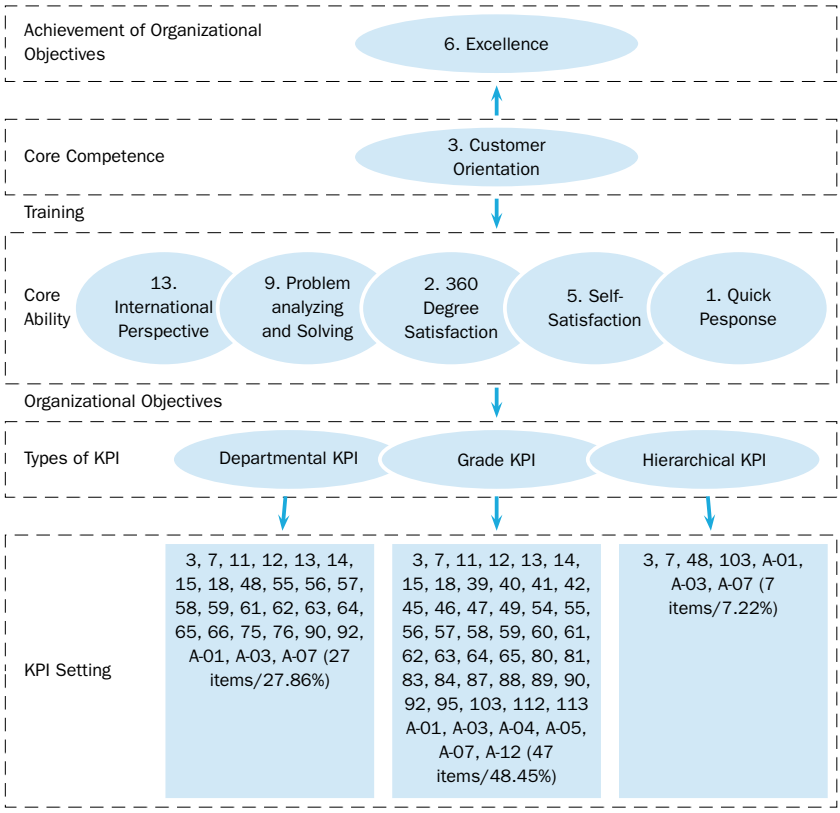

Figure 8 Setting of KPI for Core Competence Customer Orientation

to guarantee the flawlessness of the orders and products throughout the entire supply chain.

Concluding Remarks

To begin with, the research results are summarized and discussed in this section. After that, some implications of the research, as well as some opportunities for further research are presented.

Summary

This research aimed to define (or set) organizational KPIs in the precision machine industry by using the concept of core competence and the SCOR model. A component manufacturer in the machine industry was invited to serve as a case study.

A case company questionnaire composed of 21 core competence items that were derived from the main categories identified in the bench-marking

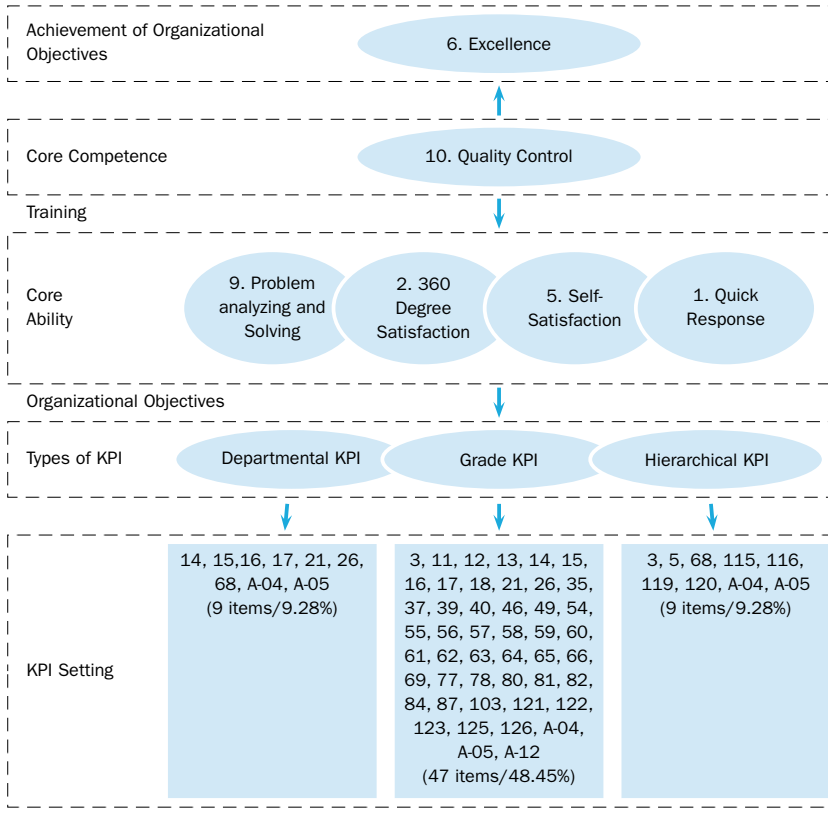

Figure 9 Setting of KPI for core Competence Quality Control

study was used for data collection. The collected data were analyzed with GRA to extract the key factors of core competence. The analysis was conducted based on four main dimensions (comprehensive, department, management level, and years of experience), which required the completion of several rounds of analysis. The result identified five to six key factors for each dimension or sub-dimension.

In addition, interviews were conducted with managers inside the case company since it was difficult to establish the key factors of core competence solely based on GRA results. The issue indicated that the repeatability of the factors in the different dimensions was low. Thus, the most essential key factors of core competence were extracted through interviews based on GRA result. The conducted interviews covered 13 of the identified key factors of core competence, which are broken down into organization objective (1), core competence (5), and core ability (7).

Finally, organizational KPIs are defined (or set) for the identified key fac-

tors of core competence. To simplify the setting of KPIs for the five identified key factors of core competence, each key factor was handled separately. Initially, the most competitive core abilities for the identified key factor were established. This knowledge was gained from the interviews with the managers of the case company. Organizational KPIs were set based on the core abilities within the three main categories of KPIs (departmental, office grade, and hierarchical). The developed KPI system, which is based on organizational objectives, core competence, and core abilities, allows enterprises to handle dynamic market demands, business environments, and changes in corporate objectives.

Implications and Further Research

In a competitive and volatile business environment, an enterprise must follow its unique culture and find out its core competence and appropriate KPIs. However, in applying key factors of core competence to reach organizational objectives, the leader has to be decisive enough to set precise and achievable objectives. In addition, employee behaviors and talents should not be neglected. Talents create the competitive advantages for an enterprise. While enterprises can buy machines, lands, and materials with money, people should be connected with the organizational culture such that they will devote themselves voluntarily, create profits, and reach objectives for the enterprise. The most significant objective of an enterprise is to pursue profit maximization and sustainable development for continuous growth and development. Nevertheless, core competence and KPI are the key factors that can bring clear short-, middle-, and long-term direction for an enterprise. Since this study focuses on the precision machine manufacturing industry, the results may only be applicable to similar industries, and not in every type of enterprise. Therefore, future studies could analyze domestic and foreign bench-marking enterprises, set up successful key factors in different industries, and search for progress standards for enterprises. In this manner, literature in this field can be expanded, and more enterprises can pursue outstanding performances and continuous growth.

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Evaluating Sources of Risks in Large Engineering Projects: The Roles of Equivocality and Uncertainty

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Contemporary project risk management literature introduces uncertainty, i.e., the lack of information, as a fundamental basis of project risks. In this study the authors assert that equivocality, i.e., the existence of multiple and conflicting interpretations, can also serve as a basis of risks. With an in-depth empirical investigation of a large complex engineering project the authors identified risk sources having their bases in the situations where uncertainty or equivocality was the predominant attribute. The information processing theory proposes different managerial practices for risk management based on the sources of risks in uncertainty or equivocality.

Keywords: project risk management, complex projects, uncertainty, equivocality, information processing theory, risk sources

Introduction

Managing and evaluating risks is an essential part of project management. Project managers must have some grasp on risks relevant to their projects and the sources of these risks (Chapman & Ward, 2003; Royer 2000). The level of riskiness is especially high in large and international projects that involve a complex temporary network of stakeholders that possess heterogeneous resources, knowledge, and capabilities and have different and often conflicting objectives (Flyvbjerg, Bruzelius, & Rothengatter, 2003; Morris & Hough, 1987; Orr & Scott, 2008; Ruuska, Artto, Aaltonen, & Lehtonen, 2009). Furthermore, the complexities of the socio-political environment and cultural differences, which are inherent in international projects, pose challenges for project planning and hence on risk management (Miller & Lessard, 2001). Consequently, international projects often cannot be realised as planned and unexpected events dominate their lifecycle (Aaltonen,

Kujala, Lehtonen, & Ruuska 2010; Tukiainen, Aaltonen, & Murtonen 2010).

In projects, information processing is needed to reduce both uncertainty and equivocality (Galbraith, 1973). Information processing theory recognises a need for different information processing mechanisms depending on the prevailing circumstances of uncertainty and equivocality (Daft & Lengel, 1986). The sources of organisational uncertainty and equivocality are technology, interdepartmental relationships, and environment. Technology in this context means knowledge, tools, and techniques used to transform inputs into organisational outputs. The second source of uncertainty and equivocality is the need for negotiations across departments. Each department develops its own functional specialisation, time horizon, goals, frame of references and jargon and, therefore, interdepartmental relations are needed to enable transactions across departments. Projects, as open systems, are influenced by their environment. Hence, also the analysability of the project's external environment and the way the organisation approaches its environment (organisational intrusiveness) also determines the need for information processing (Aaltonen et al., 2010; Weick & Daft, 1983).

The literature on risk management has recognised uncertainty, i.e., the lack of information, as a source of risks (Ward & Chapman, 2003). Several scholars have categorised risks based on the source of uncertainties that projects encounter, such as uncertainty about the basis of estimates and uncertainty about fundamental relations between project parties (Krane, Rolstadås, & Olsson, 2010; Miller and Lessard, 2001). However, while the role of uncertainty as a basis of risks is well recognised in the literature of project risk management, limited attention has been paid to the role that equivocality, i.e., the existence of multiple interpretations about situations may play in the risks that projects face during their lifecycle. In particular, complex international networked projects are vulnerable to risks that originate from the multiple and conflicting interpretations of the project participants and about the environment.

The aim of this study is to evaluate the sources of risks in large international engineering projects by adopting the perspective of the information processing theory that maintains that both uncertainty and equivocality contribute to the need of organisations to process information. Hence, it is relevant to take into account both uncertainty and equivocality as the basis of risks. The research question of this study is: What are the roles of equivocality and uncertainty as bases of risk sources in large engineering projects? For the purposes of this study, the authors conducted a single case study of a large and complex infrastructure project that was carried out in an Eastern European country. The end customer executed the project outside its home country with a main contractor that had a different cultural background. The

turnkey contractor was a Northern European company whose two main contractors originated from the home country of the end customer. The focus of the empirical analysis was on the realised risks of the project and on the evaluation of the sources of the identified risks. These sources were divided into those having their basis in uncertainty and those having their basis in equivocality.

Literature Review

In the risk management literature, one of the most common ways to classify risks is to divide them into groups based on common sources or features (Krane et al., 2010). The contemporary project risk management literature sees uncertainty as a basis of risk sources confronted in projects. Ward and Chapman (2003) described risk sources from the uncertainty viewpoint. They identified the types of uncertainties as (1) variability associated with estimates, (2) uncertainty about the basis of estimates, (3) uncertainty about design and logistics, (4) uncertainty about objectives and priorities, and (5) uncertainty about fundamental relations between the project parties. In turn, Miller and Lessard (2001) identified the sources of risks in large international engineering projects and found that risks rise mainly from three categories: market-related risks, completion risks, and institutional risks. The categories are further divided into several risk classes in which the specific risks tend to belong. Market-related risks are divided into demand, financial, and supply risks; completion risks are divided into technical, construction, and operational risks. Institutional risks, the last category, are divided into regulatory, social-acceptability, and sovereign risks. Artto, Martinsuo, and Kujala (2011) divided risks related to projects into four different risk types: pure risks, business risks, financial risks, and area-specific risks. Pure risks include accidents or losses; financial risks are related to the financing and funding of the project. These risks regard such matters as liquidity, operative cash flow, and fluctuating interest rates. Area-specific risks are due to some specific conditions of the area, where the project is executed and are usually caused by the political, legislative, national, cultural, and natural environment of the area. Business risks in the project context mean the miscellaneous group of risks that do not fit into any other risk category but may have an impact on the project, its objectives, or benefits. Business risks include those that may relate to the functionality or usability of the end product and also those that are threats or possibilities during project execution (Artto et al. 2011). In addition to uncertainty, equivocality is recognised to have a role as an attribute of the situations from which risks are noted to have arisen (Pekkinen & Kujala, 2014).

In the information processing literature, uncertainty is understood as a

lack of information and equivocality as ambiguity, the existence of multiple and conflicting interpretations. The literature introduces different information processing mechanisms for these two types of information processing needs (Galbraith, 1974; Daft & Lengel, 1986; Martinez & Jarillo, 1989). From the risk management perspective, recognition of the risk source is important because different information processing mechanisms are needed to manage risks based on their sources. Daft and Lengel (1986) stated that sources of organisational uncertainty and equivocality are technology, interdepartmental relationships, and the environment. Technology in this context means knowledge, tools, and techniques used to transform inputs into organisational outputs. A technology model can be characterised by task variety and task analysability (Perrow, 1967). Task variety is the frequency of unexpected and novel events that occur in the conversion process and task analysability concerns the way individuals respond to the problem. In the case of a task being unanalysable and having high variety, equivocality is the prevailing attribute and, hence, rich information media and informal information processing mechanisms are needed. The second source of uncertainty and equivocality is the need for negotiations across departments. Each department develops its own functional specialisation, time horizon, goals, frame of references, and jargon. The characteristics that influence the need of information processing between departments are strength of interdependence (Allen and Cohen, 1969; Gruber, Ponsgen, & Prakke, 1974) and differentiation (Daft & Lengel, 1984). Low interdependence and differentiation between departments represent a situation of low equivocality and emphasizes the need of formal information processing mechanisms to reduce uncertainty. The third source of equivocality and uncertainty is the interpretation of the external environment. Weick and Daft (1983) discussed the analysability of cause-effect relationships in the external environment as a character determining the need for information processing. The other dimension in the environment model to define the need for information processing is the organisational intrusiveness (passive-active). An active role of the environment toward organisation can be understood as a situation of a hostile, competitive, rapidly changing environment or circumstances when the organisation depends heavily on the environment for resources. Unanalysable cause-effect relationships and active relationships between an organisation and its environment mean high equivocality and require informal media-rich information processing.

Large international engineering projects executed by complex project networks in challenging country environments inherently encounter many unclear events. Clearance referring to the reducing of uncertainty can be achieved by gathering more information about the analysable loosely connected variables and attributes. For unanalysable characteristics with high

interdependence and differentiation, a conclusion to the relevant questions to be answered is needed to reduce equivocality of the situation. Hence, in international and complex project set-ups, both uncertainty and equivocality can be considered as prevailing conditions and potential sources of risks.

Methodology

In prior research on sources of project risks, the focus has been on project set-ups and situations where uncertainty is present. In order to also include equivocality as a basis of the risk sources, a case study research design was employed. By using an in-depth, qualitative research method the authors mapped unexpected events and the realised risks experienced within a selected case project. By elaborating the contextual factors and prevailing circumstances, it was possible to gain a deep understanding of the nature of risk sources (Yin 2002). Additionally, the qualitative method enables a rich examination of the circumstances and conditions in the context where the unexpected events and the realised risks occurred in a way that is not attainable using survey methods. The case project was selected due to its complexity in terms of project participants, project environment, and the range of unexpected events and realised risks. The project was a large green-field engineering project carried out in an Eastern European country and had a monetary value of more than 200 million USD and a lifecycle of over 5 years. The end customer was a Southern European company with permanent operations in the host country, while the turnkey contractor was a Northern European company that used various local subcontractors and two main contractors originating from the home country of the end customer. The two main contractors of the turnkey contractor and the end customer had cultural ties. For the turnkey contractor, the project was a strategically important project in a new market area. The sales phase was fast paced and intensive. In addition, the project environment was challenging due to the unstable political situation and constant changes in regulations. The project network of the case project is illustrated in Figure 1.

For the turnkey contractor, the project was a strategically important project in a new market area. The sales phase was fast paced and intensive. In addition, the project environment was challenging due to the unstable political situation and constant changes in regulations.

The data were collected through 10 interviews, lasting between 50 and 180 minutes. All interviews were recorded and transcribed and conducted with all the relevant key project individuals; interviewees included the project directors, project managers, project team members (e.g., project engineers and controllers), as well as those in charge of risk management in the turnkey company of the project. The research utilised a semi-structured interview approach and all interviews were conducted informally, encour-

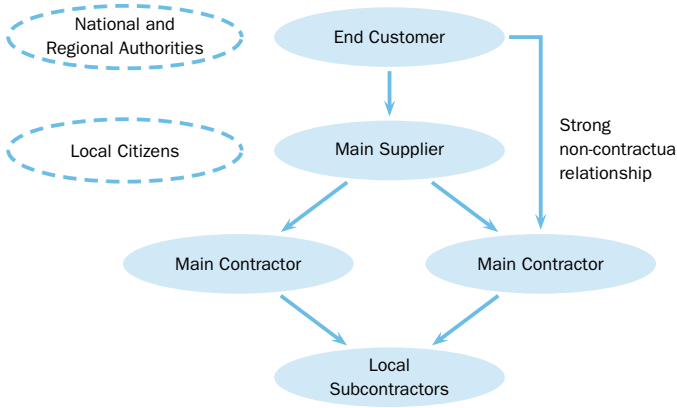

Figure 1 Project Network of the case Project

aging a natural flow of discussion on the unexpected events and risks of the project to gain detailed descriptions of the events and circumstances that led to the events. In addition, an ethnographic interview style was partially used to promote in-depth and lively answers from the interviewees. When analysing the risk sources, authors utilised project-related documentation such as risk analyses, project status reports and project plans as secondary archival data.

The transcribed interview content was carefully analysed to identify relevant risk sources for the exposure of the realised risk events, as well as prevailing circumstances. Risk sources were categorised as those arising from situations where uncertainty, i.e., the absence of information, was a prevailing attribute and those where equivocality, i.e., the existence of multiple and conflicting interpretations about the situation, was a dominant feature. Different risk sources were gathered in an Excel sheet, empirical examples of the different risk sources were identified from the transcribed interviews, and indications of how these risk sources were experienced in the project were listed with citations for each risk.

Empirical Findings

The unexpected and realised risk events delayed the entire project and caused cost overrun to many actors. Although the end customer was occasionally disappointed with the turnkey contractor, the turnkey contractor was able to maintain a good and embedded relationship with the end customer, and the end customer remunerated the turnkey contractor with a new contract. Realised risks were analysed and risk sources were categorised based on the prevailing attributes of the situation. Risk sources were distinguished to those arising from situations where high uncertainty was a

Table 1 Categorised Risk Sources of the Case Project

Uncertainty	Equivocality
High turnover of the project personnel	Cultural differences
Unclear roles of the project participants	Complex network of different actors
Immature inter-organisational relationships between the actors	Unstable country environment
Lack of information about the country environment	

prevailing attribute and to those where equivocality was a dominant feature. High turnover of the project personnel, unclear roles of the project participants, undeveloped inter-organisational relationships between the actors and the lack of information about the country environment were perceived as risk sources that were found to have their bases in situations where uncertainty is the predominant attribute of the contextual factors. In turn, cultural differences, the complex network of different actors, and an unstable country environment were identified as risk sources having their bases in the equivocality of the situations. The categorised risk sources identified in the project are presented in Table 1.

In the case study, four primary risk sources were found to have their bases in the situations where uncertainty (a lack of information) was the dominant characteristic. Three main risk sources with their bases in equivocality (the existence of multiple and conflicting interpretations) were identified. Based on the analysis, the local country environment was identified as being a risk source that related to both uncertainty and equivocality.

A high turnover of project personnel was a distinctive feature of the project. The turnkey contractor changed its main project personnel, including project director and project managers, many times. This was partly caused by the turnkey contractor's own interests and the project participants' own will but was also highly influenced by the pressure from the end customer for real actions to recover the project delay. Also, the main subcontractor changed many of its main project personnel during the project execution phase. This high turnover of project personnel caused many undesirable aspects. The turnkey contractor's second project director told that, when he came to the project after one year of the project start-up, only a few of the original individuals who started the project were there. He also pointed out that project practices were unclear to newcomers and actions were needed to establish and agree on the practices to be followed. The project director explained that as a result of the high turnover the project suffered from a lack of prior knowledge and the project overview was missing. The interviewees noted that unclear roles were a risk source caused by inadequately specified responsibilities in the contract. Consequently, the

contract did not offer dispute resolution, and project participants had to partly renegotiate responsibilities. The experienced project director of the turnkey contractor underlined the importance of specifying roles as follows:

> Specification of the responsibilities is vital. I have seen it in many projects. In the beginning of my career, I prepared contracts by myself and know how it goes. There are many parties, we as turnkey contractor, the customer, and our subcontractor. In the case of dispute you ask, who is responsible? There must be only one responsible party. Then it works.

Furthermore, in the sales phase of the project, the turnkey contractor took strategic action to corner a new market area. This led to a situation where the turnkey contractor did not have a developed business relationship with the customer neither with its own contractors. The pressure to enter a new strategic market area led to a situation where some promises given to the customer in the sales phase of the project were overly optimistic. In turn, the undeveloped relationships between the turnkey contractor and its contractors meant that the turnkey contractor could not anticipate the contractors' responses when facing difficulties, such as when contractors had financial problems and were nearly bankrupt. In other words, the contractors did not consider the establishment of long-term relationships with the turnkey contractor but behaved opportunistically and maximised their benefits of this one-off project, as illustrated with the following quote from the project director:

> We [turnkey contractor] noticed that progress was not as planned and noted that guys were not working. They just did not appear on the site. We found out that the subcontractor wanted more scope. They said: 'Give us more scope and then we will do all that you have given to us.'

The slow and ambiguous permitting process was also one of the main causes of project delay. The turnkey contractor signed the contract with the strategic new customer after a short and intensive sales phase. As a consequence, evaluation of the local environment in relation to the permitting processes and market was not thoroughly performed, and the long amount of time needed to get all the required permissions for construction and operation was not considered. The turnkey contractor's project director stated how they lacked experience in the permitting process and so had difficulties that caused the most severe problems of the project. The lack of knowledge of the local country environment related to the selection of suppliers forced the turnkey contractor to evaluate potential suppliers after the project start-up.

