

Intuition and Experience Work as a Pattern Simultaneously during the Process of Moral Thinking at the Abstract Level¹

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Abstract

We conducted a survey about moral thinking at the abstract level of students of the Faculty of Technical Sciences in Novi Sad, Serbia. Our comprised sample 1.057 students who finished a secondary school and begin their studies. Seven questions which describe their moral thinking indicate to their moral thinking at the abstract level. When we performed the exploratory factor on the randomly selected sample half, analysis showed us the existence of two independent patterns which best describe their moral thinking at the abstract level. The first pattern is called INTUITIVE PATTERN and the second pattern is called LEARNED PATTERN. Also, our results showed us that female respondents have significantly higher second pattern activation level. Performed confirmatory factor analysis on second half of our sample confirmed this factor structure.

Key Words: moral thinking, moral thinking at the abstract level, exploratory factor analysis, learned pattern, intuitive pattern

Introduction

Normative ethics largely falls in the domain of moral philosophy and it attempts to inform what someone should do in a particular situation. Conversely, descriptive ethics is concerned with explaining and predicting individual moral behavior. James Rest provides a good theoretical model to better understand descriptive ethics (Rest, 1986), the four components of which are: identifying the moral nature of an issue, making a moral judgment, establishing moral intent and engaging in moral action (Jones, 1991; Rest, 1986 and Trevino, 1986)

¹ Their different activation levels are related to gender.

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A review of existing research that deals with individual moral thinking and the engagement of moral action (O'Fallon and Butterfield, 2005) shows a dearth of research in this area. Most of the results, stemming from this review are only consistent when individual moral thinking are discussed in light of the idealism and relativism dichotomy (establishing moral intent and engaging in moral action are highly positive when correlated with idealism). However, these researches do not show an individual's moral conduct over time. What is more, research of this type poorly measures an individual's personal moral thinking¹ framework because it is impossible to quantify such a framework if their individual ethical experienced is not measured. Put a different way, it is difficult, if not impossible to access an individual's process of moral thinking at the abstract level from this theoretical approach. The dominant method used to collect data involves a hypothetical situation and it is usually unclear whether the researchers measured moral thinking at the abstract level or some other construct (intention for example). In the following paper we want to think past this dichotomy approach to moral thinking (*descriptive ethics vs. normative ethics*) by showing more clearly an individual's moral thinking at the abstract level. Also, we will try to show that individual notion of the morality is more complicated than once thought. Moral orientation is multifaceted, which is further complicated by its particular setting or circumstance. A subject's ethical framework cannot be quantified outside of the particular. For us dichotomies are not a satisfactory explanation of someone's notion of the morality (e.g. the *idealism vs. relativism* dichotomy). We base this claim on the idea that different moral orientations **simultaneously** underlie moral thinking (Pecujlija et al, 2009) Also, we presumed that moral thinking have to be put in the term **"patterns"** (we used exploratory factor analysis to proof this statement) rather than in the term "dichotomies".

Based on the research conducted so far that rested on the Rest's model of moral thinking at the abstract level, it is evident that independent variables related to respondents' gender provide relatively consistent results. Therefore, there is no difference between the moral thinking at the abstract

level of men and women. Even if there is difference, female respondents prove to be more ethical than male. There are also significant methodological problems related to the investigation of morality with relevance to the respondent sample and material distributed to respondents during the course of the research. More than 40% of empirical research projects were conducted among students or designed to combine data obtained from students and other respondents (Weber, 1992). Many hold the view that it is adequate to use student samples, whereas there are also those who think those samples are an obstacle in generalizing obtained data. On the other hand, the material often distributed to respondents for examining moral thinking at the abstract level is the so called 'scenario' since it is a standardized social stimulus and a moral situation, real for respondents (Marshall and Dewe, 1997). This raises the question of the optimal number of situations to present respondents with so as not to err in deciding or overload them with situations they need to analyze. The same applies to questionnaires; in fact, there is a small number of simulations and laboratory research. It is hard to assess ethical and unethical behavior (Trevino, 1992).

