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Happiness - explorations, explanations and applications of the concept.

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## Abstract

This text strives to achieve three goals - a) to evaluate methodological quality (validity and reliability) of self-ratings of happiness, b) to show different approaches to measurement and analysis of happiness and satisfaction and c) to show possible applications of concept of happiness.

Concept of happiness is described from the perspective of cognitive psychology, and different other concepts and theories are discussed in relation to the concept, such as 3 modes of experiencing happiness, hedonic adaptation, flow, role of expectations, types of attributes in relation to satisfaction, and others. It is shown, that every person has his stable level of happiness, around which his happiness oscillates due to the above mentioned factors. A model is suggested for integration of these factors. The model is called a hedonic potential model.

However, the stable level differs substantially between countries. Data-mining tools are employed to show, how different indicators and variables might indicate this average stable level of happiness in the nations. Also, difference between happiness on individual level and aggregated national happiness is discussed. It is shown that distinct mechanisms apply on both levels. Theoretical explanation is provided.

## Declaration of authorship

I wrote this thesis on my own and used only bibliography and datasets listed at the end of the text.



Michal Osuský

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## **My position in this thesis**

It is fair to explicitly state my position in the researched topic. A few decades ago, when behaviorism was a major psychological approach, only overt behavior could be the object of the study. Behaviorists, such as Skinner, claimed that we never can know other people's feelings, and the only thing we can scientifically study is their behavior. The topics, such as emotions and satisfaction, could have been studied only through observable behavior that was supposed to reflect these emotional states. First waves of criticism came from psychologists of learning (Tolman and others), who came up with evidence that there are other types of learning than conditioning, which contradicted the behavioral paradigm. They called it *latent learning*, and demonstrated it with experiments, where rats were driven around the maze in the trolleys. The main finding was that the rats were able to learn the right way through the maze even without physically transporting themselves (so that conditioning couldn't take place). This type of learning was obviously based on acquisition of information from the environment by observation - something that the behaviorist paradigm didn't allow to study. These experiments stand at the beginning of the wave, that is today called the first wave of cognitive revolution (Moghaddam 2005).

Today, the description may seem outdated and even not relevant. However, as will be shown in this text, it is by far not that simple. We know today that there are cognitive processes in thinking and attitude formation, but it is still not perfectly clear how all of these processes work, interact and what effect they have on thinking and attitudes. The basic problem is the same that behaviorists pointed out even before Tolman was driving animals in trolleys - we do not have any means of direct measurement of what is happening in the mind, and the ones who we study are not always able to reflect it. What is even worse, they are even not able to tell us to what extent we can trust their judgments. People in general are not experts on analyzing and predicting their behavior.

All what was mentioned here leads us to the position from which happiness and satisfaction will be analyzed in this paper. I will approach the topics from a cognitive and constructivist approach. Cognitive, because I will look for internal cognitive processes, that create, maintain and enable to reflect the positive affective states. Constructivist, because I will also address how people construct the experienced states of happiness. I will also employ socio-psychological tools in order to show, that for most people, the concept of happiness is not value free - it is a common desirable state and failing to achieve it may render one feel powerless. At last but not least - I will address methodological issues of measuring happiness and satisfaction.

My second part of the thesis will concern the economics and social policy, where the topic of happiness and satisfaction appeared frequently in the history. From the time when societies (national states) began to manage themselves (in comparison when they were controlled by small group of people with hereditary right) the topic of happiness of people appeared frequently on the list of goals of society management. However, due to its subjective nature and difficulty of measurement, it rarely became direct part of the management process. It did arise in history in many theoretical perspectives, but only today it is possible to carry out international comparative research to find out what makes for a happy nation. My second part of the thesis will discuss methodological bases for this kind of study and will provide the reader with some of the interesting results.

### **Roadmap of the text**

This is brief roadmap of what you will find in this text:

- Firstly, I will consider what happiness is, and if it does exist.
- Then I will introduce common methods of measuring happiness and satisfaction, and also focus on best practices and common pitfalls in this application.
- I will focus what factors influence individual happiness. I will try to find mechanism of happiness, this part of paper will have the nature of qualitative research.
- I am going to compare happiness levels in selected nations to show what non-psychological (social, environmental, etc.) factors may contribute to variance of happiness between the people. Data-mining quantitative approach will be used.
- At the end, I will apply the concept of happiness to two free market relationships - the one between a vendor and a customer and an employee and an employer. The question I will try to answer is whether the happiness of a customer and an employee are goals of a vendor and an employer, or are just market externalities.

## What is happiness

Happiness is a term of many faces. Due to its frequent use it has very wide range of meanings. Its common usage covers meanings from short term *feeling happy* to long term positive feeling to lack of sadness. However, all of these meaning have something in common - they describe positive emotional state.

### Definition of the terms

In order to avoid confusion I would like to define the terms that will be used in this thesis. I will be using the word happiness, being happy, life satisfaction and subjective well-being interchangeably, similarly to how Veenhoven (1997) uses the term - to global evaluation of one's life. However, feeling happy, joy and satisfaction with an object will be used to describe the short term effects of stimuli, such as an ice-cream or job conditions.

Also, the terms attributes and indicators will be used throughout the text interchangeably. None of them suggest causal relationship, only correlation, if not otherwise stated.

I do admit that all of the terms might have different meaning for different part of population, and it may have proved interesting to understand, what people usually think of when they use the term. But I consider linguistic analysis to be behind the scope of this evaluation. I believe that if the terms are clearly defined, the purpose of the analysis won't suffer by lack of linguistic understanding of the common meaning of the term.

### Approaches to happiness

The aim of this work is not to present the reader with wide summary of concepts ever related to study and philosophy of happiness. Therefore also, the philosophical approaches to happiness will be restricted to only current theories that are still part of the philosophical discourse of happiness.

Valerie Tiberius (2004) summarizes current philosophical approaches to happiness: there are three main concepts of happiness: (1) Informed desire theory (Griffin), (2) Authentic happiness theory (Sumner), (3) Martha Nussbaum's theory of flourishing. Informed desire theory claims that "well-being consists in the satisfaction of informed desires that are in some way part of the goals you have for your life.". Authentic happiness theory claims that "being happy means having a positive attitude toward your life as a whole.". Theory of flourishing posits that "the good for the person is true human functioning, along various dimensions of life; bodily health; bodily integrity; senses; imagination and thought; emotion; practical reasons; affiliation; concern for other species; play and control over one's environment". The two former theories are considered to be theories of subjective well-being, the latter to be an objective one.

My first consideration will address the justification of the word "theory". Methodologically speaking, theories must be testable (verifiable), or - in Poppers view - falsifiable. The problem with all three "theories" is that there is no way how to do perform the test with them. The theories are mere definitions or conceptions. There is no way, how to empirically assess whether informed desire or authentic happiness is more valid concept of happiness.

Second, all three concepts could be valid at the same time. However, we need to choose the one that we will use. Following the standard methodological folkways - it is best idea to choose the most primitive one; unless it proves invalid from the methodological point of view (it cannot be measured). Therefore I will adopt the Sumners' concept of authentic happiness, but I will also address the questions posed by the other two approaches in the chapter "How feeling happy relates to being happy?".

### Does authentic happiness exist? Can it be measured?

Before we get into the debate about happiness, I would like to address two questions - firstly, does happiness exists? And secondly, can it be measured? The answer to these questions is not that straightforward, as first-hand intuition might suggest. In this chapter I will present main objections towards happiness concept, and limits of scientific inquiry of this concept. If the review renders the concept of usable, I will use it throughout the document. If not, other concept of happiness will be selected.

#### Validity

According to Veenhoven (1997), one of the major objection is that people report how they are supposed to be happy, and not how happy their actually are. Veenhoven shows, that this doesn't prove to be the case - in Netherlands, where good education is perceived as prerequisite for good life, highly educated people report slightly lower levels of happiness.

Another objection is bias in the questions - due to social desirability and ego defensive mechanisms. It is hard to admin, that I am not happy with my life, since it also suggests that I was not able to cope with it. Social desirability is a tendency of a respondent to color its responses in the way, that his/her behavior and/or opinions are socially more acceptable (desirable). Ego defensive mechanisms are cognitive distortions censoring information that would cause the respondent to feel uncomfortable or to experience lower self-esteem, such as that he/she is dissatisfied with his/her life as whole. Veenhoven's answer is not convincing - he claims that there is research supporting this view, but findings presented allow other interpretations as well. Taking into account moderate levels of correlations of social desirability scores and life satisfaction (e.g.  $r=0,58$ ; in Carstensen and Cone, 1983) and wide range of self-monitoring (one's sensitivity to his/her social image), it constitutes a major problem in debate over validity of the responses on life satisfaction.

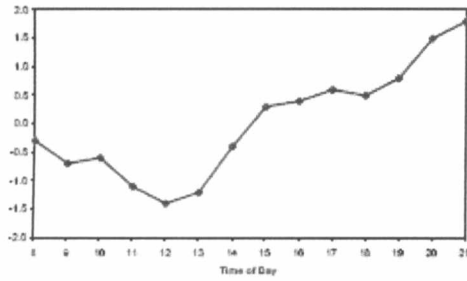
Another strikingly problem is that mood appears to be a more important determinant of life satisfaction reports than judgments of specific domains of life such as work, marriage, etc (Schwarz and Strack, 1999). It is therefore unpleasant fact, that the happiness (life satisfaction) can be so unstable, but there is no reason to reject it on bases of these results. Instead, I should accept this nature of happiness.

### Reliability

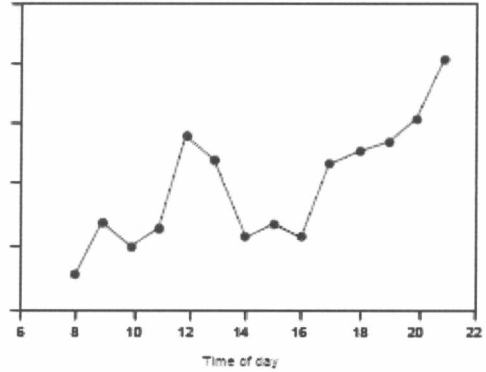
Even if we prove, that we do measure what we think we measure (validity), the quality of our data can be seriously threatened by imprecise measurement (reliability). As Veenhoven (1997) suggests, the data are far from random - if you ask the same question at the beginning of the interview, and at the end, they tend to be similar ( $r=0.7$ ). However, the correlations drop to  $r=0.6$ , if second measuring takes place after one week. There might be two major sources of this lower reliability - the first one is randomness in answers of respondents, the second one is the real shift in life satisfaction. Both are critical to happiness research. Firstly, this error can be attributed to situational random error, such as mood, daily events, halo effects, and so on. Just for comparison, standard personality inventories with tenths of questions have reliability from 0.7 to 0.9. However, reminding you of effects of mood described above, it is probable that lower reliability is due to this inner instability of happiness.

Data from World Values Survey (WVS 2006) partially confirms this hypothesis - one of the best predictors of life satisfaction is mood (feeling of happiness) with average correlation 0.48. Yes, I can almost hear the objections - the mood can be the effect, not the cause the life satisfaction. Or, there can be a third, hidden source of both variables. Yes, in deed - research on happiness suggests that people tend to have their stable "level of happiness" - a long term average, around which they oscillate. It is expected to be genetically determined, and should constitute up to 50% of variability of the reported happiness (Sheldon and Lyubomirsky 2006). Second part of determinants seem to be environmentally and personally determined - this variance is reflected in correlation with environmental variables (I will discuss this later in the paper). Finally, the third part will reflect on situational circumstances and actions. This is demonstrated in the lecture "Happiness: has social science a clue?" delivered by Richard Layard (2003), where he shows covariation of happiness and tiredness throughout the day (see Graph 1 and Graph 2). Ironically, Lyard brought about these figures to prove the validity of the concept of happiness, showing that self reported happiness links to same real variable. Unfortunately, it also proves how instable the happiness ratings are and how minor effects, such as tiredness, can have impact on the reported level of reported happiness.





Graph 1: Average tiredness through the day



Graph 2: Average happiness through the day

Both figures are adapted from Layard (2003)

Bad news is that when you conduct your survey during working time, you will get lower level of life satisfaction. Good news is that this third component of happiness is more or less random and will balance out in large samples. Therefore national averages will be stable enough for analysis of life satisfaction, but individual scores will have bigger deal of this random variance, and the prediction models will be worse. It is the question of relative contribution of each component, but for now, I suggest, that the data might not be reliable enough to be used for analysis on individual level - where this random situational effect is not balanced out. Results of further research are needed here to make clear conclusion.

### Comparability across nations

In international comparative studies, two problems arise - first, the language is suspected to mediate the meaning of the words and happiness - in French language it might denote something completely different from the translation of the word into Russian language. I performed analysis of the data on World Values Survey. Results are summarized in the following table:

Country	Significance	Languages compared	Range (on scale 0-10)
Singapore	p>0.02	English, Mandarin, Malay, Tamil and Chinese dialects	6.6-7.8
Latvia	p>0.001	Latvian and Russian	4.9-5.5
Switzerland	p>0.001	French, German and Italian	7.6-8.3
Canada	non-sig.	English and French	7.7-7.8

Table 1: Does language matter in happiness ratings? Differences of happiness between the people speaking different languages in the same country (WVS 2006).

While we can find reasons for differences in Latvia (last decade's discrimination of Russian minority) and Singapore (ethnic discrimination of Chinese), it is hard to say, what caused the differences in Switzerland. Canada on the other hand shows no difference between the languages. We can therefore conclude that there are

differences between people speaking with different languages, but in most cases, this can be attributed to sources other than language.

Second major objection toward comparison of levels of happiness in nations is that satisfaction is western concept and it will produce more *don't know* answers in the eastern countries. This seems not to be the case - either because the topic of happiness can be found in poems and fables of ancient China and India, but also because the "don't know" responses are similar in various corners of the world, and differences do not conform to east-west rule:

Country	Proportion of "don't know" responses
Russian Federation	2.8%
Poland	1.8%
United States of America	0.7%
China	0.4%
South Africa	0.2%
Brazil	0.1%

Table 2: Concept of happiness is familiar in east as well as in west - proportion of "don't know" responses for selected countries.

The conclusion of current debate is, that despite the methodological problem, self-reported happiness can be used in analysis of group averages. Individual scores seem to be very unstable and are therefore not recommended for analysis without additional proof of validity of such approach. The interpretation of group averages should respect the unstable nature of happiness.

## **Measurement of satisfaction and its attributes**

One of the most striking experiences of the difference between qualitative and quantitative approach can arise, when you try to find out, why the recommendations from your quantitative research don't work. You have asked all the people in the company, how they are satisfied with certain attributes of their work, put the averages into a chart, made a presentation for the management, where you recommended them to focus on the five worst ranking items. As by coincidence, these items are similar in all the companies you have researched - such as benefits and easy to understand career system. Management is rather skeptic about the outcomes. Because they expected other issues to be more important, you conduct additional interviews with employees, just to find out, that most of the worst ranking items are considered marginal. There are other issues in the work that make them sleepless, but benefits and career system is really not the issue. Some of the most important problems even did not appear in the attribute list. What happened?

There are several approaches to measurement of happiness and satisfaction. The one presented at the beginning of this chapter shows that measurement of satisfaction can be pretty deceptive. In this chapter I will show, what different approaches to the satisfaction can be used, and what benefits each of the method has. I will partially demonstrate these findings on a study of 4160 internet users (NMS 2005), who completed an online questionnaire concerning services of a mobile phone operator.

### The easiest way - direct questions

The easiest way to measure satisfaction is direct question - how are you satisfied with XY? One of the greatest advantages of this approach is its simplicity. Almost anyone can answer this question, and analysis is straightforward - table of items ordered by average satisfaction. Also presentation and interpretation is simple and most people will understand it. There can be debate over the scale, which should be used - whether verbal (satisfied/moderately and satisfied/dissatisfied) or non-verbal (e.g. from 0% to 100%), both have ups and downs, which are summarized in the following table:

	<b>Ups</b>	<b>Downs</b>
<b>Verbal</b>	easy to understand results - it is clear what is meant by particular answers / answer categories	ordinal - does not allow more advanced statistical operations
<b>Non-verbal</b>	cardinal - allows more advanced statistical operations	Answers have abstract meaning (such as average satisfaction is 72%). Only norms can be used to interpret results meaningfully. There is also more freedom in interpretation of the ending points, middle point and linearity of the scale, leading to possibly incomparable ratings.