Consequently, the high turnover of project personnel, unclear roles of the project participants, undeveloped inter-organisational relationships between the actors, and the lack of information about the country environment were risk sources that had their bases in uncertainty (a lack of information). The description of the identified risk sources and their implications for the project are listed in Table 2.

Our empirical data analysis revealed that cultural differences, complex project network of different actors, and unstable country environment were risk sources having their bases in situations where equivocality was a prevailing feature of the situations. The turnkey contractor was a Northern European global project-based company executing projects in many continents. The project personnel of the turnkey contractor were used to work in different countries and in different cultures. Regardless of this, the personnel of the turnkey contractor were surprised by the cultural differences between the Northern, Southern, and Eastern European cultures and the embodiments of these differences. A typical example is when the Eastern European company project personnel of the end customer reacted strongly over a delay to the project. After half an hour of yelling, the disappointed representatives of the end customer recognised that this was not the fault of the new project director and with a calmer attitude were able to potentially achieve solutions. In the Southern and Eastern European business cultures, personal relationships are very important. Personal relationships and personal power were seen to exceed even the company boundaries as can be noted from the following citation:

> Personal relationships are very strong. If you have known someone in your past, you are friends forever and you can always ask a favour from your friend. This is valid also in the business relations. In the site, if you run out of some material, you can borrow it from your competitor. These kinds of strong personal relations mean that we [from another culture] have to be very careful about what we say. Tomorrow other companies are aware of what you said.

The Eastern European meeting behaviour also differed from the Northern European approach. It was important for the local contractors that the official protocol of a meeting was strictly followed. In addition to the official agenda and official protocol, unofficial and informal discussions and meetings were held and important project decisions were made in those meetings. In the event decisions were agreed in the official meeting without a pre-agreement, the agreement was verified after the official meeting with informal discussions to involve more personal commitment. The project personnel of the turnkey contractor had to learn how to verify the decisions in the Eastern European business environment where many, often conflicting,

Table 2 Risk Sources, Empirical Examples, and How Risks Were Experienced in the Project When Risk Sources Related to High Uncertainty

Risk source related to high uncertainty	Descriptions of the risk source	Empirical examples	Implications
High turnover of project personnel.	Unclear project practices.	Turnkey contractor and its main contractor changed most of their project personnel by the end of the first year of the project.	Project practices had to be renegotiated between the turnkey contractor and the end customer and between the turnkey contractor and its main contractor.
	Unclear big picture of the project.	The turnkey contractor and its main contractor changed most of the project personnel by the end of the first year of the project.	Past experience and the overview of the project were lost due to the high turnover of project personnel.
Unclear roles of project participants.	Not clearly specified roles.	In the contract responsibility of one task was specified for several actors.	In the case of a dispute, the contract specifications could not be used to solve the problem.
Undeveloped inter-organisational relationships between actors.	Relationship between the turnkey contractor and end customer.	For the turnkey contractor the relationship was new and strategically important.	Turnkey contractor gave non-realistic promises (too tight project schedule) to get the contract with the strategic new customer.
	Relationship between turnkey contractor and main contractor.	Main contractors were selected only for this project.	Main contractors' weak financial situation caused problems for project execution. Main contractors opportunistically maximised their benefits in this project and did not consider long-term relationships with the turnkey contractor.
Lack of information about the country environment.	Permitting process.	Lack of knowledge of the local permitting process.	The turnkey contractor, main contractor, and end customer were not familiar with the permitting process.
	Local suppliers.	Lack of knowledge about the local market.	The turnkey contractor did not have a network of potential qualified material suppliers.

interpretations were present. Despite delays and problems in project execution, the turnkey contractor was able to maintain good relationships with the end customer by showing a strong personal commitment.

The case project was executed by a complex project network of several actors from different countries and cultures. The end customer executed the project outside its home country with a main contractor that had a different cultural background. The turnkey contractor had two main contractors originated from the home country of the end customer. The two main contractors and the end customer had cultural ties. This complexity was one risk source and was detected in several matters. The turnkey contractor and the main contractors had interest asymmetries. The main contractors opportunistically maximised their benefits in this project and did not consider long-term relationships with the turnkey contractor. The main contractors had a close relationship with the end customer and had a similar business culture because they were originally from the same home country. Because of this close relationship, the main contractors released some of the obligations to the end customer despite not having a contractual relationship with the end customer. This by-passing of the contractual counter partner confused the turnkey contractor but also resulted in a release of some obligations. When the main contractors were not happy with the outcome of a negotiation with the turnkey contractor, a separate mutual deal was made between the main contractors and the end customer. In addition, different actors with different business cultures understood the contract differently and interpreted it based on their own cultural premises. For example, in the case project a local contractor did not start the work until receiving an advance payment even though the payment was not stipulated as a precondition for starting the work.

The local inhabitants formed an important actor in the complex project network. Their behaviour was not considered rational when they started to oppose the project. Despite relevant permissions to build the sites, some individuals argued that the construction sites were dangerous; this resulted in halting construction work for further investigations. Although permission was eventually granted again, time was lost and the extra delay impacted the entire project.

Although the local country environment was identified as a risk source with its basis in uncertainty, the authors also found evidence showing that the local environment was a risk source from the equivocality perspective. The permitting process was problematic in many ways. Equivocality was a prevailing feature in the permitting process that was not analysable and was based on stable institutional manners and causality. The process was vague for all the actors, including the local participants. Equivocality relating to the local environment was also perceived in the behaviour of the main

Table 3 Risk Sources, Empirical Examples, and How Risks Were Experienced in the Project When Risk Sources Related to High Equivocality

Risk source related to high equivocality	Description of the risk source	Empirical examples	Implications
Cultural differences.	Eastern and Southern European culture and business culture were not well known to the Northern European project participants of the turnkey contractor.	Managing via personal relationships.	For Eastern and Southern European project participants, personal relationships are important in the business. Strong personal power inside the Eastern and Southern European companies.
		Reacting to conflicts by showing emotions.	The end customer showed its disappointment with strong emotions when the progress of the project was behind schedule.
		Shadow agenda and shadow agreements.	A formal protocol was followed in the meetings but important issues were discussed and agreed informally before or after the formal meetings.

Continued on the next page

contractors. For example, the main contractors initiated a strike to improve their contractual position with the turnkey contractor and to increase the scope of their supply. The turnkey contractor's project manager described this as nonrational and unexpected behaviour. Risk sources, the description of the risk source, and its implications for the project are presented in Table 3.

Based on our analysis, the risk sources were categorised depending on whether uncertainty or equivocality was a dominant attribute of the situation. Four risk sources – (1) high turnover of the project personnel, (2) unclear roles of the project participants, (3) immature inter-organisational relationships between the actors, and (4) the lack of information about the country environment – were perceived as risk sources having their bases in situations where uncertainty is the predominant attribute. On the other hand, three risk sources were found to have their bases in situations where equivocality was the prevailing contextual feature: (1) cultural differences, (2) complex network of different actors, and (3) unstable country environment. In a complex project, contingency factors are manifold, and risk sources can have their bases in both uncertainty and equivocality.

Table 3 *Continued from the previous page*

Complex network of different actors.	Conflicting goals.	The turnkey contractor and its main contractor had interest asymmetries.	The main contractor opportunistically maximised benefits in this project and did not consider long-term relationships with the turnkey contractor.
	Close relationship and similar business cultures between main contractor and end customer.	Tendency to agree issues without contractual relationship.	The main contractor utilised its close relationship with the end customer to maximise its benefits and income by-passing its contractual relationship with the turnkey contractor.
	Local citizens.	Not rational behaviour.	Although the turnkey contractor had building permission, some individuals agitated the public to oppose the project.
	Many actors of different cultures and countries.		Many contractors from different countries and cultures partly brought to the host country based on project managers personal mature business relationships.
	Deviating interpretations of the contract.	Deviating interpretation of contract effectiveness.	Contractors did not start to work before an advance payment was made.
Unstable country environment.	Permitting process.	Lack of stable institutions and causality.	No actors were aware of the different steps of the permitting process and its causality.
	Behaviour of the subcontractor	Main subcontractor's opportunistic behaviour.	Main subcontractor was on strike to get a larger scope.

Discussion

Realised risks of the case project were analysed and risk sources were categorised based on the prevailing features of the situations. A high turnover of project personnel, unclear roles of the project participants, undeveloped inter-organisational relationships between the actors, and a lack of information about the country environment were perceived as risk sources having their bases in situations where uncertainty is the predominant attribute. Cul-

tural differences, complex network of different actors, and unstable country environment were found to be risk sources having their bases in the equivocality of the situations. It was also found that a risk source can have its basis in both uncertainty and equivocality.

In the project risk management literature, uncertainty is defined as the main cause of risks (Ward and Chapman, 2003). Project risk management tools are used to handle risks that have their bases in uncertainties. Furthermore, it seems that the majority of these tools (Project Management Institute, 2008; Association for Project Management, 2006; Chapman & Ward, 2003) are formal ones based on the information processing mechanisms needed to reduce uncertainty (Daft & Lengel, 1986). Hence, current project risk management is based on an assumption that further knowledge concerning the environment and project actors are gained when project execution proceeds and this leads to the project plan being revised. The present study complements the existing literature on project risk management by proposing that not only uncertainty but also equivocality is a relevant factor as a basis of project risk sources.

In large engineering projects, project actors and stakeholders form a complex network. This study highlights the importance of taking into account the different and conflicting interpretations that diverse actors of the project network may have in project risk management processes. The existence of contradictory information and different interpretations to be factors that are valid as risk sources were found, particularly in the context of large international engineering projects (Miller & Lessard, 2001; Floricel & Miller 2001; Atkinson, Crawford, & Ward, 2006).

Although equivocality is not explicitly recognised to have a role as a source of risks, in the current project risk management literature discussion risk sources having an ambiguous nature have been recognised (Morris & Hough, 1987; Flyvbjerg et al., 2003) and different approaches for managing risk have been introduced (Miller & Lessard, 2001; Floricel & Miller, 2001; Thiry, 2002). Miller and Lessard (2001) specified a managerial approach that focuses on turbulence and shaping of risk drivers for risks having a nature of utmost complexity. Based on the information processing theory, informal tools are relevant for situations where equivocality exists (Daft & Lengel, 1986). The present study contributes to the existing project risk management literature by indicating that attributes of risk sources should be considered when selecting risk management tools and that informal tools should be preferred in cases where equivocality is the prevailing attribute of the risk sources.

Managerial Implications

Current project management practices are mainly based on a strategy of preparing a solid and detailed project plan based on available information

at the time of the commencement of a project. Project performance is monitored, and the progress is compared to plans. Should any deviations be identified, the project plan is reviewed and modified. Tools for project plan preparation, monitoring, and re-planning are primarily based on formal information processing methods, such as information systems, reports, and planning activities. In addition, project risk management practices and tools are performed according to the principles of formal information processing practices.

In this study it is shown how informal information processing methods are particularly relevant in complex project networks and circumstances with equivocality and ambiguity as the prevailing features. In this context, informal tools, such as group meetings, integrators, and direct contact communications, can be the most effective and practical tools for project risk management. Face-to-face risk meetings for risk identification and risk response planning are occasions where different, ambiguous, and conflicting interpretations can be discussed and a consensus on relevant issues and questions can be reached. Direct contacts of representatives of different project actors are forums for discussions to reduce equivocality and to get common understanding of contextual situations. These informal processes can be facilitated by integrators who can also be outsiders to the project.

Conclusion

Managing and evaluating risks is essential for project management. Traditionally, uncertainty has been recognised as a source of risks. Information processing theory also recognises equivocality to be an important factor for the need of organisations to process information when ambiguity prevails and multiple and conflicting interpretations exist. Here risks in a large complex engineering project, concentrating particularly on the evaluation of sources of risks were analysed.

The results of this study indicated that sources of risks can be divided into those having their basis in uncertainty and those with their basis in equivocality. A high turnover of project personnel, unclear roles of project participants, undeveloped inter-organisational relationships between actors, and the lack of information about the country environment were perceived risk sources that were found to have their bases in the situations where uncertainty is the predominant attribute. Cultural differences, a complex network of different actors, and an unstable country environment were identified as risk sources having their bases in situation equivocality. The results of this study indicated that a single risk can have its basis in either uncertainty or equivocality or both. Uncertainty is typically taken into account in project management. Nevertheless, equivocality also has an impact on large engineering projects, as some relevant risks have their basis

in situations of multiple and conflicting interpretations rather than a lack of information.

The implications of this study complement the existing literature on project risk management by highlighting how equivocality is a relevant factor in addition to uncertainty. Practitioners and interested academics may find it beneficial to consider the attributes of risk sources in relation to risk management and related tools for information processing. For example, utilising informal tools may be beneficial when equivocality is the prevailing source of risk. The limitations of this study include the analysis of only one large engineering project and the low number of interviews. Future research should include analysing different types of projects in conjunction with risks, equivocality, and uncertainty. The use and effectiveness of different project risk management tools and practices for risks having uncertainty or equivocality as bases of risk sources would also be an interesting line of research. Applying frequency analysis on a larger sample of companies might also strengthen the current understanding of evaluating sources of risks and the roles of equivocality and uncertainty in project context.

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Consumers' Knowledge about Product's Country-of-Origin and Its Impact upon Sensorical Product Evaluation

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The aim of the research was to determine consumer perceptions of food products regarding the knowledge about the product's origin and the potential impact on the sensorical evaluation of other product properties. The research results represent a deeper investigation of the impact of origin on consumer perceptions. An integrated approach to the research of impacts of product origin was chosen in order to form interlinks between knowledge about product origin and its other sensorical properties.

Keywords: consumer behaviour, country-of-origin, experiment, food product, knowledge, knowledge management

Introduction

In an international research the known origin of a product has proved to be one of the more important factors in product distinction and selection of consumers and, by that, of the competitiveness as well. The investigation of the impact that country-of-origin (COO) has on consumer behaviour in the buying decision-making process became topics especially in the second half of the twentieth century and was studied by different authors, Bilkey and Nes (1982), Han and Terpstra (1988), Kaynak, Kucukemiroglu, and Hyder (2000), Papadopoulos and Heslop (2002), Balabanis and Diamantopoulos (2004), Vukasovič (2014).

Reasons why the COO influences the buying decision are diverse and concern the knowledge of a product group, as well as the knowledge of a certain country. Modern consumers choose among many products, produced in different countries around the world. Consumers' responses to this fact are different and depend upon their personal nature and opinion, as well as other external factors.

COO affect can be defined as any influence that the country of manufacture has on a consumer's positive or negative perception of a product. With increasing availability of foreign goods in most national markets, the COO cue has become more important, as consumers often evaluate imported

goods and competing domestic products differently (Bilkey & Nes, 1982).

Nowadays, more companies are competing on the global market. They manufacture their products worldwide and the location where these products are manufactured might affect the perception of the consumer on the quality of the product based on the country of production. Consumer perceptions on the COO affect play a major role in influencing a consumer's choice of a product. The impact of the consumer's perception on COO may also influence a multinational in deciding which foreign country should be its manufacturing base, apart from considerations of cheap labor costs, tax incentives, access to resources, etc.

A research of consumer purchasing behaviour also encroaches on product origin and its impact on the buying decision-making process, a country's image formed in the consumer consciousness, ethnocentrism, patriotism, and consumer purchasing behaviour in individual countries. During the past several decades, COO research has attracted significant attention of researchers and practitioners alike around the globe. A part of the reason for this continuous interest in the subject area is attributable to the increased global competition among foreign firms operating in different parts of the globe.

These firms, in most cases, do not only offer more assortment variety, but also offer very competitive prices. This, coupled with increased standards of living and improved lifestyles of consumers around the world, the improvement of global communication and increased use of Internet-based communication means that the target customers in the worldwide market are exposed to and are selecting from a wider range of foreign products than ever before (Kaynak & Kara, 2000).

Knowledge management is very important and a key factor for successful and efficient businesses because of globalization andof the need for a quick response of companies, due to consumers changes in the market. Knowledge management is required due to customer orientation through the provision of services, mobility of workers and the adoption of modern knowledge in a new way because of the rapid development of technology and competitive matches between firms. From all of the above, effective use of knowledge is needed.

The paper is structured as follows. First the study starts with a review of the literature pertaining to the COO impacts and continues with the COO evaluation during the past several decades and about the importance of knowledge and knowledge management in the process of product evaluation. Next, the paper summarizes the used methodology to collect and analyse the data and discusses the main findings of the study. The paper concludes with the implications of the research for both theory development and managerial practice.

Literature Review

The COO is generally considered as an extrinsic product cue (Bilkey & Nes, 1982; Hong & Wyer, 1989; Cordell, 1992). Consumers are known to develop stereotypical beliefs about products originating from particular countries and about the attributes of such products. Therefore, the COO image has the power to arouse importers' and consumers' belief about products attributes and to influence evaluations of products and brands (Yasin, Noor, & Mohamad, 2007). The most important in the light of marketing praxis is to understand a reflection of COO in consumer buying behaviour. Still, some previous studies prove that COO influences consumer perceptions of product properties or product groups, consumer preferences and consumer behaviour in buying decision processes. At the same time, results of previous studies show that a known COO is the key factor in consumer buying decision processes for consumables (Becker, Benner, & Glitsch, 2000; Sismanoglou, 2011; Aral et al. 2013; Vukasovič, 2014).

Based on published research and literature review, it was determined that impacts of COO were to be studied in five most important directions:

- The most researched topic was an image of a certain country from a foreign consumer's point of view (lives in another country);
- The second largest research topic was ethnocentrism and relationship between domestic and imported products, as well as the importance of a threat that successful countries represent in a local environment;
- A smaller proportion of studies (10%) discussed the product country image, based on consumer perceptions and beliefs;
- Even smaller proportion of empirical studies discussed the impact of a product's origin in relation with the factors like trade mark and price. A smallest proportion of studies dealt with the importance of national images in inter-organizational branch buying-decisions.

A research dealt with the impact of COO on product evaluation has taken three approaches from the current marketing literature. The latter are single-cue studies, multi-cue studies and conjoint (trade-off) analysis. In recent years, a fourth approach is emerging, namely environmental analysis, which links consumer product perception and/or evaluation of an impact and/or influence of a selected number of environmental factors. In single-cue COO studies, when evaluating a product a consumer bases his/her decision on both intrinsic (i.e. taste, shelf life, design) and extrinsic (i.e. price, trade mark name, service) cues. Those researchers who used multi-cues, on the other hand, designed their studies in such a way that COO is one of the factors amongst a variety of influences a consumer considers when making a

selection and an ultimate purchasing decision. To overcome the shortcomings of the first two groups of COO studies, a third group of researchers proposed the usage of a conjoint (trade-off) analysis, where a researcher tries to measure how much consumer's value a respective product attributes. The last mentioned research approach – environmental analysis – looks at the impact of various environmental factors on consumers and/or on company decision makers. To this end, the conjoint research of COO is more behavioural-oriented, whereas the environmental analysis is more related to the environmental impact on consumer decision-making (Kaynak et al., 2000).

Knowledge is defined as all of the information that someone pressed into the consciousness of learning and studying. In the development of the field of study of knowledge management, there is a new sharing of knowledge. One of the most important knowledge sharing is a division of implicit and explicit knowledge. Knowledge is the individual's capacity that is essential for the assessment based on an understanding of context or theory. Knowledge can be defined as valuable information that is placed in context. When knowledge is connected with our own intuition derived from previous experience, we come to the wisdom gained through practice and experience.

Marketing knowledge is the foundation of marketing discipline, but a general definition of marketing knowledge is difficult to establish (Rossiter, 2001). A detailed definition of marketing knowledge is very important for its further development. As early as 1988 the American Marketing Association (AMA) stated in its report that there was a lack of effort aimed at the systematic development of marketing knowledge and so it triggered a debate on the generation, transmission and use of marketing knowledge (Churchill, Garda, Hunt, & Webster, 1988). Rossiter (2001) listed four types of marketing skills, namely marketing concepts, structural frameworks, strategic and research guides. Later Rossiter (2002), at the initiative of his colleagues, added a fifth form, namely empirical generalizations. According to his opinion, marketing knowledge is developed and expanded by academics and consultants, companies and managers. He assumed that the marketing knowledge is declarative ('know-what'), which means that it is based on facts, it is a separate entity and thus independent from the individual's ability to apply this knowledge in practice. From his definition of marketing knowledge, he also excluded tacit knowledge (values, beliefs, ideas, experience), data and the individual's ability or general mental ability, respectively.

When we talk about knowledge management, we are talking about the top management on one hand and the management of knowledge of every individual and across the organization on the other hand. Both areclosely intertwined. The enterprise knowledge management usually means

Table 1 The Sample Structure Regarding Gender

Gender	Participants		
	Group 1	Group 2	Total
Male	15	15	30
Female	15	15	30
Total	30	30	60

the systematic management and thus rational use of knowledge. It is a great technical and organizational challenge, which requires the development of appropriate human relations, as well as its effective integration with a wide range of new technological opportunities. The business world has fully adopted the belief that knowledge has become one of the most strategic resources of the organization, especially as a major factor in the competitiveness and performance of the company.

Research Design and Sample

Method and Sample

The paper focuses on the analysis of connections between food product origin and its consumer sensory evaluation. The aim of the research was to determine consumer perceptions of food product regarding its COO and to determine whether a known COO influences the sensory evaluation of other food product properties. A review of the existing literature and detailed research field – studying and analysing the connections between product COO and product sensory evaluation – arouse the basic research question: how is a food product perceived by consumers regarding its COO? The main hypothesis in the research was that, generally, a consumers' knowledge about product's COO results in better sensorical scores of its properties, respectively. Sixty persons were included in the research carried out at the central location of Slovenia's capital, Ljubljana. The participant were consumers of food products and were randomly divided into two groups of the same size ($N_1 = 30$, $N_2 = 30$). A structure of the sample consisting of participants was orderly regarding gender and age. The whole sample, as well as each defined group, had the same orderly structure. There were no age restrictions for the study, although all consumers were adults and most of them aged between 20 and 55 years. In order to ensure the same conditions in both groups, 50% of the consumers were males and 50% were females (Table 1).

Data was collected during the experiment. The established problem solving was exploratory. A question bank was selected for an *a priori* measurement of various scores for food product properties. The participants evaluated the selected properties by using a Likert scale. The questions were answered anonymously.

