RĪGAS EKONOMIKAS AUGSTSKOLA
STOCKHOLM SCHOOL OF ECONOMICS IN RIGA

SSE Riga Working Papers
2005:6 (74)

PERCEIVED INVOLVEMENT IN DECISION-MAKING AND JOB SATISFACTION: THE EVIDENCE FROM A JOB SATISFACTION SURVEY AMONG NURSES IN ESTONIA

Authors: Mirko Känd
Martin Rekor

ISSN 1407-0162
ISBN 9984-590-82-8

November 2005
Riga

Strēlnieku iela 4a, Riga, LV-1010, Latvia • Phone: +371 7 015 800 • Fax: +371 7 830 249 • E-mail: Office@sseriga.edu.lv • www.sseriga.edu.lv

Perceived Involvement in Decision Making and Job Satisfaction: The Evidence from a Job Satisfaction Survey among Nurses in Estonia.

By:

Mirko Känd (mirko.kand@gmail.com)

Martin Rekor (martin.rekor@gmail.com)

Supervised by
Uldis Pavuls, PhD, Fontes R&I

Consulted by
Baldur Kubo, MBA, Resta

March 2005
Stockholm School of Economics in Riga

Acknowledgements

The authors would like to thank all the lovely Estonian nurses who participating in the survey. Special thanks goes to Ester Pruuden from the Estonian Nurses Union for an immense contribution. The deepest gratitude is expressed to Uldis Pavuls and Baldur Kubo for keeping the authors on track by providing constructive feedback. The authors kindly thank Christopher Goddard for his valuable comments relevant for the working paper. The authors also thank Riin, Inge, Konstantin, Mihhail, Roger and Fergus (all from Resta Ltd.) who provided guidance in the world of structural equation modelling and technical matters.

Most of all, the authors would like to thank their families and friends who offered kind assistance during this research.

Abstract

This paper examines the general tendencies of nurses' motivation and satisfaction based on a survey among nurses in Estonia. The study is based on the European Performance Satisfaction Index methodology and was motivated by the increasing popularity of the European Employee Index in Scandinavia. Data are analyzed with structural equation modelling partial least squares methods and the models developed incorporate the implications of Herzberg's Two Factor theory and Cowin's Nurses Self-Concept. A particular focus is directed to the nurses' perceived involvement in decision-making (*PIDM*) and its implications for the other job satisfaction components. The authors conclude that *PIDM* is an important determinant of job satisfaction. Increasing *PIDM* will have a positive effect on other nurses' job satisfaction components. In addition, high *PIDM* not only increases satisfaction but also strengthens the links between other determinants of job satisfaction. Allowing nurses representatives to take part in management meetings leads to nurses perceiving that they actually can make a difference in improving their situation in health care institutions and organizational well-being in general. Naturally, increasing *PIDM* is a long-term process, which demands both attention from the management side and initiative from the nurses' side.

1 Introduction

1.1 Background information

Since Estonia regained independence, foreign direct investment has grown substantially. The largest part of that investment has come from Scandinavian countries - mainly because of the similar business culture and their geographical proximity to Estonia. During more than a decade, foreign owners have injected western management principles and western leadership styles into Estonian businesses. Many of the concepts that today form the cornerstone of many ventures, were unknown to Estonian businessmen at the beginning of the nineties - 360 degree feedback, delegation of authority, and the importance of internal communication are just a few examples. With time, these attitudes have spread throughout the private sector, becoming a prerequisite for success.

The public sector has lagged behind in adopting western principles. The main cause for not implementing these concepts is that the public sector does not have such experienced and demanding shareholders as the private sector.

After regaining of Estonian independence, the main focus of politicians was on eradicating corruption and creating legislation. It took the public sector roughly a decade before they were able to start introducing western principles. The transformation has been especially harsh among industries that are very traditional. The Estonian health care system is such an example. It has been reformed continuously in order to introduce modern concepts in management. Most recently, the educational system in health care has been reformed – a system which once dealt with medical procedures has now been set up to serve the needs of a patient. Yet, there is one health care institution that has gone even one step further at introducing western management concepts.

East Tallinn General Hospital (from here on referred to as ETGH) has invited the representatives' of nurses to participate at management meetings. Surprisingly, nurses as one of the biggest stakeholder groups of a hospital, were previously not represented in the management of the hospital, even though nursing is a highly problematic area in all hospitals.

Ester Pruuden, the president of the Estonian Nurses Union, said that after introducing the concept of adding nurses to the management of the hospital, ETGH has become the most desirable hospital for nurses to work at (Personal Communication).

The authors believe that the main cause for the attractiveness of ETGH is that nurses recognize that they have a valuable input into the decision-making process, and thus to overall organizational development. Nurses sense that, although the current situation at the hospital is not at a satisfactory level, the possibility exists for them to make a valid contribution towards

its improvement. This very notion forms the core of this study: empirical research will find out whether the act of permitting nurses' spokespersons to take part in management meetings is a cause of increased nurses' job satisfaction.

The main objective of this paper is to find out whether *high perceived involvement in decision-making results in high loyalty, commitment, and retention.* The concepts of loyalty, commitment, and retention are the outcomes of job satisfaction: if individuals have high job satisfaction then they do not want to leave their organisation (loyalty), they are devoted to the job (commitment), and do not want to abandon their profession (retention).

In addition to the main research question, the authors have identified two secondary objectives for this paper.

First of all, people in smaller organisations collaborate and interact more relative to large institutions. The management and decision making is "closer" and every employee and their opinion gets more attention from the management. Therefore, the authors would also like to know *whether smaller organisations have a higher perceived involvement in decision making than in larger institutions, ceteris paribus*.

Secondly, the latter research question serves as a foundation for following studies. Namely, the authors seek to determine the *importance of perceived involvement in decision-making compared to other factors that influence job satisfaction.* Job satisfaction studies distinguish usually 7-10 facets of job satisfaction. There are altogether 12 factors, besides perceived involvement in decision making, which the authors will concern themselves with. *Working environment*, *communication*, and *salary* are just some of them.

The key framework in this paper is the European Employee Index (from here on referred to as EEI), a general set of principles that has been used by professional market research companies for measuring job satisfaction. More to the point, the authors have slightly modified the questionnaire of EEI in order to tailor it towards nursing. But most importantly, another set of job dimensions has been added to the model, namely Cowin's self-concept.

1.2 Relevance of the study

The study aims to contribute to Estonian health care system development and bring out the general tendencies of nurses' motivation and satisfaction based on a large-scale survey among nurses in Estonia. It also aims to point out the relevance of nurses' involvement in decision-making and nurses' current perception of it.

The topic was appealing to the authors for several reasons. Firstly, in the summer of 2004 the authors had the great pleasure to work at Resta Ltd., as analysts dealing with satisfaction surveys. The usage of satisfaction surveys, especially customer and employee surveys, has become more popular in the private sector. Still, however, the newest state-of-

the-art methodologies are not being applied. Therefore, increased awareness and usage of the EEI model can bring new perspectives to satisfaction surveys in Estonia. Secondly, Cowin's Nurses Self-Concept or social responsibility is introduced and explored within the framework of the EEI model. Thirdly, the public sector has lagged behind in using satisfaction surveys, mainly because of lack of funding. Performing a survey among nurses who, presumably, have a high social responsibility and tolerance perfectly suits the aim of SSE Riga and the authors to create long-term value to Baltic society as a whole.

2 Literature review

This section of the paper focuses on presenting the main theories relevant to the paper.

2.1 Perceived involvement in decision-making

The term 'perceived involvement in decision-making' (*PIDM*) is widely used in the literature. *PIDM* accumulates the concepts of 'employee involvement' and 'participation in decision-making'.

Employee involvement "is a term used to qualify employee relations practices which management believes to encourage employees' commitment to managerial goals and the success of the enterprise" (Mariapa, 1998). Mariapa argues that employee involvement consists of four basic dimensions:

1. The degree of involvement.
2. The form of involvement.
3. The level within the organisational hierarchy at which involvement takes place.
4. The scope of the issues encompassed by it.

Perceived employee involvement is an indirect form of involvement where "intermediaries or representatives act as channels of communication or influence between management and employees" (Mariapa) and employees perceive that their interests are represented to a large extent.

Locke and Schweiger (1979) define participation in decision-making as involvement in the process of reaching decisions; participation is defined as a process in which influence is shared among individuals who are otherwise hierarchically unequal.

2.2 Job satisfaction – motivation theories

Motivation theories can be separated into two categories, content theories and process theories. "Content theories assume that all individuals possess the same set of needs. These theories tend to be heavily prescriptive in nature; since by assuming that people have similar needs they are also recommending the characteristics that ought to be in jobs." (Finchman,

Rhodes, 1994) Process theories, on the other hand, relate motivation to the psychological processes that affect basic needs – and are concerned with people's perception of it (Armstrong, 2003).

Maslow's hierarchy of needs suggests that employees have a hierarchy of needs and will always seek more from their jobs and employers. The principle behind it is that a satisfied need is no longer a motivator and, as Johnson & Gill put it: "unsatisfied needs serve as 'magnets' that attract efforts to satisfy them." (1993, p. 59). When jobs are secure they will seek ways of satisfying social needs to the ultimate end of self-actualization. However, Armstrong (2003, p. 219) argues that Maslow's hierarchy of needs does not have practical significance.

The most prominent and, in practice, the most often used content theory is Herzberg's Two-Factor theory. This argues that job satisfaction differs from job dissatisfaction. He proposed the term motivators (or satisfiers) to describe intrinsic factors of work, and hygienes to describe extrinsic factors of work. Motivators create job satisfaction, but hygienes remove dissatisfaction. According to Armstrong (2003, p. 224) Herzberg's two-factor theory has strong implications for job design – the reward system should provide financial and non-financial results.

Finchman & Rhodes (1994) state that another notable attempt to illustrate the connection between different models of motivation and managerial practices was made by McGregor. His theory X assumes that if people behave like rational economic beings, then they require either reward or coercion for motivation. Theory Y, in turn, "has its centre *complex man*, possessing a bundle of social and self-actualizing needs, who, given the appropriate conditions of work, can show high levels of responsibility and self-direction." (Finchamn & Rhodes, 1994).

Cowin (2002) argues that the overall extent to which one can be satisfied is determined by self-concept. The importance of this process, however, is intimately linked to our overall ability to experience and gain a sense of our place in the world. Cowin also proves that self-concept does have an impact on job satisfaction and retention. The authors have included Cowin's self-concept because, besides the proved effect on job satisfaction, it takes into considerations the social and cultural aspects of being a nurse.

Adams, an advocate for process theories, "assumes that one important cognitive process involves people looking around and observing what effort other people are putting into the work and what rewards follow for them, and comparing this ratio with their own." (Finchamn & Rhodes, 1994) Equity theorists argue that this social comparison process is

driven by our concern with fairness and equity, and the implication for managers is the requirement of developing equitable reward and employment practices.

VIE (valence, instrumentality and expectancy) theory introduced by Vroom stresses the perception of a link between effort and reward. Perceiving this link could be thought of as a process in which people calculate a connection between their effort and their performance (expectancy), so that the valued rewards (valences) are significant for them, and would follow from high performance (instrumentality). Finchman & Rhodes (1994) summarize it: "The theory predicts that jobs which produce low levels of motivation will be those where aspects of job performance are out of worker's control."