**Table 3: Advantages and disadvantages of verbalized and non-verbalized scales used in satisfaction research.**

There are other less important aspects of the scale, such as odd versus even number of scale items, but this topic is below the scope of elaboration in this work (for more details consult any class-books of social methods).

In most of the studies, what you are interested in, is general satisfaction, and satisfaction with certain attributes. Where to get the list of attributes? Here seems to be the best way to collect the most important attributes by qualitative research. The aim is to cover the most important ones, and not over-burden the respondent with huge list of unimportant attributes, thus focus groups and/or short interview should precede the satisfaction rating itself.

The study then will address general satisfaction and satisfaction with these selected attributes. There are six main results of this type of research:

- a) level of general satisfaction
- b) average rating of attributes and their of rank-order
- c) proportion of "satisfied" and "not satisfied" ratings within each attribute and general level of satisfaction
- d) types of raters/attributes (cluster analysis)
- e) underlying dimensions in the attributes (factor analysis)
- f) derived importance of the attributes (these topic will be covered in the "Derived measures - can we save place in questionnaire?" chapter in more detail)

There is one significant shortcoming in the measuring of single dimension - satisfaction - as was pointed out in the case study at the beginning of this chapter - we do not know how important dis/satisfaction with certain attributes is. What we know is only their average value. The real contribution lies in the analysis of the importance of the attributes and combination of this information with the average satisfaction.

Once you combine both attributes you can see, how deceitful can be the one-dimensional approach. Rating satisfaction with unimportant attributes can be in better case uninformative, in worst case misleading. How are you satisfied with color of the walls around you? How are you satisfied with spectrum of sunlight this season? What about geomagnetic field on the place where you are right now? If you tried to answer these questions, you may became aware of how strange it is to rate the satisfaction with things you do not care about (and which are not important for you).

In the following charts I am presenting the results of a study, where people were asked to rate their satisfaction with four selected attributes of their mobile operator's services - price, network, SMS and www site. Only people who used the services in last 6 months were included in the charts.

		importance				
		1	2	3	4	5
satisfaction	1	8%	3%	3%	5%	13%
	2	0%	14%	21%	28%	28%
	3	53%	53%	59%	49%	34%
	4	8%	17%	11%	12%	14%
	5	25%	8%	6%	6%	11%
	Total	12	36	481	2003	1329

Table 4: Price ratings (satisfaction with and importance). Column %

		importance				
		1	2	3	4	5
satisfaction	1	0%	0%	1%	2%	3%
	2	0%	3%	11%	11%	12%

3	0%	38%	38%	36%	26%
4	0%	29%	32%	38%	32%
5	100%	29%	18%	15%	27%
Total	2	34	388	1937	1523

Table 5: Network ratings (satisfaction with and importance). Column %

		importance				
		1	2	3	4	5
satisfaction	1	3%	0%	1%	1%	2%
	2	9%	4%	4%	3%	5%
	3	27%	35%	32%	29%	21%
	4	15%	26%	23%	27%	24%
	5	45%	34%	41%	40%	48%
Total	33	207	794	1493	1300	

Table 6: SMS ratings (satisfaction with and importance). Column %

		importance				
		1	2	3	4	5
satisfaction	1	4%	1%	2%	4%	8%
	2	14%	9%	8%	10%	11%
	3	52%	48%	37%	25%	18%
	4	16%	26%	31%	28%	17%
	5	14%	16%	22%	33%	46%
Total	180	841	1532	667	164	

Table 7: www site ratings (performance with and importance). Column %

The data in the charts are column percentages - they show the distribution of satisfaction ratings for each importance level. The bottom line is total number of people in certain importance level (sum of the column absolute values).

There are two patterns in the charts - the first one concerns *price* and *www site* - when the attribute is less important, people tend to give middle ratings. Second pattern is network - where people gave best ratings to unimportant attributes. SMS ratings are mixed type - they seem to include both patterns (some people approached middle ratings and some top ratings).

There is one more interesting information hidden in the data - relationship between the satisfaction and importance of attributes. They are sketched in the graph:

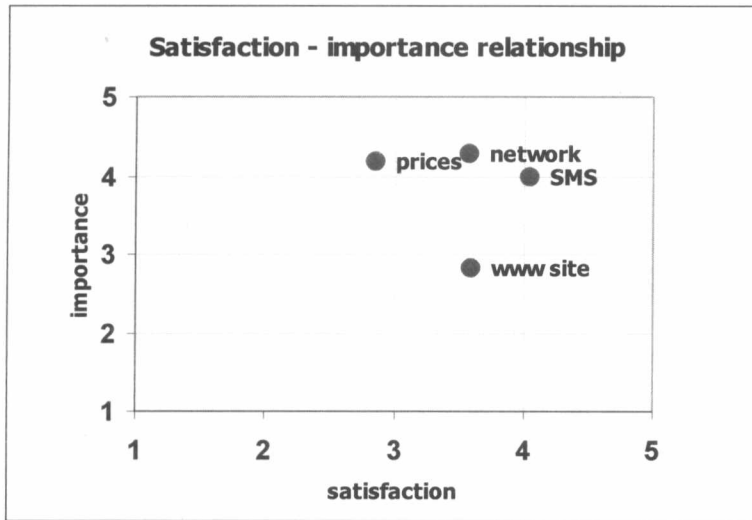


Chart 1: relationship of satisfaction and importance of attributes.

The problem from the case study at the beginning of the chapter can be illustrated on the attributes *network* and *www site* - while they are possessing similar satisfaction ratings, *www site* is far less important for the customers. If we were to give recommendations, investment into *network* should be preferred to *www site*. The logic behind is that improving more important attribute will increase the overall satisfaction faster.

For this approach, it is also more suitable to use performance measure instead of satisfaction measures, because of problems with satisfaction in lower importance ranks, as was mentioned earlier.

We have three important variables - satisfaction, importance and performance. To have a complete picture, one other variable needs to be introduced - expectations. The mechanism of expectations is described in discrepancy theory.

### Discrepancy Theory

According to discrepancy theory, the level of satisfaction is proportional to deference in current state and the expectations of the state as shown in the Table 8:. In McKinley et al. (2002) study, the impact of discrepancy between patient's expectations and perceived level of care on satisfaction was examined. This difference was found to be the most significant predictor of the satisfaction (34% of explained variance).

		Expectations		
		-	-/+	+
Reality	-	-	--	---
	-/+	+	-/+	-
	+	+++	++	+

Table 8: How difference in expectation and reality forms satisfaction according to Discrepancy Theory. Satisfaction and expectations are represented by signs, ranging from --- = lowest to +++ = highest.

The major problem of the expectations is that they are adjusting in time. Right after Velvet Revolution in Czechoslovakia 1989, many people were in euphoria from the new freedom obtained. However, it did not take much time until the expectations shifted and new freedom was not satisfying anymore. It became part of what was expected as a normal state. If in 1991 Russian Army entered Czechoslovakia again, many people would be very disappointed. There is a reason to believe, that the levels of happiness would decline under the average level before the revolution year 1989 - but only for a moment, while expectations adjusts, and the satisfaction levels will come back to level before the revolution.

Attentive sports fan probably remember what happens each year on the World Hockey Championship after the final match - the bronze medalers are entering the playing field with smiles on their face (they recently won the match for 3<sup>rd</sup> place). Silver medalers, who are objectively better off, feel sad, some of the players are even crying. The striking difference can be explained by discrepancy theory. This strong influence of expectations is also supported in research of Olympic sportsman satisfaction, where the ones who have bronze medals tend to have higher happiness levels than the silver medals holders (Medvec et al. 1995). Expectations therefore influence satisfaction levels.

Similarly, the concept of shifting expectations is commonly applied in negotiation techniques - such as door in face, and foot in door, where manipulation with expectations makes it possible to achieve better deal in negotiations.

### What to measure and how to analyze it

I want to summarize here, what has been said until now:

- Standalone satisfaction ratings can be misleading, since it has almost no meaning when the important is low
- Therefore also importance is recommended to be measured
- It is also better to measure performance, instead of satisfaction, so we can obtain also ratings for low importance attributes.
- Expectations shifts the levels of satisfaction, and therefore they should also be included in the model

Based on the conclusions from the previous chapter, I would like to summarize conclusions and provide recommendations for measuring and analysis of satisfaction. Firstly, four parameters are important in regard to satisfaction research:

- global satisfaction and satisfaction with attributes
- importance of certain attributes (factors)
- performance of certain attributes
- expectations of the performance

The best practice of measuring performance and expectations will enable us to measure both in one question, where the answer can rank from “below expectation”, through “satisfactory” to “beyond expectations”.

One of the methods for analyzing this kind of data is called importance-performance analysis (IPA) and results include two models. First, the so called Action Grid (see Table 9 and below) and the so called Performance Gap Analysis. The latter is based on identifying performance gaps, which is typically measured as performance minus importance (Magal and Levenburg 2005). The former procedure is more complicated, and is based on calculating averages for the group under research. These will yield positions (coordinates) in the scatter plot, where the two dimensions are importance and performance. This scatter plot is called Action Grid.

	<b>performance is below expectation</b>	<b>performance is beyond the expectations</b>
<b>Important</b>	Focus here	Keep up the good work
<b>Unimportant</b>	Not important	Possible overkill

**Table 9: Matrix of results of IPA analysis called Action Grid.**

For the four quadrants, the recommendations from Table 10 apply.

<b>Quadrant</b>	<b>Recommendation</b>
Focus here	Elements represent key challenges that require immediate corrective action and should be given top priority.
Keep up the good work	Elements are strengths to the system, and calls for a maintenance posture.
Not important	If elements do not represent a threat to the organization, they may be candidates for discontinuation of resources/effort.
Possible overkill	Contains elements that are insignificant strengths to the organization and suggest areas from which resources could be diverted elsewhere.

**Table 10: Recommendations applied to each quadrant of Action Grid (Magal and Levenburg 2005).**

Sometimes, also extension to quadrant approach is used, the so called iso-rating or iso-priority line. It is a line connecting places in the scatter plot where importance equals performance. Regions above the line are called as the region of opportunities and suggest that large distances (gaps) identify areas of priority. Also, the line can be used to identify the lower bound of acceptability, with items above the line requiring improvement (Magal and Levenburg 2005).



### Derived measures - can we save place in questionnaire?

Some authors suggest using indirect indices calculated from the satisfaction data. Most often, derived indices are the derived importance ratings calculated as correlation of overall satisfaction and performance of each attribute (in worse case satisfaction is used). There are two major reasons for using it – either we want to avoid long questionnaire (and then we are using it as substitute for importance ratings), or we want to provide the user with additional insight into the data. In the latter approach, the stated importance and derived importance is compared, the first one called conscious importance and second one the unconscious importance. Group averages of each item in these two dimensions are plotted in scatter plot and from the comparison of the two. Classification model is sketched in Table 11.

	<b>high stated importance</b>	<b>low stated importance</b>
high derived importance	high importance	undiscovered needs
low derived importance	illusion of need	unimportant

**Table 11: Classification of attributes based on comparison of stated importance and derived importance.**

Let's have a closer look to what exactly these measures do measure, and find out, whether their use is justified. First of all, I will consider what correlation of performance of attributes with global satisfaction reveal and then I will show how it can be used to interpret the results of suggested method.

Correlation will tend be sensitive to two things

- Ratings of important attributes will tend to correlate more with overall satisfaction
- Attributes with which customers are not satisfied will tent to correlate more strongly with overall satisfaction, because these attributes will decrease the overall satisfaction.

The problem is that according to definition of derived importance only the first influence should have been included. As a result these correlation coefficients will reflect both influences in one coefficient, without the possibility to filter out the second one. Therefore, the higher the correlation coefficient, the stronger the impact on lowering the overall satisfaction. Therefore if we use it as indicator of importance, we will have distorted information in relation to performance level. The better the performance, the bigger the distortion. Therefore, if we use derived importance as indicator of real importance, attributes from quadrant "Keep up the good work" will slide to quadrant "possible overkill". This may lead to dangerous managerial decisions – since company will stop supporting attributes (of a product) that were essential to it (were important) but were managed well (high level of performance), and therefore will lose the competition advantage. In next wave of research, when the performance will be lower, it will appear in the quadrant "focus here", but it may be already too late – part of the customers will be lost and already buying products from competitor, who invested into longer questionnaire.

Result of this analysis is therefore recommendation not to use derived importance unless you need only information what to focus on. If you need also information about what attributes are essential, measure both – performance and importance in the questionnaire. There is no other way of deriving this information without losing important part of it.

For the discussion about other methods of indirect importance assessment, consult Verlegh (2001).

## **Types of attributes - satisfiers and dissatisfiers**

You may have experienced that when you work with your computer, and something goes wrong - you lose an email that you wrote for 30 minutes or you lose several pages of text just because of program crash - you feel very upset. But if everything works all right and you work with your computer without any problem for 5 hours, it does not make you feel particularly happy. The potential of things around you for making you happy is not equal to potential to make you sad or upset. To put it simpler: there are things that make you happy, and there are things that make you unhappy. And these are not the same things.

In this chapter, I would like to go deeper in the topic of potential of things to invoke positive and negative feelings. One of the hypotheses proposed by Klien (2004) is that happiness and unhappiness are two distinct things. One of the examples describes a man, who was promoted, but not into the position which he expected. He felt regret about not achieving the dreamed-of position, but he felt delight about the promotion he already received.

There two distinct issues that I want to distinguish here. There is no doubt, that you can have mixed patterns of emotions toward an object - such as when your loved child becomes addicted to drugs, or when you like songs from Czech musician Daniel Landa, who according to lot of people have great musical talent, but used to be (or still is) a neo-nacist in his attitudes. Anytime they hear the music, something unsettling reminds them, that the music comes from problematic author. The attitude toward the song is mixed - they like it and dislike it in the same time. The question, which Klein wanted to rise, is of different nature - can we feel mixed positive-negative emotion *at the same time*? Or do we *feel* only one of the emotions, depending on our conscious focus?

Klein (2004) suggests the former. He supports this view by the results of studies, which show that patterns of brain activity in the state of happiness are different from the patterns in state of unhappiness. There are also distinct chemical substances, which emerge in organism. Desire, satisfaction and sexual attraction are conveyed by substances such as dopamine, oxytocine and beta-endorphin. Fear and tension are conveyed by substances

such acetylcholine, and stress hormones, such as cortisol. Also Larsen et al. (2001) supports this by research suggesting that „although affective experience may typically be bipolar, the underlying processes, and occasionally the resulting experience of emotion, are better characterized as bivariate.“

Probably the most supportive real life proof are situations, in which both emotions - positive and also negative - are present at the same time. Probably the most persuasive is the fact, that this occurs surprisingly often - almost every evening in the theater, where horror is screened. Horrors are typical situation, where one has pleasure from feeling fear. Also the amusement parks, where people have pleasure from fear of heights and bungee jumping supports the view, that we can feel both emotions at the same time.

There is however one more interesting point in this debate. Once we start to think of happiness and unhappiness as distinct dimensions, other questions arise: Can all objects make us feel happy and unhappy in the same way? Or are there specific objects that have potential to make us happy, but can never make us unhappy? And on the other hand, are there things that can only make us unhappy? If this would prove to be true, there is time to rethink the old concept of satisfaction and happiness. Let's try to push the idea a little further.

Consider the common reasons that cause people to think about a divorce:

- Couple has conflicting personal beliefs
- Couple's marital satisfaction decreases
- Desertion
- Adultery
- Cruel treatment
- Imprisonment
- Spousal Indignities
- Irretrievable Breakdown of some kind

It may be a good joke to try to image, that if you reverse this list, it would become a portrait of an ideal partner:

- Couple have no conflicting personal beliefs
- Couple's marital satisfaction remains at same level

- No desertion
- No adultery
- No cruel treatment
- No imprisonment
- No indignities
- Institutionalization
- No irretrievable breakdowns

More or less, you would probably perceive this as a normal expected profile, nothing special<sup>1</sup>. Or we can put it in another way - items can be considered to be minimum requirements for a partnership. However, there are not that many people who would say, that they would be definitely happy with such a partner<sup>2</sup>. To sum it up - things that make you satisfied with your partner are not necessarily the same that make you dissatisfied with the partner.