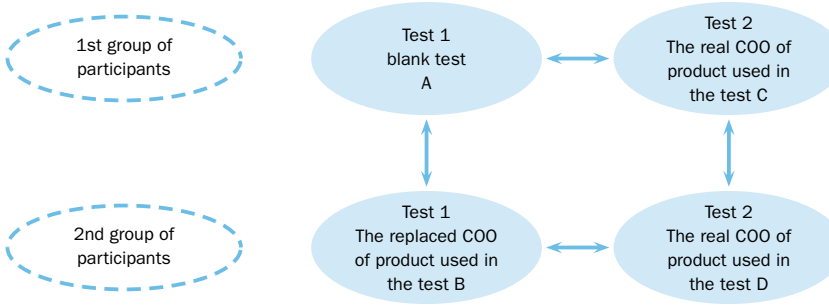

Figure 1 The Groups of Participants in the Tests and Comparison between the Tests

From a strict research point of view the basic conditions for performing an experiment are the following ones (Breakwell, Hammond, & Fige-Schaw, 2000; Churchill, 2002):

- participants are randomly selected from the population;
- participants are randomly assigned to experimental conditions;
- an independent variable is changed by a researcher;
- time series should be considered;
- at the same time a value of an independent variable is changed and other relevant variables are controlled.

Two different conditions were taken into account in the described groups of the participants, which is presented in Figure 1. Three product types from various countries were tasted in all the tests and evaluated by a range of questions.

Data Analysis

A multiple analysis of variance (ANOVA) was used to analyse the data of repeated measurements, which is the main statistical tool for accepting or rejecting research hypotheses (Frewer, Risvik, & Schifferstein, 2001). It was determined that the analysis of variance is a statistical analysis frequently used in researches dealing with consumables (Jones, Drake, & Harding, 2008). In the experiment nine dependable variables (product's properties) were observed together with three independable variables (group, product type and test type). A central problem that needed to be solved was a simultaneous comparison of differences in undependable variables. Namely the differences could also be compared in each undependable variable separately (e.g. differences of dependable variables among product types, regardless of a group and a test). By that important information of possible interaction between two undependable variables would be missed. The ninth

question was about a general evaluation (score) of product. The question included all previous eight questions regarding product quality.

The first method we thought of was analysis of variance. Roughly this is a method used to determine a probability that differences between arithmetic means of dependent variables of several experimental groups are caused by sampling errors only. In other words, a variance of the results within the observed groups (the independent variable) is compared with a variance between the groups. A within-groups variance is called unexplained variance and, as a rule, it should not be greater than a between-groups variance (the latter reflects effects between groups).

Analysis of variance enables the observation of only one dependant variable (variate), so it belongs to the group of univariate methods for data analysis. In our case, there were more dependant variables that we wanted to observe simultaneously. In this case, a suitable method was the multiple analysis of variance, which enables observation of more variates (a multivariate technique). The second characteristic of the model was repeated measurements. A technique of multiple analysis of variance for repeated measurements was used. This technique divided the mentioned error variance or variation within the observed groups respectively to variance among procedures (independent variables) and residual variance.

In order to carry out the mentioned analysis, the results of dependent variables must be normally distributed, covariance matrices between groups must be equal and there should be linearity and multicollinearity between dependable variables. One of the requirements of the experiment that was met was the use of the Latin squares table and rotation of the questions and conditions in the market research slang. The Latin square designs consist of blocking of experimental units into rows and columns, so that each treatment appears once in a row and once in a column. The blocking by rows and columns is effective for controlling the variability among the experimental units (Gacula & Singh, 1984). The Latin squares technique is used in social and behavioural research, where the effect of successive stimuli presentation in repeated measurements is nullified. In order to correctly carry out the analysis of variance, a minimum of 20 people in each cell is requested. In the presented models, there were 30 people in each cell. This was the last requirement for the correct data analysis that was met. The described technique does not enable the correct analysis of the whole experiment, because the second test was the same for both groups of participants. This is why the difference analysis was first divided into two equal, independent parts regarding the group of participants. By that the testing of the main hypothesis regarding the impact of product origin on evaluation of other product properties was assured.

A Latin square table was used for rotating the questions. Variables rep-

resenting separate questions were scored by 1–5 scale where 1 means the least desirable property and 5 represents the most desirable property. The first nine questions were asked in all tests. The last three questions (packaging, trade mark in manufacturer) were answered in the test where the product of known origin was tested.

The independent variables were derived from the following facts:

- The sample of 60 persons was randomly divided into 2 more detailed groups (regarding gender and age). Each group was exposed to different stimuli. In all the tests the participants tested three types of products.
- Each group of participants participated in two different tests.

Three independent variables were derived from the stated above:

- 1st variable a *group* of participants – two groups;
- 2nd variable a *type of product* – three types;
- 3rd variable a *type of test* – two tests.

Within the second and the third independent variables, the results for dependent variables were obtained from the same participants. A combination of the conditions in the first and the second group were the same for all sixty participants. There was an experimental model for the repeated measurements for the second (product type) and the third (test type) independent variables.

Results and Discussion

In this part of the research, the basic descriptive statistics, useful to interpret the result interpretation, are listed. The research results were partially presented at a scientific conference International Food Marketing Research Symposium (Vukasovič, 2015). The results of nine questions (dependent variables) in blind trials or the results of twelve questions respectively (dependent variables) are compared in the trial with the known/visible COO. In both, i.e., in the blank trial, as well as in the trial using a known/visible COO, all three product samples were evaluated by a set of questions used for evaluation of likeableness of a certain product property. Variables representing separate questions were scored by Likert's scale where 1 means the least desirable property and 5 represents the most desirable property. Scores, used for likeableness of a certain product property, were the basis for the arithmetic mean calculation of the dependent variables. First, the arithmetic means of the scores and the standard deviation of all dependent variables and differences in scores regarding the trial were analysed. Changes of average evaluation of separate properties and similarities of

Table 2 The Average Score for Separate Properties of Different Product (Blank Test)

Category	Product A	Product B	Product C
Taste	3.03	3.26	3.42
Safety	3.32	3.10	3.23
Hardness	3.77	3.29	3.68
Price/kg	3.23	4.06	2.74
Colour	3.00	3.23	3.71
Fat content	2.39	3.10	2.94
Quality	3.32	3.39	3.65
Shelf life	3.77	3.32	2.94
General score	3.29	3.39	3.65

Notes Group 1, test 1 (blank test): A – the Italian food product, B – the Croatian food product, C – the Slovenian food product.

the scores regarding product type are presented in Tables 2, 3 and 4. By way of detailed statistical analysis, it was established whether the information about the origin of product had a statistically significant influence on the evaluation of the selected properties of product. There were differences between the blank trial and the trial with replace and the known/visible product origin. The changes in average grading of the selected properties of products in the blank trial are shown in Table 2.

In the blank trial (Table 2), it was determined that the arithmetic means of the estimated samples of products were similar for the four evaluated properties: safety, fat content, quality and general score. Differences among samples A, B and C were determined in the sample C for variables taste, shelf life and price per kilogram. In the blank test, it was determined that the average score for the product type C (from Slovenia) is generally the highest or very high, respectively. At the end of the blind trial, the respondents were asked which of the samples were of Slovenian origin. Nearly 42% of the respondents were able to identify the product of Slovenian origin. We assume they were led by likeableness and recognition of taste of the Slovenian product.

In the test with the replaced COO, the participants scored product B, which was Croatian, but was labelled with a Slovenian trade mark of a Slovenian manufacturer (the replaced COO), very high. It was determined that the trade mark and COO positively influence the product perception. The participants evaluated the tasted and scented product properties higher, when the latter were labelled with a Slovenian trade mark and as of Slovenian origin (Table 3).

In the next step, the respondents answered the questions regarding the property assessment of the product of the known COO. The respondents were informed about the COO of the product in separate tested samples

Table 3 The Average Score for Separate Properties of Food Product (the Test with the Replaced COO)

Category	Product A	Product B	Product C
Taste	2.97	3.68	3.35
Safety	3.13	3.74	2.94
Hardness	3.74	3.45	3.45
Price/kg	4.00	2.58	2.90
Colour	2.81	3.68	3.32
Fat content	2.39	2.55	2.84
Quality	3.13	3.68	3.29
Shelf life	3.35	3.13	4.10
General score	3.16	3.71	3.29

Notes Group 2, test 1 (the replaced COO): A – the Croatian food product, B – the Slovenian food product, C – the Italian food product.

Table 4 The Average Evaluation in the Both Groups of Participants

Category	Product A	Product B	Product C
Taste	3.05	2.90	3.48
Safety	2.85	3.19	3.55
Hardness	3.34	3.03	3.34
Price/kg	3.06	3.92	2.71
Colour	3.05	3.34	4.00
Fat content	2.76	2.74	2.63
Quality	3.08	3.08	3.60
Shelf life	3.98	3.32	3.05
General score	3.11	3.27	3.69
Packaging	2.40	2.76	3.94
Trade mark	2.48	2.44	4.32
Manufacturer	1.47	1.44	4.69

Notes Group 1, test 2 (the real origin): A – the Italian food product, B – the Croatian food product, C – the Slovenian food product. Group 2, test 2 (the real origin): A – the Italian food product, B – the Croatian food product, C – the Slovenian food product.

by way of the original packaging, which was, for this purpose, set on the table for each sample separately. The arithmetic means of product scores from the test with the known/visible COO was used are presented in the following section.

Table 4 shows the average evaluation in the second test for both groups of participants ($N = 60$), where product of the known COO was evaluated. The results undoubtedly show that the Slovenian product was evaluated much higher than the other two product types. The high scores came from knowing the manufacturer. Table 4 shows the average values of the observed variables. The average values for the variables packaging and trade

Table 5 *t*-Test for Differences between the Arithmetic Means of even Samples (the Repeated Measurements)

Item	Product C – product A	Product C – product B	Product A – product B
Packaging	12.02*	7.85*	–2.81*
Trade mark	12.94*	14.96*	$0.43^{0,67}$
Manufacturer	17.02*	16.33*	$0.27^{0,85}$

Notes * Statistically significant at the 1% level. Superscripts denote sig. (2-tailed) differences between the pairs. $df = 999$.

mark for the product type C are much higher than for the other two product types. Consumers' knowledge about the manufacturer, packaging and trade mark have had impact upon sensorical product evaluation for the product type C. First, we were interested in whether the participants differently (statistically significant) answered the questions when asked about different product types. It was determined that the lower trust limit for Slovenian product (product type C) is much higher than the upper trust limit for the other two product types. Thus in those two questions the Slovenian product was highly probable scored much higher than the other two product types. This finding could be confirmed by *t*-test for differences between arithmetic means of even samples (the repeated measurements) (Table 5).

Statistically significant differences between the arithmetic means were found for all comparisons between different product types, except for the last pair A–B. This comparison actually showed that the scores for the variables packaging in trade mark could possibly be close together. It was determined that the participants evaluated the variables packaging and trade mark for the Slovenian product statistically significantly higher than for the other two product types of foreign origin.

The main hypothesis in this research was as follows: *Consumers' knowledge about a product's COO generally influences the evaluation of the product properties.* The main hypothesis was tested by the results obtained by repeated measures MANOVA, separately for both the first and the second group of participants. In the first group of participants, the product of unknown origin was first tested and later, in the second test, we tested the product of known COO. If there were differences between the tests, it can be said that the evaluation of other product properties was influenced by COO. When all the dependant variables were included at the same time, there were no differences between the tests. The affect of COO did not have a significant influence on differences between the tests either. On the whole, there were no differences there. Each variable was separately checked and univariate testing was used to determine whether there were differences in scores between the tests. Variable had significance level lower than 0.05 was checked for the variable test. Only the variable hardness had signif-

Table 6 The Multivariate Test: The Second Group of Participants

Within subjects effect		Value	*F*	Hyp. df	Error df	Sig.
Product	(1)	0.812	4.615	16.000	108.000	0.000
	(2)	0.338	4.768[a]	16.000	106.000	0.000
	(3)	1.513	4.917	16.000	104.000	0.000
	(4)	1.114	7.517[b]	8.000	45.000	0.000
Test	(1)	0.437	2.229[a]	8.000	23.000	0.063
	(2)	0.563	2.229[a]	8.000	23.000	0.063
	(3)	0.775	2.229[a]	8.000	23.000	0.063
	(4)	0.775	2.229[a]	8.000	23.000	0.063
Product *x* test	(1)	1.020	7.019	16.000	108.000	0.000
	(2)	0.233	7.090[a]	16.000	106.000	0.000
	(3)	2.202	7.157	16.000	104.000	0.000
	(4)	1.460	9.855[b]	8.000	54.000	0.000

Notes [a] Exact statistic. [b] The statistic is an upper bound on *F* that yields a lower bound on the significance level. Row headings are as follows: (1) Pillai's trace, (2) Wilks' lambda, (3) Hotelling's trace, (4) Roy's largest root.

icance level lower than 0.05. We wanted to determine a change in the average score for product hardness between the two tests. Results show that in the first test the participants evaluated a product to be softer than in the second one. Therefore COO negatively influenced evaluation of product hardness.

The second group of participants first tested product of the replaced COO and, after that, the product of known origin. We were interested in the differences between the tests due to changes in COO. The differences were expected, since in the first test the product type B was presented as a Slovenian product and later, in the second test, as a Croatian product. In that case, there was an interaction there – the impact of the product type on the test type. A statistically significant interaction between product and test is evident from the results presented in Table 6.

To the main hypothesis confirmation we can add that the consumers' knowledge about product's COO generally influences the evaluation of some product properties only in the first test. The consumers' knowledge about a product's COO importantly influenced the evaluation of product hardness. In the second test, COO had an important impact on evaluation of variables taste, safety, price, colour, quality and shelf life, between two tests.

In the existing literature, there is a proliferation of studies to document country-of-origin perspectives. From these studies, market and consumer behaviour researchers generally accept that a product's or brand's country-of-origin is an important factor, influencing the consumer decision-making process (Khachaturian & Morganosky, 1990; Knight, 1999; Piron, 2000). Most of the studies suggest that country-of-origin information, which is

indicated by 'Made in ...' labels, serves several purposes in consumer decision-making processes. It acts as a salient attribute in a consumer product evaluation (Johansson, 1989), it stimulates the consumer's interest in the product (Hong & Wyer, 1989), it affects behavioural intentions through social norms and it influences buyer behaviour through affective processes, as in the case of consumer's patriotic feelings about their own country (Han & Terpstra, 1988). The overall evaluation of products is influenced by country stereotyping, that is, the image that consumers have about a certain country will influence their perceptions of products from that country (Bilkey & Nes, 1982; Vukasovič, 2009).

Conclusions

In the research a correlation model for COO and consumer perception were formed and empirically tested. By testing the correlation model with multiple analysis of variance for repeated measures, it was determined that there was a statistically significant correlation between the factors. An influence of the COO on other product properties was determined as well. At the same time, a positive perception and knowledge of trade-mark of a Slovenian manufacturer was determined, because information regarding the Slovenian manufacturer and Slovenian origin had an impact on higher scores for the tested product properties.

The important contribution of the research is the surveyed issue and the approach to researching the impact of product origin on the scientific field of marketing and on the field of consumer behaviour. The research represents a deeper investigation of impact of COO on consumer perceptions. In particular, the research contributes importantly to the discussed issues by using the conceptual model in the scientific research, which combines separate product properties with effects of its origin. An integrated approach to the research of impacts of product origin was chosen in order to form interlinks between product origin and its other sensorical properties. The research results support manufacturers and marketing managers in understanding the role of COO in the domestic and international high-volume mass market.

A certain amount of restraint is needed in coming to conclusions based on the research results, since the sample was divided into two equally small groups and each group was separately exposed to different factors and separately tested. As a consequence, the group was artificially halved and the importance of results was decreased at the same time, but diversity in comparisons was gained. The mentioned research should be considered in the light of the methodology of scientific research, as the way of obtaining a result is sometimes more important than the power of its results in itself. Therefore, in the future, it would make sense to use one (blank test) of the models for a total population sample. By that, the results would gain recognition. We also believe that the model used in the research could be

utilized for other products and other target groups, although its correlation results would probably be different.

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Transfer of Training: A Reorganized Review on Work Environment and Motivation to Transfer

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Effective application of skills & knowledge gained from a training program to a job situation, i.e. transfer of training, has become a great concern in training issues. Transfer of learned skills at the actual workplace is subject to a number of factors, with work environment being one of those factors. Research has shown a relatively profound role of the work environment in delineating the construct of transfer. However, some of the most important characteristics of the work environment have arguably remained under-researched and are still going empirical testing. So, in earnest, this paper is an attempt to make a holistic review of the literature and methodology by going through summative, formative and meta studies published from 1988–2014 on transfer. This paper proposes a conceptual framework by recognizing the influential role of two forms of work environments (i.e., support and climate) on transfer of training, taking into account the mediating role played by transfer motivation with recommended methodological standards.

Keywords: training, learning, transfer of training, work environment, motivation to transfer

Introduction

Training has been recognized as one of the most frequently encountered human capital development interventions (Chiaburu & Tekleab, 2005), and typically described as 'that planned intervention which is designed to enhance the determinants of individual job performance' (Campbell & Kuncel, 2001). Moreover, it has been emphasized that 'the main goal of training is not only to provide, obtain and improve the necessary skills but also help organizations achieve their goals and create competitive advantage by adding value to their key resources' (Nikandrou, Brinia, & Bereri, 2009). Research bears witness to the fact that organizations are spending billions of dollars on training (Holton, Rouna, & Leimbach, 1998) with the expectation that it will enhance employee's performance, maximize quality and productivity

of work, increase profits, minimize staff turnover, improve customer satisfaction and improve motivation (Yamnill, 2001; Velada, Caetano, Michel, Lyons, & Kavanagh, 2007).

From the extant literature, it is evident that regardless of these large investments, organizations remain unsure about the extent to which employees perform differently once back on the job (see, for example, Blume, Ford, Baldwin, & Huang, 2009). In most cases it has been found that only a small proportion of learned skills are actually transferred back to the job (Pham, Segers, & Gijselaers, 2010) and it is acknowledged to be the paramount concern of organizational training initiatives (Baldwin & Ford, 1988; Tannenbaum & Yukl, 1992). Unfortunately, estimates suggest that only 10 percent of the expenditures typically result in transfer of learned behaviors (Georgeson, 1982; Baldwin & Ford, 1988; Holton & Baldwin, 2003; Kupritz, 2002; Velada et al., 2007). In fact, researchers (see for example, Facteau, Dobbins, Russell, Ladd, & Kudisch, 1995; Burke & Baldwin 1999; Wexley & Latham, 2002) have revealed that 40 percent of the skills learned by trainees from the training program is immediately transferred at work, while 25 percent remain for a time period of six months and only 15 percent for a year. Therefore, from the above estimates it is clearly evident that investments on learning continue to yield deficient results (Burke & Hutchins, 2007), thereby making transfer a critical issue for both practitioners and researchers (Holton, Bates, & Ruona, 2000; Burke & Hutchins, 2007).

Notably, the importance of the issue of transfer of training in work organizations can be seen by the scholarly interest shown in regular publication reviews (see for example, Baldwin & Ford, 1988; Ford & Weissbein, 1997; Cheng & Ho, 2001; Russ-Eft, 2002; Bates, 2003; Alvarez, Salas, & Garofano, 2004; Merriam & Leahy, 2005; Kopp, 2006; Burke & Hutchins, 2007; Cheng & Hampson, 2008; Blume et al., 2010; Grossman & Salas, 2011). As such, there is no doubt that these published research findings are of value to management, but it is argued that there is still a long way to go for it to reach the culmination (Cheng & Ho, 2001).

Generally, it has been established that the transfer problem is related to training design, trainee characteristics and the work environment (Baldwin & Ford, 1988; Ford & Weissbein, 1997; Alvarez et al., 2004; Pugh & Bergin, 2006; Salas, Cannon-Bowers, Rhodenizer, & Bowers, 1999; Cheng & Hampson, 2008; Brown & McCracken, 2009; Blume et al., 2010; Martin, 2010). Moreover, in the year 1994, Foxon (1994) conducted a study and revealed that, among these three inhibiting factors, learner characteristics and training design and delivery category accounts to 22 percent and 35 percent of variance, while organizational climate was the leading influencing factor accounting to almost 42 percent of the variance.

Researchers have studied various learner characteristics such as self-efficacy (Machin & Fogarty, 2004), locus of control (Noe & Schimtt, 1986) and need achievement (Baldwin & Ford, 1988; Blume et al., 2010), while other studies have included job involvement, motivation to learn, motivation to transfer and cognitive ability (Colquitt, LePine, & Noe, 2000). However, the present review does not focus on learner characteristics, as observed from the study of Foxon (1994) it accounted only to 22 percent of variance.

Similarly, the other influencing construct, i.e., the work environment, has been argued to be a main predictor of transfer of training (Blume et al., 2010; Holton, Chen, & Naquin, 2003) but has been investigated less often than training design or trainee characteristics (see for example, Cheng & Ho, 2001; Burke & Hutchins, 2007; Brown & McCracken, 2009; Alvarez et al., 2004; Baldwin & Ford, 1988; Holton et al., 1998). On one hand, researchers have accentuated the need to explore other hidden variables (Cheng & Hampson, 2008) while, on the other hand, there is a lack of empirical evidence concerning specific aspects of work environment (Clarke, 2002). Notably, in the year 1995, Facteau et al. conducted a study on state government employees and found that constraints posed by work environment severely affect the transfer. The study also revealed that employees were not motivated to transfer knowledge & skills or were simply overwhelmed, if they perceive too many constraints in the work environment. Similar findings could be seen in the study of Quiñones (1997).

Rouiller & Goldstein (1993) proposed two factor structure of work environment constructs, i.e., situational cues and consequences. As second order formative constructs, situational cues possess first order reflective variables such as supervisor support, peer support, equipment availability, opportunity to use learned skills at work, etc. Similarly, as second order formative construct, consequences possess first order reflective variables such as punishment, positive feedback, negative feedback, to name a few. Although, Blume et al. (2010) classified work environment constructs were classified into three different categories: support (peer support, supervisor support), transfer climate, and organizational constraints (lack of autonomy, situational constraints). The majority of studies have, nonetheless, measured work environment constructs by two categories, i.e., support and climate (Abdullah & Suring, 2011). Moreover, a meta-analytic study is not an exploratory analysis which determines the factor structure of a construct and also Blume et al., (2010) acknowledged that organizational constraints' variables were studied only in two studies. Therefore, taking cue from the extant research, the study follows the precise definition given by Rouiller & Goldstein (1993) of work environment as 'situations and consequences that encourage or prevent the transfer of the learned in training process to the workplace.'