Behavioural scientists have proposed two types of feeling that people have about their jobs: global and facet. "Global job satisfaction reflects an individual's overall feelings towards his or her job. But in addition, people may express feelings about particular aspects or facets of their job." (Finchman & Rhodes, 1994). In the generic joint model to be presented, the causes of satisfaction measure the feelings that people express about a particular aspect of their job. The job satisfaction index however, measures overall feelings towards the job.

2.3 Link between PIDM and job satisfaction

"Several researchers (Eby, Freeman, Rush, & Lance, 1999: Pierce Rbenfeld, & Morgan, 1991); Thomas & Velthouse, 1990) have argued that enhancing individual perceptions of empowerment and fair treatment may intensify affective reactions toward work, and, ultimately reduce rates of turnover and absenteeism. In particular, studies have demonstrated that participative decision making can be beneficial to workers' mental health and job satisfaction (Cotton, Volltrath, Frogatt, Lengnick-Hall, & Jennings, 1998; Fisher, 1989; Miller & Monge, 1986)" (qtd in Wright and Kim, 2004, p. 18).

2.4 Link between job satisfaction and its' outcomes

Locke has defined Job satisfaction as "a pleasurable positive emotional state resulting from the appraisal of one's job experiences" (1976). Many advocate this definition as it has captured the affective nature of job satisfaction, which is "something more like a feeling about one's job rather than their thoughts about it" (Finchman, Rhodes, 1994). Spector states that there are two approaches to measuring Job satisfaction – single overall feeling toward the job or separate feelings towards different job facets (qtd. in Pavuls et al, 2001)

Price & Mueller (1981) have identified that job dissatisfaction has a direct effect on the formation of intent to leave. In our paper (see Appendix II for the questionnaire) loyalty describes one's intention not to leave one's job.

Another study has revealed a positive relationship between job satisfaction and organizational commitment (Irvine & Evans, 1992). Organizational commitment describes willingness to contribute to the development of the organization.

Retention is defined by Cowin as willingness to change profession. Lum et al (1998) identify other cited variables related to nurses' job satisfaction that are intrinsic and extrinsic aspects of the job. Their empirical study concludes that job satisfaction has only indirect influence on the nurses' intention to quit; however, organizational commitment has the strongest and most direct impact on job satisfaction.

3 Methodology

In this section the authors elaborate on the topic of methodology used for developing this research. The methodology was based on the EPSI Rating methodology, as described in Pan European CSI Report 2002 (The EPSI Methodology, 2002). EPSI Rating stands for European Performance Satisfaction Index, and it is most commonly used for measuring customer satisfaction. The authors incorporated the principles of EPSI Rating methodology and adapted it to the environment of the Estonian health care system and to the specific needs of nurses' research.

3.1 The Causal Model Approach

The generic model is based on the micro decision-making approach (Eklof speech, 2002) that tries to capture "psychological processes of forces that affect motivation" (Armstrong, p.221) - how people perceive, interpret, and understand motivation. The cornerstone of this is the causal link between causes of satisfaction and outcomes of satisfaction. Therefore, the structural equation modelling with following components was used:

First level latent variables:

- Extrinsic motivators (hygienes);
- Intrinsic motivators (satisfiers);
- Nurses Self-Concept;
- *PIDM* (Perceived involvement in decision making)
- Job Satisfaction;
- Loyalty;
- Retention;
- Commitment;

Second level latent variables

Extrinsic motivators - Salary, Working conditions, Job security and pressure;
Intrinsic motivators - Personal growth and development, Teamwork, Recognition, Image and pride;
Nurses Self-Concept - Nurses General Self Concept, Care, Staff relations, Communication, Knowledge;
PIDM (Perceived involvement in decision making) – Perceived management attention; Perceived participation in management; perceived importance of nurses opinion.

These latent variables were covered by the group of manifest questions. According to Eklof (Speech, 2002), at least 3 questions are needed for determining a latent variable. "Each component is measured, the level of each component estimated, the relevant connections between the components established and the magnitude of the connections estimated. The objective is to provide results that are relevant, reliable, and valid and have predictive financial capability." (The EPSI Methodology, p. 15).

3.2 Linking Theories and Establishing the Relevant Model

The developed model distinguishes three sections: causes of satisfaction, overall satisfaction, and outcomes of satisfaction. The causal link between these sections is supported by process motivation theories, i.e. expectancy theory in particular. EEI has empirically proved a generic causal model for employee perceptions during the last 4 years in Scandinavian countries (Eskildsen et al, 2004). Lawler suggests that equity and discrepancy theories are two of the strongest theoretical explanations of satisfaction (p. 93). Principally, these can be considered as causes of satisfaction. The authors, in turn, divided these causes of satisfaction into three sub-categories: extrinsic motivators (hygiene) and intrinsic motivators (satisfiers) proposed by Herzberg (Graham, Bennett, 1995), and Nurses Self-Concept suggested by Cowin (2002). *PIDM* is according to Herzberg's Two-Factor model one of the many satisfiers ("organizational policies"). For the purpose of assessing *PIDM* role to the job satisfaction framework, *PIDM* is distinguished as a separate latent variable. The authors split outcomes of satisfaction also into three sub-categories: loyalty that is used in EEI, retention proposed by Cowin, and organizational commitment that according to Hollway "is the single most important aspect of Herzberg's theory and the fundamental reason for its enduring popularity." (p. 106).

The generic model was used for research question 3, as it aimed to cover different job satisfaction dimensions and allowed comparison of impacts to overall job satisfaction. For answering the first two research questions, the model used was extracted from the generic one. Latent variables regarding satisfaction and outcomes of satisfaction stayed the same; however, only questions regarding perceived involvement in decision-making.

3.2.1 Questionnaire Design

The master questionnaire was developed and its reliability tested in a pilot study in late November 2004. As suggested by Eklof (Speech, 2002), each latent variable was covered by three manifest questions in reference to the specific aspects of latent variable. The nurses were asked to rate positive statements about attitudes in a Likert type scale from 1 to 10, where 1 means that a respondent completely disagrees with a statement; and 10 indicates the total

agreement with a statement. The master questionnaire for the pilot study included 51 main questions and 7 background questions; the respondents were also asked to evaluate the wording and understanding of the statements and the length and depth of the questionnaire.

The questions are largely based on the EEI conceptual model, which in turn is based on extensive studies of the literature (Eskildsen et al, 2004); nurses' self-concept and retention are grounded on Cowin's study (2002) in order to incorporate the specifics of working as a nurse. The wording is adapted to the Estonian linguistic and cultural context.

A pilot study was carried out among 25 nurses in Pärnu Primary Health Care Centre in order to test the questionnaire. Several nurses highlighted the relevance of the questionnaire, as it was able to capture many different sides of being a nurse. After the results were obtained from the questionnaires, an in-depth interview was held with the head nurse.. As a consequence, the wording and essence of some of the questionnaires were changed. The pilot study helped the authors to revise the questionnaire and prepare it for the final survey. In addition, six extra questions were added to capture the different aspects in which perceived involvement in decision-making reveals.

3.2.2 Sampling

Those to be included in the aggregate population that was sampled later on, had to correspond to the following three criteria:

- be at least 18 years old:
- be employed as a nurse in Estonia at least 6 months;
- work at least 20 hours on average weekly as a nurse for the same employer.

There are around 8000 active nurses in Estonia (Ester Pruuden). The data about nurses was obtained from the registry of Estonian health care files (Estonian Health Care Board). The survey was carried out among the different hospitals and health care institutions that agreed to take part.

3.2.3 Field operations

Data was collected mainly by self-administered paper questionnaire and web-based questionnaire. Web-based questionnaires provide anonymity to respondents; increase the convenience of answering for respondents; and decrease the error of imputing the data of paper questionnaires.

3.2.4 The Analysis System

The structural estimation model is estimated using Partial Least Squares (further referred to as SEM PLS) techniques (see more in Appendix). For the purposes of estimating the model, the statistical software SmartPLS and R-Code were used. While analyzing the results, QlikView software was used for presenting and visualizing the data and utilizing the filters on data.

According to the EPSI methodology (2002), the 95% confidence interval for the job satisfaction survey has to stay within the error of 4 units in the index scale of 0-100. According to Eklof (Speech, 2002) the model must be capable of explaining 65% of what drives overall satisfaction.

4 Empirical results

4.1 Characteristics of respondents

The sampling criterion used for selecting respondents in this paper has not been purely random. A truly random sample would have been based on an up-to-date nurses' database, where one would be able to randomly select the respondents. In that case, the selected respondents should have been contacted personally. The authors identified several restrictions why this approach has not been used. First of all, the nurses' database that the authors were able to receive from the Registry of Health Care Workers was outdated: the data was old and many cells were empty. Secondly, the response error would have been large if personal questionnaires were sent out, because nurses might have been afraid that the answers are not completely anonymous.

The authors asked background questions in order to verify the extent to which the answers were dispersed. In total, there were seven background questions:

- Name of the health care institution.
- Years of employment.
- Type of nurse.
- Type of health care institution.
- Tenure as a nurse.
- Age.
- Nationality.

In total there were 492 respondents to the questionnaire. 276 respondents answered the web-based self-administered questionnaire. From 248 paper copies, 216 were returned. The overall response rate was therefore 87,1%. A high response rate was achieved by participating at the Nurses' Union Congress where the authors were able to make personal contacts.

Despite the missing answers in some questionnaires, all respondents were valid for further analysis as the analysis software (SmartPLS) is able to handle missing values. A demographic characteristic of the 492 respondents is provided in Table 1.

Respondents represent 22 different health care institutions (24 respondents left the question unanswered). In addition there were respondents from various smaller health care organizations in Valga County. These were unified to a common name Valgamaa (the actual name of the organization is not known, for reasons of anonymity).

Table 1: Characteristics of respondents (N=492)

Nationality		**Name of the health care institution**	
Estonian	77,03%	PERH Total	24,19%
Russian	16,06%	PERH	14,63%
Other	4,07%	PERH Mustamäe	4,47%
Not answered	2,85%	PERH Psühholoogiakliinik	4,07%
Age		PERH Onkoloogia	1,02%
18-25	7,52%	ITKH Total	17,47%
26-35	29,67%	ITKH	5,89%
36-45	30,28%	ITKH Sisekliinik	4,67%
46-55	18,70%	ITKH Kirurgiakliinik	2,64%
56+	11,79%	ITKH Taastuskliinik	3,05%
Not answered	2,03%	ITKH Silmakliinik	1,22%
Type of health care organization		Tallinna Lastehaigla	7,11%
Primary health care centre	16,87%	Tallinna Hambakliinik	7,11%
General hopsital	27,44%	Rapla haigla	8,33%
Convalescent hospital	2,85%	Jõgeva haigla	5,69%
Regional hospital	48,37%	Põlva haigla	7,52%
Not answered	4,47%	Valgamaa	4,47%
Type of nurse		Kuressaare Haigla	1,42%
Intensive care nurse	14,84%	TÜ Kliinikum	1,63%
Clinical nurse	57,32%	Pärnu Hambakliinik	4,07%
Health care nurse	13,41%	Keila Haigla	1,63%
Geriatric nurse	7,32%	Lõuna-Eesti Haigla	1,63%
Not answered	7,11%	Järve Haigla	0,61%
Tenure as a nurse		Kogula Hooldekodu	0,20%
until 1 year	1,83%	Perearstikeskus	0,41%
1-3 years	8,33%	Tartu Kiirabi	0,20%
3-5 years	4,88%	Sõmera hooldekodu	0,20%
5-10 years	16,06%	Telliskivi Perearstikeskus	0,41%
10-20 years	33,74%	Pirita PAK	0,20%
20+ years	30,89%	Angelina Vukkert	0,20%
Not answered	4,27%	Merelahe PAK	0,20%
Tenure in current organization		Vinni Tervisekeskus	0,20%
until 1 year	4,27%	Not answered	4,88%
1-3 years	20,53%		
3-5 years	11,79%		
5-10 years	22,15%		
10-20 years	22,97%		
20+ years	15,85%		
Not answered	2,44%		

Source: authors, data set

77% of the respondents were Estonians and 16% Russians. The remaining 7% left the question unanswered or selected the option “others”.