This idea was explored in organizational psychology by Frederick Herzberg (Wikipedia 2006a), who proposed the so called Two-Factor Theory (also aka Motivator-Hygiene Theory). Based on interviews of some 2 hundred American employees, Herzberg concluded that there are two types of work's attributes - **motivators**, which presence results in satisfaction, and **hygiene factors**, which presence does not result in satisfaction, but their absence evokes dissatisfaction. The example of Herzberg's attributes can be as follows (Nichols 2004):

Leading to Dissatisfaction (hygiene factors)	Leading to Satisfaction (motivators)
Company policy	Achievement
Supervision	Recognition
Relationship w/Boss	Work itself
Work conditions	Responsibility
Salary	Advancement

---

<sup>1</sup> some of the reasons do indeed constitute a predictor of satisfied relationship, but not necessarily all - we will come back to it in next chapter

<sup>2</sup> yes, there are some - those who have no partner, or those who have partners form profiles from the first list. We will come back to this issue later.

Relationship w/Peers	Growth
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Table 12: List of motivators and hygiene factors (Herzberg's Two-Factor Theory)

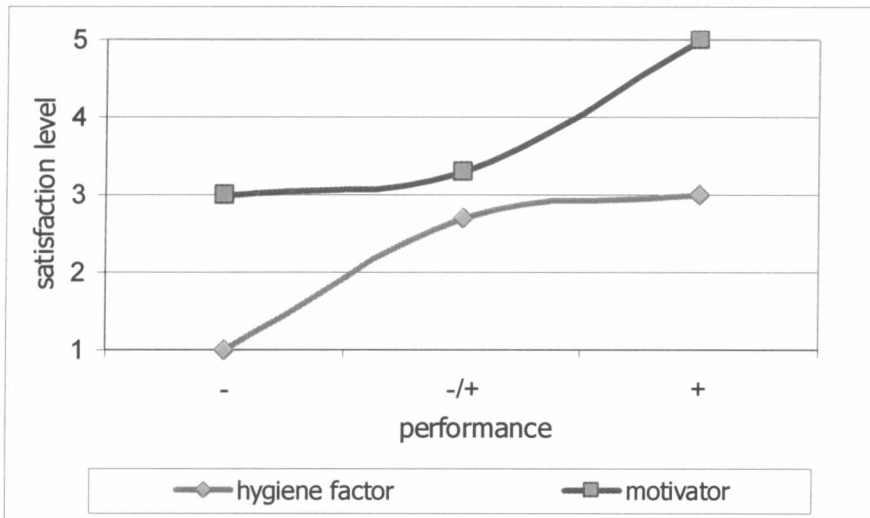
Herzberg pointed out, that if there are distinct factors causing a satisfaction and dissatisfaction, these are two independent dimensions. Hence opposite of satisfaction is no satisfaction, and similarly, opposite of dissatisfaction is no dissatisfaction (ICMBA 2006). This notion is compatible with our conclusion about the possibility of feeling both - satisfaction and dissatisfaction at the same time. This concept of happiness brings whole new perspective into how happiness and underlying factors can be treated. Before we get deeper into two factor model of happiness, I would like to quote a web page on Herzberg's comment on the theory, because it provides interesting analytical insight and because we will come back to it later in the chapter Macro-perspective: social determinants of happiness: "... the factors that determine whether there is dissatisfaction or no dissatisfaction are not part of the work itself, but rather, are external factors. Herzberg often referred to these hygiene factors as "KITA" factors, where KITA is an acronym for Kick In The A..., the process of providing incentives or a threat of punishment to cause someone to do something. Herzberg argues that these provide only short-run success because the motivator factors that determine whether there is satisfaction or no satisfaction are intrinsic to the job itself, and do not result from carrot and stick incentives."

### Satisfiers and dissatisfiers - classification algorithms

In the last chapter, I have proposed that attributes have different potential for making us happy and different potential for making us unhappy. The example with reasons for divorce was presented in order to show, that the opposite of reasons for divorce are not attributes of an ideal partner. However, some of the items really work this way - differences and incompatibility of personal values and beliefs are one of the reasons for divorce, and the opposite - proximity of values and beliefs - is indeed is a predictor of happy relationship (e.g. Myers, 1999). Does this invalidate Herzberg's theory? Or at least, does it invalidate its application out of organizational behavior context?

In fact, it does. At least it points out, that some of the attributes does not fit into two-factor concept; in some cases there is only one dimension. In this chapter, I would like to introduce the extension of Herzberg's model and provide us with more general model of satisfaction and indicators (attributes) of satisfaction.

Trying to draw the Herzberg's model into schema of relationship of satisfaction on performance, we come to following schema.



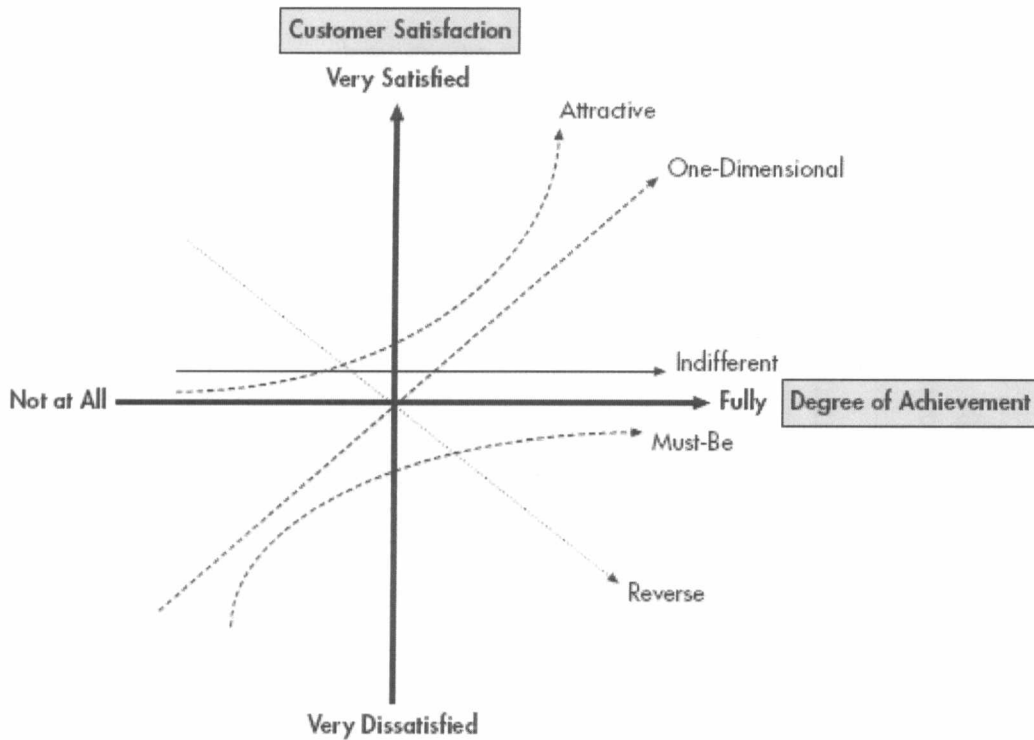
Schema 1: Relation of performance and satisfaction level for Herzberg's types of attributes.

The weak point of Herzberg's theory is that he suggests only two types of attributes. Two more seem to be relevant in this context - linearly related attributes (such as the value proximity variable in the context of partners) and the non-related attributes. This enhanced schema was proposed by various authors, such as professor Kano. I will introduce briefly their basic common principle, and will compare terminology of different approaches at the end of the chapter.

Probably the most famous enhancement of Herzberg's model, is Kano's attribute model. Noriaki Kano was a Japanese professor, who enhanced Herzberg's model by adding three more types of attributes - so together, there are five attribute types:

- attractive (Herzberg's motivator)
- one-dimensional
- must-be (Herzberg's hygiene factor)
- indifferent
- reverse

Updated schema of relationship of satisfaction and attribute performance is on the Schema 2.

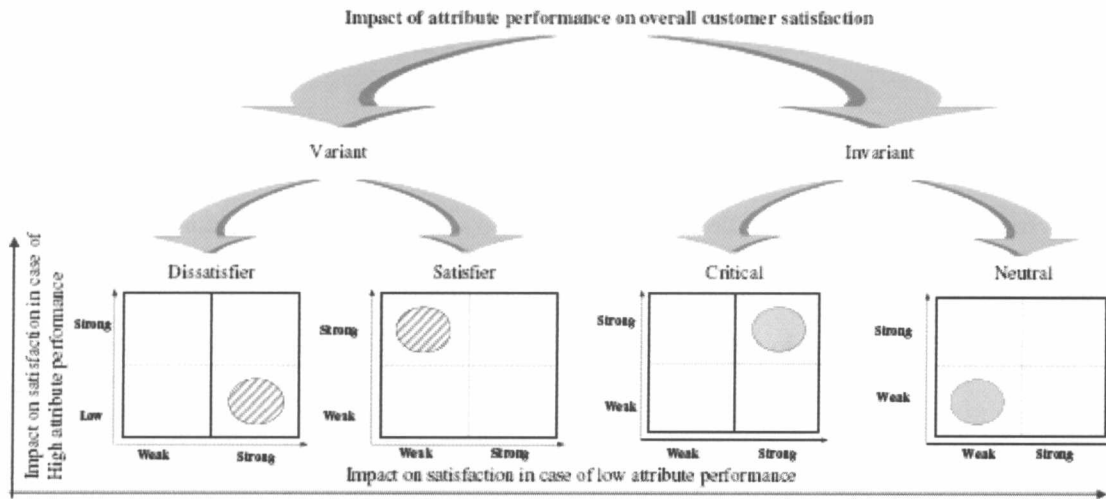


Schema 2: Kano model attribute types (adapted from Löfgren and Witell)

This schema enables us to distinguish various types of attributes. Reverse type of attribute is not considered further, since it can be described by other attributes (or absence of them).

Such a model is also compatible with Maslow's theory of basic needs (Maslow, 1970; Heylighen, 1992). Maslow distinguishes two types of needs: 1) deficiency needs, such as hunger, thirst, or the need for security, which can be satisfied by providing an adequate amount of food, drink or safety; 2) growth needs, such as the need for learning and "self-actualization", which can only be satisfied by continuing development. Thus, the satisfaction of growth needs imply a continuous increase in aspiration levels, while the satisfaction of deficiency needs stops at a given saturation level (Heylighen & Bernheim 2000).

Bartikowski and Llosa (2003) clarify the underlying principle by distinguishing of variant and invariant weight of attribute performance. The principle is sketched on Schema 3.



Schema 3: Categorization of attributes (for corresponding attribute name in other concepts see Table 13).

The principle is the same, but new labels were attached to the categories. Summary of the names used in the approaches of different authors are describes in the Table 13.

Impact on CS	Variant		Invariant	
	Strong if performance is low, low if performance is high	Weak if performance is low, high if performance is high	Always strong	Always weak
Author(s)				
Herzberg et al. (1959)	Hygiene	Motivator		
Kano (1984)	Must-be	Attractive	One-dimensional	Indifferent
Cadotte and Turgeon (1988)	Dissatisfier	Satisfier	Critical	Neutral
Brandt (1988)	Minimum requirement	Value enhancing	Hybrid	Unimportant as determinant
Brandt and Scharioth (1998)	Basic	Attractive	One-dimensional	Low impact
Venkitaraman and Jaworski (1993)	Flat	Value-added	Key	Low
Llosa (1997, 1999)	Basic	Plus	Key	Secondary

Table 13: Synthesis of Attribute Categories (adapted from Bartikowski and Llosa 2003)

Throughout this work, I will use the terminology of Cadotte and Turgeon, and call the attribute types as dissatisfier, critical, satisfier and neutral.



## Methods of determining attribute type

Bartikowski and Llosa (2003) describe 4 methods of determining the attribute type. They are summarized in the following list<sup>3</sup>:

### Direct approaches

1) Dual importance mapping (DIM) - comparison of stated importance versus derived importance (correlation of performance rating and overall customer satisfaction).

2) Simulation method (SM) - satisfaction rating of imagined states of worst and best performance (Kano's method).

### Indirect weights assessments

3) Penalty reward contrast analysis (PRCA) - computation of two dummy variables (satisfied and non-satisfied with a given attribute) and performing a regression analysis of the attributes' performance scores. Dependent variable is overall satisfaction.

4) Correspondence Analysis (CA) - use of correspondence analysis to extract attributes position on the one-dimensional axis ranging from *strong negative contribution* through *weak negative* or *weak positive contribution* to *strong positive contribution*.

### Asymmetric satisfaction binding

In cooperation with my consultant MUDr. Mgr. Radvan Bahbouh, we derived other two, less demanding procedures that are suitable for data mining procedures. Both are based on the comparison of the attribute means in all three tercils of the global satisfaction variable. For analysis, two dummy variables are created - *dummy dissatisfaction* (values 1 for lowest tercil, 0 for middle tercil) and *dummy satisfaction* (values 1 for highest tercil, 0 for middle tercil).

5) Quasi t-test classification (QTTC) - comparing the mean difference for both dummy variables and adjusting with pooled variability. Standard t-test can be used, but the standard interpretation will not apply. Classification is based on the significance of both t-tests, as outlined in the Table 14.

Attribute type	lower tercils difference	upper tercils difference
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<sup>3</sup> for comprehensive description of the methods and hints on computation, see Bartikowski and Llosa (2003).

dissatisfier	significant	non - significant
critical	non - significant	significant
satisfier	significant	significant
neutrals	non - significant	non - significant

Table 14: classification key based on quasi t-test procedure

6) Asymmetric tercil correlations (ATC) - correlating dummy variables for satisfaction and dissatisfaction with attributes. Based on comparison of the intensity of the two halves of correlation (for satisfaction and dissatisfaction separately) we can derive whether the attribute correlates more with satisfaction (satisfier), and/or dissatisfaction (dissatisfier) or both (critical).

### Other Approaches

There are also other, more sophisticated approaches, such as conjoint analysis. For comprehensive review, see Magal and Levenburg (2005).

Bartikowski and Llosa (2003) also points out, that their research showed, that simultaneous usage of all 4 methods proved, that they do not classify attributes equally. In fact, the diversity of results is rather scary. However, their analysis presents comprehensive analysis of methodological and statistical ups and down, which I briefly present in the following table.

criterion/method	DIM	SM	PRCA	CA	QTTC	ATC
1. Respects the nature of CS as a post experience evaluation (no performance simulations)	Yes	No	Yes	Yes	Yes	Yes
2. Permits categorizing each single attribute without taking into account other attributes ('absolute categorization')	No	Yes	Yes	No	Yes	Yes
3. Works on an individual level (not only on an aggregated level)	No	Yes	No	No	No	No
4. Data can be easily collected (large numbers of attributes can be studied)	Yes	No	Yes	Yes	Yes	Yes
5. Rules for attribute categorizations are theoretically developed (not arbitrarily chosen)	No	No	Yes	Yes	No	No
6. Clearly established rules for attribute categorizations (always the same rules can be applied, independent of the obtained results or the sample size)	No	Yes	No	Yes	Yes	No
Number of criteria conformed to	2	3	4	4	4	3

Table 15: comparison of methods for decision on satisfaction/dissatisfaction attribute type

(adapted from Bartikowski and Llosa; 2003)

The result of the analysis can therefore be states as recommendation for PRCA, CA and QTTC.

However, as Statistica manual (StatSoft 2006) points out, the coordinates of the correspondence analysis solution does share the same coordinate space but the distances are not in the same scale, therefore I have doubts about the validity of the solution. Therefore I will not use the CA method in the applied part of this text.

## Psychology of satisfaction - experiencing happiness

One friend of mine had married a young woman few years ago. Before wedding, he used to be a "sinner", consuming all the pleasures of hedonic life, such as vivid sexual life, alcohol and drugs. He was enjoying it before, but suddenly - he confessed to me - he needed change. He wanted to get over all of this, find an untainted young and healthy wife and establish a family. During next few months, he was dating a 10 years younger untainted girl, who soon married him. She was cheerful, nearly 22, with life ahead of her.

After two years they already had two kids, they were enjoying improved economic situation of the family, but the girl was not that lively anymore. Right the opposite - she was bitter, seeing problems everywhere, spreading rumors and quarreling with the partner often. Everything was wrong, nobody was helping her and she was definitely dissatisfied. People first did not believe, that the change is permanent, and attributed the behavior to situational factors, such as hard time in life, and heavy workload at home. Several years passed, and she still remains bitter. What can happen to people to change their view of the world so dramatically? And is it possible to undergo the conversion also in other direction?