Among various work environment dimensions, researchers (see for example, Holton et al., 2000; Olsen, 1998; Xiao, 1996) have found significant relation between social support and transfer of training. While others (see for example, Rouiller & Goldstein, 1993; Tziner, Haccoun, and Kadish, 1991; Van der Klink, Gielen, & Nauta, 2001) have indicated insignificant relationships between a supportive environment and transfer of training. On the other hand, Yelon, Sheppard, Sleight, and Ford (2004) proposed that among transfer climate dimensions autonomy is more effective than any other variable. They argued that autonomous employees develop their own resources and support and may even perform well without feedback. But Hackman & Oldham's (1975) job characteristics model is a well authenticated work in research which emphasizes that the quality of work is determined by an autonomous environment and feedback in carrying out a work including a learned skill.

Similarly, among other antecedents of transfer, Baldwin & Ford (1988) stressed that a person's motivation is hypothesized to influence learning and retention as well as generalization and maintenance. Earlier in 1996, Holton (1996b) differentiated the motivational construct into motivation to learn and motivation to transfer, where the former is thought to be influenced by personality, job attitudes and intervention readiness, and the later by work environment variables. In fact, researchers (see for example, Egan, Yang, & Bartlett, 2004) studied the essential role of work environment in limiting or empowering the motivation to transfer but the mediating effect was not discussed in detail. Therefore, the inclusion of motivation to transfer as a mediator between work environment and transfer of training, which is by large neglected by researchers, assumes more relevance in the current scenario. Indeed, it is still unclear whether motivation to transfer influences relationship between work environment and transfer of training. Therefore, this review taking lead from work environment perspective in general and social support (i.e., supervisory support, perceived organizational support) and transfer climate (i.e., feedback and autonomy) in particular, might contribute to a better understanding of the environment aspects that affect motivation and transfer of training.

Need for the Present Review

The recognition of the importance of training has never been greater than it is today. Training programs can play a critical role in ensuring the quality of people through continuous learning efforts. The training initiatives are expected to improve and sharpen the human skills with an impact on the way of their thinking and doing, thus making the maximum utilization of this valuable resource possible. In 1985, the recognition of the importance of training activities led in India to create the Ministry of Human Resource De-

velopment (Rao, 2004). In India, the importance of training can be seen by the corporate spending amounting to the huge sum of 200 Crore annually, i.e. 30 million (Pareek & Lynton, 2011). Not only the Central Government but States also contribute in its progress. In this context, the HRD Ministry and States in India allocate every year a certain portion of their GDP & SGDP for employee development in general and training in particular.

Since huge financial and human resources are employed for imparting the training programs, therefore, it becomes mandatory to examine the factors particularly in work environment which influence its outcome. It is only by way of studying that the actual picture of inhibiting/facilitating factors can be brought to fore, so that an improvement can be made. Moreover, as the study on transfer of training in our State is scant, we suppose that certain contributions will be made, which will be of great use for State administrators as well as for future researchers.

Therefore, the present study is undertaken to gain an insight regarding the transfer of skills and knowledge at actual workplace by reviewing the major studies of the past decade, by also highlighting the Summative, Formative and Meta studies on transfer of training. The study makes an attempt to review the literature underlining the impact of work environment factors (i.e., social support and transfer climate) on transfer of training besides attempting to review the extent to which motivation to transfer mediates the relationship between work environment and transfer of training. Moreover, this study attempts to update the researchers to employ standard methodological principles and procedures particularly in transfer studies.

Review of Transfer of Training

In this dynamic era, the fate of a business does not depend on how much credit and debit it creates, but how much commitment, compassion and competence its workforce shows. It is in view of this that the essence of any training program can be understood and sustained, which increases the knowledge, skills and abilities (KSA's) of the trainees. More importantly, the degree with which individuals effectively apply the skills and knowledge gained from a training program to a job situation, i.e., transfer of training, (Wexley & Latham, 1991) warrants the training, but unfortunately this is rare. From the last decade, training evaluation in general and transfer of training in particular has been an enduring problem for psychologists, HRD specialists, researchers and practitioners, to name a few. It is in light of this issue that several transfer models have been proposed by researchers (see for example, Huczynski & Lewis, 1980; Baldwin & Ford, 1988; Mathieu, Tannenbaum, & Salas 1992; Holton et al., 1998). Moreover, researchers (see for example, Mathieu & Martineau, 1997; Elangovan & Karakowsky, 1999; Colquitt et al., 2000) have proposed alternative training effective-

ness models that contain only individual, organizational and contextual factors as antecedents of learning and transfer of learning. However, among them the Baldwin & Ford's model is considered as one of the premier and most frequently cited framework in the transfer of training literature (Brown & Sitzmann, 2011).

Notably, Baldwin and Ford (1988), while examining transfer of training issues, stated that the transfer process consists of three components: training input factors, training outcomes, and conditions to transfer. Training input factors include: individual, design and environmental characteristics, while condition to transfer or transfer outcomes from Baldwin & Ford's (1988) argument does not remain confined to generalizing learned skills to the job but it includes maintaining learned skills over time in the job. In fact, Hamid, Saman & Saud (2012) reaffirmed transfer like far transfer, near transfer and creative transfer actually lead to generalization and maintenance of knowledge. Generally, from a layman's or novice researchers perspective, absence in maintaining knowledge and even generalizing the same can depict that either the intervention is not good enough, or trainees are not good learners or the model is not the correct one. But in 1996, Holton (1996b) totally re-conceptualized the transfer model and operationalized performance outcome, as well as training outcome into two different concepts. Performance outcome measures included motivation to transfer, the design of training and work environment, and training outcome measures were individual learning, individual performance and organizational results. Therefore, Holton's model did address especially one of the biggest risks that arise when training outcomes from a training intervention are positive but on-the-job performance outcomes remain poor. In his opinion, any failure to achieve outcomes from an intervention would not be attributed to an intervention when it could be due to moderating/mediating variables and work environment variables, like the work climate may be not supportive for transferring skills. Thus, it can be derived from the Holton's model that training intervention needs not to be changed but rather organizational development would be needed. Therefore, the need of the hour is to address the transfer issue based on prominent models that have equally emphasized the importance of work environment and moderating/mediating variables.

Work Environment Influencing Transfer

Transfer Climate

From a recent review Blume et al., (2010) identified that, among the work environment constructs, transfer climate was found to have the highest relationship with transfer (i.e., effect size of 0.27 followed closely by support 0.21). Actually, transfer climate is one of the most intensively studied and discussed situational characteristics in transfer research (Yamnill &

Mclean, 2001; Burke & Hutchins, 2007; Gegenfurtner, Veermans, Festner, & Gruber 2009; Grossman & Salas, 2011), and typically described as those aspects of the work environment that influence training transfer (Rouiller & Goldstein, 1993). It refers to salient organizational characteristics that are an integral part of the work environment like: positive feedback, negative feedback, autonomy, to name a few. Notably, the job characteristic model proposed by Hackman & Oldham (1976) encompassing feedback, autonomy, skill variety, task identity and task significance is said to be in line with the transfer climate framework (Rouiller & Goldstein, 1993). These salient organization and work characteristics are said to be critical to work- and training-related attitudes as well as motivation (Weisweiler, Nikitopoulos, Netzel, & Frey, 2013). Moreover, researchers (see for example, DeVaro, Li, & Brookshire, 2007; Fried & Ferris, 1987; Harvey, Billings, & Nilan, 1985) argued that people who work high on core job dimensions are more motivated, satisfied and productive than those who do not. Within these job characteristics dimensions, autonomy and feedback have been found to have a strong effect on job motivation in general (Hackman & Oldham, 1976) and transfer motivation in particular (Rouiller & Goldstein, 1993). Autonomy given to trainee back at job provides an opportunity to perform freely in order to achieve and improve working results (Hackman & Oldham, 1976), and the higher this opportunity, the more responsible the person feels, the more the person is satisfied and motivated. In a similar vein, researchers (see for example, Colquitt et al., 2000; Egan et al., 2004; Leitl & Zempel-Dohmen, 2006) found that training as well as transfer motivation can be fostered by the feeling of autonomy at the workplace. For that reason, autonomy can be said to be the critical post-training condition, as trainees feel free to outperform newly learned behavior, thereby making it an integral part of learning and training motivation (Weisweiler et al., 2013). Even, Blume et al., (2010) echoed autonomy and feedback as the most important transfer climate constructs influencing transfer, where autonomy makes trainees feel responsible for their work and training results respectively, and feedback supplies them with knowledge about their performance.

Taking cue from the feedback intervention theory (FIT) proposed by Kluger & DeNisi (1996), what it holds regarding transfer of training is that feedback provided on the application of newly learned knowledge and skills is helpful, as it helps to reduce the gap between the current performance and the desired goal of full application. Researchers (see for example, DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004) found the positive impact of feedback on goal setting and positive training outcomes. However, from the social network perspective, what is usually taken into consideration is from how many different sources a person receives feedback, because of its impact on transfer. As recommended in literature, the large number of

people giving diverse feedback fosters transfer rather than only few people giving frequent feedback (Van den Bossche, Segers, & Jansen, 2010). But it has been found that increasing feedback can even be detrimental for learning (see for example, Schimdt, 1991; Russ-Eft, 2002).

No doubt, feedback seems to be more helpful in transfer of skills, but due care should be taken for its maintenance when trainees transfer the learned knowledge and skills, as its inappropriateness may turn out to be counterproductive. However, the recognition of source that fosters transfer is more important, as there is a dearth of research on feedback in transfer of training process (Van den Bossche et al., 2010). Therefore, the study on said variable assumes more relevance in outlining the source (i.e., peer, supervisor), which fosters motivation as well as increases transfer of learned behavior especially following a longitudinal approach.

Based upon the meta-analytic reviews and previous empirical studies, the authors formulate the following proposition:

P1 *Transfer climate will be significantly related to transfer of training.*

Social Support

Support provided by the organizational environment has been found to be the main antecedent of transfer of training (Holton et al., 2003). Particularly, supervisors support has been recognized as the most influencing but the least examined factor in training transfer processes (Blume et al., 2010). In the year 1992, Broad & Newstrom confirmed that, among the three identified major role players in training, managers and supervisors of the trainees acted as a crucial element in the transfer process. Perhaps various researchers (see for example, Birdi, Allan, & Warr, 1997; Burke & Hutchins, 2007; Martin, 2010) maintain that the supervisors support is vital to transfer climate, because they encourage their employees to transfer skills and even help them by removing any obstacles that inhibit skills application (Lancaster, Di Milia, & Cameron, 2013). Among social support a recent study by Blume et al., (2010) indicated that supervisor support has a moderate relationship (0.31) than peer support (0.14), but a word of caution should be taken here as these relationships were based on small sample sizes.

Notwithstanding research arguments supporting the managers' role, there continues to be no unanimity among researchers regarding supervisor behaviors that facilitate transfer (Clarke, 2002; Hawley & Barnard, 2005). Researchers (see for example, Ford, Quiñones, Sego, & Sorra, 1992; Brinkerhoff & Montesino, 1995; Seyler, Holton, Bates, Burnett, & Carvalho, 1998; Bates, Holton, & Burnett, 1999; Cromwell & Kolb, 2004; Hawley & Barnard, 2005) confirmed supervisors support as a significant factor in the training transfer. But recent studies of Van der Klink et al.

(2001), Chiaburu & Marinova (2005), and Blume et al. (2010) revealed moderate or insignificant relationship between supervisors support and training transfer. The reasons for these divergent findings can be attributed to the fact that the managers' role as a boss, mentor and guide actually starts from pre-training, during training and continues in a post training context. Supervisors support is equal to parental support, so organizations should adequately guide supervisors through proper channels to take trainees into confidence from pre-, during and postintervention time.

Recently, an emergent aspect of social support which has received more attention among researchers is trainees' perceived organizational support (POS). Perceived organizational support (POS) is defined as an employee's belief about how much an organization cares about them and their contributions to the organization (Rhoades & Eisenberger, 2002; Aselage & Eisenberger, 2003). Notably, it has been seen that organizational support boosts employee's self-esteem, increases satisfaction and commitment (Ng & Sorenson, 2008), it makes employees feel obligated towards the organization, which, in turn, increases work engagement (Salanova, Agut, & Peiro, 2005). Therefore, employees who observe that their organization supports and values them will exhibit their commitment by being more motivated in training situations and by applying the newly learned behavior (Russell, Terborg, & Powers, 1985; Tansky & Cohen, 2001; Pidd, 2004). In a similar vein, researchers have mainly examined the role of peer support, supervisor support (see for example, Rodgers & Hunters, 1991; Russell et al., 1985), while least attention has been given to perceived organizational support stemming from organization (Chiaburu, Van Dam, & Hutchins, 2010). McCraine (2006) found a positive significant relationship between organizational support and training transfer. However, recently Chiaburu et al., (2010) found that supervisors support positively influences motivation to transfer than organizational support.

Despite any learning from the training program, an unsupportive climate may block the transfer of new learned behavior back to the job. So, the need to examine ways in which organizations may influence perceptions of organizational support among their employees has more relevance in training transfer processes. If supervisors support is equal to parental support, the organizational support then can be equaled to societal support. Therefore, it is evident that trainees who perceive support from both distal (POS) and proximal sources (supervisor support) will be more motivated (to transfer), which, in turn, will be depicted by a generalization and maintenance of training knowledge.

Based on the considerable support emanating from the foregoing literature, the authors propose as under:

P2 *Social support will be significantly related to transfer of training.*

Motivation to Transfer

Motivation is one of the most frequently examined variables in research particularly vis-à-vis transfer of training. Notably, in training situations, motivation has been found to have a significant impact on acquisition of knowledge and skills (Quiñones, 1997; Tracey, Hinkin, Tannenbaum, & Mathieu, 2001), motivation to transfer (Facteau et al., 1995; Tai, 2006) and transfer outcomes (Scaduto, Lindsay, & Chiaburu, 2008). Motivation is defined as 'a variability in behavior not attributable to stable individual differences (e.g. cognitive ability) or strong situational coercion' (Quiñones, 1997). It is perhaps in this view that motivation effects cognitive engagement, which subsequently affects the transfer of training (Pugh & Bergin, 2006).

Among the relevant motivation dimension, motivation to learn was found to be a key variable linking pre-training characteristics and training outcomes (Quiñones, 1995), while motivation to transfer was found to be a strong predictor of positive transfer after one year by Axtell, Maitlis, and Yearta (1997). In the year 2002, Naquin & Holton completely re-conceptualized both constructs (i.e., motivation to learn and motivation to transfer) by creating construct motivation to improve work through learning (MTIWL). However, Scaduto et al. (2008) maintained that both constructs are important for transfer of training, and again demarcated them as two distinct constructs. The concept of motivation to transfer was given by Noe (1986), who stated it as 'the trainees intended effort to utilize skills and knowledge learned in training settings to a real world work situation.' Researchers (see for example Axtell et al., 1997; Nijman, Nijhof, Wognum, & Veldkamp, 2006; Scaduto et al., 2008) have found the direct influence of motivation to transfer on transfer outcomes. Unfortunately, the direct influence of motivation to transfer with transfer outcomes in research has been somewhat limited (Seyler et al., 1998; Kontorghiorghes, 2002; Machin & Fogarty, 2004). Although Colquitt et al., (2000) advocated motivation as a multifaceted variable primarily influenced by many variables, however, in the post intervention context, it is the motivation to transfer that has been shown to be primarily influenced by transfer climate factors. In fact, work environment variables have been found to motivate trainees to transfer their skills to the job, or discourage trainees to transfer what they learned (Tannenbaum & Yukl, 1992).

Therefore, the present study suggests the inclusion of the motivation to transfer construct in future studies to explore its role on transfer outcomes directly (Burke & Hutchins, 2007), as well as its mediation effect between work environment and transfer outcomes but using a longitudinal design.

Therefore, taking note of the evidences from the extant literature, the authors propose as under:

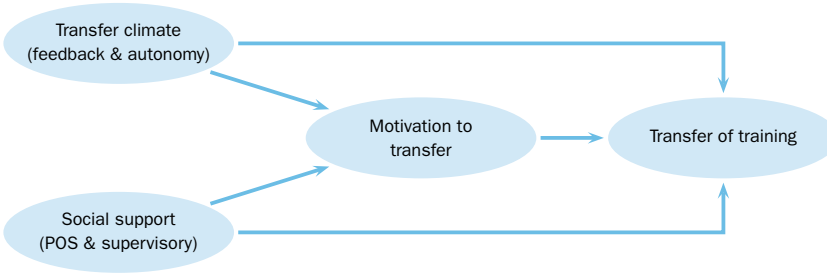

Figure 1 Conceptual Framework

P3 *Motivation to transfer will significantly mediate the relationship between work environment variables (i.e., transfer climate; Social support) and the transfer of training.*

Conceptual Framework

The transfer framework is built after studying various formative, summative and meta-studies on transfer of training from 1988-2014. In fact, the proposed framework delineates the motivation construct in terms of transfer rather than a function of learning plus transfer. The reason for this proposed framework is to gauge the impact of work environment variables on individuals transfer motivation in a post intervention context situation.

The proposed framework in Figure 1 is built after considerable evidences, emanating from the empirical surveys asserting the impact of work-related characteristics most on transfer motivation that on learning motivation. Therefore, the distinction between motivation constructs (in terms of learning and transfer) is necessitated by the present framework in the post-intervention context and it also supports that, under different considerations (see for example, sample, design and context), results can be varied.

Proposed Methodological Standards

Although there are some empirical research studies capturing the predicted role of social support and transfer climate on transfer of training directly as well as directly, but, it is quite unfortunate that standard methodological principles and procedures have been largely neglected. For instance, studies on transfer of training has been well documented in the last ten year period but most studies have ignored to determine the statistical power of the study before collecting data, determination of adequate sample size for regression or causal analysis, data collection techniques, i.e., cross-sectional or longitudinal, to name a few.

For a quick glance on those issues, the empirical studies of the last 5 years (i.e., 2010–2014) on transfer of training are listed in Table 1. It can be

Table 1 Prior Studies Examining Similar Variables

Author	Sample size	Design	Technique	Results
Lee, Lee, Lee, and Park (2014)	365	Cross sectional	Maximum Likelihood	Supervisory support was significantly related to MTT and TOT. Motivation to transfer was significantly related to TOT.
Maung and Chemsripong (2014)	350	Cross sectional	Maximum Likelihood	Supervisory support was not significantly related to TOT.
Madagamage, Warnakulasooriya, and Wickramasuriya (2014)	152	Cross sectional	Maximum Likelihood	Supervisory support was not significantly related to TOT.
Homklin, Takahashi, and Techakanont (2013)	228	Cross sectional	Maximum Likelihood	Motivation to transfer was not significantly related to TOT. Social support was significantly related to TOT.
Pham et al. (2013)	126	Longitudinal	Maximum Likelihood	Supervisor support and job autonomy was were significantly related to TOT.
Shariff and Al-Makhadmah (2012)	263	Cross sectional	Ordinary least squares	Social support was significantly related to TOT.
Ascher (2012)	272	Cross sectional	Ordinary least squares	Work environment were variables were not significantly related to TOT. Motivation to transfer was significantly related to TOT.
Hussain (2011)	89	Cross sectional	Ordinary least squares	POS and SS were significantly related to TOT.
Manju and Suresh (2011)	201	Cross sectional	Ordinary least squares	Supervisory support was not significantly related to TOT.
Chiaburu et al. (2010)	111	Longitudinal	Maximum Likelihood	POS and SS were significantly related to TOT.
Ismail, Mohamed, Sulaiman, and Sabhi (2010)	110	Cross sectional	Ordinary least squares	Supervisor support was not significantly related to Motivation. Supervisory support was significantly related to TOT.

Notes SS – supervisory support, MTT – motivation to transfer, TOT – transfer of training, POS – perceived organizational support.

observed that recent studies from 2010 to 2014 vary in their results section. Although each and every study is a quality in itself on transfer, there exists large discrepancies in most studies. Firstly, sample sizes are varying, researchers (see for example, Kelley & Maxwell, 2003) argued that sample sizes should be adequate enough to reach significant results, which also

supports the calculated power of the study. Moreover, with large number of published meta-analytic studies on transfer, it is easy to determine sample and power. Unfortunately this is rare. Secondly, the data collection design is also varied in the studies, i.e., cross sectional/longitudinal. Researchers (see for example, Pearl, 2000; Mulaik, 2009) argued that in order to examine causal influences, a temporal precedence condition between exogenous and endogenous should be upheld. In fact, the assessment of variables at different times (i.e., longitudinal design) provides a measurement framework that is consistent with aforementioned condition (Kline, 2010). But longitudinal design is mostly not employed. Thirdly, with the advent of various statistical softwares, well-known techniques can be performed (see for example, ordinary least squares/partial least squares/maximum likelihood/ weighted lest squares) to analyze the data. However, each technique has its own advantages as well as limitations. For instance, maximum likelihood techniques work on large sample sizes, whereas least squares can work on small samples. Although, there are other things that need to be considered like: the number of parameters to be estimated, the number of observed variables as well as latent variables, but unfortunately this is rare and researchers neglect to report the reason or rationale behind the use of a specific technique. Lastly, there are mixed results like on some occasions work environment variables and motivation act as a strong antecedent, while on other occasions it is not. The reason for these mixed and inconclusive results is because researchers neglect the mediating influences that can result in a highly biased estimate of the effect of independent variables on dependent variables (Gollob & Reichardt, 1991). Moreover, research has accentuated the need to include target population as employees rather than students in management research (Sears, 1986).

Therefore, taking these principles and procedures into consideration, the authors put forth the following proposition:

P4 *The significant relation between endogenous and exogenous variables will be influenced by the research design.*

Limitations & Future Research Directions

The proposed framework conceptualized from literature is not a model in essence. There is an accepted fact that. To be considered as a model, it should fulfill the standard criteria set by Klimoski (1991) and Dubin (1996). Unfortunately, the majority of research papers actually conceptualize the framework and later claim them as a model. Although Kirkpatrick argued that it is not necessary that a framework should meet the all the criteria listed by Klimoski, it is acceptable whatever you call as long as it helps researchers to clarify, understand and offer guidelines and sugges-

tions to study the transfer. Notably the model considers all antecedents, mediation-moderation factors as well as multi-dimensionality of the outcome. But the proposed framework did not study that part, rather the focus was only on work environment and single mediation (i.e., motivation to transfer) that too in the post training context. Therefore, the present review framework is limited to the extent in which empirically tested antecedents, like trainee characteristics, training design as well as multiple-mediation, multiple-moderation and multi-dimensionality of outcomes, have not being studied. It is pertinent to mention here that researchers believe what Passmore (1983) has rightly stated that 'there is nothing so practical as good research.' Therefore, it is an obligation from our part to freely exchange information on objectives, methods and criteria regarding training evaluation in general (Holton, 1996a) and transfer of training in particular.