There were least respondents from the age group 18-25 (7,52%). Meanwhile, the most represented groups were 26-35 and 36-45 (29,67% and 30,28%, respectively).

48,37% of respondents stated that they were working in a regional hospital, 27,44% in a general hospital, and 16,87% in a primary health care centre.

More than half (57,32%) of the respondents were clinical nurses, 15,84% were intensive care nurses, 13,41% were health care nurses, and 7,32 were geriatric nurse. Every fourteenth nurse left the question unanswered. This might have been the result of low awareness of the new nurse type system that came into effect on 1st of January 2005.

Over 80% of nurses had been working as a nurse for more than 5 years; only nine persons had worked less than 1 year. The years of employment for current organization were quite different from the tenure as a nurse. This shows remarkable mobility among nurses - approximately 37% of respondents had worked less than 5 years for their current employer. Out of these, 37% approximately 60% had worked as a nurse more than 5 years – meaning that they had been working for at least two different employers.

All in all, respondents were dispersed and represented different groups.

In addition, several respondents expressed their opinion in that the questions were good because they reflected the nurses' actual situation.

In addition to the full sample, two sub samples were made. Respondents were divided into two clusters based on the *PIDM* index score – respondents with *PIDM* score higher than 65 belong to the high *PIDM* cluster (30% of respondents N=147) while the rest to the low *PIDM* cluster (70% of respondents N=345). Similar dispersions to the full sample were experienced in both sub samples.

Therefore, the authors believe that there is no strong bias in the results and the outcomes found in the paper represent nurses' perception of their real situation.

4.2 Reliability of the general model

This section of the paper focuses on testing the reliability and validity of the model.

Table 2: Composite reliabilities of latent variables

	Full sample (N=492)	"High" cluster (N=147)	"Low" cluster (N=345)
PIDM	0.944	0.813	0.902
Satisfiers	0.932	0.941	0.914
Hygienes	0.895	0.877	0.864
JSI	0.929	0.934	0.917
Self-concept	0.932	0.929	0.932
Loyalty	0.875	0.882	0.864
Commitment	0.893	0.902	0.878
Retention	0.924	0.932	0.920

Note: Composite reliabilities are calculated by using standardized assumptions (mean = 0, variance = 1)

Source: authors, SmartPLS output

All latent variables are internally consistent across all three samples used for modelling, as composite reliabilities are higher than 0,7 (please refer to Table 2). Each

composite reliability is also higher than its respective correlations of latent variables (please see Table 3).

Table 3: Correlations of latent variables (full sample, N=492)

		1	2	3	4	5	6	7	8
1	PIDM	(0.944)							
2	Satisfiers	0.627	(0.932)						
3	Hygienes	0.657	0.505	(0.895)					
4	JSI	0.405	0.491	0.470	(0.929)				
5	Self-concept	0.263	0.300	0.257	0.413	(0.932)			
6	Loyalty	0.355	0.396	0.416	0.699	0.310	(0.875)		
7	Commitment	0.405	0.469	0.401	0.766	0.420	0.675	(0.893)	
8	Retention	0.291	0.321	0.318	0.613	0.414	0.678	0.681	(0.924)

Note: Composite reliabilities in parentheses

Source: authors, SmartPLS output

In addition, no manifest questions were left out from the model; these were all assigned to the respective latent variables as intended during questionnaire design. For that purpose, cross-loadings of each manifest question were explored and compared across all latent variables (see for cross-loading scores).

Table 4: R-squares of exogenous latent variables

	Full sample (N=492)	"High" cluster (N=147)	"Low" cluster (N=345)
PIDM	-	-	-
Satisfiers	0.393	0.534	0.266
Hygienes	0.432	0.309	0.237
JSI	0.368	0.393	0.337
Self-concept	-	-	-
Loyalty	0.488	0.527	0.434
Commitment	0.587	0.734	0.490
Retention	0.407	0.617	0.330

Note: R-squares for *PIDM* and Self-concept are not available as these variables are endogenous

Source: authors, SmartPLS output

Only the first level latent variables were used in determining causes of satisfaction because in that way there were more manifest questions under each latent variable. This allowed reduction of multi-colinearity. As a consequence, it had decreasing impact on the portion of explained variance (R-square) (see Table 4). Therefore, the general models are not capable to reach the level (0,65) suggested by Jan Eklöf (Speech, 2002). Still, this does not automatically mean that the predictive relevance of the general model is poor, as there is no global single measure for PLS estimation. Bootstrapping estimates and t-tests were also explored to confirm the relevance of the measurement model and structural model. Jan Eklöf suggested that path coefficients over 0,16 be considered significant as a rule of thumb – the

average path coefficients for European Employee Index surveys were 0,16. The same rule was applied for determining significant impacts in the general model. Nine impacts were found to be significant. However, bootstrapping estimates rejected *self-concept* impact on *retention* at 10% level of significance. All impacts were significant at 95% confidence level for low cluster (N=345). Two impacts (*hygienes* to *JSI* and *self-concept* to *retention*) were not significant at 90% confidence level.

Table 5: Bootstrapping estimates (t-test) of path coefficients (impacts)

	Full sample (N=492)	"High" cluster (N=147)	"Low" cluster (N=345)
PIDM to Satisfiers	0.650 *	0.715 *	0.557 *
PIDM to Hygienes	0.661 *	0.534 *	0.481 *
Satisfiers to JSI	0.284 **	0.416 *	0.230 *
Hygienes to JSI	0.255 *	0.110	0.308 *
Self-concept to JSI	0.261 *	0.308 *	0.287 *
JSI to Loyalty	0.697 *	0.730 *	0.653 *
JSI to Commitment	0.768 *	0.863 *	0.700 *
JSI to Retention	0.526 *	0.716 *	0.434 *
Self-concept to Retention	0.199	0.110	0.242 *

Note: * $p < 0.05$, ** $p < 0.1$

Bootstrapping settings: number of samples - 492; cases per sample - 100

Source: authors, SmartPLS output

4.3 Reliability of model used in research question 1

For the purpose of analyzing research question 1, a fully reduced model was constructed. All mediating latent variables were ruled out and only direct effects between *PIDM* and three outcomes of satisfaction were explored. This was a simple and straightforward approach for exploring the link between *PIDM* and outcomes of satisfaction. Therefore the R-squares could not be high, as *PIDM* is not the only factor that influences loyalty, commitment, and retention. Still, it can be seen that in "high" *PIDM* cluster R-squares are relatively higher than in full sample and "low" *PIDM* cluster.

Table 6: R-squares of exogenous latent variables

	Full sample (N=492)	"High" cluster (N=147)	"Low" cluster (N=345)
PIDM	-	-	-
Loyalty	0.128	0.194	0.098
Commitment	0.180	0.299	0.124
Retention	0.085	0.300	0.062

Note: R-squares for *PIDM* and Self-concept are not available as these variables are endogenous

Source: authors, SmartPLS output

As there are no problems with internal consistency (see Appendix) among latent variables in all three samples, the authors believe and hypothesize that higher *PIDM* has some

direct impact on outcomes of satisfaction. This direct link is not very solid. However, the indirect impact via mediating factors is more reliable and significant.

4.4 Research question 1:

Does high perceived involvement in decision-making result in high loyalty, commitment, and retention?

The methodology used in arriving at the results has been very simple in its essence. In order to arrive at an answer raised by the research question, the main sample is divided into two sub-categories: "high" and "low". "High" indicates a high *perceived involvement in decision-making* and "low" stands for low *perceived involvement in decision- making*.

The "high" group consisted of *PIDM* score values that were 65 and more. This criterion resulted in a segment of roughly 30% of the total sample (147 respondents out of 492 fell into the category).

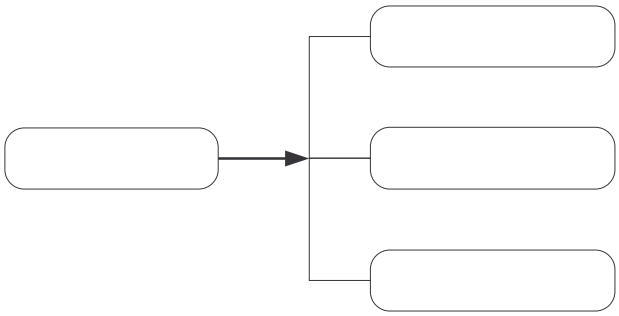
The "low" group consisted of *PIDM* score values that were 64 and less. Approximately 70% of the whole sample met this criterion. As a result, the "low" category is actually composed of both medium and lower ends of *PIDM* values.

A separate model for both of the groups was calculated. As a consequence, different results for both clusters are presented. As a next step the outcomes are compared.

Two criteria were used in order to compare the "high" group to the "low" one: factors scores and *PIDM* impacts. In the latter case the nature of the impact (positive or negative) was observed.

First of all, the results of the "high" value *PIDM* model are characterized. In short, the results of the high cluster are as can be seen from Figure 1 below.

Figure 1: "High" cluster *PIDM* direct impact on Loyalty, Commitment, and Retention.



Source: authors, SmartPLS output, data set.

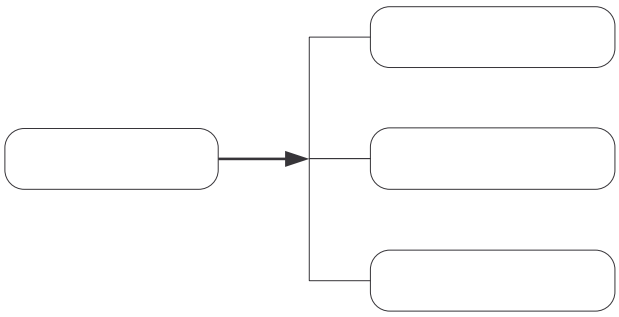
The model indicates a simple principle that there is a direct positive link between *PIDM* and the outcomes of satisfaction, namely *Loyalty*, *Commitment*, and *Retention*. In this relationship *PIDM* is the cause and *Loyalty*, *Commitment*, and *Retention* are the effects.

The nature of the relationship is positive, signifying that an increase in *PIDM* will also increase the three outcomes of satisfaction. The figure representing the impact signifies that an increase in *PIDM* by 1 will increase the outcomes by 1 times the numerical value of the impact.