I presented the story in order to show two things: first the material part life might be important, but it is not a determinant of (life) satisfaction. Second, life satisfaction may have something to do with cognition - because the objective conditions improved, subjectively they changed to worse for the girl.

In this chapter I will develop the psychological concept of happiness and will develop measures to explain how overt conditions transform into something so subjective, as happiness.

### Satisfaction as an attitude

In this part of the thesis, I would like to focus on life satisfaction as an attitude. Once we start to consider the life satisfaction as an attitude, the classical social psychological concepts may lend us several important insights. Firstly, an attitude is evaluative relation to an object. The classical concept of attitudes in social psychology claims that attitudes are 3 dimensional. Dimensions of attitudes are described in Table 16.

Dimension	Description
Affective	physiological response that expresses an individual's preference for an entity
Behavioral	verbal indication of the intention of an individual.
Cognitive	cognitive evaluation of the entity to form an attitude

**Table 16: ABC components of attitude (Wikipedia 2006d).**

There is major problem with the behavioral dimension - it is vaguely defined. Sometimes, it is defined as propensity to react in positive manner towards an object, other authors, such as Ajzen in his theory of planned behavior (Wikipedia 2006e), incorporates the attitude in the bigger model, in which one of the other components is the behavioral intension separately, so clearly, the behavior part of attitude has to mean something else. I don't want to bore the reader - all I wanted to prove, is that classical 3 dimensional (ABC) model of an attitude is at least problematic.

Donald Norman has therefore come up with different model of an attitude - the three new dimensions of the concept are described in the Table 17.

Dimension	Description
Visceral	automatic physiological response level (design consideration: product appearance)
Behavioral	experience (design consideration: usability issues)
Reflective	thinking, reflecting (design consideration: self-image of user)

**Table 17: Normans re-made model of attitudes and recommendations for a design considerations (Norman 2004).**

Norman (2004) describes the three levels followingly:

*Now let's look at some examples of these three levels in action: riding a roller coaster; chopping and dicing food with a sharp, balanced knife and a solid cutting board; and contemplating a serious work of literature or art. These three activities impact us in different ways. The first is the most primitive, the visceral reaction to falling, excessive speed, and heights. The second, the pleasure of using a good tool effectively, refers to the feelings accompanying skilled accomplishment, and derives from the behavioral level. This is the pleasure any expert feels when doing something well, such as driving a difficult course or playing a complete piece of music. This behavioral pleasure, in turn, is different from that provided by serious literature or art, whose enjoyment derives from the reflective level, and requires study and interpretation.*

Norman does not admit that his model is a re-working of the ABC model of attitudes, but it can be used that way. I don't even have to change much of the model - since the design application was already suited for creating positive affects. However, I am going to add several concepts to Normans Emotional Design idea that will enhance the concept for application on life satisfaction analysis. On a few following pages, several other (mainly cognitive) concepts will be introduced. The flow of the thoughts might firstly seem fragmented, but I will integrate them into one concept at the end of the chapter, that will enable us to work with dynamic model of happiness.

## Flow

First relevant concept that enhances Norman's behavioral part of the model is pleasure from an absorbing activity - using a good tool, or playing an action PC game. This state was already researched by American psychologists with Hungarian origin, Mihaly Csikszentmihalyi (Wikipedia 2006f). He coined the term "Flow", which describes the mental state of pleasurable concentration. When people fell in flow, they tend to forget about the outer world and immerse into the activity they are currently working on. This "total involvement state of mind" is in most cases rated very favorably by the people just returned from the flow state. The typical settings, which stimulates flow (ibid):

- Clear goals (expectations and rules are discernable).
- Concentrating and focusing, a high degree of concentration on a limited field of attention (a person engaged in the activity will have the opportunity to focus and to delve deeply into it).
- A loss of the feeling of self-consciousness, the merging of action and awareness.
- Distorted sense of time - our subjective experience of time is altered.
- Direct and immediate feedback (successes and failures in the course of the activity are apparent, so that behavior can be adjusted as needed).
- Balance between ability level and challenge (the activity is not too easy or too difficult).
- A sense of personal control over the situation or activity.
- The activity is intrinsically rewarding, so there is an effortlessness of action.
- Environment preventing disturbances (such as phone call)

The point, which I wanted to make, is that the flow experience is in fact the ideal of the behavioral level experiencing. It is the most pleasurable mode of experience in relation to Norman's behavioral level.

## Cognitive framing and relativity of attitudes

Reflective part of the life satisfaction attitude, is sensitive to effects of cognition and cognitive biases (a comprehensive list of cognitive biases can be found at Wikipedia 2006g). I will not go into details here, but will mention at least the most important one.

The first and probably the most important cognitive mechanism is the frame of reference. Arguing from structuralist position, terms like happiness and life satisfaction have only meaning in relation to other linguistic objects and own experiences. This can be illustrated for example how re-labeling acts of domestic violence to

"mere family disputes" make the violence acceptable for some Chinese woman (ChinaCourt 2006). Also, it is sometimes said, that the poverty in India did not exist in India, before Gandhi said it aloud. Just at that time, people realized that indeed they are poor, especially in comparison with English occupants. This thought line is connected to Thomas' definition of situation and constructivists approach.

Heylighen and Bernheim (2000) are pointing out how frame of reference might influence satisfaction. They combine "level of adaptation theory", which claims, that people "... choose their level of aspiration to be higher than what they have now, but realistically attainable. They judge attainability by comparing their goal with their previous experience, and with the situations of the people around them. This provides them with a standard or reference level against which progress can be measured. Real happiness in this view can be achieved only if people feel a continuous progress towards their aspiration level, while the aspiration level itself moves up in step with their achievements." (ibid) The mechanism is relevant to discrepancy theory described above. Important notion is that what really matters is not the net gain, but a continual improvement - people who win in lottery are surprisingly not any happier than control group after some time (Sheldon and Lyubomirsky 2006).

### Cognitive effects of awareness

One of the hypotheses concerning various effects on attitudes is that awareness itself is important factor of forming attitude. By awareness I mean the frequency by which one thinks about certain issue. In social psychology, awareness of an attitude is one of the conditions for attitude to influence the behavior (Myers 1999). The higher awareness of the attitude, the more it penetrates into behavior. Especially emotionally strong event - either painful or joyful - or the ones that are central to our life, tend to come back automatically to our consciousness. Event, such as falling in love, is similar to obsessive-compulsive disorder - the joyful idea of a new partner tends to come to awareness again and again, so that one repeatedly thinks of it (Klein 2004). Also painful events, such as breaking up with a partner or divorce, tends to repeatedly come back to mind and in the first days (after first occurrence) it is hard, if not even impossible, not to think about it. This is called the increased level of awareness. People tend to overcome this increased levels by drinking alcohol or doing activities with high level of involvement/concentration, in order not to think about it (Myers 1999). For successful coping, it is necessary not to be reminded of it. Therefore, seeing, meeting, reminding and so on of an object will evoke the emotion - make you feel it. It is hypothesized, that stimuli that reminds you of itself, adapt more slowly, then other ones. If there are construction workers repairing pavement in front of your windows, it will take longer time to adapt to it, since it will remind you of it by every stroke of the pneumatic hammer. However, if you recently had a salary increase, it is possible that it does not remind you of it frequently. It is therefore possible, that you will enjoy it right after the announcement, and then a few times at the end of month,

when the salary arrives at your bank account. Also, scheduled small celebrations of recent success may increase your happiness levels. Therefore the level of awareness is proportional to effect that stimuli will have on your happiness (or life satisfaction).

### **Hedonic adaptation**

It happened to you before - you were so terrified with a new product in the shop, that you felt you must buy it - be it a new perfume, a new piece of clothes, a painting or electronic device. In first two days you enjoy it. In other two days, you still like the idea of having it. After six days you don't even remember that you bought it. The next time when you encounter this new piece will be during the big tidying.

Heylighen and Bernheim (2000) draw our attention to this mechanism that is probably one of the most important dynamic mechanisms within the satisfaction motivation subsystem. They believe it to be an evolutionary homeostatic mechanism not to let us fall into lethargy. They call it habituation to the pleasurable stimulus and point out, that we are equipped with this mechanism in order to continually improve our conditions. Not having it, we would be endangered by "... inaction or lethargy, comparable to rat that can directly stimulate its pleasures centers by pressing a lever." (ibid).

Sheldon and Lyubomirsky (2006) also write about similar mechanism - they call it hedonic adaptation. This mechanism is according to them responsible for fact, that "... gains in happiness are impermanent, because humans so quickly adapt to change." The proof of existence of such mechanism can also be found in ill people and their rating of well-being. Using an ecological momentary assessment measure of mood, the authors failed to find evidence that hemodialysis patients are less happy than healthy people are, suggesting that they have largely, if not completely, adapted to their condition. In a forecasting task, healthy people failed to anticipate this adaptation (Riis et al. 2005). Clearly, hedonic adaptation took place there.

The problem posed by these studies seems to be rather complicated - as Oswald and Powdthavee (2005) pointed out, even economist still frequently don't take into account hedonic adaptation in their concepts of customer satisfaction and decision modeling. Let's focus on the adaptation mechanism for a while.

### **How much adaptation?**

The first question that has to be answered is, how much adaptation takes place - if all variance in satisfaction ratings are due to "hedonic shocks" and subsequent adaptation, or there is a stable part of the satisfaction reports, that is not affected by adaptation. Popular books from the concentration or working camps, such as Solzhenitsyn's *One Day in the Life of Ivan Denisovic* may suggest, that even in harsh conditions, people are able to feel happiness, enjoy little pleasures of daily life and function in daily duties. Other reports from

concentration camps, such as Frankl's *Man's Search for Meaning*, might suggest the same. This would be a very bad news for any social policy, since it will render it useless.

Oswald and Powdthavee (2005) were asking themselves the same question. They showed that not all satisfaction adapts to conditions. They found out that for disabled people the adaptation is not complete - they are less happy than the able-bodied, who had average satisfaction 5.3 (7 points scale). Disabled people, but able to do day-to-day activities, were less happy than average - average life-satisfaction score being 4.7. The severely disabled individuals scored 4.1.

As was mentioned, Sheldon and Lyubomirsky (2006) suggest, that there is a stable point for each person, around which the happiness levels revolve. This may constitute up to 50% of variation of the levels of happiness among people.

### **To what do we adapt and to what we don't?**

There are things to which we do adapt, such as increase in salary, and there are things to which we do not adapt, such as seeing you own kid (pleases you most of the time), or regular sharp noises behind the window (annoys you most of the time). However, it is hard to find longer list of examples that people never adapt to, and list of examples of things people always adapt to very soon. Hedonic adaptation may therefore be a continuous dimension that reflects how many times a stimulus can be used, or what time it takes before the stimulus can be used again. Both - your kids and regular sharp noises behind the window - are examples of very fast hedonic adaptation, since it need very short time before you can experience the same level of pleasure/annoyance from the same stimuli again.

Research from Sheldon and Lyubomirsky (2006) concludes that sustainable happiness is more easily sustained through intentional activity changes, in comparison to circumstantial changes. In fact they show that circumstantial changes have longer "hedonic adaptation" (you have to wait longer until you can have please from it again). This is also consistent with already quoted research, showing that lottery winners adapt to a new circumstances very soon. Also it seems that slow supply of small pieces of improvements will evoke different hedonic adaptation in comparison to the same amount of improvement supplied exposed in one time (ibid).

Just not to confuse the reader, it is good here to distinguish the two types of adaptation. What I was writing about is *hedonic adaptation*, and it referees to diminishing effect of a certain stimuli (if you use the stimuli too soon, the effect on happiness will be lower). But also there is a cognitive adaptation, taking place and it is related to shifting of expectation. I call it expectation adaptation. I will elaborate the concept further in the next chapter.

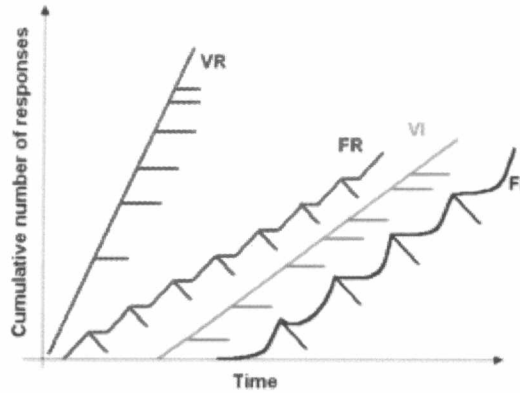


## Integrating the concepts

The last part of my elaboration of the concept of happiness was inspired by following research from Zhang and Dran (2000). They used the two factor model of attributes in their research of www site. They came to the following conclusion: "The results showed that the two-factor model provides a means for Web-user interface studies. In addition, Subjects in Phase II commented that, as time passes or familiarity increases with certain design factors, their identification of what are hygiene and motivator factors might change, promoting further investigation and possible expansion of the model". These researchers therefore hypothesize, that attribute type is not a fixed property, but a dynamic variable, than can change over time. In the following paragraphs, I would like to find out, if the attribute type can really change over time, and under what circumstances.

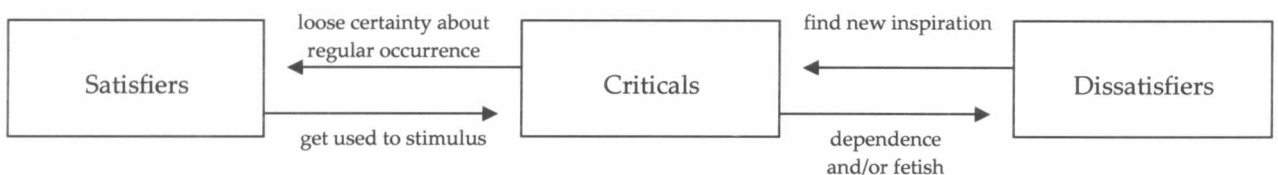
Firstly, 2 factor model of satisfaction is a static concept. It presumes that the factors are static and that they do not change over time. As Zhang and Dran's research pointed out, this is not valid. In fact, the opposite seem to be true - there seem to be not as many attributes that can be classified as satisfiers and dissatisfiers forever. In a research of mobile phones, most of the satisfiers are new functions and/or services that emerged in near past and people did not get used to them yet. Good classification can be obtained for a group, because group averages yields the result where satisfiers and dissatisfiers can be distinguished. But thinking more about individual responses, it starts to be clear, that the four attribute concept will not be valid - because of shifting expectations. Let me explain it.

Integrating this outcome with the two factor model, we can suspect that in the long run, all attributes will become criticals on individually level. Behaviorists already described this in context of operant conditioning - in the concept of Schedules of Reinforcement. During reinforcement of behavior, the rewards can follow in distinct patterns. If the pattern is regular, there are also regular patterns in activity leading to reward, as can be seen on the Schema 4.



Schema 4: A chart demonstrating the different response rate of the schedules of reinforcement, each hatch mark designates a reinforcer being given (adapted from Wikipedia)

The main finding is that variable rates (VR and VI curves - variable ratio and variable interval rates respectively) tend to produce highest rate of responding and the greatest resistance to extinction. Interesting enough, similar pattern appears also in satisfaction. If satisfiers are received at regular basis, it becomes expected, and therefore migrates from Satisfier to Critical. When you start to write to your friend a birthday message, it is satisfier - he is not awaiting it. It pleases him when you do it, but on the other hand it does not make him sad, if you forget, because he is not expecting it. But when you are sending it for several years and one year you forget, your friend might be disappointed. "Did something happen?" or "Why did you stop sending the greeting?", he might be asking himself. Therefore most satisfiers have tendency to become a critical if they are expected and taken for granted.



Schema 5: Dynamics of changes from one attribute type to another.

However, when the pattern of stimuli (greeting cards) is irregular, and the recipient knows it (and he expects it to be irregular), every greeting will please him, but not receiving a postcard will not make him sad. Therefore the pattern of stimulus occurrence is the same as in variable rate in schedule of reinforcement. The only way how to keep the stimuli a satisfier is by irregular rewarding.