Rest's four step model

The cognitive-developmental stage theory, initiated by Lawrence Kohlberg in late 1950s, dominated the research of moral psychology over two decades. The insufficiency of the cognitive developmental approach to explain moral behavior was criticized for instance by Hoffman (1984) who claimed that in the cognitive approach the role of conflict, motivation and affect is minimized. Likewise, Blasi (1980) in the conclusions of his review of moral thinking at the abstract level and moral action considered the reasons for the existence of the gap between moral thinking at the abstract level and actual moral behavior. For instance, he asked, are there differences in people's readiness to interpret situations in moral terms? Do some people consider only a few situations as moral whereas other sees many? Moreover, what motivates individuals to behave according their judgments? Why some

high-scoring respondents were able to resist temptation and some were not? Finally, it could be asked what kinds of defensive or coping strategies people use to avoid an unpleasant decision that follows from one's moral thinking at the abstract level, or what kinds of strategies they use to act consistently with their moral thinking at the abstract level? The dissatisfaction induced James Rest, a student of Lawrence Kohlberg's, to develop a four component model of moral behavior. Rest (1986) considered the psychological processes that are involved when people behave morally and ended up with four major psychological processes that must have occurred in order for moral behavior to take place (sequential model). The model was originally formulated when Rest did a literature review of morality and used it to classify the various studies carried out in the domain of moral development with different starting points (Rest, 1983). Firstly, in moral behavior, there must be some sort of interpretation of the particular situation. The first component, later called moral sensitivity, includes consideration of which actions are possible in the situation, which are the parties concerned, and how they would be affected by the consequences of each action. Secondly, one must be able to make a judgment about which course of action is morally right or fair, thus choosing one possible line of action as what one ought to do in that situation. Thirdly, one ought to give priority to moral values above other personal values such that an intention to do what is morally right is formed. The third component is called moral motivation in the sense that values motivate individuals to achieve goals and guide their behavior. Finally, the fourth component - moral character - involves having courage and implementing skills to carry out a line of action even under pressure. Rest (1986) stressed that the order of the components in the model is logical rather than chronological. Although it logically makes sense that for instance component 1 (sensitivity to the moral issues of the situation) precedes component 3 (motivation to behave morally), one's value priorities might affect the interpretation of situations as morally relevant and which aspects of the situation are considered important. The basic assumption is that the underlying

psychological processes of moral behavior are distinct from each other, although they might interact and influence none another. For instance, a person might be capable of making adequate moral judgments but be insensitive to different moral aspects of the situation, or vice versa. Rest did not divide morality into cognitive, affective and behavioral components as had traditionally been done which each have their separate developmental paths. Instead he claimed that these three components are always interconnected, and that cognition, affect and behavior are incorporated in his model's components. Cognition and affect could be linked by several ways; there is not just one connection. Moreover, Rest (1986) emphasized the fact that the four components represent processes involved in the production of a moral act, not general traits of people. For instance, a person highly sensitive in one situation might be relatively insensitive in another. Thus, the model is situation-specific in a way that different situations promote different kinds of interpretations and moral judgments, heighten the importance of some values compared to others, and encourage an individual to implement a moral act or discourage her or him from doing so. One of the goals Rest and his associates had in developing the four component model was to have a theory and methodology for studying morality of everyday life, not only reasoning on hypothetical dilemmas. Rest and his colleagues at the University of Minnesota have conducted research on the components of morality mostly in the context of professional decision-making. According to Rest (1986) the target groups have been professionals partly because the professionals' experience to justify their decisions makes them easier to study, and partly because in professional decision-making situations the professionals' self interest and justice are not so often in conflict with each other as might be the case in other real-life dilemmas. Although Kohlberg's theory has not lost its importance in understanding people's constructions of moral issues, the four component model broadened the scope of moral psychology by taking into account the other processes of moral behavior as well or emphasizing that the components influence each other in complicated ways.

Gender and moral thinking

Carol Gilligan was the first to consider gender differences in moral thinking in her research with the mental processes of males and females in their moral development. In general, Gilligan noted differences between girls and boys in their feelings towards caring, relationships, and connections with other people. More specifically Gilligan noted that girls are more concerned with care, relationships, and connections with other people than boys (Lefton 2000). Thus, Gilligan hypothesized that as younger children girls are more inclined towards caring, and boys are more inclined towards justice (Lefton 2000). Gilligan suggests this difference is due to gender and the child's relationship with the mother (Lefton, 2000).