The factor score of *PIDM* in the "higher" cluster is, by default, higher than in the general model. The average *PIDM* factor score on a 100-point scale for the "high" end is 81, which is well above the general result (49); the differences in *PIDM* factor scores are significant at the 95% level of confidence.

The "low" cluster indicates lower outcome values than both the "high" end group and the general model (see Figure 2).

Figure 2: "Low" cluster *PIDM* direct impact on Loyalty, Commitment, and Retention.



Source: authors, SmartPLS output, data set.

Loyalty for the "low" end is at the 67 level, *Commitment* at 73, and *Retention* 80. The difference in the *Loyalty* and *Commitment* scores is significant at 95% level throughout all the samples. The difference among factor scores is not significant except in the case of *Retention*, where, at 95% level of confidence, the results cannot be separated (please see Table 7 below).

Table 7: 95% level of confidence intervals

	"Low" cluster (N=345)	Full sample (N=492)	"High" cluster (N=147)
PIDM	(34,3 ; 38,1)	(46,3 ; 50,9)	(79,1 ; 82,1)
Loyalty	(64,6 ; 70,2)	(70,2 ; 74,8)	(81,6 ; 88,2)
Retention	**(77,4 ; 82,4)**	**(80,9 ; 84,9)**	(87,4 ; 92,6)
Commitment	(70,5 ; 74,7)	(75,3 ; 78,7)	(85,8 ; 90,0)

Source: authors, data set.

Until now, the discussion has evolved only around factor score levels. Moving further, Table 8 below presents the impacts from *PIDM* on each outcome of satisfaction.

Table 8: Impacts from *PIDM* to outcomes of satisfaction.

	"Low" cluster (N=345)	Full sample (N=492)	"High" cluster (N=147)
PIDM to Loyalty	0,306	0,356	0,428
PIDM to Commitment	0,361	0,437	0,561
PIDM to Retention	0,242	0,291	0,543

Source: authors, SmartPLS

The results suggest that the impacts grow together with *PIDM*: the higher the *PIDM* the higher are the impacts from *PIDM* to *Loyalty, Commitment, and Retention*. This tendency is valid without any exceptions.

In short, "high" *PIDM* results in "high" *Loyalty*, "high" *Commitment* and "high" *Retention*. The more nurses are involved in the decision-making of the health care institution, the more loyal they are (they do not want to leave their current employer), the more committed to their work, and the more they want to retain their current profession – nursing.

The higher the *PIDM* value is, the greater the impact from *PIDM* on *Loyalty, Commitment,* and *Retention*. This finding explains, in short, that every additional increase in *PIDM* increases outcomes even more. This is the nature of an exponential function.

After clustering nurses on the basis of only one cause of satisfaction, *perceived involvement in decision-making,* significant changes in two outcomes are observed. This implies that the importance of *PIDM* can be considered significant.

4.5 Research question 2:

Whether smaller organisations have a higher perceived involvement in decision-making than in larger institutions, ceteris paribus.

As can be seen from the questionnaire, the authors have chosen nine questions to illustrate perceived involvement in decision-making. But as the methodology requires a minimum of three questions for generating an index, *PIDM* can be split into three sub-indices.

Questions 13-15 are allocated to *Perceived management attention*.

Questions 16-18 are allocated to *Perceived participation in management*.

Questions 19-21 are allocated to *Perceived importance of nurses' opinion*.

The sample is grouped based on the size of the health care institution. The first cluster consists of respondents from four central hospitals in Estonia: East Tallinn Central Hospital, West Tallinn Central Hospital, Northern Estonia Central Hospital, and Tartu University Hospital. The rest of the hospitals are considered to be a small cluster.

The authors wanted to study the effect of size on *PIDM* because they thought that a link might exist between those two factors, since in smaller hospitals managers seem to be

closer to nurses: they have less management layers. In contrast, at larger institutions with a number of management layers it is difficult for top management to interact with nurses.

Table 9: 95% of confidence intervals of latent variables

	"Large" organizations (N=162)	"Small" organizations (N=220)	East Tallinn General Hospital (N=86)
Perceived involvement in decision making	(37,4 ; 44,8)	**(47,9 ; 54,7)**	**(49,8 ; 59,6)**
Perceived efficiency of management	(40,6 ; 48,4)	**(52,7 ; 60,1)**	**(54,5 ; 64,7)**
Perceived importance of nurses opinion	(30,1 ; 37,9)	**(42,7 ; 49,9)**	**(42,6 ; 53,2)**
Perceived involvement in decision making	(37,3 ; 45,5)	**(45,6 ; 52,6)**	**(50,6 ; 61,4)**

Note: The respondents who did not select a health care institution have been left out of this sample.

Source: authors, data set

Table 9 summarizes the results for research question 2. At 95% level of confidence interval the results between "large" and "small" groups differ: large organizations have a lower *PIDM* compared to the small organizations, ceteris paribus.

As mentioned in the introduction to the paper, East Tallinn General Hospital (ETGH) is the first hospital in Estonia where nurses are actively involved in the decision-making of the hospital. This development is also supported by the survey results. As can be seen from the table above, ETGH factor scores resemble to a great extent "small" group results. This indicates that a very large hospital as ETGH actually seems like a small organization from the nurses' perspective, as they sense that management is "close" to them; nurses' opinion is taken into consideration and is considered to be important.

There is a tendency among hospitals that big institutions try to split their operations into smaller subdivisions. These developments seem to be properly justified according to the findings.

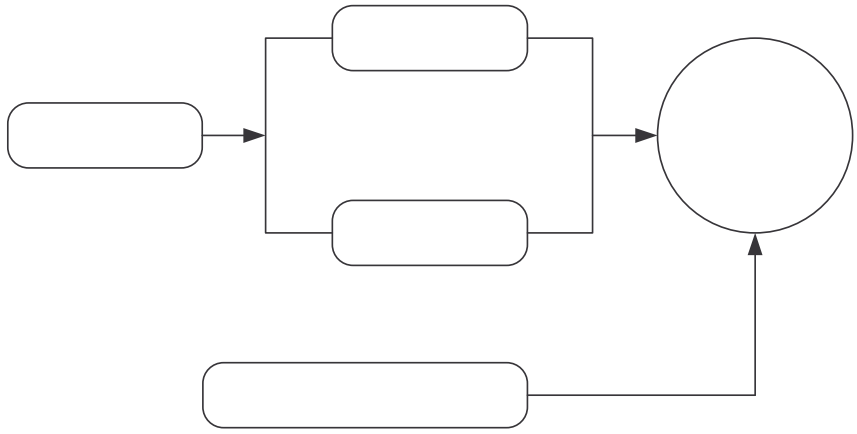
4.6 Research question 3:

What is the importance of perceived involvement in decision-making compared to other factors that influence job satisfaction?

The EEI framework's causes of satisfaction were divided into two categories: *Satisfiers* and *Hygienes*. This was done based on the Hertzberg Two Factor Theory, where *Satisfiers* were the causes of satisfaction, which increase job satisfaction, while *Hygienes* were those that decreased dissatisfaction. The authors added a third major dimension to the model, namely Cowin's self-concept, which measures the social element of nurses' job satisfaction.

As the chart below indicates, all paths are not direct relationships from each cause of satisfaction towards the job satisfaction index (*JSI*), a common index for the outcomes of satisfaction (*Loyalty, Commitment,* and *Retention*).

Figure 3: Causes of satisfaction (full sample, N=492)



Source: authors, SmartPLS

Instead, the relationships in the model turned out to be somewhat different from the traditional EEI structure, where all the causes of satisfaction have a direct effect on the *JSI*. This, however, was not a concern, as the model proved to be statistically solid: all the links illustrated on the graph were significant.

The general model, presented above, was compiled from a full sample of 492 respondents.

The general model suggests that *PIDM* does not have a direct link to the *Job Satisfaction Index*. Instead, *PIDM* has a strong impact on *Satisfiers* (0.650) and *Hygienes* (0.661).

Satisfiers, in turn, have an effect on *JSI* of 0.284, which is rather weak. The score level of *Satisfiers* is 67, with is considerably higher than the score of *Hygienes* (52).

Table 10: Causes of satisfaction impacts on Job satisfaction (full sample, N=492)

	Impact on JSI	Relative impact
PIDM	0,353 *	30,6%
Satisfiers	0,284	24,6%
Hygienes	0,255	22,1%
Self-concept	0,261	22,6%

Note: * *PIDM* impact on *JSI* is indirect one (calculated as 0,650*0,284 + 0,661*0,255)
Relative impact is calculated as 'impact on *JSI* / (sum of Impacts on *JSI*)
Source: authors, SmartPLS

Table 11: Weighted averages (Index) and 95% of confidence intervals (CI) of latent variables

	"Low" cluster (N=345)		Full sample (N=492)		"High" cluster (N=147)	
	Index	95% CI	*Index*	95% CI	*Index*	95% CI
Satisfiers	*60,9*	(59,1 ; 62,7)	*67,1*	(65,4 ; 68,8)	*83,7*	(81,9 ; 85,5)
Culture and Image	*67,1*	(64,7 ; 69,5)	*73,7*	(71,7 ; 75,7)	*88,5*	(86,5 ; 90,5)
Personal development	*62,6*	(60,3 ; 64,9)	*69,1*	(67,1 ; 71,1)	*84,7*	(82,3 ; 87,1)
Recognition	*50,1*	(47,7 ; 52,5)	*57,4*	(55,1 ; 59,7)	*77,9*	(75,1 ; 80,7)
Teamwork	*63,2*	(61,1 ; 65,3)	*68,6*	(66,7 ; 70,5)	*83,8*	(81,6 ; 86)
PIDM	*36,2*	(34,3 ; 38,1)	*48,6*	(46,3 ; 50,9)	*80,6*	(79,1 ; 82,1)
Perceived management attention	*39,9*	(37,6 ; 42,2)	*52,8*	(50,4 ; 55,2)	*83,3*	(81,5 ; 85,1)
Perceived importance of nurses opinion	*29,1*	(27,1 ; 31,1)	*42,7*	(40,3 ; 45,1)	*74,7*	(72,4 ; 77)
Perceived participation in management	*34,9*	(32,8 ; 37)	*48*	(45,6 ; 50,4)	*79,8*	(77,6 ; 82)
Hygienes	*45,7*	(43,9 ; 47,5)	*51,8*	(50 ; 53,6)	*68,4*	(65,6 ; 71,2)
Salary	*32,7*	(30,1 ; 35,3)	*41,1*	(38,6 ; 43,6)	*60,7*	(56,3 ; 65,1)
Security and pressure	*44,9*	(42,8 ; 47)	*49,3*	(47,4 ; 51,2)	*63,7*	(60,6 ; 66,8)
Working Conditions	*58,7*	(56,3 ; 61,1)	*65,6*	(63,5 ; 67,7)	*81,7*	(79 ; 84,4)
Nurses Self-Concept	***81,2***	**(79,9 ; 82,5)**	***83,4***	**(82,3 ; 84,5)**	*89,1*	(87,5 ; 90,7)
Job Satisfaction	*65,6*	(63,6 ; 67,6)	*70,1*	(68,4 ; 71,8)	*81,2*	(78,7 ; 83,7)

Source: authors, data set

Table 11 indicates that nurses are currently rather dissatisfied with their salary (41). In addition, nurses have an opinion that the security level at work is fairly low, yet pressure is high (49). These mentioned low scores have a strong negative effect on *JSI* (negative in the sense that the score levels are far below the *JSI* level). Improving the level of nurses' salary would also have the most straightforward effect on increasing their overall satisfaction, as currently the component score of *Salary* is the lowest, but the impact of the *Hygienes* index on *JSI* is substantial.