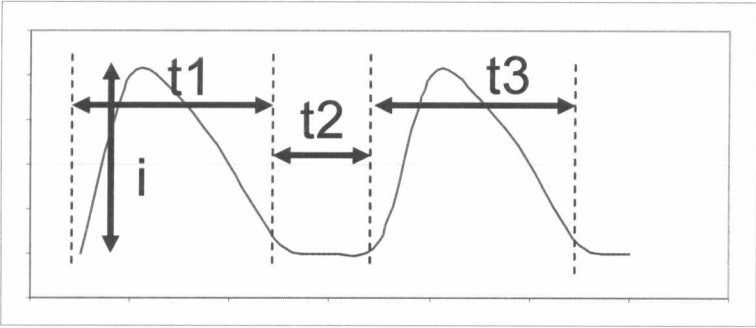
Similarly, trajectories between Critical and Dissatisfier can be moderated by becoming dependent on the stimuli (by shifting tolerance levels), or when the stimulus becomes a fetish (in the sense that Marx have used for

money) or in the same sense that George Simmel described in his book *The Philosophy of Money*. Here, fetish refers to something we think we need - it does not make us particularly happy, but we act as if the absence of it was unpleasant. The way back from Dissatisfier to Critical can occur, when we find a new inspiration in the stimulus. This can happen for example by restoration of "hedonic potential" in a time.

As have been mentioned, this adaptation mechanism, however it might look similar, is not the same as hedonic adaptation. The main difference is, that expectations adaptation applies to changes in the attribute type and the levels of performance, that we will be satisfied with (shifting the comparative standards), whereas hedonic adaptation applies to repeated exposure to stimuli - a time, that is needed to recover before the stimuli can have again have the same effect as before (recovery time). The former explains, why the average satisfaction in United States is not rising in last in the last decades (in fact, it is slightly decreasing - Lane 2000), the latter explaining why having the ice-cream every evening would remove the pleasure of licking an ice-cream. The concept starts to be complicated, so I will integrate it into one model of hedonic potential.

**Hedonic Potential - integrative model**

I would like to define the term hedonic potential, which reflects the potential of a stimulus of making us happy in time. I remind the reader, that all people tend to have their stable level of happiness and that many factors only temporarily shift the level of happiness, until it comes back to the original level. Therefore, the model describes how strong and lasting tend to be the effect of a stimuli. It is sketched on Schema 6.

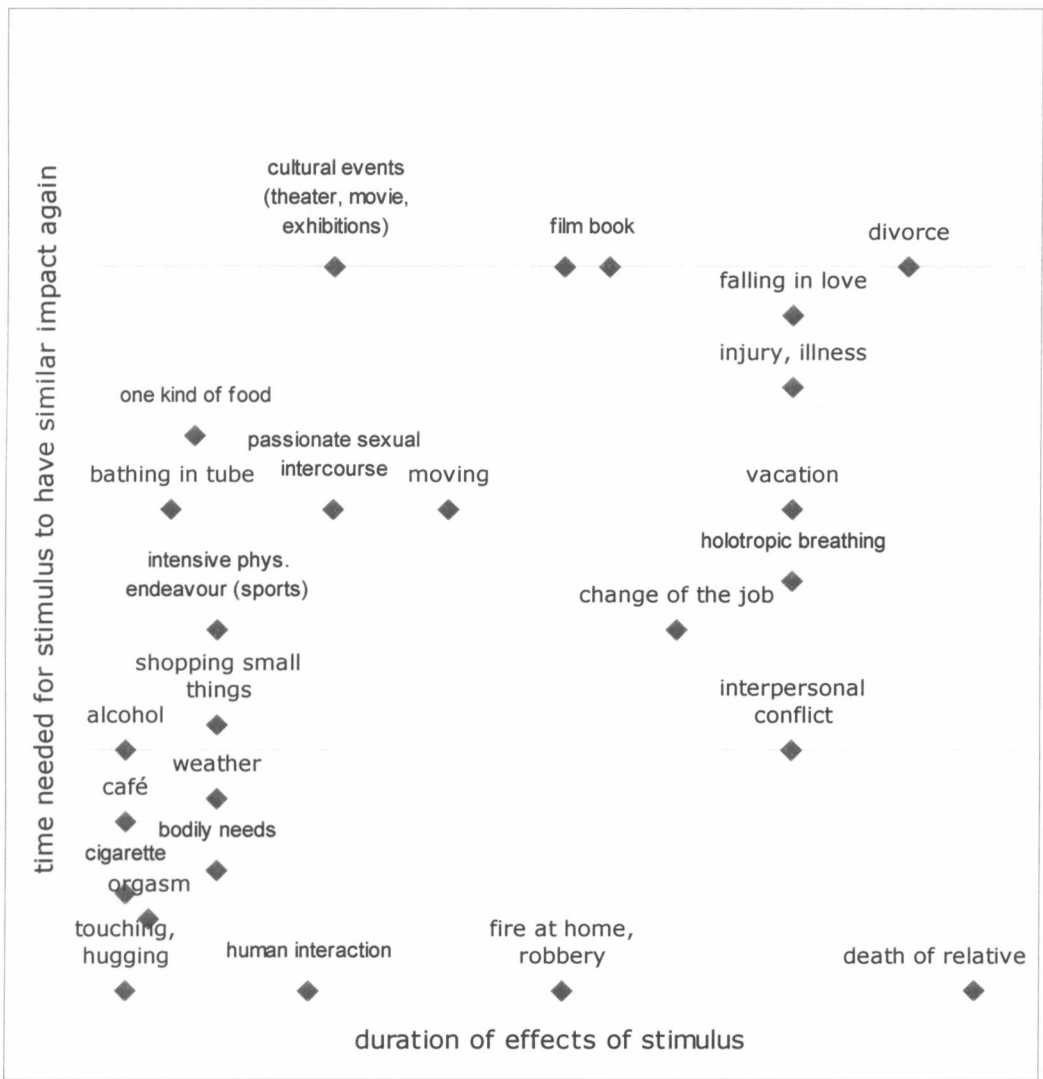


Schema 6: Schema of experiencing pleasure from a stimulus. t1 (and t3) is the lasting of response to stimulus, t2 is the regeneration time for a stimulus to cause pleasure again, i is intensity of an emotional response.

The schema of hedonic potential includes the concepts we already talked about. The intensity value of a response is marked i in the schema (It is important if the valence may be positive or negative. I will consider only positive stimuli here). This is proportional to intensity of positive emotions which are reaction to the stimulus and also importance to one's life. The stimulation occurs in the time - so first the lasting of stimulus is concerned (t1 and t3). This can be stretched or shortened by reminding oneself of it (see subchapter on Cognitive effects of awareness). Also there is t2 time period, which stands for a time that you need to recover from

exposure to be able to enjoy the stimulus again. This is proportional to hedonic adaptation, so the higher the adaptation, the longer the time needed to recover. Of course, some stimuli cannot be fully recovered, such as a joke, so we can consider the  $t_2$  to be infinite in these cases.

To introduce the concept in more detail, I took two variables from the model and performed fast qualitative research to find typical representatives of stimuli with different hedonic potential. The respondents were asked to name stimuli from two dichotomies - stimuli with *long lasting and short lasting response* (defined as longer as or shorter than 24 hours, respectively), and also, to name stimuli that need *short-term regeneration and long-term regeneration* (again, the limit used was one day). The results are shown in Graph 3.



Graph 3: Selected stimuli on 2 dimensions of hedonic potential model. (qualitative research - more representative data needed).

As explained in the caption of the graph - data are only illustratory and representative data are needed to foster the model further. The purpose of the graph is merely to enable the reader to have more specific image of what is the content of the model I am suggesting.

**Hedonic potential and 3 modes of experiencing**

The final step will be integrating our model to of hedonic potential into Norman’s three modes of experiencing of happiness. For each of the modes different rules apply.

Visceral mode has adaptations proportional to physical states - starving person will have great pleasure of eating even a potato. Happiness on this level will react on the bodily states - making a person happy on this level simply includes gratifying his bodily needs. Hedonic potential for certain stimuli will depend on lasting of the effect and recovery time after which we are ready to make use of the stimuli again. No adaptation except what was described takes place.

Second level is behavioral - the most pleasurable feeling relevant to this mode is the flow experience. Flow has its specific conditions, and special case of expectancy adaptation occurs - since the flow occurs only when the activity requires a bit higher skills that we already posses. Therefore the expectations are shifting with acquired skills.

On cognitive level of experiencing, discrepancy theory applies - the bigger the difference between expected and reality, the bigger the happiness. However, expectations are subject to expectancy adaptation and therefore might loose part of the potential to make one happy. Also, hedonic adaptation and cognitive mechanisms (such as cognitive framing) applies here. On this level, it is not hard to make a person happy, but adaptation mechanisms make it hard to sustain the level of happiness. Sheldon and Lyubomirsky 2006 are suggesting, that there are three cognitive methods that can further enhance happiness - *practicing certain virtues* (gratitude, forgiveness, thoughtful self-reflection, etc.), *will motivational factors* (successful pursuit of life goals that are intrinsic in content, concordant with an individual’s interests, values, and motives, and internally consistent, etc.) and *cognitive skills* (pausing to count one’s blessings, eschewing social comparisons and contingent self-evaluations, and choosing to feel a sense of optimism or efficacy regarding one’s life, etc.).

The relevant concepts for different modes of happiness are summarized in the Table 18.

<b>Experiencing mode</b>	<b>Relevant concept and rules</b>
Visceral	proportional to physical states, hedonic adaptation
Behavioral	flow experience, expectancy adaptation
Reflective	discrepancy theory, hedonic adaptation, expectancy adaptation, additional cognitive enhancements

**Table 18: Rules and concepts relevant for explaining happiness for three different modes of experiencing.**

### How much happy is too happy?

It is interesting, that there is a border, where happiness is too high and interferes with reality. This is according to Friedman et al. (2002) around 0.9 of positive to sum of all positive + negative affective/cognitive states. The world is not good all the time. Believing it too much indicates not an optimist, but a possibly distorted perception.

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### How feeling happy relates to being happy?

We have gone through the explanation of how different modes of experiencing can bring about the feeling of happiness. Up to now, we were talking about the atomized experiences, and were analyzing separate events. This chapter will try to recover, how these individual events are combined into one attitude - life satisfaction.

One of the hardest questions relates to transformation of how feeling of happiness, about which we were talking in previous chapters, transforms into a self reported attitude of life satisfaction. Can you sum up the feelings of pleasure one is experiencing, weight by relevance to life goals, and calculate the average value and declare that it will be equal to life satisfaction? Despite the estimate may correlate with satisfaction, there are certainly people, who are dissatisfied with life despite the fact, that they spend most of their time in hedonic felicity. On the other hand, as Carl Rogers is said to have said - most of the people who will claim to be happy said that they did not come to this attitude by making themselves feeling happy all the time. There are two main approaches: the first one advocating that self-report is the most valid of the methods, the other one rejecting self-reports as unreliable and trying to find a different, more objective method.

Daniel Kahneman recently pointed out, that the so called SWB (subjective well being) thought tradition in happiness research relies on self reported life satisfaction, what might turn out to be an Achilles ankle of the tradition. Alexandrova (2005) reminds, that there are two major obstacles in the self-reports: surprisingly low reliability of the reports (for example, mood appears to be a more important determinant of life satisfaction reports than judgments of specific domains of life such as work, marriage, and so on - see chapter Reliability for more details), and that fact, that retrospective judgment seem to be rather inaccurate, such as "evaluation of the intensity of pain during a colonoscopy ... " (ibid). If during the procedure patients are prompted to report the intensity of pain on a given scale every minute, then it is possible to represent the profile of each colonoscopy on a graph with the x-axis showing the duration and the y-axis the intensity of pain. The average of pain intensity multiplied by duration would give us an approximate score of the overall patient's affect. Another score could be obtained by asking the patient immediately after the end of the procedure to rank its pain intensity on the same scale. We may not expect an exact correspondence between the two, but we would expect that the duration of a colonoscopy is relevant to the score it is assigned. Thus a longer colonoscopy of approximately the same

intensity of pain as a shorter one should generally score higher on painfulness. The striking result reported by Redelmeier and Kahneman is that the duration of the procedure has little effect on the patient's memory of it (ibid). Other studies according to Alexandrova (ibid) shown, that the duration of an experience is often ignored when its degree of pleasantness is evaluated.

In opposition to subjective self-rating, Kahneman proposes to measure the so-called objective well being. The method is based on the experience sampling methods (ESM) and ecological momentary assessment (EMA). These are methods which map the affective state of an individual in random moments (most often, the respondents have beeper and whenever it beeps, he or she is supposed to record their affective state). Daniel Kahneman, according to Alexandrova (2005), calculates OWB (total utility) as a product of time and temporal happiness reported (he calls it instant utility). Kahneman points out, that there are two assumptions in the method: a) the brain constructs an affective judgment on current state of affairs and b) they are made on the same good-bad dimension.

To reject Kahneman's model of OWB, I suggest following thought experiments. During a party a group of young people has great fun, drink alcohol and then decides to drive a car to the nearest oil station for additional beers. On the way back, the driver runs over a man. He feels pretty much sorry for what happened. If you calculate his OWB, you find out, that despite everything is going to get worse in a few days (trial and jail), and despite he feels very bad about injuring a man, his OWB remains high for a considerable period of time. To enhance the concept, one might introduce "forgetting function", so that new experience will have higher weight than the old one, but again, a few hours of great fun at the party prevent the OWB from reflecting the expectation of the future. Similarly, I soldier knowing he is going to be executed in few hours can actually have very high OWB! Similar point of view is presented by Alexandrova (ibid). She adds that another problem of such computation is the weight of experience. If one values to be with family above gardening, we should adjust the scores accordingly.

Summing it up - not only the OWB seems to be non-measurable, it also seems invalid. The only way how to indicate well being, is the self-report, despite its psychometric disadvantages. Moreover, since SWB and not OWB is directly accessible to people, it will tend to have higher predictive validity in relation to the behavior of people.

As a bonus to the topic, I should mention a promising concept of latent attitudes. This is rather new concept in social psychology, and seems to influence people's behavior and other attitudes under the conscious level. An example could be steeling a pair of skies from the stowing compartment in front of the ski buffet. There exists huge difference between the countries around the world (and it does not seem to depend on income levels). They seem to work on unconscious level. There is a possibility, that happiness is particular case of latent attitude

and that in fact, it penetrates into many domains of human life. If this proves to be true, many new assumptions and methods can be used to enhance our model. However, due to range of this text and also because the concept is still not clearly understood and elaborated, I am not going into details here. This topic represents potential for further enhancements of this text and probably a fruitful topic for research.

The result of this chapter is therefore that there has not been proposed a good method of measuring and calculating OWB. No better method of measuring the happiness levels has been proposed in comparison to direct question - "How happy are you in your life?". We will therefore stick to self reported happiness in the further text.

### Recapitulation

At this point of this work, I want to conclude what was already said on the topic of psychology of happiness.

Happiness is attitude that has two components, one stable (probably genetically determined), that does not change very much in time, and second dynamic and reacting to outer changes. The latter make the happiness oscillate around that stable point set by the former. The mechanisms responsible for oscillation are three modes of experiencing happiness (visceral, behavioral and reflective), and other two kinds of adaptation - hedonic adaptation and expectation adaptation. Hedonic adaptation is particularly responsible for withering away the pleasure from specific stimuli, so that the same thing does not provide the same pleasure forever.

Hedonic potential is proportional to intensity of response to the stimulus, the time it lasts and indirectly proportional to the time it takes to recover to be able to have pleasure again from the stimulus.

There are three modes of experiencing of happiness. For each of the modes different rules apply. Long term increases in happiness are in general hard to achieve, because of both adaptation mechanisms. Sustainable increases seem to be possible by cognitive enhancements. However, there seem to be an upper limit on the possible increases in happiness.

As have been said, there is a stable level of happiness for individual people. Some authors argue that the level is genetically determined. I would like to challenge this thesis by showing that this level can in fact relate to other factors. In following part of the thesis, I try to answer the question, if there are societal variables that can be attributed for changes in this stable level. I will try to prove, that these stable levels do change over time and are related to societal variables, and therefore cannot be attributed to genetic factors, but they should be attributed to environmental, political, governmental and other "societal" factors.



## Macro-perspective: social determinants of happiness

When comparing micro and macro perspective, there seems to be paradox in what applies to individual happiness and average happiness in the country. Levels of happiness are generally correlated with economic variables (such as GDP) when comparing countries ( $r=0,47$ ), but the correlation of income levels are not correlated with happiness levels for individuals (mean correlation  $r=0,15$ , ranging from Ukraine 0,41 to Armenia -0,25) (WVS 2006).