Child development literature often provides a heated comparison of Gilligan's theory with that of Lawrence Kohlberg's. Lawrence Kohlberg's theory entails the famous man "Heinz" who is portrayed to have a wife that is terminally ill. Kohlberg devised his theory by asking college aged students whether or not they would break into a drug store to steal the medicine to save his wife and why or why not (Wark & Krebs, 1996). Kohlberg's theory is comprised of three levels of moral development becoming more complex. Kohlberg's moral development theory did not take into account gender, and from Kohlberg's theory Gilligan found that girls do in fact develop moral thinking at the abstract level differently than boys. According to Gilligan, the central moral thinking at the abstract level problem for women is the conflict between self and other. Within Gilligan's theoretical framework for moral thinking development in females, she provides a sequence of three levels (Belknap 2000). At level one of Gilligan's theoretical framework a woman's thinking orientation is towards individual survival (Belknap, 2000); the self is the sole object of concern. The first transition that takes place is from being selfish to being responsible. At level two of the moral thinking the main concern is that goodness is equated with self-sacrifice (Belknap, 2000). This level is where a woman adopts societal values and social membership. Gilligan refers to the second transition from level two to level three as the transition

from goodness to truth (Belknap, 2000). Here, the needs of the self must be deliberately uncovered; as they are uncovered the woman begins to consider the consequences of the self and other (Belknap, 2000). One study by Gilligan & Attanucci, looked at the distinction between care and justice perspectives with men and women, primarily adolescence and adults when faced with real-life dilemmas. An example of one of the real-life dilemma subjects were asked to consider was a situation with a pregnant women considering an abortion (Gilligan & Attanucci, 1988). The study showed that: a) concerns about justice and care are represented in people's thinking about real-life moral dilemmas, but that people tend to focus on one or the other depending on gender, and b) there is an association between moral orientation and gender such that women focus on care dilemmas and men focus on justice dilemmas (Gilligan & Attanucci, 1988). Gilligan's theory has had both positive and negative implications in the field of psychology. One positive implication is that her work has influenced other psychologists in their evaluations of morality. Also, Gilligan's work highlights that people think about other people in a humanly caring way. Gilligan also emphasized that both men and women think about caring when faced with relationship dilemmas, similarly both are likely to focus on justice when faced with dilemmas involving others rights. On the other hand, the most criticized element to her theory is that it follows the stereotype of women as nurturing, men as logical. The participants of Gilligan's research are limited to mostly white, middle class children and adults (Woods, 1996). In general, literature reviews have provided that Gilligan's work needs a broader more multicultural basis. In summary, Carol Gilligan has provided a framework for the moral orientations and development of women. Current research on explicit schemas as to how women come to real-life decisions when faced with real-life dilemmas is limited. Gilligan's theory is comprised of three stages: self-interest, self-sacrifice, and post-conventional thinking where each level is more complex. Overall, Gilligan found that girls do develop morality, differently than others. Gilligan's theory holds particular implications for adolescent girls specifically as this is typically when they

enter the transition from level two to level three. However, as do all theories Gilligan's has advantages and disadvantages that should be considered when looking at moral orientations.

Research hypotheses

This research is primarily explorative in character and its main purpose is to show that regardless of the Rest's model of moral thinking at the abstract level (Rest, 1986), which includes four basic components (sequential psychological processes), it is important to look at the process of moral thinking at the abstract level as a unique process not as chain of different sequential processes and overcome the dichotomy between normative and descriptive ethics by trying to identify the structure of one's moral thinking at the abstract level—the patterns by which we can first describe it and then discuss the process of moral thinking at the abstract level and moral behavior itself. On the other hand, identifying patterns can help single out developmental aspects of each identified pattern. General research hypothesis is as follow:

1. The process of the student's moral thinking at the abstract level underlies of different moral orientations of different intensity under the simultaneous consideration

Specific research hypotheses are:

1. The process of the student's moral thinking at the abstract level possesses latent structure, consists of patterns²
2. There is a gender difference regarding the patterns activation levels

Respondents' sample

The research included 1.057 freshmen enrolled at the Faculty of technical sciences, University of Novi Sad, Serbia. At the time of the research, the students had just commenced their studies. They are future engineers. The respondents are of approximately the same age, but regarding their gender, the situation is the following: (see Table 1) more male (71.2%) than female respondents participated in the research, which is normal due to the fact that more men than women decide for studying engineering.