Nurses' self-concept has a factor level that is the highest among all the causes of satisfaction. Moreover, the impact on *JSI* is similar to the one of *Satisfiers* and *Hygienes*. This

indicates that the emotional side of helping patients is very important to nurses. In addition, nurses are also rather satisfied with the emotional side (83).

Due to the fact that the general model does not identify a direct link between *PIDM* and *JSI* as the authors predicted initially, it is impossible to determine the relative *PIDM* importance among the causes of satisfaction. Therefore, the authors have thoroughly presented an explanation of how *Hygienes* and *Satisfiers* affect *JSI* - *PIDM* affects *JSI* through these two factors.

Table 12: Path coefficients of model used in the research question 3

	Full sample (N=492)	"High" cluster (N=147)	"Low" cluster (N=345)
PIDM to Satisfiers	0.650	**0.715**	0.557
PIDM to Hygienes	0.661	0.534	0.481
Satisfiers to JSI	0.284	**0.416**	0.230
Hygienes to JSI	0.255	0.110	**0.308**
Self-concept to JSI	0.261	0.308	0.287

Source: authors, SmartPLS

The figure above presents the results for the two clusters already discussed previously: a cluster with “high” *PIDM* values and one with “low” values. This model is introduced because there are several discrepancies among the clusters.

The main point of interest in the table above is is that in the “higher” *PIDM* cluster the impact from *Satisfiers* on *JSI* is significantly higher (0.416) than in the “low” group (0.230). The effect from *Hygienes* to *JSI* is higher in the “lower” *PIDM* cluster (0.308) than in the “high” end (0.110). This finding suggests that if nurses are satisfied with their involvement in management decisions, the importance of *Satisfiers* is large (0.416). In this case the factors that increase satisfaction (as opposed to *Hygienes*, which decrease dissatisfaction) become important.

The other development where it was identified that the impact of *Hygienes* on *JSI* is much larger in the “low” cluster can be explained in the following matter. If nurses are denied the chance to take part in management activities, the importance of *Hygienes* (salary, security and pressure, and working conditions) become more important. Nurses’ participation allows them to discover many sides of financing matters, which to some extent may justify low salaries, low working conditions, and intensive schedules. That may literally increase satisfaction by decreasing dissatisfaction.

5 Implications and Conclusions

The study focused on discovering the role of *perceived involvement in decision-making* (*PIDM)* in determining job satisfaction (*JSI*) among Estonian nurses.

In line with the authors' expectations, *PIDM* was an important determinant of job satisfaction. However, a direct cause-effect link between *PIDM* and *JSI* was not discovered. Instead, the authors determined that *PIDM* had an indirect connection to *JSI*. This link was established through two other determinants of job satisfaction: *Satisfiers* and *Hygienes*.

In order to answer the first research question, *Does high perceived involvement in decision-making result in high loyalty, commitment, and retention* the authors have simplified the real situation and explored only direct impacts from *PIDM* on Job Satisfaction outcomes. Subsequently, the sample was divided into two clusters: one with "high" *PIDM* values and another with "low" *PIDM* values. The results prove that respondents with "high" *PIDM* values have a higher *Loyalty*, *Commitment*, and *Retention* compared to the "low" *PIDM* cluster.

The second research questions, *Do smaller organizations have a higher perceived involvement in decision-making than in larger institutions, ceteris paribus?* Again, the authors divided the full sample into two clusters: "large" and "small". Based on the analysis, it was found that in terms of size there are significant differences in *PIDM*. Larger organizations have a lower factor score for *PIDM* compared to smaller organizations where managers tend to be somewhat "closer" to the nurses. This finding supports the trend in health care institutions in Estonia today, where large institutions (like East Tallinn General Hospital) have been splitting up mammoth organizations into smaller divisions. Thereafter the *PIDM* in those smaller subunits is larger.

The third research question, which seeks to find *how PIDM compares to other causes of job satisfaction*, was left somewhat unanswered. This happened because no direct link between *PIDM* and job satisfaction was determined. As a result, *PIDM* was left out from the comparison of causes of satisfaction. The authors discovered that *Satisfiers* had a higher score and higher impact on *PIDM* than *Hygienes*. Furthermore, where nurses are excluded from taking part in management activities the importance of *Hygienes* (salary, security and pressure, and working conditions) increases. Nurses' participation allows them to discover many sides of financing matters, which to some extent may justify low salaries, poor working conditions, and intensive schedules. That may literally increase satisfaction by decreasing dissatisfaction.

In conclusion, *PIDM* is an important determinant of job satisfaction. Increasing *PIDM* will have a positive effect on nurses' job satisfaction. In addition, high *PIDM* not only increases satisfaction but also strengthens the links between other determinants of job satisfaction. This means that if the representatives of nurses are allowed to take part in management meetings, then nurses perceive that they actually can make a difference in improving their situation in the health care institution.

There is evidence that larger institutions should put special effort into observing the level of *PIDM*, otherwise organizational well-being will suffer. Naturally, increasing *PIDM* is a long-term process, which demands attention from the management side and initiative from the nurses' side.

This study raises several interesting aspects that could serve as a foundation for further research. Now that we know that *PIDM* is an important cause of satisfaction, it would be useful to find out how to increase *PIDM* in health care institutions.

A similar study could be carried out among other employee groups in health care institutions: e.g., doctors, administrative personnel. Furthermore, we hope that the principles of this study will even move out of the medical sphere into other government-regulated industries, perhaps even to the private sector.

It is the greatest aspiration of the authors that the Estonian health care environment can benefit from the study made. It is the advice of the authors that the upcoming human resources plan for nurses would include perceived involvement in decision-making as an important input for achieving greater job satisfaction. Allowing nurses to participate in management activities calls for greater understanding, which in turn will result in increased loyalty, commitment, and retention.

Works Cited

The ACSI. 2004. National Quality Research Centre at the University of Michigan Business School, the American Society for Quality and CFI Group. 02 Oct 2004. <http://www.theacsi.org>

Armstrong, M. A Handbook of Human Resource Management Practice 9th edition. London and Sterling, VA: Kogan Page, 2003.

Cowin, L. S. "Thesis of Leanne Cowin: The Self-Concept of Nurses and its Relationship to Job Satisfaction and Retention." Self Research Centre; University of Western Sidney. Feb 2002. 10 Nov 2004 <http://self.uws.edu.au/Theses/Cowin/Thesis.htm>.

"EFQM - Introducing Excellence." 2004. European Foundation of Quality Management. 21 Nov 2004 <http://www.efqm.org/downloads/download_home.asp>

"EFQM - The Fundamental Concepts of Excellence." 2004. European Foundation of Quality Management. 21 Nov 2004 <http://www.efqm.org/downloads/download_home.asp>

Eklof, J. Speech – "Pan-European Customer Satisfaction Analysis – the EPSI Rating Program." A World Quality Congress, 46th EOQ Congress, Harrogate, UK. 30 Sept, 2002.

Eklof, J. Presentation – "Pan-European Customer Satisfaction Analysis – the EPSI Rating Program." A World Quality Congress, 46th EOQ Congress, Harrogate, UK. 30 Sept, 2002

The EPSI Methodology. In Pan European CSI Report 2002 "Customer Satisfaction in Europe". Athens: eL & Gi Graphic Studio, 2002: p. 13-21.

Eskildsen, J. K., Kristensen, K., Westlund, A. H. "Measuring employee assets – The Nordic Employee Index™." Business Process Management Journal 10.5 (2004): 537 - 550.

Eskildsen, J. K., Kristensen, K., Westlund, A. H. "Work Motivation and job satisfaction in the Nordic countries." Employee Relations 26.2 (2004): 122 - 136.

Ester Pruuden. Personal interview. 19 Nov 2004.

Esteves, J.. Pastor, J.A, Casanovas, J. 2004. "Using the Partial least Squares (PLS) Method to Establish Critical Success Factors Interdependence in ERP Implementation Projects." Universitat Politècnica de Catalunya. 17 Nov 2004. <http://peoplesoft.ittoolbox.com/browse.asp?c=PeopleSoftPeerPublishing&r=http%3A%2F%2Fwww%2Elsi%2Eupc%2Ees%2Fdept%2Ftechreps%2Fps%2FR02%2D23%2Epdf>.

Estonian Health Care Board. 20 Nov 2004 <http://www.tervishoiuamet.ee/index.php?page=6>.

Estonian Nurses Union. 20 Nov 2004 <http://www.ena.ee/>.

European Employee Index 2002 Executive Summary. MarkedsConsult A/S and CFI Group. 04 Oct 2004 <http://www.europeanemployeeindex.com/graphics/NEI_MC_UPLOAD/2002/EEI_2002_ES.pdf>.

Finchman, R., Rhodes, P.S. "Motivation and Job Satisfaction." The individual, Work and Organization – Behavioral Studies for Business and Management. Oxford: Oxford University Press, Inc., 1994.

Graham, H.T., Bennett, R. Human Resources Management 8th Edition London: Pitman publishing, 1995.

Hackl, P. Presentation "Introduction to Structural Equation Modeling and Basic PLS Algorithms." PLS Summer School. Berlin. 5-6 Oct, 2004.

Heskett, J.L., Sasser, JR. W.E., Schlesinger, L.A. The service profit chain: how leading companies link profit and growth to loyalty, satisfaction, and value. New York: The Free Press, 1997.

Hollway, W. Work Psychology and Organizational Behaviour. Managing the Individual at Work London: SAGE Publications Ltd., 1996.

Inga Kuldmäe. Personal interview. 20 Nov 2004.

Irvine, D., Evans, M. "Job Satisfaction and Turnover Among Nurses: A Review and Meta-Analysis, Quality of Nursing Worklife Research Unit Monograph." Faculty of Nursing, University of Toronto, Toronto, 1992.

Johnsson, P., Gill, J. Management Control and Organizational Behaviour London: Paul Chapman publishing Ltd., 1993.

Lawler III, E.E. Motivation in work organizations. San Francisco: Jossey Bass Inc., 1994.

Locke, E.A. "The nature and causes of Job Satisfaction." Handbook of Industrial and Organizational Psychology. Ed Dunnette, M.D. Chicago: Rand McNally, 1976.

Locke, E.A., Schweiger, D.M. "Participation in decision making: One more book." Research in Organizational Behavior. (1979): 1, 265-339.

Lum, L., Kervin, J., et al. "Explaining nursing turnover intent: job satisfaction, pay satisfaction, or organizational commitment?" Journal of Organizational Behavior 19 (1998): 305-320.

Mariapa, C "Employee Involvement and Economic Performance" PROSI Magazine N° 354, July, 1998.