The current review is expected to open up new avenues of investigation, while trying to make a small contribution in the immense field of training transfer. A brief contribution is cited for ready reference as: Firstly, the study of Van den Bossche et al. (2010) questioned the role of transfer climate and social support fostering motivation to transfer learned skills, but the combined impact of both environment dimensions, quantitatively in particular and qualitatively in general, is mostly neglected by researchers. Secondly, various authors have empirically tested transfer strategy (see for example, Gollwitzer, 1999; Latham, 1997; Pham, Segers, & Gijselaers, 2010; Pham et al., 2013) and trainee cognitions (Chaiburu et al., 2010) as the key mediators between training inputs and training transfer, but the mediating role of motivation to transfer is mostly neglected (Van den Bossche et al., 2010). Thirdly, researchers have largely neglected the methodological aspect in terms of sample sizes, power of the study, data collection techniques (cross-sectional/longitudinal), statistical analysis techniques (Maximum likelihood/Weighted least squares/Partial least squares) in training literature in general and transfer of training in particular. Lastly, in training research, employees should be used as a target population in future studies, because college students have been found to behave differently than non academic samples (Aamodt, 2012). In addition, there is a lack of empirical evidence on these concerned aspects, which is required to be urgently addressed.

Conclusions

Research on transfer is not the latest concern of researchers and practitioners; in fact much has been already known from the studies of Thorndike & Woodworth (1901), but it still remains an unresolved issue for organizations. Where research has identified factors at individual, methodological and organizational levels, the importance given to work environment vari-

ables should not be overseen, which actually justifies the training program efforts. This holistic review focused on work environment defined in terms of climate and support is directly as well as indirectly related to the transfer of trained behaviors. Notably, the present review helps to focus more on why training works rather than sticking to the old adage on training, i.e., whether training works, because the need to study the impact of work environment variables on post-training behaviors is all the more important. Therefore, the present review includes not only theoretical contributions but also practical implications.

In addition, what we observe is that there remains a controversy in identifying the main variables that will help in not only justifying training efforts but that will also enhance the transfer of skills. Notably, our review based on previous qualitative and quantitative studies helped to deduce that social support as well as transfer climate have a profound relevance in the environment, because trainees perceive it supportive in the work setting and it continues to be a consistent predictor of training transfer. Similarly, what we observed is that the majority of studies stress that the support emanating from organization, as well as from supervisors and peers, directly influence trainees' transfer of skills. However, transfer climate variables, i.e., feedback and autonomy, indirectly influences transfer through motivation constructs. In addition, the present review stresses the role of motivation constructs not only in pre-training but also in a post-training context, which may be helpful in training transfer by reaching high performance levels in intermediate stages of transfer, i.e., after 1 month, 3 months, or 6 months (Chiaburu et al., 2010). Therefore, the central role played by climate and support in facilitating the transfer of training will help to go beyond the question of whether training works to a more valid one, i.e., why training work.

Notably, the justified causation argument will hold more relevance when the methodology and design of the study is as per recommended principles, which include temporal precedence, association, isolation, correct effect priority and distributional form. Ootherwise, the measurement error will remain a mystery for a researcher and transfer studies will be written infinitely with no concrete results.

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Cultural Diversity and Classroom Experience: A Phenomenological Case of Graduate Students' Response to New Classroom Experience

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In this study we analyse students' lived experiences in a cross-cultural classroom context, with the aim of understanding: (1) What is the impact of a culturally diverse classroom experience on graduate school students' learning? (2) Which larger ramifications, if any, exist from this experience? The participants were PhD and Masters Students in a university in Thailand. This was a phenomenological study. Themes emerging from complex cultural practices of international students, professors and Thai students inform, hinder and promote learning. Findings from this study can inform pedagogy particularly at graduate school level, where cultural diversity matters in classroom experience.

Keywords: cultural diversity, learning, classroom experience, higher education, Thailand

> You are a sponsored student, why are you seeking help from me?
> *A participant in the study*

Introduction

Culture is an integral part of human behaviour and environment (Herskovits, 1948). It consists of both physical components (such as tools, buildings and works of art) and subjective components (such as roles, values, attitudes). It entails common values, beliefs and behaviours within groups who share a nationality, ethnic heritage, disability, sexual orientation, or socio-economic class, as well as to those who share a corporate identity, occupation, sport, or college campus (Goldstein, 2008). In Europe the legacy of nationalism has become part of its education culture even though this impacts negatively the minority who does not belong to the dominant national culture (Dietz, 2007). This experience suggests that the historical evolution

of the State and the education policy values have over the past decades dictated the hegemonic education culture in schools.

Differences in national culture mean that contemporary students are often exposed to unfamiliar language rules and communication norms (Charmine, Lloyd, & Singhal, 2010). This conflict exposes individuals to cultural diversity as distinctions in the lived experiences (Marshall, 2002). Diversity does not only manifest itself through conflict, but also through a sense of awareness and acceptance of differences in communication, worldviews and definitions of health and family (Cross, Bazron, Dennis, & Isaacs, 1989). Because of the literary politics, cultural diversity has been marginalized to the extent that little has been done to create mechanisms for including cultural diversity in education and practice (Meacham, 2014). In a study on cultural diversity among campus students carried out by Yearwood, Brown, and Karlik (2002), participants perceived diversity as personal and largely associated diversity with colour.

Both diversity and internationalization are needed to create diverse learning environments to prepare individuals who are willing and able to engage with those who are different from themselves (Bennett & Bennett, 1994). Furthermore, the critical importance of discussing cultural diversity at higher education has been emphasized in the Gurin expert report (1999) in which students in late adolescence and early adulthood are at a critical stage of development, and where diversity (racial, economic, demographic, and cultural) is crucially important in enabling them to become conscious learners and critical thinkers, as well as in preparing them to become active participants in a democratic society.

How individuals understand themselves, view others, and interact with others in a new international classroom setting is important to the study of cultural diversity and new classroom experience. Therefore, in a globalized context, universities should lead in providing the best opportunities for understanding and utilizing diversity in education (Jiang, 2011). This will enable students to develop their identity, and mature their socio-psychological capabilities in order to improve themselves, and contribute to education and society (Gurin, 1999).

Symbolic interactionism assumes that the social world is socially constructed through social interactions and experiences (Griffin, 1997). Likewise, a sense of oneself is developed from childhood to adulthood. George Herbert Mead observed that one's sociability grows based on the approval by others (Schaefer, 2010). This theory brings to this study the view that: (1) early socialization affects an individual's later behaviour, (2) socialization is a continuous process, and (3) a change in the context can lead to some changes in social experiences, norms and socialization.

Studies indicate that supporting student encounters across different cultures is linked to improved student outcomes (Hurtado, Milem, Clayton-

Pedersen, & Allen, 1999). Moreland, Levine, and Wingert (1996) argued that diversity is associated with both positive and negative outcomes. Negative impacts of diversity is related to group cohesion and conflict (De Dreu & Weingart 2003), while positive impact of diversity is related to superior group performance (Sommers, Warp, & Mahoney, 2008).

Experience is an integral part of constructing knowledge (Robinson, Wolffe, Hunt, & Hoerr, 2002). Cultural diversity for instance positively affects performance. Similarly, racial diversity has positive effects on complex thinking (Antonio et al., 2004). Likewise idea generation in the learning process is higher within racially diverse groups compared to racially homogeneous groups (McLeod, Lobel, & Cox, 1996). A cross-national study on OECD countries shows that an increase in international students improves the performance of both international and native students (Konan, Chatard, Selimbegović, & Mugny, 2010). Chang (2006) suggests that cultural diversity in university class rooms can be utilized to facilitate learning and teaching processes through the concept of 'transcultural wisdom bank.' This is because interaction and exposure is high in such a class (Pike & Kuh, 2006).

Gurin's report (1999) also confirms that racial diversity and student involvement in activities related to diversity have a direct and strong effect on learning and the way students conduct themselves in later life. When students' cultural background is compatible with the dominant culture of the educational institute, this compatibility creates a conducive learning environment for students. However, conventional type of classroom culture is more prone to exclusion (Samuel & Burney, 2003). Therefore, it is the responsibility of the educators to figure out the possibilities of marginalizing the students in a culturally diversified classroom and come up with some strategies to restore and acknowledge the cultural diversity into the classroom.

Campus communities that are more racially diverse tend to create more richly varied educational experiences, which is good for a democratic society (Chang, Denson, Saenz, & Misa, 2006). Further, it can also lead to more openness to diversity, critical thinking skills and greater personal development (Hu & Kuh, 2003). While an increase in international students has positive effects on academic performance, a study on Chinese students in New Zealand indicate that inter-cultural interaction has been largely about tolerance and has not moved to cultural diversity (Jiang, 2011). This shows that a level of inter-cultural openness, which is required in cultural diversity learning and sharing in institutions of higher learning, is yet to be attained.

As one of the competitive economies in the Asian region, Thailand is striving to improve its quality of human resources through the means of internationalization of its higher education and promotion of cultural diversification among the students and faculty across the world. Thailand's ap-

proach to internationalization and cultural diversity has been: (1) Providing a regional hub for international and local academic institutions, (2) Exporting academic experts abroad, and (3) using foreign scholars and professors in Thai institutions of higher learning. However, there is little focus on fostering cultural diversity and intercultural understanding among people (Kitcharoen, 2011). Over the recent years, Thai institutions have also provided scholarships for international students to come and study in Thailand.

While many studies in Thailand explored on internationalization and higher education, limited focus has been given to the way students experience a learning process through a culturally diversified classroom, particularly at graduate school level. In this study we analyse students' lived experiences in a cross-cultural classroom context, with the aim of understanding: (1) what is the impact of a culturally diverse classroom experience on graduate school students' learning? (2) Which larger ramifications, if any, exist from this experience?

Research Methodology

Research type and Research Design

This is a phenomenological case study. In phenomenology, the researcher suspends his or her prior knowledge and assumptions about the subject and like a stranger approaches the subject from the sense of newness. The focus is on the lived experiences of the participants, their feelings, beliefs, thoughts, and perceptions of the subject or issues in question. The purpose is to elicit and describe what participants experienced and the meaning they made out of it. To analyse the impact of culturally diverse classroom experiences on graduate students' learning, a self-regulation model of cultural diversity was used. This self-regulation model of cultural diversity assumes that individuals are active problem solvers whose behaviour is a product of their cognitive imaging or representation of a cultural diversity situation, issue or activity. When individuals encounter a cultural diversity situation, issue or activity, they image it, and emotionally respond to it. If they image it as threat, they will respond accordingly. From these responses, the meaning individuals make out cultural diversity can be elicited in ways that can show the impact of a culturally diverse classroom experience on the graduate school students' learning. To a large extent, implications for improving culturally diverse classroom environments for better learning can be drawn (Creswell, 2013).

Sample and Participants in the Study

A sample of 15 participants was purposively selected from international students attending a university in Thailand. Participants were from developed and developing countries like Bangladesh, Ghana, Pakistan, Thailand,

Nepal, Slovakia, China and USA. All the participants had prior cultural diversity classroom experience in their previous studies in other universities. Some had studied in other countries like the UK, China and the US as foreign students before coming to study in Thailand. Others had studied in their own countries like Ghana, Slovakia, Nepal, US, and Bangladesh, but had cultural diversity experience while studying with foreign students before coming to Thailand. In this case, their reflections were at times comparative.

The participants were graduate students undertaking various Masters and PhD programs in different schools of the University. The basis of selection was: availability, willingness to participate in the study, prior experience in an international classroom context, and previous familiarity, interactions, and informal relationships with the researchers.

Research Process

This study was done as part of on-going internal research practice at the university. No external permission, except informed consent from participants was required. In this regard, researchers contacted the participants, negotiated the study, and obtained informed consent after which interviews were set and conducted upon consensus with the participants. Interviews were conducted for a period of 3 months. Interview sites were decided upon by the participants. All the interviews were conducted on the campus. Interview sessions lasted between 20–60 minutes, and proceeded until the issues were conclusive. The length of the interviews also depended on whether the participants were story tellers who shared more about the subject or 'straight to the point' individuals who gave straight to the point precise answers, and did not want further probes or reported to think about the subject. The interview structure followed a three tire pattern (Rossman & Rallis, 2012) which is: (1) interview on whether participants ever had another cross-cultural classroom experience before, (2) interview on the details of the cross-cultural classroom experience at the time of the interview, and (3) interview on the reflection on the meaning of the cross-cultural experience to the participant's learning.

Participants were asked the following questions: what is your experience with a culturally diverse class? Have you ever studied in another cross-cultural class before? What feelings come to your mind? How would you describe your experience learning in a culturally diverse class? What meaning does it have on your learning? Notes on the interview including background information were written after the interviews. No video or tape recording was done. Follow-up questions were made where necessary. The following technical issues were examined in the study: peer debriefing, checking for negative case analysis, checking for progressive subjectivity, member

checks, triangulation of data sources, triangulation of investigators, referential adequacy, and reflexivity (Chilisa, 2012).

The following ethical issues were examined in this study:

- *Informed consent:* Participants were identified, contacted, and requested to voluntarily participate in the study.
- *Privacy:* Participants chose, based on their understanding of the research, which information to share. Information sharing was only for the purpose of the study, and it has been used in ways that protected the participants' privacy.
- *Confidentiality and Anonymity:* All interview sessions were conducted in a confidential manner, and data kept, analysed and written in a manner that protects the name of the institution and participants. Peer reviews were conducted to establish professional standards. Sensitive information or comments seen to cause harm were not included in the final analysis and writing of the report.

Issues such as dragging it all up, exploitation, coercion, and sanctions were avoided in the study. No monetary benefits were given in the study, since the study was voluntary, and as part of on-going efforts helping others research practices, where graduate students engage in on-going research exercises utilizing social capital resources shared across the study professional study community (Boeije, 2010).

Data Analysis

A phenomenological method of analysis was used. In this method, all written transcripts are read several times in order to obtain the overall feeling. From each transcript, significant phrases or sentences that contain direct lived experiences are identified and extracted. Meanings are then formulated from the phrases or statements. These formulated meanings are then clustered into common themes across participants, as well as unique themes emerging from the experiences of particular participants. Finally, the results are integrated into an in-depth description of the phenomena. New data, which emerged later, was included in the description (Colaizzi, 1978, in Creswell, 2013, p. 332).

Results of the Study

From the analysis, significant statements from participants' lived experiences were identified. Formulated meanings were drawn from the statements to indicate the impact of the cultural diversity classroom experience on students' learning in light of the self-regulatory framework for cultural diversity. The following themes were also identified and analysed.

Factors Indicative of Cultural Diversity

Participants viewed cultural diversity in many different ways. While it is difficult to comprehensively define what diversity is, participants described cultural diversity by associating it with the following indicative factors.

1. *Academic background.* Participants viewed diverse academic backgrounds of students (for instance economics, political science, and engineering) as a resource bringing different contributions to the class. 'If one does not know things about other areas during the class discussions and during the class-break discussions, they can learn from each other,' a participant observed.
2. *Social background.* Some participants also saw their prior social experiences or prior social experiences of other students as a resource for cultural diversity beneficial for learning. This prior experience helped them make decisions on how to relate to other people in class, and to know the difference between contexts. A participant having experience in China with international students made the comparison with the Thai context: 'In China, I can bring constructive criticism against instructors and it is considered.'
3. *Nationality.* This means that because you come from a different country, therefore you are different and you carry a difference to class with you. This was seen as a positive thing that promoted new learning.
4. *Capabilities in understanding* subject matters, presentations, and academic writing. This promoted useful sharing of knowledge, energized students to study and compete more, and enriched classroom discussions.
5. *Faculty.* Participants saw foreign and Thai professors bring to class different experiences, perspectives, professional experiences and values. Apart from this exposure, they also viewed diversity as varied areas of specialization of the foreign and Thai professors from which insights and perspectives were shared and which enriched learning.
6. *Culture.* Culture was viewed as different values, perspectives, dress-up and fashion designs students used, as well as the conflict between the individualistic Western culture, and the community-oriented cultures of Asia and Africa.
7. *Age.* The gap between older and younger graduate students enriched or hindered learning.
8. *Occupation.* Diversity was also seen in terms of comparing full-time students who were not working at the time of the study, and the part-time students who were working.
9. *Size of international students* in a school compared to the native stu-

dents. Smaller size of international students in a school was seen as denial or absence of, or lack of real diversity.

10. *Responsive policy* intended to have cultural diversity, yet absence of the opportunity and support to know and understand other cultures. This shows cultural diversity as a prevailing yet unrealized social reality.
11. *Lack of support mechanisms* to help new students adjust to the new environment, and promote intercultural dialogue and co-existence.

Race and Cultural Diversity

Race relations in class were seen as impediments to learning in a cross cultural context. While participants did not report any act of deliberate racism, they viewed people from different countries, cultures, and languages as contributing to hindrances they experienced in learning. Issues such as different English accent and tones limited understanding. Basic values such as touching or hugging a person appeared to be more difficult to practice across races than within a race. In some classes, classroom discussions were dominantly led by European students. As a result, a participant said she preferred individual assignments, even though class discussions were helpful.

Age and Cultural Diversity

The gap between older and younger graduate students enriched or hindered learning. Age factor was seen as the realized gap between the thinking of two generations in class. The older generation comprised of individuals with decades of experience, while the younger generation consisted of young individuals who had graduated recently, and had advanced to postgraduate studies immediately. Interaction between these two generations was at times an emotional one. Sometimes conflict arose over expression of emotions. Younger students appeared more aggressive, while elderly students appeared calmer. While in the Western and African students' cultures, young people working with older people is a normal thing, and even though the individuals are aware of the age differences, participants suggested that, in the Thai society, respect, which sometimes demands not going against what older people say, and other hidden socio-cultural structures and rules hindered working relationships between older and younger students.

Mature international students took the lead and at times dominated classroom discussions. This was partly because they found relevant to share in class their comparative experience. On the other hand, young students with limited experience found discussions less engaging, because they viewed discussions as a preserve of the experienced. Therefore,

they preferred continuous independent studies instead of discussions. Few young students participated in discussions. Some appeared annoyed when others asked questions leading to discussions.

Group Work and Cultural Diversity

Participants identified two types of groups, namely: (1) instructor-directed groups and (2) voluntary-oriented groups. Voluntary-oriented group is when students voluntarily chose to form discussion groups, while instructor-directed group is when the instructor directs students' work together in a group. When groups are voluntarily formed, participating international and Thai students form separate groups. Some participants viewed this as the result of communication and convenience. Another challenge realized in instructor-directed groups was that participating Thai students preferred a slow and more reflective group discussion while international students tended to move fast on issues. Some participants observed that Thai students preferred to work with Thai students rather than international students, because they felt if they did this way, they would share information and help each other better.

Some participants observed that in instructor-directed groups, some students did not share equal responsibilities. Best students in the class preferred working individually. Some participants also observed that there was resentment against fully-funded students. Self-financed students viewed fully-funded students as favoured by the university. A participant shared his experience while seeking academic assistance from a self-financed student. The participant had sought help on how to do an assignment given in class. 'You are a sponsored student, why are you seeking help from me?' the participant was told. This feeling negatively influenced the working relationship between sponsored students and self-financed students. In this case, voluntary groups worked better where a sense of informal ties like friendships or synergies, such as averagely performing students, already existed. Due to time constrains, some participants thought that there was not sufficient time to share thoughts. As a result, students decided to use group emails to supplement face-to-face group work. This approach was not interactive enough to generate critical views on the subject. Other challenges included punctuality, willingness to work in groups, reliance on others, and difficulties in meeting deadlines. Even though at times it was difficult to get cooperation in group work, voluntary groups were common during exam periods.

Some participants viewed group discussions as a mechanism to train students to work in cross-cultural teams then and in the future. 'We are being trained to be good team players, which is part and parcel of the globalized, integrated world,' a participant observed. For some students, it was

the first time they learned how to work with other people from different cultures, how to make use of group discussions, lead, assign tasks, motivate themselves and others. Even though at times students faced the problem of free-riding, cross-culturally diverse groups enabled students to learn unique aspects of leadership, because students had unique opportunities to practice leadership skills sometimes under complex circumstances.

Classroom Discussions and Cultural Diversity

Usually, class discussions were led by international students. These classes had more Thai students and few international students. On the contrary, weekend classes, which consisted dominantly of part-time Thai students, class discussions were led by Thai students. Participants viewed cross-cultural classroom contexts as a representation of the real world experience. 'Classroom discussions allow us to appreciate the real world, and understand stereotypes, discrimination, cultural communication, and interaction with other people,' a participant said. Classroom interactions were largely described as dependent on the professor. 'Some professors prefer promoting student interaction, while others prefer doing one way instructions in the class, which feels like being in the school,' one participant observed. Allowing opportunities for discussion depended upon the teaching characteristics of the instructor. Some would allow discussions, while others would not. At times, when professors had a lot more things to teach in the class, they limited the classroom discussions, in favour of lectures. Some students viewed this as more or less restricting, while others thought it was better for professors to deliver knowledge than students to discuss. This represents the complexity in the expectations and views of students in a cross-cultural classroom context.

At times, participating Thai students were reluctant in engaging in classroom discussions compared to international students. As a result, there were more perspectives from international experiences than Thailand, even though the majority of the students were Thai. Limited participation of Thai students in classroom discussions was partly attributed to the submissive attitudes among Thai students, an attitude they expressed by keeping quiet, or showing reluctance to talk rather than debating issues in class. This form of expression meant showing respect and loyalty. On the contrary, international students debated with Thai professors who did not appear to be disapproving of class discussions. In some cases, professors pushed for class discussions. Some professors provided incentives for discussions such as promoting opinions, guidance, motivation, supervision, equal listening.

Classroom discussions also helped students to learn cross-cultural tolerance. Some students turned emotional when things were said against their culture. A case was mentioned where Thai students were angry at a Thai a

professor, who critiqued Thai culture by saying that Thai system goes with collectivism. The professor had encouraged students to embrace diversity. Some participants found classroom discussions open to all and without restrictions. Others thought discussions were topic- or leader-dependent. Some issues of interest motivated discussions, while the leaders of the discussions influenced the dimensions and extent discussions would go. These factors were not solely dependent on culture.