Table 1: Respondents by gender

	Frequency	Percent	Valid percent	Cumulative percent
male	753	71.2	71.2	71.2
female	304	28.8	28.8	100.0
total	1,057	100.0	100.0	

Procedure

When enrolling in the first year of their studies at the Faculty of Technical Sciences, the respondents were asked to fill in a short questionnaire created for that occasion. It consisted of seven items related to their ideas about morality. The respondents were informed that it was their free will to participate in the research and that they were not obliged to fill in the questionnaire.

Research instrument

The Rest's model of ethical decision-making served as a theoretical foundation for creating the questionnaire as it includes items that relate to the very awareness of ethics, moral judgment, intention for moral behavior and moral behavior itself. On the other hand, the questionnaire encompasses those items that relate to the ethical attitude of respondents: deontological,³ subjective⁴ and utilitarian⁵. On a five-level Likert-like scale⁶ the respondents needed to mark the extent to which they agreed or disagreed with the claims offered. The results given in the Table 2 indicate that the reliability of the questionnaire is quite high – Cronbach's Alpha is 0.716. The analysis of reliability allows the study of the properties of measurement scales and the items that compose the scales. The reliability analysis procedure calculates the number of commonly used measures of the reliability scale and provides information about the relationship between the individual items on the scale. Intraclass correlation coefficients can be used to compute inter-rater reliability estimates. That model is that of internal consistency and is based on the average inter-item correlation.

Table 2: Reliability of the questionnaire

Cronbach's Alpha	Cronbach's Alpha based on standardized items	No. of items
.710	.716	7

Results

The findings presented in the Table 3 show that the most prominent respondents' idea is that they find ethics to be very important ($M = 4.11$, $SD = 1.027$), that the Faculty is a place for their ethical improvement ($M = 4.03$, $SD = 1.039$), as well that they are aware of ethical consequences of their actions ($M = 4.00$, $SD = 1.022$). On the other hand, the lowest-scoring items were those related to the importance of the course in ethics ($M = 2.96$, $SD = 1.189$), practicality being more important than ethics ($M = 2.83$, $SD = 1.028$) and self-centeredness ($M = 2.82$, $SD = 1.211$).

Table 3: Item descriptive statistics

	Mean	Standard deviation
Ethics is very important to me.	4.11	1.027
The Faculty is a place for students' ethical improvement.	4.03	1.039
I think about ethical consequences of my decisions.	4.00	1.022
I always act ethically even though sometimes I do not benefit from my own ...	3.44	1.136
The course in ethics during my studies is necessary.	2.96	1.189
I am more a practical than an ethical person.	2.83	1.208
I think about myself first when making a decision about what to do.	2.82	1.211

KMO and Bartlett's Test as conditions for performing exploratory factor analysis

Table 4 shows the KMO coefficient and Bartlett's test—the parameters whose values clearly indicate that it is justifiable to conduct the explorative factor analysis for the research findings with respect to $KMO = 0.778$ and the significance of Bartlett's test ($\text{Chi-Square} = 1757.645$, $df = 0.000$). After the exploratory factor analysis⁷, it is obvious from Table 5 that the extraction criterion is a particular value greater than 1, and that there are two factors that explain the 54.849% variance of the examined occurrence. The first factor

exemplifies the greatest percentage of the variance of the examined occurrence – 32.445%. Table 6 shows extracted factors and it is obvious that among them not even a single item has negative factor saturation. Moreover, there is no evidence of approximate projection of an item on two extracted factors. Factor saturation of items ranges between 0.501 and 0.799.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.778
Bartlett' test of Sphericity Approx. Chi-Square	1757.645
df	28.000
Sig.	.000