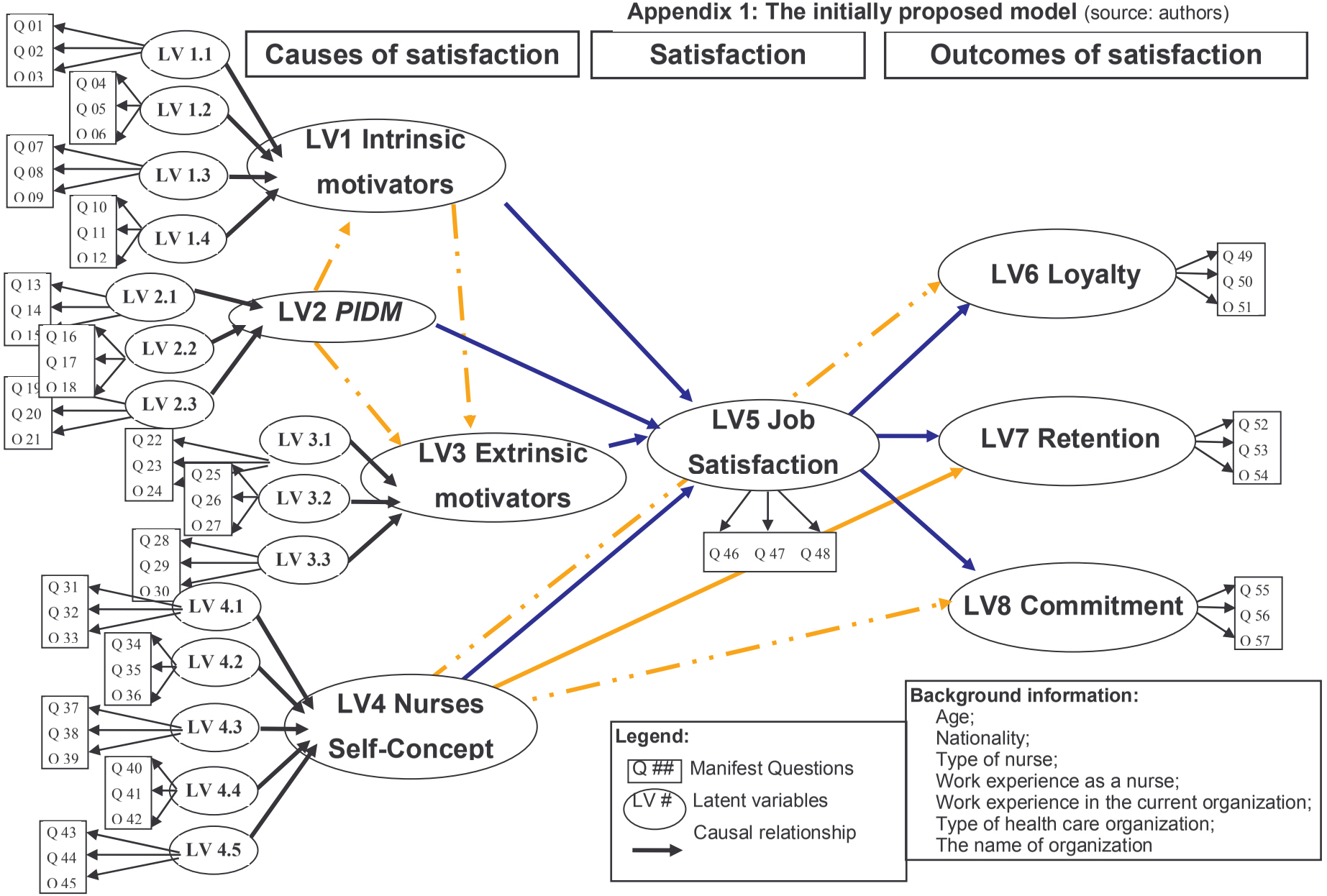
Pavuls U., Gogolis S., Spulis K., Veckalns V. Dimensionality of Job Satisfaction in Latvia: Exploring Quality of Working Life. Proceedings of IV International Baltic Psychology Conference. 150-161. 2001.

Price, J., Mueller, C. "A causal model of turnover for nurses." Academy of Management Journal 34.3 (1981): 543-565.

Võrk, A., Priinits, M., Kallaste, E. Tervishoiutöötajate migratsioon Eestist: migratsiooni potentsiaalne suurus, mõju tervishoiutöötajate vajadusele ja poliitikavalikud. PRAXISe Toimetised Nr 19, June, 2004.

Wright, B. E., Kim, S. "Participation's Influence on Job Satisfaction." Review of Public Personnel Management Vol. 24, No. 1 (2004): 18-40.

Appendix 1: The initially proposed model (source: authors)



Appendix 2 – Master Questionnaire (In Estonian)

q1	Ettevõte võimaldab mulle piisavalt tööalast täiendkoolitust.
q2	Mul on selge nägemus oma arengust ettevõttes.
q3	Mul on võimalus ennast erialaselt arendada.
q4	Ma tunnen ennast osana tervikust, mis töötab ühise eesmärgi (patsientide heaolu) nimel.
q5	Ma tunnen, et annan panuse patsientide aitamisel.
q6	Organisatsioonisisene intriigitsemine on minimaalne
q7	Kui ma teen oma tööd hästi, siis mind tunnustatakse.
q8	Ettevõte jagab mulle piisavalt tunnustust.
q9	Patsiendid tunnustavad minu tööd piisavalt.
q10	Patsientide heaolu on organisatsiooni peamine eesmärk.
q11	Ma olen uhke oma töökoha üle.
q12	Ma tunnen ennast hästi rääkides oma töökohast väljaspool töökollektiivi.
q13	Organisatsiooni juhtkond informeerib õdesid piisavalt.
q14	Usun, et organisatsiooni juhtkond on huvitatud õdede heaolust.
q15	Otsuste tegemine juhtkonnas on tasakaalustatud – võetakse arvesse patsientide, õdede ja arstide arvamusi, ning rahalisi võimalusi.
q16	Õed on kaasatud organisatsiooni arendamisse.
q17	Õdedel on võimalus kaasa rääkida organisatsiooni üldküsimuste ja -probleemide lahendamisel.
q18	Juhtkond innustab õdesid kaasa rääkima otsustusprotsessis.
q19	Õdede arvamust peetakse oluliseks.
q20	Õdede arvamust võetakse kuulda.
q21	Õdede ettepanekute kohta antakse pidevalt tagasisidet.
q22	Minu palk on kooskõlas minu kohustustega.
q23	Olen oma praeguse palgaga rahul.
q24	Viimase kolme aasta õdede palgakasvu tempo on olnud rahuldav.
q25	Minu töötingimused on head.
q26	Ma usun, et mu töö on turvaline - on tehtud kõik, et viia nakatumisoht miinimumini.
q27	Mul on olemas kõik vahendid, et teha oma tööd hästi.
q28	Ma usun, et mu tulevik praegusel töökohal on kindel.
q29	Töö on stressivaba.
q30	Suudan hoida mulle sobivat tasakaalu töö ja isikliku elu vahel.
q31	Mulle meeldib olla õde.
q32	Õe eriala on mulle sobiv.
q33	Minu töö õena on väga huvitav.
q34	Ma oskan hoolitseda patsientide vajaduste eest.
q35	Ma olen huvitatud oma patsientide hoolitsemisest.
q36	Ma olen uhke oma oskuse üle hoolitseda patsientide eest.
q37	Ma naudin töötamist koos teiste tervishoiutöötajatega.
q38	Ma saan kergesti aru oma kolleegidest.
q39	Ma saan hästi läbi teiste tervishoiutöötajatega.
q40	Ma naudin informatsiooni ja ideede levitamist kolleegide ja patsientidega.
q41	Efektiivne suhtlemine kolleegide ja patsientidega on minu jaoks kerge.
q42	Ma olen hea suhtleja kolleegide ja patsientidega.
q43	Ma leian, et uued erialased teadmised on minu töös kasulikud.
q44	Ma pidevalt kasutan uusi õendusalaseid teadmisi patsientide eest hoolitsemisel.
q45	Ma naudin uute õendusteadmiste omandamist.
q46	Olen rahul oma tööga.
q47	Minu töökoht vastab minu ootustele.
q48	Püüa ette kujutada täiuslikku tööd õena. Kui lähedal on minu praegune töö sellele ettekujutusele.
q49	Ma usun, et ma töötan samas organisatsioonis ka aasta pärast.
q50	Viimase kuu jooksul EI ole ma mõelnud töökoha vahetuse üle.
q51	Ma soovitan ka teistele minu organisatsioonis töötamist.
q52	Ma usun, et ma töötan õena ka lähimas tulevikus.
q53	Ma EI kavatse vahetada õe elukutset mõne teise ameti vastu.
q54	Ma tahan töötada õena nii kaua kui võimalik.
q55	Ma lähen iga päev tööle hea meelega.
q56	Ma annan iga päev endast parima.
q57	Ma usun ja aktsepteerin organisatsiooni eesmärke ja väärtusi.

Source: authors

Appendix 3 – Translation of Master Questionnaire

q1	The organization provides me enough work related training.
q2	I have a clear vision about my development in the organization
q3	I have a possibility to develop myself professionally
q4	I am a part of a team which works for a common goal (the wellbeing of patients)
q5	I give an input for helping patients
q6	Intruiging within the organization is minimal
q7	In case I do my job well I am recognized
q8	The organization gives me enough recognition
q9	Patients give me enough recognition
q10	The well-being of patients is the main goal of the organization
q11	I am proud of my job
q12	I feel myself comfortably when talking about work outside the working environment
q13	Management informs nurses enough of management's activities
q14	Management is interested in the well-being of nurses
q15	Decision making in management is balanced – the opinion of patients, nurses, doctors and monetary constraints is taken into consideration.
q16	Nurses are incorporated into the development of the organization
q17	Nurses have a possibility to interact in solving the general questions and problems on the organizational level.
q18	The management arise nurses' enthusiasm in participating in the decision-making process
q19	The opinion of nurses is important
q20	The opinion of nurses is being heard
q21	Constant feedback is offered to nurses who have made suggestions.
q22	My salary is in accordance with my duties
q23	I am satisfied with my present salary
q24	Past three year pace of wage increase among nurses is at a satisfactory level
q25	My working condition is good.
q26	I believe my job is secure - everything has been done to minimize the danger of getting infected
q27	I have arranged conditions and tools to do my work well.
q28	I believe that my future at my current position is secure
q29	My job is stressfree
q30	I am able to keep an appropriate balance suitable for me between personal life and work
q31	I like being a nurse
q32	The profession (nursing) is suitable for me
q33	My job as a nurse is very interesting
q34	I have the ability to care for my patients' needs
q35	I am interested in caring for my patients
q36	I am proud about my ability to care for patients
q37	I enjoy working with other health professionals
q38	I can easily relate to my colleagues
q39	I have good working relationship with other health professionals
q40	I enjoy communicating information and ideas with my colleagues
q41	Communicating effectively with patients and colleagues is easy for me
q42	I am a good communicator with colleagues and patients
q43	I find new nursing knowledge useful at my work
q44	I am constantly incorporating new nursing knowledge into my patient care
q45	I enjoy learning new nursing knowledge
q46	I am satisfied with my job
q47	My job meets my expectations
q48	Try to imagine a perfect job as a nurse. How far is your position to that expectation?
q49	I will work for this organization after a year
q50	During last six months I have not thought about leaving my job
q51	I advise others to work in my organization
q52	I believe I will work as a nurse in the nearest future
q53	I am not going to change my occupation to another profession
q54	I would like to work as a nurse as long as possible
q55	I am going to work every day in a good mood
q56	I am giving my best every day
q57	I believe and accept organizational goals and values