The nature and extent of discussions depended on the number of students in the class. For some students, it took longer time to get acquainted with discussions in a cross-cultural context. During the first semester, there was little classroom interaction. Some students who were competent in English contributed more and at times dominated classroom discussions, while others were largely observers and silent participants. After the first semester, many students found it comfortable to engage in classroom discussions. While some students discussed class discussions as opposed to lectures, other students discussed class discussions following lectures. In case of foreign lecturers, lectures were used as stimulants for discussions and group work.

In some classes, participants observed that there were limited interactions. Participating Thai students sat in one group, while international students sat in another. Compared to international students, Thai students were polite but difficult to get involved in discussions. In these classes, lectures were the dominant mode of instruction. However, a participant observed that 'Class room discussion is an in-built mechanism for assessment. It is useful. Learning is not always formal, it is sometimes informal, and getting the practical aspect outside the classroom even from uneducated people comes under the informal category.'

Nationality and Cultural Diversity

This means that because one comes from a different country, therefore one is different and carries a difference to class. On one hand, this was seen as a positive thing that promoted new learning. On the other hand, it was seen as a measuring rod for Thai students, who at times found it intimidating. Some Thai students did not like the comparison made by professors between Thais and sponsored international students. They viewed it as negatively discouraging. Some international students interviewed on the subject felt it was meant to encourage positive cross-cultural competency in higher education.

Cross cultural-Communication and Cultural Diversity

'I want to hug her, but I don't know what she will think, so I just fold my arms,' a participant observed. The participant spoke in reference to cross-

cultural communication constrains endured for about three years while studying in Thailand. This student had studied in the UK before where open communication and culture, though with its reservations, enabled foreign students to easily adjust to the new culture and learn to communicate cross-culturally. However, in the Thai culture, it was more complex to understand communicable feelings, because in most cases, culture teaches individuals to hide feelings by practising what is called 'saving the face.' Saving the face basically means that one does not need to openly express feelings whether sad or happy. Maintaining calm is highly cherished, and what some cultures may consider normal expressions of feelings like crying of speaking louder when happy or disappointed can be sometimes be seen as madness in this context. As an antithesis, the statement 'I want to hug her, but I don't know what she will think, so I just fold my arms' was said in spite of the appreciating the fact that the university had provided adequate resources for learning during this period. A heavily stocked library, available expertise in the academy, a conducive living and learning environment, and supportive friends did little to free the participant from the cross-cultural communication constrains. This affected the participants learning, because communicating cross-culturally under constrains does not amount to the freedom one needs in order to effectively share in the cross-cultural learning environment.

In the Thai culture, avoiding confrontation, including academic controversies, can sometimes be expressed to demonstrate one's maturity, rather than agreement or disagreement over a debatable matter at hand. In the context of two extremes, the outspoken Western or African cultures, and the quiet Thai culture, it took longer for foreign and Thai students to understand how to work together successfully. Even though in the Thai culture open disagreements even constructive ones are quite rare, it took longer for international students and Thai students to get along in academic interactions, because Thai students expressed reluctance to debate openly before learning and understanding the complex cultures of the various foreign students in the classroom. 'This is just part of the wider Thai approach to foreigners: smile, be kind to foreigners but remain suspicious and closed until you learn and know them better,' a participant observed.

Occupation and Cultural Diversity

When full-time and part-time students were in one group, sometimes the nature of their occupation and free time did not allow them to give sufficient input and contribution to the group. As a result, some assignments were delayed, while in other cases full-time students felt some part-time students were not serious, hence became free-riders. Therefore, some full-time students preferred group work as a preparation for individual assignments, and

not as an assignment in itself. A participant observed that 'when dealing with part-time students, they are of the view of that, since many international students are full-time, they have to work hard on their behalf.' Some participants observed that some full-time students, especially young ones, had limited working experience. As a result, their contribution to class was largely based on theoretical backgrounds.

Outlier Elements of Cultural Diversity

Some participants observed that they need to engage African professors and more African students from African countries in their classes. These students had not studied with African students before, and had not had learning experiences with professors from Africa. They had a desire to learn more about different issues on the African continent. Other students also expressed desire to study with students from the Thai public sector in order to learn more about issues in Thailand. Even though these students were undertaking international programs, they expressed the desire to engage more with local and international experiences across the board and as inclusive as possible.

With regard to presentations conducted following assigned readings, a participant observed that, in most cases, international students focused on the broader picture of the article and commented on it, while Thai students took few points from the article and drilled deeper. This is an interesting observation that requires further systematic study to determine whether international students and Thai students have different learning approaches, particularly regarding listening, focusing and discussions.

A participant observed that voluntary formation of some study groups provided opportunities for students who were left behind, abandoned by other groups, or found themselves out of place to join and learn with others who accepted them. Unlike other groups that were formed around common ties and synergies, this type of study groups served as an academic and social support group for students with special needs. This type of group needs to be studied further, particularly the pastoral type phenomena of study group. Participants did not discuss gender as an aspect of cultural diversity with effect to learning. This might be as a result of the sampling process. In this case, there might have been other participants who might have given a perspective on gender and cultural diversity if they were selected for the study.

Discussion

Enhancing the learning experiences of the students is one of the goals of pedagogy. However, to a large extent, studies in education and training focus on knowledge, comprehension, application, analysis, synthesis,

and evaluation. While this is important, limited focus is given to the way students experience the learning process, particularly at graduate school level. This study provides insights relevant to pedagogy in higher education.

In this study, socio-economic factors, such as the academic backgrounds of students (for instance economics, political science, and engineering) as a resource bringing different contributions to the class. This is because diverse class backgrounds also brought to class capabilities in understanding different subjects, presentations, and academic writing. This provided a resource pool for sharing knowledge, which energized students to study and to compete more, and enriched classroom discussions. Diversity was also seen in terms of comparing full-time students who were not working at the time of the study, and part-time students who were working. Challenges emerging from these issues included among other things: delayed assignments, free-riding in group work, constrained learning process. A study in the US context shows that socio-economic factors, such as expectations, learning formats, social organization, economic status, and expectations, limit opportunities for disadvantaged individual students to succeed ('Individual Differences – Ethnicity,' n. d.).

Nationality means that one carries a difference. This was seen as a positive thing that promoted new learning, even though at times nationality attracted resentments, especially when local students viewed international students as favoured by the university. Participants saw foreign and Thai professors bring different experiences, perspectives, professional experiences and values to class. Apart from this exposure, they also viewed diversity as varied areas of specialization of foreign and Thai professors from which insights and perspectives were shared and which enriched learning. This promotes the idea of looking at cultural diversity in education from an internationalization point of view. It also encourages embracing the perspectives and values of the minorities or the under-represented as part of education (Robinson et al., 2002).

Culture was viewed as different values, perspectives, dress-up and fashion designs students used, as well as the conflict between the individualistic Western culture and the community oriented cultures of Asia and Africa. At times cross-cultural communication hindered learning. This is similar to experiences in the US where classroom experience is challenged by various languages and ethnic backgrounds (Terry & Irving, 2010). Increase in international students has a more positive effect in developing countries (Jiang, 2011), some of which are evidenced in this study.

The gap between older and younger graduate students enriched or hindered learning. Age factor was seen as the realized gap between the thinking of two generations in class. The older generation comprised of individuals with decades of experience while the younger generation consisted of

young individuals who had graduated recently, and had advanced to post-graduate studies immediately. A study by Banks et al. (2001) found ethnic identity, social class gender, religion, sexual orientation, abilities and disabilities, language and race as factors indicative of diversity. The study did not consider age as a diversity factor. On the other hand this study found that age was a factor but did not find gender and religion as factors of diversity in classroom experience, particularly the impact of these factors on learning.

Theoretical Elements

A self-regulation model of cultural diversity assumes that individuals are active problem solvers whose behaviour is a product of their cognitive imaging or representation of cultural diversity situation, issue, or activity. When individuals encounter a cultural diversity situation, issue or activity, they image it, and emotionally respond to it. If they image it as a threat, they will respond accordingly. From these responses, the meaning individuals make out of cultural diversity can be elicited in ways that can show the impact of culturally diverse classroom experiences on graduate school students' learning.

There were cases where cultural diversity was seen as a threat to learning. Some of these cases were: when Thai students encountered international students for the first time and were reluctant to engage them in discussion and learning, when full-time students perceived part-time students as free-riding in group work and at times preferred to use group discussions as preparations for individual assignments, when professors limited discussions or replaced them with lectures, when international students sat separate from Thai students in class, when international and Thai students formed different study groups, and when international students dominated class discussions at the expense of Thai students. When this occurred, cultural diversity impacted negatively on the learning process.

On the other hand, cultural diversity was also viewed as a resource for learning: when international students and Thai students formed separate groups for study, which contributed more to classroom discussions, especially after the first semester, when synergies were created, like friendships based on which they worked together, when brought together by a common threat like exams and therefore ignored their diversity differences and improved their cross-cultural working skills. When this occurred, the learning process was positively impacted. Students with limited experience learned new things from those more experienced. Students isolated by some groups were adopted by more caring ones.

From a sociological perspective, symbolic interactionism holds the view that human behaviour is centred on meaning, is socially constructed and

shaped by social experiences, and is negotiated through language and symbols. The new classroom experience as exemplified in this study provides to the individual varieties of new symbols, languages, and social experiences. This new setting demands that an individual's learning in a new international classroom context take into account renegotiating the meaning of things, and reconstructing a new social world that is highly conscious of diversity.

Given that the early socialization affects later life, and that socialization is a continuous process, one's sociability in a new international classroom context is challenged when an individual interacts with others through group discussions, assignments, lectures, and informal relationships. This new setting brings to an individual's life a new global world, in which the individual struggles to swing between the earlier national world and the new international world. While syllabus may be completed as planned at the end of the semester, the social struggle to learn together in an international context represents a new challenge, that is, learning to learn together in ways that maximizes the benefits of cross-cultural diversity.

Limitations of the Study

The advantage of this topic is that it brings to the literature pedagogic perspectives from lived experiences of graduate international students who have experienced cultural diversity in a new international classroom setting. Insights from this topic can inform experts in education to devise teaching and learning approaches that help students maximize the benefits of cultural diversity and reduce realized impediments to learning. The disadvantage of this topic is that the study focused on one university. As this is a phenomenological study, the results of this study cannot be generalized. The sample is small, hence the experiences are not typical. Difficulties in some participants expressing themselves also limited the amount of data and consequential meaning obtained from their experiences.

Practical Implications

From this study, we can infer the following implications:

1. More focus in the future should be on how to craft teaching, learning methods and wider education systems that reflect the diversities we encounter in class.
2. Students orientation should include preparations on cross cultural diversity and learning.
3. Education policies should go beyond cultural awareness and include the creation of cross-cultural oriented support systems for both international and local students.

Further Research

There is need to conduct further research on the following issues:

1. Enhancing cultural diversity in the Thai higher education.
2. Explore whether there are varied treatments of students in cross-cultural classroom contexts and how that affects learning.
3. Explore whether Thai and International students have different ways of participating in and focusing in the classroom when different teaching formats are applied.
4. An analysis of study groups as social organizations for care and support.

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Financial Literacy of First-Year University Students: The Role of Education

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This paper presents an insight into the characteristics of how students manage their finances and their general financial literacy. The study was carried out by surveying 259 students from two different faculties. Students from the study programs with economics subjects were statistically better at defining inflation, liquidity and real income. Statistically significant differences between courses were seen also in the area of investment decisions, business students prefer riskier investments like an investment in bonds or gold, whereas non-business students prefer saving the money in a savings account. The results show that students who had economics content in their program more often state they control their finance and have on average better financial knowledge. The results suggest that participation in economic/financial courses increases financial literacy and also feelings of mastery of financial areas, which is important to transfer knowledge into the practice.

Keywords: financial literacy, financial management, education, knowledge, Slovenia, students

Introduction

Improving the ability to understand finance has become an important focus of state-run educational programs in several countries. The importance of financial education has grown in recent years as a result of financial market developments and demographic, economic and policy changes. More sophisticated financial markets and a greater variety of credit and savings instruments, together with increased life expectancy, hold important consequences for people saving or investing for retirement, for the users of credit, and all other consumers (OECD, 2006).

In addition, financial literacy and financial education have been found to be strongly positively associated with household wealth (Behrman, Mitchell, & Bravo, 2010). Although only a few financial education programs have so far been evaluated, the results are encouraging since they have been found to be reasonably effective. However, academic analyses provide ambiguous results, finding no firm evidence of the measurable success of financial

education when it comes to improving participants' financial well-being (Cole & Shastry, 2008; Willis, 2009).

In this paper we consider the case of Slovenian first-year students to provide evidence of the importance of basic financial and economics education for young people's financial literacy. The study sample consists of two groups of first-year students from the University of Ljubljana in Slovenia: a group of first-year students of Economics and Business from the Faculty of Economics who had already passed their first-semester, introductory-level courses in economics and finance, and a group of first-year students of Educational Sciences with either one or no such courses in their first semester. This sample allows us to examine the impact of financial and economics education on the students' financial literacy. Moreover, it allows us to analyze the impact of the students' familiarity with financial and economics topics on their perception of the adequacy of their financial skills to efficiently manage their finance. This is the first empirical investigation of financial literacy for Slovenia and, to our knowledge, one of the rare studies that analyzes the impact of financial and economics education on financial literacy by directly examining differences between students of economics and education other fields.

The paper is organized as follows. In the first section, we review the relevant theoretical and empirical literature. The second section outlines methodological issues and demographic information about the analyzed sample, while in the third section we present the results of the survey whose purpose was to obtain information about the students' knowledge of basic economic/financial concepts and behavior. The last section – discussion concludes by setting out educational policy implications.

Literature Review

In theory, several terms have been used for those capabilities of an individual that relate to the ability to use their financial and economic knowledge. Hung, Parker and Yoong (2009), for example, define financial literacy as 'the knowledge of basic economic and financial concepts, as well as the ability to use that knowledge and other financial skills to manage financial resources effectively for a lifetime of financial well-being.' Huston (2010) 'Financial knowledge is an integral dimension of, but not equivalent to, financial literacy. Financial literacy has an additional application dimension which implies that an individual must have the ability and confidence to use his/her financial knowledge to make financial decision.'

Studies show that responsible financial behavior (regular budgeting, savings), which can be associated with greater financial literacy (Mandell & Schmidt Klein, 2007) is linked to the financial well-being of young people (Joo & Grable, 2004; Shim, Xiao, Barber, & Lyons 2009). However, empirical

studies (American Savings Education Council, 1999; Chen & Volpe; 1998, Williams-Harold & Smith, 1999; Beal & Delpachtra, 2003) have found that students are not well-informed about personal finance, and show that students generally do not have adequate knowledge about such finance. In these studies, the majority of the surveyed students agree that they do not know enough about money management (American Savings Education Council, 1999). Chen and Volpe (1998) see the reason that many students are not familiar with money management practices as lying in the fact that students are in the beginning phase of their financial life-cycle, in which most of their money is spent rather than invested. Studies also show that superior financial literacy is usually a characteristic of male students, students majoring in business studies, students from a higher social class, those over 30 years of age and students with greater work experience (Chen & Volpe, 1998). Based on a sample of 500 students, Williams-Harold and Smith (1999) report that only 31% of students were able to balance their bank account, 23% were familiar with credit cards and only 7% were familiar with the current level of interest rates. On the contrary, Beal and Delpachtra (2003) also found that most students have fairly good knowledge of basic financial concepts. In their study, differences in the level of financial literacy were observed as a result of differences in work experience and income. In addition, students of business were better than others. Similarly, Nidar and Bestari (2012) report that financial literacy is influenced by several factors like education level, faculty, personal income, parents, parents' income, and ownership of insurance.

The factor that is recognized as an important determinant of financial literacy in almost all empirical studies is thus financial education and numerous studies relate to its impact on financial literacy. The OECD (2005, p. 26) defines financial education as 'the process by which financial consumers/investors improve their understanding of financial products and concepts and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being.' Huddlestone-Casas, Danes and Boyce (1999) argue that financial education has a positive impact on the financial behavior of students and adults, while Stone, Wier and Bryant (2008) find that financial learning programs increase positive financial attitudes (while reducing materialism) and impact on changes in behavior. On the contrary, Chatzky (2002), Mandell and Schmidt Klein (2007) and Cole, Paulson and Shastry (2009) did not discover a significant effect of formal financial education on financial decisions. However, Cole, Paulson and Shastry (2009) report a significant link between cognitive abilities and participation in financial markets.

In spite of the ambiguous results of empirical studies about the impact of financial education on financial literacy, it is generally agreed that changes in financial behavior as a result of financial education increase the financial well-being of individuals, which clearly shows the importance of financial education. Authors (Rao & Barbera, 2005) suggest that educational programs increase consumer knowledge and change individuals' attitudes and behaviors in the case of borrowing, spending and saving. Similarly, Danes (2004) reports positive changes in students' financial behavior immediately and three months after completing such training. Further, research shows (e.g. Salie Mae's National Study, 2009) that the majority of students believes they need more education about financial topics, and would like to acquire this knowledge in the context of formal education. Carlin and Robinson (2012) investigated how financial education impacts financing choices and consumer behavior and report that 'students who experienced training were somewhat better at making current-cost/current-benefit trade-off decisions (spending more today versus spending less today).'

Methodology

Data Collection and Sample

The survey-based research was conducted among 259 students of the Faculty of Economics and the Faculty of Education at the University of Ljubljana. The survey was conducted among first-year students after they had finished their first-semester courses (at the end of semester). During their first semester, students from the Faculty of Economics listened to different introductory-level lectures in business, business law, finance and economics. In their first semester at the Faculty of Education only stu-

Table 1 Sample of Students According to Their Study Field

Faculty/Study program	*N*	%	Economics subjects
Faculty of Economics			
University Degree – Business & Economics Sciences (specialization: Money and Finance, Business Economics, International Economics, Banking and Financial Management)	73	28.2	Introduction to Microeconomics, Macroeconomics 1, Principles of Accounting, Introduction to Business, Management
Professional Degree Program – Business Administration	72	27.8	
Faculty of Education			
Two-Subject Teacher (specialization: Home Economics and Biology or Chemistry)	36	13.9	Home Economics (money, budget, market, supply and demand)
Primary Education Teacher	29	11.2	
Preschool Education	49	18.9	

dents studying Home Economics were given lectures on economics topics, whereas students of Primary Teacher Education and students of Preschool Education did not have any economics courses in their first semester's course list (Table 1). To avoid bias regarding students' motivation of economic topics, students who are not from the Faculty of Economics (but they have in their study program one economic subject) were included in our sample.

We used a randomized sampling of students within groups (at FE – students with a certain letter starting their surname, at FED first-year students from three different courses), but otherwise stratified according to the course of study (FE, FED).

Questionnaire

The coverage of survey questions were general, very common, concepts heard everyday and necessary for a successful life. The questionnaires were completed at the respective faculties in the presence of the researchers. The question types were short answers, closed answers and offered a Likert scale. The questionnaire consisted of the following sections:

- *The student's demographic and socioeconomic characteristics.* Respondents were asked about their age, gender, study field, current financial situation, whether they work as well as studying, and the reasons for working.
- *The student's beliefs about money and their own financial management skills.* Respondents were asked about their views on the meaning and importance of money (e.g. an asset, a symbol of power) and how they perceive their own financial management skills in terms of their ability to handle their own personal finance.
- *The student's actual financial practices.* Respondents were asked about their records of spending (e.g. how detailed are their spending records), their saving habits and the reasons for their saving behavior. They were also asked to state what they would do if they had extra money at their disposal.
- *The student's financial general knowledge.* In this section, a student's general financial knowledge was tested. Students were asked to choose from among offered answers to explain some simple generally known and frequently used financial or economic terms (GDP, VAT, euribor, share, real income, net assets, bonds- return, share, excise duty, effective interest rate, liquidity, how do we measure inflation), or to make simple calculations (monthly interest rate, annual interest rate) or to predict what would happen in different situations (bank failure, suitability of risky investments, warranty)

The data were statistically processed using the Statistical Package for the Social Sciences Version 18. Frequency counts were run on all items. Further analyses involved *t*-tests, chi-square analyses and one-way analyses of variance (ANOVA) where the significance level of $p < 0.05$ was used.

Results

In our sample of first-year students from the University of Ljubljana (FE and FED), 81.3% were females (Table 2). The average monthly income of the surveyed students was stated to be €214.7, with the minimum student income being €20 and the maximum €2,000 per month. During their first study year, 53.3% of the students from our sample lived at their parents' home, 27.0% lived on their own in a rented apartment, while 19.7% lived in dorms. Students claimed to be spending most of their money to satisfy their fundamental needs such as food (88.5%), transportation (80.4%), clothing and footwear (75.8%) and literature (46.2%). A smaller share of the money they have available goes on leisure activities such as tickets for various events (34.6%), sport and recreation (25.8%), rent (25%) and travel (19.2%). The surveyed students also included instances of students who work to help their parents or other family members financially (3.8%).

Students' Beliefs about Money and Their Own Financial Management Skills

Responsible financial behavior (e.g. regular budgeting and saving) is linked to the financial well-being of young people (Joo & Grable, 2004; Shim et al., 2009) and can be associated with greater financial literacy (Mandell

Table 2 Summary of Demographic and Socioeconomic Characteristics

Variable		*n*	%
Gender	Men	49	19.0
	Women	209	81.0
Age	18–20	224	87.20
	21–23	29	11.20
	24 and more	4	1.6
Expenditure type	Food	230	88.5
	Transportation	209	80.4
	Clothing/footwear	197	75.8
	Literature	120	46.2
	Tickets for various events	90	34.6
	Rent	68	25.8
	Sport and recreation	67	25.8
	Travel	50	19.2
	Help their family	10	3.8

& Schmidt Klein, 2007). Studies show that a person's attitude to money depends on gender and experience. Men are more likely to perceive money as a means of comparison and evaluation compared to women, while individuals who have experienced financial hardship, regardless of gender, more often use money as a means of evaluation (Lim & Thompson, 1997). We asked the students about the meaning they ascribe to money. Our results show that most of the surveyed students (78.7%) perceive money as a medium of exchange, while male students more often also associate money with power than females ($\chi^2 = 4.472$, $df = 1$, $p = 0.03$). These findings are in line with Lim and Thompson's (1997) designations.