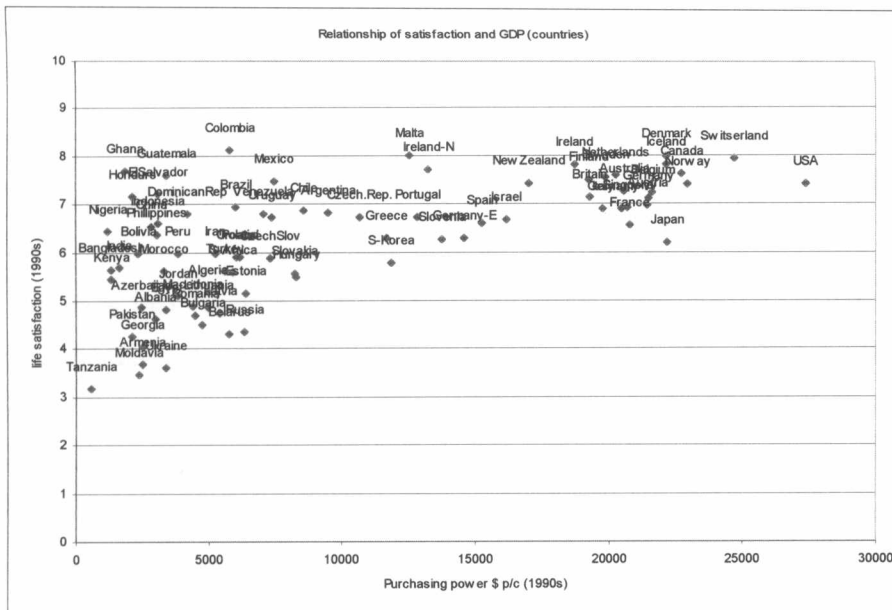
This paradox points out two things - relativity of income levels (this points to adaptation mechanisms), and difference between micro and macro perspective. In this chapter I would like to focus on macro perspective and find macro determinants of happiness. But before I will perform analysis on macro level, I will try to explain why the differences between micro and macro level arise.

In previous chapters, I have already explained that determinants (or factors or attributes) are not necessarily linearly related to happiness. It is possible to find out, whether the attribute is satisfier, dissatisfier or key indicator. This defines the potential to make people happy, or unhappy. In this chapter I would like to investigate several attributes, which are predicted to be predictors of happiness. What I will focus on is determining their attribute type.

Before we proceed to analysis, I feel urge to present a methodological note on the analysis of determinants and causes in social research (if you are interested only in results, please skip the following paragraphs). Analyzing cause and effect in social research is particularly tricky matter. Simply said, that the only way of determining true sources of any effect is the true experiment with control group. Other research designs can be an approximation, but never can answer the question of cause and effect with certainty. There have been numerous attempts to solve this problem, but all of them remain just an approximation, not a definite solution to cause and effect determination (e.g. Lazarasfeld elaboration model). Therefore I will use two words interchangeably - "indicators" or "attributes" for variables that correlate in any way with life satisfaction.

I will use two methods here, comparative analysis and correlations. What has been said about cause and effect research applies here also - none of the techniques can tell us anything about the direction of relationship - they only show the strength of relationship between variables. Hence, all my analytical explanations and interpretations are what I have just called it - explanations and interpretations. This forewarning relates to all you will read on next pages.

Probably the most frequent graph, that occurs in the scientific and popular literature is the scatter-plot where average happiness is put on Y axis, and average economic variable (such as GDP per capita) is put on X axis:



Graph 4: Relationship of satisfaction and GDP (purchasing power) - countries' averages (happiness database 2006)

This picture has been interpreted in various ways - on presentation of a new book by CESES (Potůček, 2005), where this graph is an introduction into the chapter of economic determinants analysis, it served for legitimating economic topics in the book. The speaker commented a graph with words, such as "as everybody can see, GDP is related to people's happiness and economic development is hence an important goal of social policy." There are two major problems with this approach: firstly, the relationship between countries averages does not provide a sufficient proof that the same will apply on the micro (individual) level. In fact, the opposite will turn out to be true, as I will show soon. Secondly, despite the strong correlation ( $r=0.61$ ), when you inspect the graph more closely, you can see, that the relationship is not linear. In left half of the graph, the relationship seems to be much stronger (slope is steeper) than in the right part. Lane (2000) states that the economic factors seem to be very important for countries with GDP level smaller than one third of USA GDP. After this turning point, the relationship becomes weaker, and might eventually disappear. After certain point in economic growth, "the money cannot buy happiness for most of us", states Lane. Followingly, I will address both issues.

## Happiness paradox

The first one is called happiness paradox, as described in the Ahuvia's (2000) article. He shows that despite strong correlation of happiness and GDP (or other macro economic factors), the correlations between life satisfaction and income levels are for people living in developed economies surprisingly low, generally explaining around 3%-5% of variance. This paradox attracted attention of lot of social scientists, such as Schyns (2000 via Ahuvia 2002), who applied multilevel approach in a single model. He found out that living in a rich country had significantly more powerful impact on one's happiness than level of consumption (indicated by income).

Ahuvia (ibid) theorizes that "economic development increases SWB [happiness] by creating cultural environment, where individuals make choices to maximize their happiness rather than meet social obligations". In other words, increased levels of happiness are the results of process of individuation of members of societies, which links our discussion back to theoretical frameworks of modern sociology. Ahuvia shows that the level of individuation also correlates with GDP - indicating that developed economies produce (and are produced by) individuals (meaning literally - individuated people).

This notion is important in the context of social cohesion research, such as *Social and cultural cohesion in differentiated society*<sup>4</sup> that, since one of the interpretation of the goals of the research project is to make social ties stronger, because these were loosened in the last decades. The problem is, that the goal is to "increase the happiness", not to strengthen the social ties as an ultimate goal. As Ahuvia shows, stronger social ties, as can be found in collectivistic countries such as Asian countries nowadays, does not necessarily pursue happiness. Instead, it pursues more conformity to social obligations, where these are perceived as more important to life than happiness<sup>5</sup>.

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<sup>4</sup> Czech reference is Sociální a kulturní soudržnost v diferencované společnosti; Grant MPSV č.: 1J 028/04-DP2

<sup>5</sup> To sketch the contours more concretely, Ahuvia mentions his Korean student, who pursues career not to be happy. He does it because he wants to be rich, so he can buy the car for his parents, so they can gain face again. Here we can see what pursuing happiness is different from conforming to social obligations; however the difference might be ambiguous in some cases.

In classical and modern sociology, many theoretical conceptions refer in some way to the same process of individuation, as Ahuvia describes. However, most of them cease to point out the relationship between individuation and happiness. Emile Durkheim (1983) describes this process in his work *Division of Labor in Society*: “each one depends as much more strictly on society as labor is more divided; and on the other, the activity of each is as much more personal as it is more specialized...”. In other words, the independence in modern society is not defined by lower level of dependence, but right the opposite - by higher level of dependence but on plural sources.

What Durkheim was afraid of, is that the new type of division of labor will deteriorate old social norms and will result in weakened ties between individual and society Bulmahn (2000). I hesitate whether it is fair to criticize Durkheim for his account, but from today’s point of view his prospects seem invalid. Although part of today’s social problems might be attributed to weakened ties between individual and society, it would be very hard to argue in terms of happiness that the average impact of the change of division of labor is negative. Once we take into account the reports on life satisfaction, we can re-assure Emile Durkheim that his worries did not come true. It seems that the opposite is true.

When we return back to Ahuvia's article, we can use one of his ideas to show why Durkheim might have been so afraid of change in the type of solidarity. There are two commonly used meanings of the term individuation: 1) the term is used to describe the process of reduction of one’s dependence<sup>6</sup> on his groups’ resources and people, and 2) it is also used in reference to self-interested people, who are socially competitive (ibid). Ahuvia points out, that the romantic conceptions of pre-modern communities (such as Tonnies’ *Gemeinschaft*) are defined by stronger social ties, not by social ties that make people happier. These two points - not distinguishing the two types of individuation, and romantization of pre-modern society life made the future look rather dark. The report of happiness indicates that the transformation from traditional societies, as far as we have data, suggests that the development was accompanied by increase in levels of happiness (ibid).

Jürgen Habermas (2000) claims that Marx’s prediction about the revolution of “employed” did not come true, because the Durkheim’s initial solidarity was replaced by mechanisms of welfare state (firstly, it was initially weakened by modern industrial and/or “capitalist” way of producing goods, but then it was replaced

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<sup>6</sup> the independency of modern era is rooted not in the one’s lowered dependency on other people and sources (in fact, it wasn’t lowered, it was decreased), but in making the sources of dependence pluralistic and impersonal

by welfare state mechanism). I can therefore conclude, that Habermas' view is consistent with Ahuvia's theory of individualization.

I have proposed the solution to the happiness paradox. I would like to focus on second problem now - the relation of happiness and other indicators on macro level.

**Happiness in countries and its indicators**

Bhutan is a small kingdom landlocked between India and China. It is a country in the high steeps of Himalaya Mountains. Bhutan has followed a cautious path of development since the 1960s, with the intention of preserving its heritage and culture and protecting its environment - for example it was one of the latest countries to introduce television - in 1999 (Wikipedia; 2006b).

Bhutan has one other outstanding record - it is probably the only country in the world, where happiness is part of the official government policy. Chairman of the Council of Ministers established Centre for Bhutan Studies, which is a form of scientific regulatory body, providing grants and supports to other scientific organizations in the Bhutan. Current major interest of the centre is the concept of Gross National Happiness (Centre for Bhutan Studies; 2006). In 2004, there has been a huge conference on the topic (proceedings from conference have 750 pages). As *Global : Ideas : Bank* (2006) puts it: "GNH is an official policy of the kingdom, having been passed in parliament, and it is perhaps best illustrated by some examples from Bhutan which prove that happiness really does take precedence over economic prosperity there. The country limits the number of tourists that are able to visit it, because the Bhutanese had complained that the environment was being affected and sacred lands were being spoiled. The limiting was therefore aimed at increasing the 'happiness' of these people. Similarly, demonstrating that the concept of GNH is inextricably connected to accountability, anyone with a grievance can go to the king himself and get a hearing.

The case of Bhutan should point out that economical performance and happiness might be independent, or even contradictory to average happiness in nation. In fact, majority of the economist would agree, that GNP (or GDP) is problematic measure, especially due to its one-dimensionality. There have been several attempts to give birth to a new index, which can provide us with a measure for comparison among countries. From 80's, new indexes are mushrooming, just to mention a small proportion of it - Bhutanese Gross National Happiness (GNH) and Gross International Happiness (GIH), UN's Human Development Index (HDI), Index of Social Progress (ISP), Index of well-being, Quality-of-life index, the Canadian Index of Wellbeing (CIW), Index of sustainable welfare (ISEW), or the new Environmental Performance Index (EPI).

Criteria for QOL in nations	Index of Social Progress (ISP)(Estes	Index of well-being (Kacapyr 1996)	Quality-of-life index (Narrol	Human Development
-----------------------------	--------------------------------------	------------------------------------	-------------------------------	-------------------

	1984)		1984)	Index (HDI) (UNPD 1995)
Economic affluence	x	x		x
State welfare	x		x	
Education	x		x	x
Public health	x		x	x
Social equality	x			x
Peacefulness	x	x	x	
Physical habitability	x	x		
Social stability	x		x	
Cultural diversity	x		x	
Lifestyle		x		

**Table 19: Examples of quality of life indices (adopted from Veenhoven 1996).**

The problem of all above mentioned indices are - and the length of the list confirms it - there is no specific reason to accept any of them as an ultimate one. It is true, that we need sustainable environment, but does it have priority over schooling programs? Or does low level of corruption in government have priority over basic healthcare services? And how all of these parameters influence the happiness of people?

It was shown in the case of Bhutan, the ultimate goal of social policy can be happiness of people. The problem of such criterion is that if we compare the last 40 years of American development, we can see that happiness stagnates, or even decreases in the last 40 years (Lane 2000). Also, there seem to be point of balance (or homeostatic point as referenced sometimes), that lies somewhere around 75% of the happiness scale. It is rare for a nation to go far beyond this border, and it tends to come back to this border, when the border is trespassed (Cummins et al. 2002).

We are facing a problem how to measure effects of the policies employed, and efficiency of development of countries. None of the indices seems to be universal. Veenhoven therefore came up with a new index, supposedly capturing the development of country and reflecting the changes in the life satisfaction. He called this index Happy Life Expectancy index. The reason why Veenhoven creates additional index to above mentioned ones, is that he believes, that none of the indices measures what we want them to measure. All of them are based inputs - several criteria that were chosen to be universal such as schooling, health, economy, and so on. But, how can we know, which are really important? Do people really care about them? As Veenhoven (1996) puts it "The basic problem is that one never knows to what extent the cherished provisions are really good for people. An alternative is measuring QOL [quality of life] in nations by output, and consider how well people actually flourish in the country. This 'apparent' QOL [quality of life] can be measured by the degree to which citizens live long and happily". Therefore Veenhoven comes with the new index that he calls Happy Life Expectancy (HLE). This is basically the multiplication of life expectancy and subjective well being indicator, such as life satisfaction. Veenhoven (ibid) shows that "HLE [Happy Life Expectancy] scores are systematically higher

in nations that are most affluent, free, equal, educated, and harmonious. Together, these country characteristics explain 70% of the statistical variance in HLE. Yet HLE is not significantly related to unemployment, state welfare and income equality, neither to religiousness and trust in institutions. HLE does not differ either with military dominance and population pressure“.

It seems that HLE is the indicator, which can be definitely used to assess the efficiency of a certain policy or change in the policy in the long run. The problem with this indicator, as Veenhoven also admits, is that it cannot be used in the short run. The time in which the country's HLE will reflect undergone changes, can reach tenths of years and therefore is not particularly suitable to dynamic changes measurement and use in the social policy. For these reasons, I decided to use self reported happiness, and not HLE, as criterion for classification of indicator type. In the next chapter, I will use data mining procedures to uncover the nature of selected variables, and discover which particular phenomena has potential to make us happy, and which make us unhappy.

### Satisfiers and dissatisfiers in countries

In this chapter I would like to address the nature of relationship between happiness and other social and economic factors. For the analysis, I will inspect the nature of relationships of selected variables and level of happiness in nations. I would like to focus your attention on the Graph 4 on page 40. The curve of relationship resembles the logarithm curve and (coming back to our debate about satisfiers and dissatisfiers) a curve of a dissatisfier. If this is true, then the poverty can cause dissatisfaction, but wealth can not cause satisfaction. Herzberg would call it a hygienic factor, professor Kano a Must-be attribute. This shape resemblance inspired me to perform an analysis of selected factors and determine what kind of happiness attribute they are - dissatisfier, satisfier, critical or neutral.

I am not going to make a review of probable causes and effects of increased happiness in nations, since it was already done before. For comprehensive review of probable causes of happiness in macro-sociological view, see Veenhoven (1984) and Appendix 2.

Data used in the analysis come from Professor Ruut Veenhoven, who maintains the “database of happiness“. It is huge internet page (see Veenhoven and DeHeer 2006), that provides researcher with a-must-be articles on the topic, methodology texts, item bank of questions in happiness research, correlation study findings, and much more. Moreover, professor Veenhoven maintains a data file, which includes data of country statistics of various variables that are continuously collected from international research. Up to now, the database has app. 900 variables. The data file is available on request and it provided me with opportunity to perform data mining procedures on the data.

Data mining is a set of (mostly) exploratory statistical procedures that enables to process large quantities of data, and finding patterns in the data. Wikipedia defines data mining as "... the process of automatically searching large volumes of data for patterns. Data mining is a fairly recent and contemporary topic in computing. However, data mining applies many older computational techniques from statistics, machine learning and pattern recognition." Data mining procedures are mostly theoretically "uprooted", in the sense that the pattern recognition is not limited by a priori theoretical assumptions about the nature of the phenomena - instead all data are searched through for patterns and theoretical considerations follow right after. Of course, classical probability theorist after reading the previous paragraph would object, that probability laws does not enable us to perform such a large number of statistical tests without suffering from "data phantoms" - results that emerge by chance as a result of large number of statistical operations and testing<sup>7</sup>. Therefore there are two major application fields of data mining - a) the huge databases, such as data warehouses of private companies (where millions of records about customers are stored, and where the quantity of the records prevent the data phantoms from appearing in the results) and b) data representing group statistics of huge number of respondents in each group - such as meta analysis, or secondary analysis of several other research data files.