Source: authors

Appendix 4 – Cross-loadings

Table 13: Cross-loadings (general model, full sample, N=492)

	Satisfiers	PIDM	Hygienes	Self-concept	JSI	Loyalty	Retention	Commitment
q1	2.034	0.444	0.473	0.141	0.302	0.237	0.170	0.259
q2	2.028	0.445	0.456	0.192	0.280	0.211	0.201	0.280
q3	2.099	0.500	0.522	0.196	0.336	0.240	0.215	0.289
q4	2.198	0.479	0.418	0.234	0.376	0.310	0.272	0.387
q5	1.642	0.232	0.198	0.185	0.245	0.188	0.188	0.259
q6	2.183	0.539	0.448	0.205	0.338	0.266	0.198	0.337
q7	2.354	0.612	0.553	0.168	0.367	0.303	0.196	0.325
q8	2.347	0.735	0.610	0.160	0.361	0.327	0.236	0.340
q9	1.758	0.276	0.222	0.253	0.229	0.156	0.208	0.290
q10	2.089	0.529	0.353	0.154	0.246	0.215	0.198	0.334
q11	2.352	0.480	0.522	0.257	0.407	0.361	0.275	0.446
q12	2.406	0.529	0.563	0.295	0.428	0.364	0.305	0.457
q13	0.774	2.371	0.648	0.205	0.368	0.276	0.252	0.384
q14	0.780	2.450	0.713	0.224	0.369	0.323	0.261	0.390
q15	0.725	2.550	0.680	0.211	0.379	0.326	0.285	0.404
q16	0.406	2.133	0.616	0.158	0.228	0.214	0.190	0.267
q17	0.389	2.409	0.654	0.207	0.257	0.235	0.201	0.283
q18	0.372	2.369	0.669	0.200	0.253	0.252	0.213	0.279
q19	0.353	2.204	0.603	0.167	0.235	0.210	0.157	0.253
q20	0.413	2.357	0.687	0.229	0.299	0.272	0.214	0.304
q21	0.416	2.324	0.667	0.220	0.275	0.252	0.195	0.290
q22	0.430	0.624	2.333	0.163	0.286	0.262	0.217	0.292
q23	0.389	0.547	2.345	0.129	0.305	0.239	0.166	0.254
q24	0.306	0.494	2.053	0.104	0.226	0.169	0.152	0.190
q25	0.392	0.477	1.950	0.145	0.296	0.265	0.176	0.241
q26	0.332	0.486	2.034	0.153	0.301	0.278	0.209	0.288
q27	0.303	0.380	1.847	0.109	0.268	0.277	0.222	0.223
q28	0.377	0.407	1.672	0.255	0.342	0.321	0.262	0.291
q29	0.359	0.429	1.719	0.177	0.292	0.246	0.181	0.273
q30	0.252	0.257	1.374	0.224	0.278	0.265	0.240	0.328
q31	0.150	0.116	0.155	1.550	0.244	0.199	0.281	0.239
q32	0.142	0.104	0.137	1.543	0.207	0.166	0.279	0.208
q33	0.125	0.106	0.131	1.497	0.180	0.126	0.223	0.174
q34	0.133	0.077	0.076	1.377	0.170	0.099	0.185	0.190
q35	0.125	0.112	0.147	1.520	0.178	0.104	0.175	0.156
q36	0.114	0.124	0.133	1.791	0.197	0.125	0.214	0.220
q37	0.221	0.200	0.251	1.513	0.237	0.203	0.205	0.269
q38	0.153	0.151	0.174	1.322	0.168	0.126	0.124	0.193
q39	0.177	0.160	0.181	1.398	0.203	0.155	0.170	0.243
q40	0.206	0.298	0.287	1.736	0.219	0.176	0.264	0.270
q41	0.187	0.178	0.182	1.453	0.184	0.126	0.153	0.206
q42	0.171	0.153	0.155	1.370	0.183	0.126	0.123	0.170
q43	0.107	0.058	0.108	1.052	0.090	0.092	0.090	0.095
q44	0.131	0.149	0.124	1.474	0.167	0.157	0.190	0.165
q45	0.179	0.155	0.160	1.353	0.180	0.150	0.191	0.204
q46	0.381	0.298	0.409	0.320	2.246	0.493	0.470	0.590
q47	0.424	0.350	0.496	0.298	2.378	0.526	0.465	0.605
q48	0.395	0.369	0.456	0.273	2.239	0.522	0.430	0.537
q49	0.355	0.338	0.459	0.244	0.618	2.788	0.658	0.585
q50	0.413	0.348	0.497	0.294	0.651	3.097	0.657	0.699
q51	0.440	0.411	0.536	0.295	0.624	2.696	0.580	0.638
q52	0.308	0.292	0.369	0.352	0.543	0.608	2.508	0.600
q53	0.335	0.288	0.403	0.398	0.563	0.669	3.105	0.660
q54	0.326	0.321	0.371	0.373	0.541	0.580	2.946	0.651
q55	0.466	0.345	0.445	0.333	0.643	0.558	0.534	2.492
q56	0.267	0.216	0.232	0.245	0.450	0.385	0.427	1.890
q57	0.420	0.474	0.498	0.340	0.570	0.557	0.570	2.495

Source: authors, SmartPLS output

Appendix 5 – Composite reliabilities and correlations

Table 14: Composite reliabilities of latent variables

	Full sample (N=492)	"High" cluster (N=147)	"Low" cluster (N=345)
PIDM	0.945	0.743	0.908
Loyalty	0.874	0.882	0.863
Commitment	0.890	0.899	0.871
Retention	0.924	0.932	0.918

Source: authors, SmartPLS output

Table 15: Correlations of latent variables (full sample, N=492)

		1	2	3	4
1	PIDM	(0.945)			
2	Loyalty	0.358	(0.874)		
3	Commitment	0.424	0.680	(0.890)	
4	Retention	0.291	0.674	0.684	(0.924)

Note: Composite reliabilities in parentheses

Source: authors, SmartPLS output

Appendix 6 – Survey Results

Latent Variable	Manifest question	mean	weight
Satisfiers	The organization provides me enough work related training.	72,1	0,035
	I have a clear vision about my development in the organization	63	0,034
	I have a possibility to develop myself professionally	71,5	0,04
	I am a part of a team which works for a common goal (the wellbeing of patients)	74,6	0,041
	I give an input for helping patients	84,3	0,023
	Intruiging within the organization is minimal	53	0,041
	In case I do my job well I am recognized	60,3	0,046
	The organization gives me enough recognition	48	0,051
	Patients give me enough recognition	72,2	0,024
	The well-being of patients is the main goal of the organization	79,4	0,036
	I am proud of my job	71,8	0,042
	I feel myself comfortably when talking about work outside the working environment	71,5	0,046
PIDM	Management informs nurses enough of management's activities	55,8	0,058
	Management is interested in the well-being of nurses	54	0,061
	Decision making in management is balanced – the opinion of patients, nurses, doctors and monetary constraints is taken into consideration.	48,3	0,057
	Nurses are incorporated into the development of the organization	52,2	0,041
	Nurses have a possibility to interact in solving the general questions and problems on the organizational level.	49,1	0,041
	The management arise nurses' enthusiasm in participating in the decision-making process	42,5	0,041
	The opinion of nurses is important	43,1	0,038
	The opinion of nurses is being heard	44,1	0,044
	Constant feedback is offered to nurses who have made suggestions.	40,9	0,043
Hygienes	My salary is in accordance with my duties	43,9	0,069
	I am satisfied with my present salary	41,1	0,065
	Past three year pace of wage increase among nurses is at a satisfactory level	37,8	0,054
	My working condition is good.	63	0,059
	I believe my job is secure - everything has been done to minimize the danger of getting infected	64,7	0,06
	I have arranged conditions and tools to do my work well.	69,7	0,05
	I believe that my future at my current position is secure	55	0,058
	My job is stressfree	30,1	0,055
	I am able to keep an appropriate balance suitable for me between personal life and work	67	0,041

Source: authors, SmartPLS

Appendix 6 – Survey Results (continued)

Latent Variable	Manifest question	mean	weight
Nurses Self-Concept	I like being a nurse	87,3	0,062
	The profession (nursing) is suitable for me	87,7	0,057
	My job as a nurse is very interesting	80,7	0,048
	I have the ability to care for my patients' needs	85,5	0,042
	I am interested in caring for my patients	90	0,042
	I am proud about my ability to care for patients	84,5	0,049
	I enjoy working with other health professionals	81,6	0,052
	I can easily relate to my colleagues	79,6	0,034
	I have good working relationship with other health professionals	83,8	0,044
	I enjoy communicating information and ideas with my colleagues	74,3	0,057
	Communicating effectively with patients and colleagues is easy for me	80,1	0,04
	I am a good communicator with colleagues and patients	79,5	0,036
	I find new nursing knowledge useful at my work	93	0,021
	I am constantly incorporating new nursing knowledge into my patient care	83,2	0,042
	I enjoy learning new nursing knowledge	85,1	0,044
JSI	I am satisfied with my job	75,9	0,144
	My job meets my expectations	71,5	0,152
	Try to imagine a perfect job as a nurse. How far is your position to that expectation?	62,5	0,141
Loyalty	I will work for this organization after a year	78,2	0,114
	During last six months I have not thought about leaving my job	72,5	0,12
	I advise others to work in my organization	68,9	0,115
Retention	I believe I will work as a nurse in the nearest future	85,2	0,113
	I am not going to change my occupation to another profession	82,1	0,121
	I would like to work as a nurse as long as possible	82,4	0,115
Commitment	I am going to work every day in a good mood	71,4	0,166
	I am giving my best every day	84,4	0,116
	I believe and accept organizational goals and values	77,6	0,147

Source: authors, SmartPLS

Appendix 7 - Data analysis using structural equation modeling

Figure 4: Structural equation model.

The structural model equation may be expressed as in (1) where ξ is the exogenous latent variable, β and τ parameter (impact) matrices of suitable order, and ν represents the error term.

$$\eta = \beta \eta + \tau \xi + \nu \qquad (1)$$

Measurement Model

The exogenous latent variable, named ξ, is defined to be the "Image" variable in the ECSI basic model. This gives the two measurement equations (2) and (3), where Λ_x and Λ_y are loadings, and δ, ε are error terms.

$$x = \Lambda_x \xi + \delta \qquad (2)$$

$$y = \Lambda_y \eta + \varepsilon \qquad (3)$$

Source: Jan Eklof, Presentation, 2002

The structural equation model consists of two models – structural model („inner") between latent variables (LV) and measurement model („outer") between manifest questions (MQ) and latent variables. The authors used the reflective measurement model – meaning that manifest questions reflected the latent variable (and not vice versa in case of formative one). PLS Algorithm uses iterative optimizations that provide successive approximations for LV scores and parameters. PLS Algorithm uses three basic steps for computations.

Step1: Estimation of factor scores

1. Outer approximation
2. Calculation of inner weights
3. Inner approximation
4. Calculation of outer weights

Step2: Estimation of path loading and loading coefficients by minimizing variance of inner and variances of outer model.

Step3: Estimation of location parameters (intercepts).