When the students were asked about their perceptions of their capabilities to manage their finance and about their knowledge of the topic, 10% stated they are fully confident in their capabilities to manage their finance and that they also have very good knowledge of this topic. Around 55% of the students believe they manage their finance to a large extent and that they have most of the relevant knowledge. More than one-third, however, state they are able to manage their finances only partially and would like to have more knowledge on this subject. Two percent of the surveyed students feel they do not supervise their finances and would like to have more knowledge on this topic.

Results also show (Table 3) that students from the Faculty of Economics (M = 2.82, SD = 0.730) are slightly more confident of their financial management capabilities than students of Home Economics from the Faculty of Education (M = 2.74, SD = 0.505). But, both are more self-assured about their financial management capabilities than students of Primary teacher education and students of Preschool education (students from courses with no economics content at the Faculty of Education). A one-way analysis of variance (ANOVA) reveals statistically significant differences between business program students and non-business students ($F = 3.724$, $p = 0.05$). A more detailed Tukey *post hoc* test revealed statistically significant differences between the Faculty of Economics students and students of Primary Teacher Education and Preschool Education ($p = 0.01$), but not between the

Table 3 Student's Beliefs in Their Financial Management Capabilities

Study programs	*N*	Mean	SD	*F*	Sig.
Faculty of Economics	142	2.82	0.730	3.724	0.025
Faculty of Education					
Home economics	35	2.74	0.505		
Primary school teacher and Preschool teacher	78	2.56	0.572		

Notes Students from a different field had to indicate belief in one's financial management capabilities on a four-point scale, where 4 represents the strongest and 1 the weakest belief in one's financial management capabilities.

Faculty of Economics students and Home economics students. It seems that listening to lectures on topics from economics, business and finance strengthens students' feelings about their abilities to manage their own finance and also increases their perception of their knowledge of the topic.

Students' Actual Financial Practices

American Savings Education Council (1999) found that students are not well informed about personal finance, and that two-thirds of the students surveyed in that study agree that they do not know enough about money management. The reason for their insufficient familiarity with the topic was related to the fact that the students are 'in the beginning phase of their "financial life cycle" and a majority of their money is spent rather than invested' (Chen & Volpe, 1998). Namely, a good money management practice includes budgeting, keeping different records, estate and retirement planning, insurance and investment (Muske & Winter, 1998), which means good basis for a secure financial future for young adults.

Among the surveyed students, 76% save some of their available income, while 23% do not. 49% of the students are saving money for a trip, 22.3% to buy a car, and 15.5% to purchase real estate and other. Among those who do not save, more than 80% state the main reason for not saving is the fact that they spend all their available income, 13.6% report they have no reason to save, while 4.5% believe that saving is not reasonable for students. Statistically significant differences in keeping financial records were observed between students who claim they save and those who do not. Namely, those who statistically save significantly more often keep financial records compared to those who do not ($\chi^2 = 12.174$, $df = 1$, $p = 0.00$).

Among the students we surveyed, only 13% keep detailed evidence about their expenses for food, housing and entertainment. More than half the students in our sample (53%) indicated they only know approximately how much they spend on food, housing and entertainment and have no accurate records of their expenses. 26% do not have exact records of their spending, but generally know the amount they can spend and consequently stay within their limits. Only less than 3% of the students do not keep any records on their spending. The comparison of responses among students from the different study fields indicates that those students who are familiar with economics, financial and business topics (students from the Faculty of Economics and students of Home Economics from the Faculty of Education) are more inclined to keep financial records than students who did not have the opportunity to attend any economics, financial or business lectures (all other students at the Faculty of Education). Yet the differences are not statistically significant. However, it is notable that those students who kept records largely believed they were in control of their finances (Table 4).

Table 4 Efficiency of Financial Management and Keeping Financial Records

Efficiency of financial management	Yes		No	
	n	%	*n*	%
I don't control my finances – I want more knowledge	1	20	4	80
I control my finances only partially – I want more knowledge	34	39	53	61
I control my finances to a large extent – I have most of the necessary knowledge	83	59	57	41
I completely control my finances to a large extent – I have all the necessary knowledge	18	69	8	31

On the contrary, most of students from our sample who claim not to keep financial records also answered that they do not control their finances successfully and would like more knowledge about the topic (Table 4). It is also notable that those students who want more knowledge about finances are from study programs with no economics subjects ($\chi^2 = 4.514$, $df = 1$, $p = 0.017$).

Students' Financial Knowledge

Existing empirical research (Chen & Volpe, 1998; Williams-Harold & Smith, 1999; Beal & Delpachtra 2003) shows that students' knowledge about personal finance and basic economic terms is inadequate. Studies also show that greater levels of financial literacy are associated with study field, gender, social class, age and work experience. Namely, older, well-situated male students, majoring in business studies and with work experience on average know their personal finances best (Chen & Volpe, 1998). Based on a sample of 500 students, Williams-Harold and Smith (1999) also report that only 31% of the surveyed students were able to balance their bank account, 23% were familiar with the terms of their credit card and only 7% were able to state the current interest rate level. Further, Beal and Delpachtra (2003) found that most students have fairly good knowledge of basic financial concepts, with differences in the levels of students' financial literacy being a result of differences in study field, work experience and income.

In our research, students were asked to identify several basic financial and economic terms. In general the students from the study programs with economics (SPES) subjects were more successful than students from the study programs with no economics subjects (SPNES). They were statistically significant better in defining liquidity, inflation, real income (Table 5). They were also better in answering on business related questions, but in answering on personal financial related questions (monthly interest rate, effective interest rate, euribor, warranty, VAT) differences were not so expressed. Interestingly, in answering questions related to financial investments (bank

Table 5 Students' Average Scores on Basic Financial Terms

Question	Correct answers (%)		χ^2	Asymp. Sig.*
	(1)	(2)		
Liquidity	68.5	53.9	5.092	0.024
Annual interest rate*	70.72	70.51	0.001	0.973
Monthly interest rate*	13.3	11.54	0.145	0.703
Effective interest rate	53.8	48.72	0.009	0.923
Euribor	35.4	34.61	0.013	0.908
Warranty	76.8	75.64	0.040	0.841
Bank failure	57.5	62.8	0.648	0.421
Inflation	64.9	33.8	10.584	0.001
How do we measure inflation	56.35	47.44	1.743	0.018
Net assets	24.31	20.0	1.855	0.173
Real income	32.04	8.33	17.375	0.000
GDP	53.04	53.0	0.014	0.905
Risky investments – suitability	42.54	60.26	0.842	0.359
Shares	91.7	100.0	6.861	0.009
VAT	74.03	69.2	0.632	0.427
Excise duty	27.07	32.05	0.662	0.416

Notes Column headings are as follows: (1) study programs with economics subjects, (2) study programs with no economics subjects. * 2-sided.

failure, shares, suitability of risky investments for different age groups) they were slightly less successful.

When students were asked 'What would you do with extra money?' 64.6% answered that they would open up a savings account, 24% would spend only part of the money, roughly 20 percent would buy gold, 27.2% would invest in some sort of securities, while less than 1% would spend the entire amount of this extra money. Interestingly, 6.1% of the students answered that they do not know what they would do with a surplus of money. We wanted to determine whether there is a correlation between the type of investment and the student's opinion of their own knowledge. Among those who indicated that they have sufficient knowledge and those who have indicated that they want more knowledge there was no statistical significant differences. Differences were detected when we separated students who were involved in the study programs with economic subject and those who were not. A marked share of students from the study programs with economics subjects would spend their extra money to buy gold ($\chi^2 = 5.984$, $df = 1$, $p = 0.014$) and bonds ($\chi^2 = 4.508$, $df = 1$, $p = 0.034$), while the students from the study programs with no economics subjects would largely decide to save the money in a savings account ($\chi^2 = 8.894$, $df = 1$, $p = 0.003$). It is possible that the SPNES student's decision to choose less risky in-

vestments is connected with the fact that, due to their lack of financial education, they are unable to recognize (as suitable) several other alternatives besides depositing savings in a savings account as the other students are.

When students were asked who they would ask for financial advice they mentioned first their parents (M = 1.67, SD = 1.661) and at last their professors (M = 6.55, SD = 1.852). Greater confidence in the teachers had students involved in study programs with economics subjects ($t = -4.549$, $df = 182.356$, $p = 0.000$).

Discussion

The findings indicate that university students are vulnerable when they need to undertake day-to-day financial tasks. This is especially worrying for the SPNES students who will not have the chance to take courses with financial and economics content in the future. This fact also poses a serious obstacle to SPNES student's professional life as they will obviously go into classrooms without in-depth knowledge and are thus not well prepared. Baron-Donovan, Wiener, Gross and Block-Lieb (2005) report that teachers who participated in just two days of training in financial literacy increased their financial knowledge by 9%, while positive changes were also found in their attitudes and ability to transfer these newly gained skills into their teaching strategies. Taylor, Tisdell and Sprow Forte (2012) argue that 'learners are not likely to change their financial behavior with success if they are not in touch with beliefs that affect those behaviors.' A systematic approach is needed to bring about a general increase in financial literacy.

Keeping in mind that 'Financial education represents a lifelong process' (Starček & Trunk, 2013, p. 1443), more attention to financial subjects is needed in all educational schemes (formal and non-formal). In Slovenia, financial topics are very poorly represented in the curriculum. Some finance related topics can be already found in different nine-year primary school subjects (Mathematics, Geography, Technique and Technology, Home Economics, Patriotic and Civic Culture and Ethics). In the Home Economics subject (5th year of primary school) students systematically cover topics about money, budgeting, saving, investment, etc. Thus, within the first module of this school subject students actually start with financial literacy education, but these topics are not systematically upgraded in later years of education. This can be one of the reasons that Slovenian 15 year-old students who participated in the international study PISA 2012 achieved poor results (for more details see OECD, 2014). It makes sense to consider the possibility of appropriate curriculum development – how to achieve continuity, as well as the possibility of implementing elective courses in the context of individual programs. However, introduction to financial topics should be

carefully considered-the content must be adapted to the individual's understanding – to the stage of cognitive development of individuals on different levels of education.

Secondly, student teachers should be offered appropriate training that is not solely driven by the acquisition of facts, but that will incorporate a variety of active methods. By using active methods of teaching, which require the use of complex thinking (analysis, synthesis etc.), we should motivate the individual to transfer new knowledge into practice. Mandell and Schmid Klein (2007) indeed found that motivation to learn about personal finances is an important factor of financial literacy. With an appropriate combination of facts, experiences and guided learning situations, students can improve in their management of the financial aspects of their life and to transfer their financial knowledge to their students. Secondary schools (vocational, technical, gymnasium) and faculties could also consider different educational strategies through which students can obtain relevant, objective, impartial, timely information and assistance in finding a wide range of responses.

Conclusion

As a result of our sample selection, the study enabled us to analyze the impact of economics/ financial education on the financial literacy of the students. Namely, while the first-year students of Economics and Business at the Faculty of Economics and students of Home Economics at the Faculty of Education had the opportunity to take part in courses related to economic/financial topics, the other surveyed students did not. Our results suggest that participation in the study programs with economics courses:

- provides knowledge to more thoughtful financial decisions (for example investment decisions);
- encourages the development of the necessary skills and transfer of good practices into everyday life (for example records keeping);
- increases the feeling of mastery of financial areas – confidence (for example SPES students largely believed in their financial management capabilities than others students).

It should, however, be noted that some students' educational background (previous education), which was not observed, may affect their knowledge. But the PISA 2012 results (OECD, 2014) for Slovenia (secondary education) and the results of the present study (university education) revealed that economical/financial literacy is not sufficient. The results of this study also suggest that participation in economic/financial courses increases financial literacy, as well as feelings of mastery of financial areas, which is important to transfer knowledge into the practice.

Accordingly, from the perspective of the financial health of the individuals involved, it would make sense to ensure that all students have at least the possibility to select subjects where they would be motivated to adopt prudent financial behavior and basic knowledge to be prudent consumers. To effectively convey the idea of how good financial literacy is, it is also necessary to pay attention to the teachers (student teachers and current practitioners) in terms of them recognizing the importance of financial education for the well-being of an individual.

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Self-Assessment of the Use of Plagiarism Avoiding Techniques to Create Ethical Scholarship Among Research Students

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The use of plagiarism avoiding techniques can be helpful to maintain academic integrity, a better learning environment and intellectual honesty. This explored the use of plagiarism avoiding techniques for creating ethical scholarship among research students. It also measured the association between the frequency of using plagiarism avoiding techniques and the satisfaction about knowledge of plagiarism. Data were collected from seven universities through an online self-structured questionnaire. Ordinal logistic regression analysis was used to explore the variance. The association between the frequency of using plagiarism avoiding techniques and satisfaction about knowledge of plagiarism was indicated. Differences were also found on the basis of gender, discipline, level and stage of study.

Keywords: plagiarism, ethical scholarship, plagiarism avoiding techniques, research skills, knowledge of plagiarism, research skills, student learning

Introduction

Understanding the reasons of student's plagiarism is pivotal to know how to avoid plagiarism (Goosney & Duda, 2009). In scholarly writing many factors lead to plagiarism such as impropriate paraphrasing (McLemee, 2004; Share, 2006), quoting materials without quotation indicia (Standler, 2012), improper usage of sources (Braumoeller & Gaines, 2001), and using writings of others in an unacknowledged way (Schwarz, 1992; Race, 2001). Furthermore, lack of knowledge about proper citation methods (Roig, 1997; Landau, Druen & Arcuri, 2002; McLemee, 2004; Sutherland-Smith, 2005; Chen & Van-Ullen, 2011), ambiguity to cite source material (Braumoeller & Gaines, 2001), and assuming web knowledge as public domain and, therefore, ignoring proper acknowledgement (Gresham, 2002; Kaltenbaugh, 2005).

Students plagiarise when they are not familiar with proper ways of quoting, paraphrasing, citing and referencing and/or when they are unclear

about the meaning of common knowledge and the expression in their own words (Parks, 2003).

Plagiarism can be avoided by raising awareness about plagiarism and by educating with plagiarism avoiding techniques among teachers and students (Harris, 2015; Liddell, 2003; Landau et al. 2002). Sarkodie-Mensah (2010) has advocated that students should be familiarized at early stage about the importance of academic integrity and they should be provided awareness about the legal consequences of the plagiarized work. Adoption of strict policies by institutions and the creation of an environment of awareness about sanctions against intentional plagiarism can be helpful to avoid plagiarism (Babalola; 2012, Harris, 2015, Samuels & Bast, 2006). Hence, on the basis of the above-mentioned literature, it is indicated that plagiarism can be avoided by understanding the reasons of plagiarism among students, by raising awareness about plagiarism and by equipping students with skills to use plagiarism avoiding techniques.

Academic integrity can be maintained through the usage of plagiarism avoiding techniques, such as summarising and paraphrasing properly (Babalola, 2012; Zafron, 2012; Bronshteyn & Baladad, 2006; Guinnee & Eagleton, 2006; Share, 2006; Shirley, 2004; Landau et al. 2002), properly citing and referencing the borrowed material (Babalola, 2012; Harris, 2015; Zafron, 2012, Samuels & Bast, 2006; Burkill & Abbey, 2007; Silvester, 2004) improving written skills (Samuels & Bast, 2006) and using direct quotes (Bronshteyn & Baladad, 2006; Silvester, 2004).

Plagiarism avoiding techniques are methods used by students, researchers and scholars during their research to generate new and innovative information to create unique, original and ethical scholarship. Sarkodie-Mensah (2010) has advocated that plagiarism can be avoided through making 'students conversant with the issues of plagiarism such as cheating, colluding, illegal collaboration, and academic integrity.' He emphasized that students should have familiarity with the importance of academic integrity and the legal consequences of the plagiarized work. He further reminded that acknowledging sources would promote ethical scholarship and it would create readership for their works.

Plagiarism avoiding techniques can be divided into three broad categories. The first category involves the development of writing, learning and analysing skills to produce innovative research ideas. The second category of plagiarism avoiding techniques includes the learning of citing and referencing of other's work according to standard styles, by giving credit to authors whose work has been summarized or paraphrased, and proper resource acknowledgement used in the process of research. The third category encompassed the techniques of making proper and logical record of both one's own ideas and the ideas of others distinctly and separately.

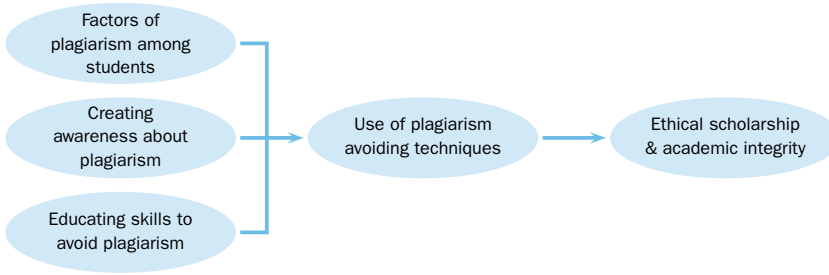

Figure 1 Model of Use of Plagiarism Avoiding Techniques to Create Ethical Scholarship

This record should be maintained properly to avoid any misinterpretation or misrepresentation of one's own ideas and those of others.

This article examines the relationship between the use of plagiarism avoiding techniques and the satisfaction of knowledge about plagiarism. It explores the differences in the use of plagiarism avoiding techniques on the basis of gender, level of study (PhD & MPhil) and stage of the study (course work and thesis work) among research students of social sciences. Furthermore, it explains the difference in the use of plagiarism avoiding techniques on the basis of several disciplines such as sociology, psychology, education and library science.

The current study contributes to create an environment of awareness about plagiarism avoiding techniques that would ultimately help faculty members, instructors, librarians, academic researchers and research students to understand plagiarism and to create ethical scholarship. Current study would promote the environment of academic integrity rather than the culture of deterrence among students as suggested by Parks (2004) and Twomey, White, and Sagendorf (2009). Surprisingly, limited research has been conducted in the field of plagiarism avoiding techniques with pretext to Pakistani society so the current study would fill this gap. It would play a pivotal role to promote intellectual honesty among scholars and research students. This article would promote the policy of normative feedback in scholarly writing as it discusses plagiarism avoiding techniques.

Literature Review

Different studies at international level have investigated the avoiding techniques that should be used by students and researchers to create innovative and ethical research. Babalola (2012) conducted a study to examine the awareness, incidences and perceived factors of plagiarism among students at undergraduate level. After analysing the data the study recommended some plagiarism avoiding techniques that need to be taught

to students. These techniques includes summarization and paraphrasing properly, citing and referencing the material borrowed, and recommended the adoption of strict policies and sanctions against intentional plagiarism.

Harris (2015) outlined several strategies to combat plagiarism including understanding plagiarism, educating students about plagiarism and discussing the benefits of citing sources. He further suggested that making penalties clear and raising awareness among faculty would be helpful in restricting plagiarism. Zafron (2012) discussed many plagiarism avoiding techniques in order to create and implement a plagiarism seminar. He suggested that proper citation or using ideas of others with attribution, proper in-text citations, organizational and note-taking skills can be useful as plagiarism avoidance. He revealed that source quotation and paraphrasing were helpful for students to avoid plagiarism. In their research on avoiding plagiarism, Burkill and Abbey (2007) found that faculty members should not tolerate academic dishonesty. They furthermore suggest taking notes from books or articles, copying online sources and including lists of references and bibliography.

Samuels and Bast (2006) explored strategies to avoid plagiarism in their research. They found that improving written communication skills, acknowledging the source by providing citations and warning students of the consequences can be helpful in avoiding plagiarism. Bronshteyn and Baladad (2006) have advised students to cite correctly by paraphrasing and using direct quotes in order to make their research original. Guinnee and Eagleton (2006) consider note taking and paraphrasing very important for the generation of new ideas.

Shirley (2004) suggested students to paraphrase from a source. He proposed that students should extract the main ideas and then make their own paragraph. Students should also make paragraphs of their own material for attaining expertise in paraphrasing. Silvester (2004) proposed that students must be taught about the conventions of quotes, citations and bibliographies.

While defining a workable and useful definition regarding plagiarism for academic librarians in the digital age, Liddell (2003) also proposed different ways for teachers to help students to avoid plagiarism by producing innovative research. He mentioned that teachers must understand what plagiarism is and then give their own definition to students; teachers should explain students how to cite and reference the studied material and inform them about citation and reference lists; teachers should inform students that plagiarism may be detected easily and give them knowledge about plagiarism detection tools; warning should be given to students about the implications of plagiarism and should also be familiarized with different articles, links and hand-outs about plagiarism. Finally, they should be advised

to study the literature already written on their topics of interest, analyse it and suggest their improvements by disagreeing with the author.

Landau, et al. (2002), in their research of 'methods for helping students avoid plagiarism,' found that giving examples or feedback on paraphrasing attempts can have a positive effect on students' knowledge of plagiarism and can, ultimately, reduce the chances of plagiarism.

Methodology

Quantitative research design was adopted for the current study. Data was collected through a structured questionnaire from 108 research students of social sciences. The questionnaire was distributed in three parts: the first part contained demographic details such as gender, level of study, stage of study, university and subject. The second portion included questions regarding the frequency of using plagiarism avoiding techniques. The Likert scale was used with response categories ranging from always – 5, usually – 4, occasionally – 3, rarely – 2, to never – 1. The value of Cronbach alpha was 0.79 for the listed sixteen items of plagiarism avoiding techniques. It suggests that the instrument was reliable enough to determine the frequency of using plagiarism avoiding techniques. The third part of the questionnaire collected responses regarding the satisfaction of knowledge about plagiarism and response categories ranging from strongly agree – 5, agree – 4, do not know – 3, disagree – 2, and strongly disagree – 1. The value of Cronbach alpha (0.896) suggested that the instrument was reliable enough to determine the level of satisfaction of knowledge about plagiarism.

Data was collected from 108 (53 male and 55 female) research students of social sciences. Research students had experience in research work such as writing thesis or research articles during their academic careers. Therefore, researchers collected data from MPhil and PhD students because they had experienced research work at least once in their academic careers. Data was collected from research students of social sciences from different universities of Pakistan. Four subjects, including sociology, education, psychology and library and information sciences, were selected from social sciences through simple random sampling. The subject of the study was research students of social sciences and, in order to reach this population, an online questionnaire was shared on Yahoo groups and social networking sites (SNSs). For data collection, an online questionnaire was distributed in the All Pakistan sociological network (APSN), as well as on the forum of social sciences (FOSS) and the Pakistani library and automation group (PLAGPK). Data analysis was completed by using Statistical Package for Social Sciences (SPSS). Ordinal logistic regression analysis was used to find the variance between the independent variable (plagiarism avoiding techniques) and the dependant variables (gender, level

Table 1 Descriptive Statistics of the Respondents

Variable	Parameters	(1)	(2)
Plagiarism avoiding techniques	Low	18	16.7%
	Medium	45	41.7%
	High	45	41.7%
Level of studies	MPhil	94	87.0%
	PhD	14	13.0%
Areas of specialization of the respondents	Sociology	45	41.7%
	Psychology	21	19.4%
	Library Science	32	29.6%
	Education	10	9.3%
Stage of studies	Course work	41	38.0%
	Thesis work	67	62.0%
Gender	Male	53	49.1%
	Female	55	50.9%
Level of satisfaction	Low	1	0.9%
	Medium	57	52.8%
	High	50	46.3%
Total		108	100.0%

Notes Column headings are as follows: (1) number, (2) percentage.

of studies, areas of specialization, stage of studies and level of satisfaction). Linear regression analysis was used to find the association between the use of plagiarism avoiding techniques and the satisfaction of knowledge about plagiarism.