The latter is the case of data file from Ruut Veenhoven. The file contains average values and standard deviations of selected variables. There are only 113 cases (113 countries), but these typically represent averaging of thousands to millions of values. Therefore, the classical statistical tests can be performed, but will have different interpretations. More on the topic of statistical significance of grouped data is in the Appendix 1: Methodological note on significance test in comparing countries' averages.

### Method

In order to classify the attributes I performed following adjustments and supplemental computations during the data preparation phase:

There were around 50 variables concerning happiness in the dataset (differing in the scale used, year the data was taken, and so on). I selected the key variable - it is life satisfaction and question on best-worst life merged together, transformed on the 0-10 scale.

Then I found the values of 33<sup>rd</sup> and 66<sup>th</sup> percentiles. These were used as cut points in recoding the key variable into two binary variables - countries with upper 66% of life satisfaction averages (LS\_SAT) and 66% of

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<sup>7</sup> for reasons concerning this issue several corrections were proposed, the Bonferoni correction being probably the most famous



lower averages (LS\_DSAT), so both of the variables cover two tercils of the values. The transformation mechanism and values are recorded in the Table 20.

Life satisfaction	Recoded into	
	LS_SAT value	LS_DSAT value
33% most satisfied countries	1	
33% countries with average satisfaction	0	0
33% least satisfied countries		1

**Table 20: Creating dummy life satisfaction variables for analysis - LS\_SAT and LS\_DSAT - the transformation mechanism and values.**

Now we are done with the key variable, and we need to define the set of input variables (attributes). There are app. 900 variables in the original dataset, 50 concerning life satisfaction, and happiness. Therefore I went through 850 variables and filtered out those suitable for data mining (in most cases this meant to leave only the most current variables).

After this filtering, 395 variables still remained in the data file. I cross-tabbed these variables with LS\_SAT and LS\_DSAT, and filtered out only those ones with enough cases in each of the category (generally more than 10 in each tercil<sup>8</sup>). After this step, data file consisted of 341 variables (attributes).

Now the data file was clean and ready for the analysis. I performed two sets of t-tests on these 341 attributes, and created a data file, where three means for each variable was present (one mean for each life satisfaction tercil) and 2 significances of t-test (between LS\_SAT and LS\_DSAT categories). After this step I filtered out variables with irregular means (only variables where  $m_1 > m_2 > m_3$  and  $m_1 < m_2 < m_3$  remained), because these attributes cannot be classified into the 4 types typology, and it is reasonable to assume, that what influenced their values were the other factors besides their attribute type. However, later inclusion of these variables might shed new a new light on interpreting attribute types and are recommended to be investigated in the future, because they were not rejected from analysis on the empirical bases, but on the theoretical bases (they did not fit in to the explanatory model).

152 variables remained after this step in the dataset. These are the final variables which underwent the classification into attribute types. In order to classify the attributes, several algorithms were considered. Three

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<sup>8</sup> several exception applied where the variable seem to be more important and minimum cases were 9, namely Industrial % in GDP, Life has no meaning attitude, "do you think most people try to take advantage of you" attitude, Tolerance gypsies as neighbors, Physical Quality of Life Index and Agricultural % in GDP

major candidates were PRCA regression, difference ratio classification and QTTS (quasi t-test classification) (see chapter Satisfiers and dissatisfiers - classification algorithms for details). The PRCA regression requires recoding all attributes in to two dummy variables, so it is not very suitable for classification of large quantity of variables. Therefore, I was deciding between QTTC and ATC method. These two procedures have similar advantages, but ATC has rather arbitrary criteria for classifications decision. For QTTC, conventional 0.05 significance level can be used<sup>9</sup>. I therefore choose the QTTC method for further analysis.

### Hypothesis

Despite the fact the I use data-mining procedures, several hypotheses will be stated.

- Professor John Raven claimed in the personal interview, that factors influencing happiness are public sector investments and participation of people in the democratic society.
- Social equality (similar to Durkheim's mechanic solidarity), inspired by Roset town case study (see Klein 2004 for details)
- Involvement in collective decision-making, inspired by comparative study of Switzerland's cantons (see Klein 2004 for details)
- Friendship. inspired by Lane (2000)
- unemployment, inspired by Lazarsfeld's and Jahoda's Marienthal town research

### Results

The result of analysis is classification of attributes into 4 types - dissatisfiers, criticals, satisfiers and neutrals (number of each type is in Table 21).

Attribute type	Number of attributes from the filtered dataset
dissatisfier	9
critical	28
satisfier	61
neutrals	54

**Table 21: number of attribute types from the filtered dataset**

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<sup>9</sup> As have been noted before, despite the conventional significance level, due to nature of the data, the classical interpretation of the significance can not be applied.

Due to higher number of attributes in analysis, I performed conceptual (open) coding additionally to the classification and created 15 thematic categories of attributes. The results of the classification are summarized in the Table 22.

Theme	Dissatisfiers	Criticals	Satisfiers
Attitudes	<input checked="" type="checkbox"/> Acceptance homosexuals as neighbors <input checked="" type="checkbox"/> trust in people <input type="checkbox"/> most people can be trusted	<input type="checkbox"/> perceived freedom and control in life <input type="checkbox"/> public acceptance of prostitution	<input checked="" type="checkbox"/> Tolerance (towards neighbors) <input checked="" type="checkbox"/> Public acceptance of divorce <input checked="" type="checkbox"/> Public acceptance of euthanasia <input checked="" type="checkbox"/> Public acceptance and tolerance of homosexuality <input checked="" type="checkbox"/> Trust in people <input type="checkbox"/> Neighbors: emotionally unstable people <input type="checkbox"/> Neighbors: Muslims <input type="checkbox"/> Neighbors: people who have AIDS <input type="checkbox"/> political action: joining in boycotts
Civil Society		<input type="checkbox"/> political action: signing a petition	<input checked="" type="checkbox"/> Radio receivers (per capita) <input checked="" type="checkbox"/> Television receivers (per capita) <input checked="" type="checkbox"/> Telephone main lines (per capita) <input checked="" type="checkbox"/> Internet users (per capita) <input checked="" type="checkbox"/> Telephone mainlines (per capita) people <input checked="" type="checkbox"/> Number of psychologists per million <input checked="" type="checkbox"/> Perceived importance of leisure time <input checked="" type="checkbox"/> Memberships of leisure associations
Culture and media		<input type="checkbox"/> Fraser Index Economic Freedom <input type="checkbox"/> Economic Freedom (Heritage Foundation Index) <input checked="" type="checkbox"/> Freedom to invest one's earnings <input checked="" type="checkbox"/> Purchasing power p/c <input type="checkbox"/> % unemployment <input type="checkbox"/> Monetary policy	<input checked="" type="checkbox"/> Regulation of business <input checked="" type="checkbox"/> Regulation of credit market <input checked="" type="checkbox"/> Regulation of markets <input checked="" type="checkbox"/> Freedom to trade (international) <input type="checkbox"/> Foreign investment <input type="checkbox"/> Informal Market <input type="checkbox"/> Agricultural % in GDP
Economy	<input checked="" type="checkbox"/> Satisfaction with the financial situation of household		
Government	<input type="checkbox"/> Government intervention	<input checked="" type="checkbox"/> Government Effectiveness <input checked="" type="checkbox"/> Rule of law <input checked="" type="checkbox"/> Control of corruption <input checked="" type="checkbox"/> Institutional quality <input checked="" type="checkbox"/> Government enterprises <input checked="" type="checkbox"/> Democratic competition <input checked="" type="checkbox"/> Political voice and accountability <input checked="" type="checkbox"/> Political stability <input checked="" type="checkbox"/> Government effectiveness <input checked="" type="checkbox"/> Regulatory quality of government <input checked="" type="checkbox"/> Control of corruption	<input type="checkbox"/> Civil law; average duration of a procedure (in days) <input type="checkbox"/> Corruption in public sector, businessmen perception
Indices		<input checked="" type="checkbox"/> Global Competitiveness Index 2004 <input checked="" type="checkbox"/> Post-materialist index <input checked="" type="checkbox"/> Energy usage (EPI)	<input checked="" type="checkbox"/> Human Development Index <input checked="" type="checkbox"/> Estes' index of cultural diversity <input checked="" type="checkbox"/> DALE index: the expectation of life lived in equivalent full health <input type="checkbox"/> Index of linguistic fragmentation <input checked="" type="checkbox"/> Physical Quality of Life Index <input checked="" type="checkbox"/> Gender-related Development Index (GDI)

Theme	Dissatisfiers	Criticals	Satisfiers
Labor Market		[/] Service as % of total workforce 2000	[/] EPI [/] Env. Health (EPI)
Population and health	[/] Population density per km [ \ ] Abortion rate [ \ ] Lethal accidents per capita	[/] % married women practicing modern contraception	[/] Life Expectancy at Birth [/] 1988 Number of rooms per dwelling [/] % urban population [/] Average self rated health [ \ ] Infant mortality rate (per live births)
Public Expenditures		[/] Health expenditure (per capita)	[/] Gender equality, Dijkstra's SICE index [/] Human rights (Humana index) [/] Equal marriage rights index [/] % women in parliament [/] Gender equality (GEM) [/] Legal structures and security of property rights [/] Freedom to own property [/] Freedom to participate in market economy [/] Economic freedom (Freedom House index) [/] Personal freedom [/] Political freedom [/] Civic rights [/] Political rights [/] Civil liberties
Rights and freedoms		[/] Legal and practical access to female sterilization [/] Legal and practical access to contraceptives	[ \ ] Suppression of political and civil rights [ \ ] Sum of political and civil rights suppression [ \ ] Freedom of trade [ \ ] Property rights [ \ ] Regulation [ \ ] Suppression of civil liberties [ \ ] Restriction to press freedom
Science	[/] Yearly patents p/c		
Socialization			[ \ ] Spend time with people at sport, culture, communal organization

**Table 22: 4 types of attributes of global satisfaction. Left column are categories of attributes, last column on the right is proportion of attributes of type "Neutrals". Specific items are signed either by [ \ ] what means values of attribute decrease with satisfaction, or [/] what means values of attribute increase with satisfaction. Grey color of text denotes attributes with ambivalent classification.**

There are several main findings that can be concluded from the table:

- *distrust in people* is dissatisfier
- most tolerance based variables are satisfiers, except tolerance to prostitution (critical)
- (not) sign petitions are criticals, (not) joining boycotts are satisfiers
- usage of media, such as radio, TV and communication (telephone, etc.) are satisfiers
- perceived importance of leisure time is satisfier
- involvement in hobby is satisfier
- economic factors are divided between criticals and satisfiers, freedoms (Fraser index of economic freedom and freedom to invest one's earnings) and macro economic factors being the criticals, and regulations of market and international trade being satisfiers
- lower levels of foreign investments and % of agriculture tend to be connected with satisfaction (satisfier)
- most of the government functioning parameters are criticals, including all indicators of governance (WordBank)
- most of the indices are (surprisingly) satisfiers, what questions their nature as universal indices, especially their sensitivity in the lower happiness levels
- population parameters are divided into dissatisfiers and satisfiers, population density, abortion rate and lethal accidents being the dissatisfiers and other assorted parameters as satisfiers
- all rights and freedoms are satisfiers, except access to female sterilization and access to contraceptives
- socialization variables, such as spending time with family are mostly neutrals, there has been found only one satisfier and it is the decrease of spending time with people at sport, culture and communal organization

There are two more things to add. First, surprisingly enough, the GDP has been classified as critical, and not as a satisfier. Comparing the initial estimations, with the results, I can localize a group of countries on Graph 4 that help GDP to become a critical instead of satisfier - these are the countries, with higher GDP, but with average satisfaction, such as Japan, France, Israel, Spain, Italy and Singapore. There are two possible conclusions - either we have to give up a claim about GDP being a satisfier (and rejecting Lane's loss-of-happiness hypothesis), or use a different measure instead of a mean (such as minimum, and others).

Second is a methodological note. In regression, we are trying to find predictors of variable. We have many independent variables, and one (or possible more in multiple regression) dependent variables. There is no problem in predicting one variable from many sources, but there is a flaw in doing it in reverse direction - such as estimating the attribute type of many variables from one independent variable - life satisfaction. However, the nature of the question - attribute types in relation to life satisfaction - prevents us from avoiding this type of inaccuracy. Analyzing fewer variables in the analysis does not make it more precise.

Also, the list of neutrals holds important information. This list is very similar to what the other researchers found by other approaches, since the list of non-dependent variables tend to be the same for all the methods. They are summarized in the Table 23.

Theme	Neutrals
Attitudes	Tolerance towards different groups as neighbors Neighbors: people with a criminal record Neighbors: heavy drinkers Neighbors: gypsies Agree with complete sexual freedom Public acceptance of suicide Life has no meaning Thinking about meaning and purpose of life Child-rearing value: obedience (% mentioned) Do you think most people try to take advantage of you Marriage is an out-dated institution One of main goals in life has been to make my parents proud
Civil Society	Active members of political parties (% of population) Involvement in voluntary organizations How often discusses political matters Unpaid work youth work Unpaid work sports or recreation Political action: attending lawful demonstrations Political action: joining unofficial strikes
Culture and media	(none)
Education	Gross education enrolment Average age of leaving school Mean years of schooling (age 15 and above) Gross tertiary science enrolment ratio (%) Population doubling in years
Economy	Industrial % in GDP Gini coefficient Richest 20% to poorest 20%) Average subjective family income 1999 Average subjective family income Economic competition deemed good Transfers and subsidies Estes's index of economic position Regulation of labor market
Government	Size of government Soldier /civilian ratio Trust in one's government
Indices	Estes' index of habitability Index of ethnic, linguistic and religious fragmentation

Theme	Neutrals
	Ethnic fragmentation Autonomy
Labor Market	Unpaid work labor unions
Population and health	Access to condoms Daily supply of calories (per capita) Suicides (per capita) Refugees in the country by country of asylum (thousands)
Public Expenditures	Welfare expenditure ILO
Rights and freedoms	Freedom to travel, in country Freedom to travel, abroad Freedom to earn a living Freedom to trade internationally Civil law; defendant protection index Restriction of press freedom
Science	Technology Achievement Index
Socialization	Spend time with friends

**Table 23: Neutrals - variables that did not relate with happiness and/or unhappiness.**

It sounds surprising, but these attributes, despite some of them were widely believed to be attributes supporting happiness, are not related to levels of happiness in countries. Some of these results are in fact refutation of popular myths about society. Some of them were adapted from Veenhoven (1984).

Developed countries are not less happy than non developed countries, the opposite is true.

What other does not relate to happiness in countries:

- Distribution inequality (Gini coefficient, Richest 20% to poorest 20%)
- Income (Individual income and Subjective family income)
- Level of industry in country (as % in GDP), but agriculture does matter
- Education (education enrolment, average age of leaving school, mean years of schooling, tertiary science enrolment)
- Ethnic, linguistic and religious fragmentation
- Number of suicides and their public acceptance
- Trust in one's government
- Welfare state expenditures (ILO)
- Size of the army and government
- Spending time with friends - one of the most surprising results is that the amount of time spent with friends is not related to happiness of the nation. This was Laney (2000) hypothesis.



- Autonomy (of individual)
- Attitude *Life has no meaning* and how frequently people are thinking about meaning and purpose of life
- Attitude „most people try to take advantage of you“
- Involvement in voluntary organizations (voluntary organizations, unpaid work for youth and sports or recreation)
- Attitude covering respect for traditions and parents („Marriage is an out-dated institution attitude“ and „One of main goals in life has been to make my parents proud“)
- Selected rights and freedoms (freedom to travel in country, to travel, abroad, to earn a living and to trade internationally)
- Science and technological advancement (Technology Achievement Index)
- Single living (in contrast to live with family)
- Having children
- Ascetic living
- Living in a big town

### Hypothesis (dis)confirmation

Finally, hypothesis testing has the following results:

- Public sector investments - **not confirmed** (see Welfare expenditure variable)
- Social equality (similar to Durkheim's mechanic solidarity), inspired by Roset town case study (see Klein 2004 for details) - **not confirmed** (distribution inequality variables)
- Involvement in collective decision-making, inspired by comparative study of Switzerland's cantons (see Klein 2004 for details) - **partially confirmed** (involvement in voluntary organizations, signing a petition, joining in boycotts)
- Friendship. inspired by Lane (2000) - **not confirmed**
- unemployment, inspired by Marienthal town research - **confirmed** (critical)

## Conclusion

It has been shown, that several factors indeed indicate increased and decreased levels of happiness in nations. The results are therefore compatible with the two factor model. Majority of attributes classified as satisfiers, criticals and dissatisfiers are candidates for the factors that increase or decrease this stable levels of happiness of individuals. Because of type of analysis, I can not make any conclusions about the causes and effects of happiness, but it is probable, that if a) there are substantial changes in happiness levels between countries and b) this changed are related to societal variables, genetic determination will tend to have lower impact on individual stable levels of happiness. Instead, combination of psychological and sociological factors seems to better explain the differences in the average stable levels of happiness of individuals.