The authors used statistical software SmartPLS for modelling and measurement. Therefore, all statistical tests and assessments of PLS results are limited to the output data provided by SmartPLS. Such judgements are:

- Portion of explained variance (R-square)
- Internal consistency of LV is measured by composite reliability that has to be over 0,7.
- Cross loadings – each MQ loading has to be much higher on its assigned LV than on the other LVs.
- Bootstrapping estimates – prediction errors from re-sampling.

To order any of these papers, please, contact SSE Riga library or visit our web page http://www.sseriga.edu.lv

2005:6 Mirko Känd and Martin Rekor
Perceived Involvement in Decision-Making and Job Satisfaction: The Evidence from a Job Satisfaction Survey among Nurses in Estonia.

2005:5 Renata Bernotaitė and Anastasija Piskunova
An Expenditure-Based Estimate of Latvia's Shadow Economy.

2005:4 Terēze Ase and Tatjana Rebeša
The Study of the Self-gift Concept in Latvia. A Comparison Between Gender and Ethnic Factors.

2005:3 Juri Pervjakov and Liia Semjonova
I Consume, Therefore..? Consumerism in Estonia Before and After the Collapse of the Soviet Union.

2005:2 Līva Rozenberga and Laura Šiļko
Application of Tribal Marketing in Latvia: the Case of Snowboarders.

2005:1 Laurens Swinkels, Diana Vejina and Rainers Vilans
Why Don't Latvian Pension Funds Diversify More Internationally?

2004:13 Laimonas Devyžis and Gintautas Jankauskas
Explaining the Cost of Equity in Central and Eastern Europe.

2004:12 Julija Melnika and Vasilijs Mihailovs
Information Technology Strategy and Its Implementation in Museums.

2004:11 Vilma Midverytė and Erika Sirutytė
The Impact of Strategic Human Resource Architecture on Organizations' Productivity: the Case of Leading Joint-Stock Companies in Lithuania.

2004:10 Inna Kuzmina and Aleksandrs Lobakovs
The Impact of Sector Productivity Differentials on Inflation and the Real Exchange Rate: an Estimation of the Balassa-Samuelson Effect in Latvia.

2004:9 Agnė Redeckaitė and Jeļena Sokolovska
Testing Uncovered Interest Parity in Latvia.

2004:8 Anna Aleksandrova and Jonas Lubys
Application of the Structure-Conduct-Performance Paradigm in a Transition Economy: Explaining Reported Profitability of the Largest Latvian Firms.

2004:7 Naglis Jonuška and Eglė Morkūnaitė
EU Structural Funds in Lithuania: Factors Determining SMEs' Willingness to Apply for Project Subsidies.

2004:6 Kasparas Adomaitis
How Does Trade Affect the Correlation of Business Cycles in EU Accession Countries?

2004:5 Olegs Kuznecovs and Andrejs Maslovs
Relative FDI Attractiveness of Eight EU Accession States.

2004:4 Toomas Mardi and Jurģis Sedlenieks
Would Current Travelers Choose to Try Low Cost Airlines? Application of the Kelvin Lancaster Model on Riga/Tallinn – Stockholm Transportation Market.

2004:3 Laura Veel
Public Sector Marketing: the Case of the Estonian Funded Pension.

2004:2 Ilja Arslanov and Kristine Kolosovska
Active Portfolio Management with the Application of Adaptive Artificial Intelligence Tools in the Context of the Baltic Stock Market.

2004:1 Aile Lillepalu and Katri Pokats
Evaluation of Branding Strategies among Selected Estonian Food and Beverages Producers.

2003:20 Lina Liubinskaite and Jevgenijs Kazanins
Implications of the New Basel Accord. Introduction for Baltic Banks.

2003:19 Mantas Jonuška and Indrė Samėnaitė
Foreign Exchange Risk Management in Lithuanian Companies: The use of currency derivatives.

2003:18 Emilis Kasauskas and Martynas Visockas
Emerging Stock Exchanges: Analysis of Interaction Between Size and Development with Application to the Baltic States.

2003:17 Marius Januškevičius
Testing Stock Market Efficiency Using Neural Networks. Case of Lithuania.

2003:16 Tõnis Erm and Märt-Martin Arengu
Development of a National Brand. The Case of the Estonian Brand Project.

2003:15 Evija Miezite and Jekaterina Pogrebnaja
Analysis of Unemployment Duration in Latvia: differences between urban and rural areas.

2003:14 Vineta Vīra and Kristīne Narnicka
Semi-subsistence Farming in Latvia: Its production function and what will be the impact of proposed EU support?

2003:13 Rokas Šalaševičius and Petras Vaičius
Exchange Rate-Trade Balance Relationship: Testing the Marshall-Lerner Condition In the Baltic States.

2003:12 Raimonds Graudiņš
Involvement of Private Sector and Non-governmental Organizations in Provision of Social Services in Latvia. Current Position and Future Paths.

2003:11 Romans Astahovs and Aurimas Draugelis
National Industrial Cluster Profiles : Identification and Analysis for the Case of Latvia.

2003:10 Aija Brūvere and Simona Pavlova
Analysis of the Present Situation and the Prospects for Development of the Organic Product Market in Latvia Based on the Experience of the European Union.

2003:9 Alfredas Chmieliauskas and Povilas Levišauskas
Project Management Maturity in the Information Technology Industry of the Baltic States.

2003:8 Viktorija Meikšāne
International Financial Services Center in Latvia: Can a Dream Come True?

2003:7 Tadas Žibūda
The Impact of Human Resource Management Communication on “Lietuvos Telekomas".

2003:6 Andris Ogrins and Gints Mednis
Forecasting the Latvian Mobile Voice Communications Market.

2003:5 Maija Kāle and Dagmāra Dreiškena
Towards Environmental Responsibility in Latvia’s Society.

2003:4 Sanita Skadiņa and Edgars Grandāns
An Assessment of the Latvian Municipalities Through the Prism of the Business World.

2003:3 Anna Lebedoka and Liene Vitena
Strawberry Fields.

2003:2 Mantas Stankus
Prices, Wages and Unemployment in the Baltics: 1995 – 2001

2003:1 Egle Brazauskaite and Laurynas Malcys
Identifying the Elite in Lithuania: a Study of Its Living Conditions and Consumption Patterns.

2000:8 Eva Čerņavska and Jānis Skutulis
Financing Patterns of Investment in Current and Fixed Assets in Latvia. Manufacturing and Construction Industries.

2000: 7 Peeter Pärna and Neeme Praks
Applying the Value Web Model in Financial Industry: the Case of Estonia.

2000: 6 Ilona Molnár and Svetlana Sitņikova
The Potential of Internet Banking in Latvia: Customer Study.

2000: 5 Markko Kard and Aivar Tihane
Efficient Electricity Transmission Pricing for the Baltic States: Principles and Possible Solutions.

2000: 4 Avo Kaasik and Gerri Kodres
The Viability of Venture Capital Based Financing in Estonia.

2000: 3 Katrin Kalmer and Kati Virtaal
Liberalisation of the Estonian Telecommunication Market, Scenarios for Estonian Telephone Company (ETC).

2000: 2 Eili Rahnel
The Relationship between Foreign Direct Investment and Local Research and Development. Evidence from the Estonian Electronics Industry.

2000 : 1 Jevgenijs Zagorovskis and Normunds Sala
Costs and Benefits of the Latvian Sugar Regime: a Critical Evaluation of Latvian Sugar Policy.

1999 : 5 Mārtiņš Kazāks and Roberts Ķīlis, eds.
Education and Economic Competitiveness of Latvia.

1999 : 4 Gatis Māziņš, Marko Veerberk
Diversification and the Firm Value. Evidence from the Baltic Countries.

1999 : 3 Līga Liepiņa, Kārlis Caunītis
Facilitating Organizational Culture Change and Crisis Management in Foreign Firms in Russia.

1999 : 2 Didzis Kirstuks
Subsidiary Evolution in Estonia and Latvia: a Case Study of ABB.

1999 : 1 Anete Pajuste, Gatis Ķepītis
Risk Factors and Predictability of Stock Returns in Central and Eastern Europe : Evidence from the Czech Republic, Estonia, Hungary, Poland and Slovenia.

1998 : 12 Gintautas Baranauskas, Einius Stadalninkas
Empirical Test of Bank Lending Practices Viability in Lithuania.

1998 : 11 Ritvars Kumpiņš, Raimonds Krūza
Market Microstructure, Stock Liquidity and Trading Efficiency: Evidence from the Riga Stock Exchange.

1998 : 10 Mari Saraskin, Tina Kukka
Derivatives Risk Management in Baltic Banking. The Case of Hansabank.

1998 : 9 Ulo Adamson, Jānis Vītols
Financial Distress : Costs and Predictability. The Case of Rigas Miesnieks.

1998 : 8 Paul Lumi
A Critical Evaluation of M. Porter's Generic Strategies.

1998 : 7 Evija Ručevska, Anda Čuntonova
Foreign Direct Investment's Impact on Productivity in Comparison to Domestic Investment: Food and Beverage Industry in Latvia.

1998 : 6 Zane Saule, Irēna Smalkā
Standardisation Versus Adaptation of the Marketing Strategy Within the Baltic Market.

1998 : 5 Gertrud, Kasemaa
The Relationship Between Service Management Productivity and Service Quality in a Retail Store : the Case Study of Tartu Kaubamaja.

1998: 4 Zane Loža, Kārlis Caunītis
Labor Market in Latvia 1996: Deployment and Analysis.

1998: 3 Julia Berkovich
Municipal Social Assistance in Latvia. The Monitoring Instrument - Evaluation and Recommendations for Improvement.

1998: 2 Tatjana Kuļikova, Inga Kursīte
Production and Regeneration of Activated Carbon in Latvia.

1998: 1 Evelīna Springoviča, Renārs Urbanovičs
Investment Portfolios of Non-life Insurance Companies in Estonia and Latvia.

1997: 2 Elena Goncharova, Susanne Eriksson
Analysis of Patterns, Form, and Structure of the Branches ‘Food, Beverages and Tobacco Industry’ and ‘Telecommunications’. Their Political and Economic Regulation and Importance in the Transformation Process.

1997: 1 Latvian Customer Satisfaction Barometer.

1996: 8 Lauris Balga, Mārtiņš Freibergs
Strategic Audit of SIA Meztehnika - Bachelor's Thesis.

1996: 7 Justs Dzedons, Aleksandrs Jakubaņecs
Project Work on Telia Latvia - Bachelor's Thesis.

1996: 6 Dmitry Yuskovets
Bridge Baltia Cotton Transshipment - Bachelor's Thesis.

1996: 5 Zane Cīrule, Līga Liepiņa
Oriflame Latvija SIA Implementation of Direct Sales Concept - Bachelor's Thesis.

1996: 4 Egmonts Gāliņš, Anželika Hoteloviča, Ksenija Rižova
Study of the Service Delivery System of Baltijas Papirs - Bachelor's Thesis.

1996: 3 Renārs Urbanovičs
Methodology for Testing the Heckscher-Ohlin Model in Latvia - Bachelor's Thesis.

1996: 2 Jānis Timmermanis
The Government Securities Market in Latvia (1993-1996) - Bachelor's Thesis.

1996: 1 Zane Cīrule, Līga Liepiņa, Mārtiņš Freibergs, Renārs Urbanovičs
Valmiera Glass Fibre Plant - a Case Study.