Results and Discussion

In plagiarism avoiding techniques, 41.7 percent of the respondents had high level, 41.7 percent had medium level while 16.7 percent of the respondents had low level of use of plagiarism avoiding techniques. It indicated that the majority of the respondents had a medium level of plagiarism avoiding techniques. Regarding the level of studies of the respondents, 87 percent were enrolled in MPhil, while 13 percent were doing PhD from relevant universities. Regarding the areas of specialization of the respondents, 41.7 percent were from sociology, 19.4 percent were from psychology, 29.6 percent were from library sciences, while 9.3 percent were from education. In stage of studies, 38 percent of the respondents were studying course work, while 62 percent were doing research work. Out of 108 respondents, 49.1 percent were male, while 50.9 percent were female. As of the level of consultation, 25.9 percent had low level of consultation, 50 percent had medium level of consultation, while 24.1 percent had high level of consultation. In level of satisfaction, 0.9 percent had low level, 52.8 percent

Table 2 Descriptive Statistics of Respondents' Frequency of Using Plagiarism Avoiding Techniques

Response categories	(1)	(2)
Listing of writers and their viewpoints separately discovered during research	4.1574	0.96830
Identify the sources of all exact wording of ideas, arguments and facts that borrowed	4.0093	1.00926
Taking notes (organized note taking system) while studying relevant research material	4.1296	0.88700
Keeping record of photocopies of sources or save the copies in some folders in personal computer/laptop	4.5093	0.89124
Keeping separate own ideas and summaries from other's ideas	4.1111	0.99844
Analysis and evaluation of what is read	4.2778	0.96512
Practicing of writing ideas in my own words	4.2870	0.89705
Using quotes for the exact words copied	4.0648	1.16228
Providing reference for the paraphrased and adapted material	4.6296	0.69164
Using documentation styles/rules of referencing consistently (Harvard, APA, MLA etc.)	4.4815	0.74233
Acknowledge collaborations	4.2778	0.85197
Avoid self-plagiarism (submitting data by misrepresenting already submitted data)	4.2963	1.05245
Avoid quoting indirect sources if necessary then quote both original and secondary sources	4.3178	0.75982
Cite derived graphs, tables, statistical information, illustrations, and photographs properly	3.8426	1.19314
Using common knowledge, universal facts without citing it	3.2897	1.43078
Making sure that all cited items have got place in the bibliography or work cited page	4.4259	0.91920

Notes Column headings are as follows: (1) mean, (2) standard deviation. 5 – always, 4 – usually, 3 – occasionally, 2 – rarely, 1 – never.

had medium level and 46.3 percent had high level of satisfaction. It suggested that the majority of students had a medium level of satisfaction about knowledge of plagiarism.

The descriptive statistics of the respondents showed that the majority of respondents usually used plagiarism avoiding techniques. It contradicted with the findings of Sowden (2005) and Christensen-Hughes and McCabe (2006) in the view that students from non-Western cultures might not be as familiar with issues like plagiarism, as using plagiarism avoiding techniques proved the familiarity of students with plagiarism-related issues. Keeping record of photocopies of sources or save the copies in some folders in personal computer/laptop, providing reference for the paraphrased and adapted material and using sources correctly and appropriately were the techniques always used to avoid plagiarism by research students. They

Table 3 Descriptive Statistics of Regression Logistic Analysis of the Independent Variable and the Dependent Variables

Variables	Parameters	(1)	(2)	(3)	(4)	(5)
Plagiarism avoiding techniques	Low	–2.890	< 0.002**	0.912	0.056	0.009–0.332
	Medium	–0.447	0.616	0.891	0.640	0.112–3.669
Level of studies	MPhil	–0.111	0.817	0.479	0.895	0.350–2.287
	PhD	0.000			1.000	
Areas of specialization	Sociology	1.454	< 0.006**	0.526	4.282	1.529–11.995
	Psychology	1.132	< 0.056*	0.592	3.103	0.973–9.896
	Library science	1.034	< 0.055*	0.538	2.811	0.980–8.063
	Education	0.000			1.000	
Stage of studies	Course work	–1.261	0.000	0.326	0.283	0.150–0.536
	Thesis work	0.000			1.000	
Gender	Male	1.013	< 0.004**	0.348	2.753	1.391–5.448
	Female	0.000			1.000	
Level of satisfaction about knowledge of plagiarism	Low	–1.061	0.451	1.407	0.346	0.022–5.462
	Medium	–0.720	< 0.013*	0.290	0.487	0.276–0.860
	High	0.000			1.000	

Notes Column headings are as follows: (1) estimate, (2) significance, (3) standard error, (4) odds ratio, (5) confidence interval. * $p < 0.05$, ** $p < 0.001$.

usually used plagiarism avoiding techniques to be sure that citations were included in the bibliography, and avoided quoting direct sources or rewriting the sources read. Respondents occasionally used common knowledge and universal facts without citation. Wilhoit (1994) suggested in his work for helping students to avoid plagiarism that copying a paper from a source text without proper acknowledgements, not using quotation marks for copied texts or paraphrasing material from a source text without appropriate documentation were acts of plagiarism. But this study revealed that respondents were using all of the above mentioned as techniques to avoid plagiarism. Findings of this study supported the findings of Williamson, McGregor and Archibald (2009) on the point of note-taking, paraphrasing, generating new ideas, acknowledging quotations and citations. Using the common knowledge, universal facts without citations had a lowest value of mean (3.2897) among all the categories of using plagiarism avoiding techniques. According to Duff, Rogers and Haris (2011), using common knowledge, universal facts without citations was a consequence of the perception that the author's knowledge had become commonplace and, therefore, belonged to the realm of collective ownership. It was revealed that the majority of the respondents usually used plagiarism avoiding techniques.

Logistic regression analysis was used to explore the association between the independent variables (gender, level of study, stage of the study, subject and level of satisfaction about knowledge of plagiarism) and the dependent variable (plagiarism avoiding techniques). The findings show that students are highly using plagiarism avoiding techniques, as the odds for using plagiarism avoiding techniques at lowest level and medium level decreased by 0.06 and 0.64 times, respectively.

The findings demonstrate that male students are 2.75 times more likely to use plagiarism avoiding techniques at highest level as compared to female students. The use of plagiarism avoiding techniques was two times higher in male as compared to female research students. Hence, it is revealed that the use of plagiarism avoiding techniques was higher among male students in comparison to female students. Regarding the level of studies, the findings reveal that the probability of using plagiarism avoiding techniques decrease as the level of education decreases, as the odds of using plagiarism avoiding techniques for MPhil students decreased to 0.895 times as compared to PhD students. Students at the level of PhD studies were using plagiarism avoiding techniques 11 percent more compared to students at the level of MPhil studies. As suggested by the findings, younger and academically less able students used less plagiarism avoiding techniques. It supported the assumption that younger students and less academically able students were found to plagiarise more (McCabe & Trevino, 1997). Similarly, less matured and less experienced students used more means of plagiarism than that of others (Szabo & Underwood, 2004). Presumably, PhD students have more knowledge and experience that helped to use plagiarism avoiding techniques. Another reason of this difference was a major exposure to research work that enabled PhD students to use plagiarism avoiding techniques more than MPhil students. Hence, findings revealed that the use of plagiarism avoiding techniques was higher in students of PhD studies as compared to students of MPhil studies. As PhD students are elder in age and use plagiarism avoiding techniques more as compared to MPhil, it therefore approved the previous assumption of Ercegovac and Richardson (2004) that the use of plagiarism declined with age.

As of the stage of studies, the findings reveal that the probability of using plagiarism avoiding techniques decrease as the stage of studies decrease, as the odds of using plagiarism avoiding techniques for course work students decrease by 0.283 times as compared to research work students. Hence, the stage of studies has an association with the use of plagiarism avoiding techniques. Research students at the stage of thesis work were using more plagiarism avoiding techniques as compared to students at the stage of course work. Students at the stage of thesis work were using pla-

giarism avoiding techniques 72 per cent more as compared to students at the stage of course work.

Consequently, the value of odd ratio in the model for subject of sociology (4.282) suggested that the research students of the above mentioned discipline were more likely to use the plagiarism avoiding techniques in comparison to psychology (3.103), library science (2.811) and education (1 – reference category). The rate of using plagiarism avoiding techniques was higher among research students of sociology as compared to education, library sciences and psychology, while the use of plagiarism avoiding techniques was the lowest in students of education as compared to students of sociology, library sciences and psychology.

The findings show that students have a high level of satisfaction regarding the knowledge of plagiarism with a high use of plagiarism avoiding techniques, as the odds for using plagiarism avoiding techniques at the lowest and medium levels decreased by 0.346 and 0.487 times, respectively. The relationship between both variables was also confirmed by linear regression analysis. The results showed $R^2 = 0.275$ and thus demonstrated that approximately 27.5% of the variance in satisfaction regarding knowledge of plagiarism listed under the frequency of plagiarism avoiding technique. The overall model proved significant in that $R = 0.524$, $F = 39.42$, $p < 0.001$ and the relationship between the two variables was positive leading to the acceptance of hypothesis that stated that there will be a positive relationship between frequency of plagiarism avoiding techniques and the satisfaction concerning knowledge of plagiarism. Value of R suggested that the use of plagiarism avoiding techniques explained 52% of satisfaction about knowledge of plagiarism.

Conclusions

The study concluded that the majority of research students were using plagiarism avoiding techniques. The use of plagiarism avoiding techniques was higher among research students of sociology as compared to students of education, library sciences and psychology. Research students at the stage of thesis work were using more plagiarism avoiding techniques as compared to students at the stage of course work. Students enrolled in PhD were using plagiarism avoiding techniques more as compared to the students enrolled in MPhil studies. The use of plagiarism avoiding techniques was higher among male students as compared to female research students, while the level of satisfaction was medium and higher among students who use plagiarism avoiding techniques.

In order to create an ethical environment and academic integrity, the academic institutions need to adopt orientative workshops for research students to enable them to practice avoiding plagiarism techniques. The exist-

ing programs of submitting assignments for different subjects should include sessions on plagiarism avoiding techniques and encourage students to inculcate academic integrity through abiding by set of rules and regulations. According to Liddell (2003), one must 'avoid plagiarism, one must internalize, understand and reorganize material and make it one's own.' Devlin (2006) suggested that raising awareness among students, educating students through clear definition and minimizing plagiarism through a selection of strategies can be helpful in avoiding plagiarism. Koha, Scullyb, and Woodliff (2011) also suggested that plagiarism can be reduced through a combined response by academics through curriculum and course design and a policy response at university level. Wingate (2006) suggested that the learning of such skills is better when these are incorporated in the core subject teaching.

Furthermore, it is suggested that use of Turnitin software should be based on normative feedback rather than using it as tool to deter students who plagiarize (Davis & Carroll, 2009; Emerson, 2008). In particular, universities in Pakistan need to adopt proactive policies rather than reactive ones towards plagiarism.

Future Research

Future research can also investigate the differences of plagiarism avoiding techniques among students in public and private universities. The present study has opened up some interesting new questions for further research. In the academic sphere of universities in Pakistan, many researches tried to find out about the awareness of students about plagiarism. The research should be conducted to know the attitude of students towards plagiarism and the practice of avoiding plagiarism techniques. Research should also be conducted to find out the relationship between awareness, attitude and practice of plagiarism. Future research could strive to find out the differences in students and faculty perspective of plagiarisms in Pakistan and its findings would be helpful in order to integrate the loopholes in academic writing, as well as to promote ethical values among research students. Empirical evidence from different cultures and disciplines could also be focal points in future research. Justifications of the cases that were caught in academic plagiarism could also be an interesting point of investigation for future research in Pakistan. Finally, future research could find out the causes of gender differences in the usage of plagiarism avoiding techniques.

Research Limitations

The current analysis on the use of plagiarism avoiding techniques only represents research students of social sciences, so its findings cannot be generalized to other disciplines of natural sciences, art and humanities. As

only four subjects among social sciences were selected through sampling, its findings cannot be thus generalized to all subjects of social sciences. As it is a self-reported study on the behaviour of research students' use of plagiarism avoiding techniques, there may be statistical variance on the basis of social desirability bias. The findings of the research highlighted the use of plagiarism avoiding techniques among MPhil and PhD students, its finds do not therefore translate into the trends among masters and graduate students in universities. The present study also cannot be generalized either within the same institutional setting of universities or beyond.

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Abstracts in Slovene

Vzpostavitev ključnih organizacijskih kazalnikov uspešnosti v natančni strojni industriji

Mei-Hsiu Hong, Tzong-Ru (Jiun-Shen) Lee, Ching-Kuei Kao in Per Hilletofth

Cilj raziskave je določiti (ali nastaviti) ključne organizacijske kazalnike uspešnosti (KPI) na področju natančne strojne industrije z uporabo koncepta ključnih kompetenc in referenčnega modela oskrbovalne verige (SCOR). Raziskava je izvedena v treh korakih. V prvem koraku je bila izvedena benchmarking študija s katero so bili pridobljeni glavni elementi temeljnih kompetenc ter grupirani v glavne kategorije s čimer je bila postavljena osnova za raziskavo. V drugem koraku so bili izvedeni ankete in razgovori v obravnavanem podjetju s katerimi so bili identificirani ključni faktorji temeljne kompetence na področju natančne strojne industrije. Analiza je bila izvedena na osnovi štirih dimenzij in posledično je bila izvedena v več krogih. Podatki pridobljeni z anketo so bili analizirani s sivo relacijsko analizo (GRA) kar je rezultiralo v 5–6 ključnih faktorjih v vsaki dimenziji ali pod-dimenziji. Na osnovi izvedenih razgovorov je bilo 13 od identificiranih ključnih faktorjev razdeljeno v en organizacijski cilj, pet ključnih faktorjev temeljne kompetence in sedem ključnih faktorjev temeljne veščine. V zadnjem koraku so bili določeni (ali nastavljeni) ključni organizacijski kazalniki uspešnosti (KPI) za pet identificiranih ključnih faktorjev temeljne kompetence. Vzpostavljene so bile najbolj konkurenčne temeljne veščine za vsakega od petih ključnih faktorjev. Nadalje so bili za vsak ključni faktor določeni organizacijski KPI na osnovi temeljnih veščin v okviru treh glavnih kategorij KPI (oddelčno, na nivoju pisarne in hierarhično). Razvit sistem KPI, ki je osnovan na organizacijskih ciljih, temeljnih kompetencah in temeljnih veščinah omogoča podjetjem, da obvladujejo tako dinamične zahteve trga in poslovnega okolja, kakor tudi spremembe splošnih poslovnih ciljev.

Ključne besede: temeljne kompetence, temeljne sposobnosti, SCOR model, ključni kazalniki uspešnosti, siva relacijska analiza.

IJMKL, 4(2), 135–161

Vrednotenje virov tveganja pri velikih inženirskih projektih: vloge dvoumnosti in negotovosti

Leena Pekkinen, Kirsi Aaltonen, Jaakko Kujala in Janne Härkönen

Sodobna literatura na področju projektnega upravljanja s tveganji predstavi negotovost, tj. pomanjkanje informacij, kot temeljno osnovo projektnih tveganj. V študiji avtorji poudarijo, da dvoumnost, tj. obstoj več nasprotujočih interpretacij, lahko služi kot osnova za tveganje. S poglobljeno empirično raziskavo večjega kompleksnega inženirskega projekta so avtorji identificirali vire

tveganj katerih osnova je v situacijah z negotovostjo ali dvoumnostjo kot prevladujočo lastnostjo. Teorija obdelave informacij podaja različne managerske prakse upravljanja s tveganji osnovane na virih tveganja povezanih z negotovostjo ali dvoumnostjo.

Ključne besede: upravljanje s tveganji pri projektih, kompleksni projekti, negotovost, dvoumnost, teorija obdelave informacij, viri tveganja.

IJMKL, 4(2), 163–180

Potrošniško poznavanje države porekla produkta ter posledični vpliv na senzorično oceno produkta

Tina Vukasović

Cilj raziskave je bila določitev percepcij potrošnika glede prehrambnih izdelkov v povezavi z njihovim poznavanjem države porekla produkta in potencialnim vplivom na senzorično evalvacijo drugih lastnosti produkta. Rezultati raziskave predstavljajo poglobljeno preiskavo vpliva porekla na percepcijo potrošnika. Celostni pristop k raziskavi vplivov porekla produkta je bil izbran s ciljem oblikovanja medsebojne povezave med poznavanjem porekla produkta in drugimi senzoričnimi lastnostmi produkta.

Ključne besede: vedenje potrošnikov, država porekla (COO), eksperiment, prehrambni izdelek, znanje, upravljanje znanja

IJMKL, 4(2), 181–195

Prenos usposabljanja: reorganiziran pregled delovnega okolja in motivacije za prenos

Imran Khan, Sabiya Mufti in Nazir Ahmed Nazir

Učinkovita uporaba veščin in znanja pridobljenega preko programa usposabljanja v okviru poslovnega okolja, tj. prenos usposabljanja, je postala pomemben del usposabljanj. Prenos naučenih veščin v okviru dejanskega delovnega okolja je odvisen od številnih faktorjev, pri čemer delovno okolje predstavlja enega od teh faktorjev. Raziskave so pokazale relativno pomembno vlogo delovnega okolja pri opredelitvi oblikovanja prenosa. Kljub temu pa so nekatere najbolj pomembne značilnosti delovnega okolja še vedno premalo raziskane ter je potrebno nadaljnje empirično testiranje. Torej, članek je poskus celovitega pregleda literature in metodologije preko sumativnih, formativnih in meta študij objavljenih na področju prenosa znanja v letih od 1988 do 2014. Članek predlaga konceptualni okvir s poudarkom na pomenu vpliva dveh oblik delovnih okolij (npr. podpora in atmosfera) na prenos usposabljanja pri čemer upošteva posredniško vlogo motivacije za prenos s priporočenimi metodološkimi standardi.

Ključne besede: usposabljanja, učenje, prenos usposabljanja, delovno okolje, motivacija za prenos

IJMKL, 4(2), 197–219

Kulturna raznolikost in izkušnje v razredu: fenomenološki primer odziva podiplomskih študentov na nove izkušnje v razredu

Oscar S. Mmbali in L. A. Pavithra Madhuwanthi

V študiji analiziramo izkušnje študentov v kontekstu medkulturnega razreda s ciljem ugotoviti: (1) Kakšen je vpliv izkušenj v okviru kulturno raznolikega razreda na učenje podiplomskih študentov? (2) Katere so večje posledice, če sploh so, te izkušnje? Udeleženci so bili študentje doktorskega in magistrskega študija na univerzi na Tajskem. Šlo je za fenomenološko študijo. Teme, ki so osnovane na kompleksnih kulturnih praksah mednarodnih študentov lahko ovirajo ali pa spodbujajo učenje, pravijo profesorji in tajski študentje. Ugotovitve študije lahko pedagogom, zlasti na podiplomskem nivoju, pokažejo v katerih primerih je kulturna raznolikost pomembna pri izkušnji v razredu.

Ključne besede: kulturna raznolikost, učenje, izkušnja v razredu, višja izobrazba, Tajska

IJMKL, 4(2), 221–239

Finančna pismenost študentov prvega letnika univerze: vloga izobraževanja

Francka Lovšin Kozina in Nina Ponikvar

Članek predstavlja vpogled v značilnosti upravljanj financ s strani študentov in njihovo splošno finančno pismenost. Študija je bila izvedena z anketiranjem 259 študentov dveh fakultet. Študenti študijskih programov na področju ekonomije so bili statistično boljši pri definicijah inflacije, likvidnosti in realnih dohodkov. Statistično pomembne razlike med predmeti so bile prav tako na področju odločitev glede investicij, in sicer so se študentje s področja poslovanja raje odločali za bolj tvegane investicije, kot na primer investicije v delnice ali zlato, medtem ko so drugi študentje raje uporabili varčevalni račun. Rezultati so pokazali, da študentje, katerih študijski programi vsebujejo ekonomske vsebine, pogosteje menijo, da imajo nadzor nad svojimi financami ter da je njihovo znanje na področju financ nad povprečnim. Rezultat nakazujejo, da sodelovanje pri ekonomskih/finančnih predmetih poveča finančno pismenost ter občutek poznavanja finančnega področja, kar je pomembno pri prenosu znanja v prakso.

Ključne besede: finančna pismenost, finančno upravljanje, izobraževanje, znanje, Slovenija, študenti

IJMKL, 4(2), 241–255

Samoocena uporabe tehnik za izogibanje plagiatorstva pri oblikovanju etičnega učnega okolja med študenti raziskave

Saeed Ahmad and Ahsan Ullah

Uporaba tehnik za izogibanje plagiatorstvu lahko pripomore k ohranjanju akademske integritete, boljšega učnega okolja in intelektualne poštenosti. Študija raziskuje uporabo tehnik za izogibanje plagiatorstva pri oblikovanje etičnega učnega okolja med študenti raziskave. Poleg tega je merjena povezava

med pogostostjo uporabe tehnik za izogibanje plagiatorstva ter zadovoljstvom glede poznavanja plagiatorstva. Podatki so bili zbrani iz sedmih univerz z uporabo spletnega samo-strukturiranega vprašalnika. Za določanje variance je bila uporabljena ordinalna logistična regresija. Povezava med pogostostjo uporabe tehnik za izogibanje plagiatorstva in zadovoljstvom glede poznavanja plagiatorstva je bila nakazana. Prav tako smo odkrili razlike na osnovi spola, discipline, nivoja in stopnje študija.

Ključne besede: plagiatorstvo, etično učno okolje, tehnike za izogibanje plagiatorstva, raziskovalne veščine, poznavanje plagiatorstva, učenje študentov

IJMKL, 4(2), 257–270

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