## Application of concept of happiness in market economy

Happiness, as it was said before, is successful topic in commercial research. In most portfolios of research companies, you can find at least one satisfaction survey, be it a consumer satisfaction, distribution channel satisfaction or employee satisfaction survey. Satisfaction seems to be such obvious parameter, that its focus or inclusion in survey is rarely doubted or supported by arguments. Most of the time, the survey materials have implicit assumption, that satisfaction is a magic key to improvement in any area. Most of the time the implicit assumption is that satisfaction links to more efficient and loyal employees, more loyal and buying customers and better working distribution channels.

In this chapter I would like to focus our attention on the field of application of satisfaction research and answer the question, whether the interest of employer are the same as that of employee, and whether the interest of customer are similar to that of companies. In other words, to answer the question, whether the market supports happiness in people, is neutral on the topic, or works against it.

### Employees – happiness, job performance and loyalty

Let's have a look on what correlates with satisfaction in organizations. In organizational behavior context, the long-term criterion by which employee could be compared is job performance and their loyalty. High job performance decreases the variable cost by having more work done for the same money. Loyalty decreases fixed cost, since every hiring of a new employee introduces additional fixed cost that are needed to find, select and train a new employee.

Selected correlates of job satisfaction are in Table 24:

Variables Related with Satisfaction	Direction of Relationship	Strength of Relationship
Motivation	Positive	Moderate
Job Involvement	Positive	Moderate
Organizational citizenship behavior	Positive	Moderate
Organizational commitment	Positive	<b>Strong</b>
Absenteeism	Negative	Weak
Tardiness	Negative	Weak
Turnover	Negative	Moderate
Heart Disease	Negative	Moderate
Perceived stress	Negative	<b>Strong</b>
Pro-union voting	Negative	Moderate
Job performance	Positive	Weak
Life satisfaction	Positive	Moderate

Mental health	Positive	Moderate
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Table 24: Correlates of organizational citizenship (adapted from Kreitner and Kinick 1992)

Reviewing correlations, you can see that the correlation of job performance and employee satisfaction is only moderate and correlation of turnover of the company and satisfaction tend to be negative! Let's focus on relation of satisfaction and efficiency in more detail.

Despite all the ads on employee satisfaction surveys, that claim that happy employees will be more efficient, that they will go "the mile further" and so on - the only two strong correlates found to be steadily correlated with job satisfaction are perceived stress and organizational commitment. While the first links to satisfaction on biological level (the symptoms of stress are not pleasant), the organizational commitment is rather complicated issue. The most frequent approach is Meyer and Allen's three-component model of commitment. The three components of commitment are as follows (Wikipedia 2006c):

- *Affective Commitment*: In this case, an individual strongly identifies with the goals of the organization and desires to remain a part of the organization. This is the ideal 'happy' state for an individual.
- *Continuance Commitment*: The individual remains with an organization because of a perceived loss of sunken costs. The individual believes that he has invested a great deal of effort/time and has to remain in the organization.
- *Normative Commitment*: The individual remains with an organization because of feelings of obligation. For instance, the organization may have invested resources in training an employee who then feels obliged to stay with the organization to 'repay the debt.'

In this section I will support my argumentation with findings from customer satisfaction survey with 260 employees<sup>10</sup>. All of the three components are only weakly correlated (correlation from 0.21 to 0.26). This means, that these are relatively distinct areas of commitment, but they "hold together". When performed factor analysis on variables regarding job satisfaction and communication, efficiency of work and variables on loyalty and commitment, the factor structure show the following pattern:

	Factor		
	1	2	3
loyalty	0.3	-0.1	0.1

<sup>10</sup> Data provided by QED&QUOD research company, see QQ (2006) for more details.

recommendation	0.3	0.2	0.1
moral	0.1	0.1	0.7
continuance	0.1	-0.1	0.3
affective	0.7	0.3	0.2
satisfaction	0.2	0.5	0.5
efficiency of others	0.1	0.8	0.3
efficiency of me	0.0	0.7	-0.1
communication	0.1	0.6	0.0

Table 25: Factor analysis for loyalty, job satisfaction, efficiency and commitment.

Rotated Component Matrix. Rotation: Varimax with Kaiser Normalization. Total explained variance is 61%.

These three factors can be called 1) emotional evaluation, 2) work efficiency and satisfaction and 3) rational evaluation. As can be seen from the Table 25, job satisfaction did not fall into the same factors as job attitudes. Another surprising fact is that loyalty and positive recommendations of the company fell into the same factor as affective commitment. Considering the fact that rational (or better - reflective) aspects of job such as moral and continuance commitment are in a distinct factor from loyalty, we can conclude that emotional evaluation is in this case superior to reflective one in predicting the behavior of the employee – his loyalty.

Another important point of the presented factor structure is that job satisfaction is not necessarily correlated to loyalty - as advertised by many research companies ( $r=0,25$ ). It is simply not enough, to make your employees satisfied, if you want retain them. It seems more efficient to increase their affective commitment ( $r=0,43$ ).

Conclusions? For the ultimate goal of an employer - to have loyal and efficient employees - is not recommended to use the employee satisfaction solely as a navigation variable. Employee satisfaction is not very strongly bind to what most employees would probably want from their employees – efficiency and loyalty.

### Customers - What is the price of a satisfied customer

In marketing, one of the basic concepts is called customer value. It relates to the how valuable the customer is for the company from the long term perspective. As Martha Rogers (2006) puts it: "... the actual value of a customer is what he or she is spending with us today, plus what he or she is likely to spend with us in the future. So, to use a simple example, a customer who spends a thousand dollars today but is not likely to ever spend with us again is actually less valuable than a customer who spends half that amount today, plus a hundred dollars more each month over time, on, for example, accessories or extended services and products that relate to the initial purchase." Moreover, you have to add several other items to calculate customer value - for example "word of mouth" potential (likelihood that the customer will recommend your company to other potential customers), providing other with contact information about your company, and other non-monetary

valuables. The example of a good use of (future) customer value is bank accounts for students - they do not create big turnovers yet, but will probably do so in the close future. Students are the pool from which many good-paid professionals are recruited, so therefore we can expect high future customer value, what should also be included in the calculation of customer value of current students.

The idea behind any CRM (customer relationship management) is simple - divide customers into segments, define customer value for each segment and maintain the customer according to its customer value. The word *maintain* refers to two most frequently used approaches - to focus on enhancing customer satisfaction, or focusing on saturation of customer needs.

The question that I would like to address now is what customer satisfaction has to do with customer value. Firstly, customer value is proportional to loyalty of customer and the profit on the goods and services that customer buys. There are two main strategies for getting both - "whip" and "sugar". Whip strategies are based on contract - where the loyalty and sometimes also the turnover supported by the contract. For example, if you want to have access to books from Book Club (Knížní klub - an organization selling books in Czech Republic), you need a subscription to the organization. The subscription allows you to have access to special books, and also buy other books at discounted price, but it also requires you to make at least one purchase every three months. In majority of the cases, you are reminded of future responsibilities and duties, but in lot of cases it is not so transparent. Another example is using special accessories for a given product, such as specific type of memory-cards for digital photography. Once you buy a camera, you must buy specific kind of memory card (ideally the same brand). But if you are considering a new camera model and you have already invested in this specific memory card type, you will probably prefer camera of the same brand (compatible with your memory card type). These methods rely on sunk costs, as these non-reversible investments are called. They definitely do not add to customer satisfaction.

Another method of gaining customer loyalty and higher turnovers is to provide services so good, that the customer will return for goods or services again and again. This methods is perfectly in accordance with the satisfaction paradigm, and also reacts to phenomena, such as hedonic adaptation and expectancy adaptation (these were introduces into the marketing as product life-cycles concepts and are used regularly in marketing).

Conclusion can therefore be stated that there are two main (legal) strategies of increasing customer value, one based on satisfaction and one based on sunk costs. The former enhances the customer satisfaction, while the latter is independent on customer satisfaction, or even contradictory to it. Therefore, there is no clear general principle according to which one would be able to decide, whether customer value and customer satisfaction are opposite, or compatible goals.

## **Conclusion - lessons learned**

In this concluding chapter I would like to summarize the conclusions that were drawn throughout this document.

Firstly, happiness is an attitude, for which the best way of measurement turned out to be a self report, despite that self reports tends to be rather unstable and affected by mood.

Happiness is attitude that has two components, one stable that does not change very much in time, and second dynamic and reacting on outer changes. The latter make the happiness oscillate around that stable point set by the former. The mechanisms responsible for oscillation are three modes of experiencing happiness (visceral, behavioral and reflective), and other two kinds of adaptation - hedonic adaptation and expectation adaptation. Hedonic adaptation is particularly responsible for withering away the pleasure from specific stimuli, so that the same thing does not provide the same pleasure forever.

Long term increases in happiness are in general hard to achieve, because of both adaptation mechanisms. Sustainable increases seem to be possible by cognitive enhancements. However, there seem to be an upper limit on the possible increases in happiness.

Self-reported happiness, as was stated, is due to its lower reliability, problematic concept, when used on individual level. That is the probable cause why explained variance of happiness in models regarding individual people is usually lower. The mood component of happiness tends to be random in larger samples in therefore the concept is suitable for using in aggregated form - as group averages.

The indicators of happiness can be of four types - satisfier, critical, dissatisfier and neutral. Applying the classification algorithm on selected parameters and average national happiness for various states will reveal, what type of indicators or attributes these parameters are. Satisfiers, criticals and dissatisfiers are potential candidates for causes and effects of happiness. Methodology for distinction of cause and effect exists, but it was not part of this research.

This indicator type classification works only on aggregated level, since on individual level expectation adaptation transforms most attributes into criticals. The only way around is to use variable ratio reinforcement.

Also, two common applications of concept of happiness in market economy was discussed - customer satisfaction and employee satisfaction. It has been shown, that market mechanisms do only partially support customer and employee satisfaction. However, an important result is that they are not purely contradictory.

As the final word, I would like to return to Ahuvia's (2000) article, who points out, how false can our premise of the universal nature of "need for happiness" can be:

*I have frequently been struck by the low priority given to SWB in conversations I have had with people from Asian collectivist cultures. I recall a conversation with a young Singaporean man who was engaged to be married. He confided in me that he had only lukewarm feelings for his bride. When I asked him if he felt he would be happy in the marriage, he looked at me with a you just-don't-get-it expression on his face and said, "that's not really the point. In Singapore, after you've been going out for a certain amount of time, you get married." In another incident, a Korean student wrote to me that becoming rich was his first priority because he wanted to buy his parents a new Mercedes so that they could gain face. Once again, when I asked him if he had given much thought to what career would make him the happiest, he replied that his being happy wasn't the point. He wasn't choosing a career to be happy, he was choosing a career to be rich. These members of collectivist societies prioritize honor, face, and meeting their social obligations above their own happiness.*

Yes, the pursuit of happiness, in fact, might be an ethnocentric concept. Not the notion of happiness as such, but happiness as an ultimate goal. What can be more convincing, than the fact, that in no western research I was able to find question "For you personally, how important happiness is in your life?". This may teach us something new about us in the future.

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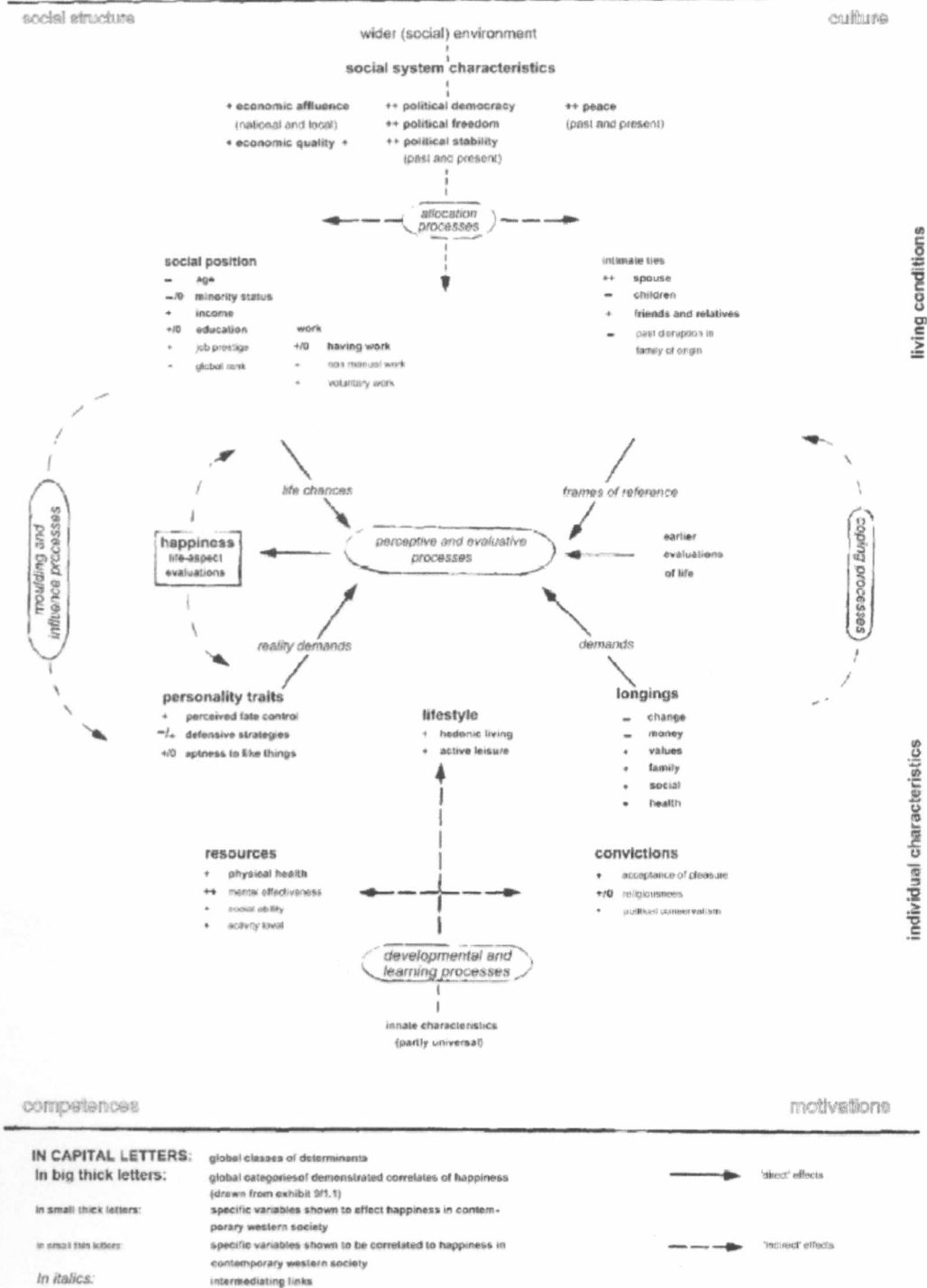
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## **Appendix 1: Methodological note on significance test in comparing countries' averages**

When comparing country averages, I used t-test. However, the results of the t-tests are different from what they usually mean - significance (p-value) in general is the probability level that the difference between the two samples occurred by chance. Here, the country averages, (which are in most cases the results of averaging of sample size of thousands) are not the standard data, but group averages, where random error tends to balance out in these samples. Hence even the small difference is statistically significant, because the total sample, over which these comparisons are based might approach hundreds thousands. Appropriate test for the differences among nations would be ANOVA, or t-test on the original data. However, I did not have access to original data, only to country averages - and therefore I used t-test on these mean values filter out results based on too few observations in a given variable.

I agree that this procedure is far from ideal, but it is solution with satisfactory level of uncertainty. More sophisticated procedures would include multilevel modeling, and original data from each of the country, and is recommended for further research in this field.

## Appendix 2: A tentative review of demonstrated correlates of happiness



Schema 7: A tentative review of demonstrated correlates of happiness in contemporary western society (adapted from Veenhoven

984).