The patterns of moral thinking at the abstract level

Intuitive pattern. The first extracted pattern explains 32.445% of the total variance of the process of moral thinking at the abstract level (Table 5) and projects on it 3 questionnaire items with factor saturation ranging from 0.501 to 0.799 (Table 6). Furthermore, there is obviously no negative factor saturation regarding this pattern. The first item of this pattern is *Ethics is very important to me* with factor saturation of 0.750. The third item, *I think about ethical consequences of my decisions*, has the saturation of 0.799, whereas the fourth item, *I always act ethically even though sometimes I do not benefit from my own actions*, has the saturation of 0.667. The sixth item is *I am more a practical than an ethical person* and its saturation is 0.501. Owing to the fact that in their essence items that project on the first extracted pattern generally relate to moral thinking, this extracted pattern explains the greatest part of the variance of the examined occurrence that could be named INTUITIVE PATTERN.

Table 5: Total variance explained

pattern	Initial eigenvalues				Rotation sums of squared loadings			
	total%	variance	of	Cumulative%	Total%	variance	of	Cumulative%
1	2.838	35.478		35.478	2.596	32.445		32.445
2	1.550	19.370		54.849	1.792	22.404		54.849
3	.740	9.253		64.102				
4	.713	8.914		73.016				
5	.636	7.955		80.971				
6	.595	7.440		88.412				
7	.492	6.155		100.00				

Learned pattern. The second extracted pattern explains 22.404% of the total variance of the process of moral thinking at the abstract level (Table 5). There are four questionnaire items projecting on it with factor saturation ranging from 0.609 to 0.751 without negative factor saturation (Table 6). This pattern encompasses the following questionnaire items: *The Faculty is a place for students' ethical improvement* 0.734; *The course in ethics during my studies is necessary* 0.751; *I think about myself first when making a decision about what to do*, factor saturation 0.609. This pattern can be called LEARNED PATTERN as its component parts relate to ethical norms acquired during life.

Table 6: Rotated component matrix

	component	
	1	2
Ethics is very important to me.	.750	-.136
The Faculty is a place for students' ethical improvement.	-.207	.734
I think about ethical consequences of my decisions.	.799	.015
I always act ethically even though sometimes I do not benefit from my own actions.	.667	.235
The course in ethics during my studies is necessary.	.064	.751
I am more a practical than an ethical person.	.501	.483
I think about myself first when making a decision about what to do.	.366	.609

The explorative factor analysis (EFA) indicates that our respondents' process of moral thinking at the abstract level is a complex two-pattern structure containing an inherited and a learned dimension. These patterns are simultaneously engaged during this process and their activation level is different.

Gender differences

Graphics 1 represents factor scores⁸ our respondents' activation level of patterns of moral thinking at the abstract level in accordance with the independent variable 'Gender'. Factor scores were identified by the Anderson-Rubin method, a slight modification of the Bartlett's method. This method allows for orthogonality of a selected factor. The mean value is 0, and the standard variation value is 1, whereas the scores without inter-related correlation $r = 0$. Due to such factor scores that represent relative values compared to average values, it can be noted that among female respondents LEARNED PATTERN activation level is prevailing, whereas INTUITIVE PATTERN activation level is below the average value. With male respondents the situation is totally opposite: LEARNED PATTERN activation level is below average, whereas INTUITIVE PATTERN activation level is a bit above average. Based on those factor scores of extracted patterns activation level and with relevance to the respondents' gender it can be concluded that female respondents pertain to acquired moral norms whereas male respondents adhere more to inherent, inherited morality. In order to find out whether this difference among the participants is statistically significant, a one way analysis of variance (ANOVA)⁹ was performed. It is obvious from the Table 7 that there is statistically significant influence of the independent variable of 'Gender' on the relative relation among factor scores of LEARNED PATTERN in that among female respondents activation level is prevailing during the process of moral thinking at the abstract level as opposed to male respondents ($F = 13.166$, $p = 0.000$).

Table 7: ANOVA pattern by gender

		Sum of squares	Mean square	F	Sig.
Basic pattern	Between groups	2.166	2.169	2.169	.141
	Within groups	1053.834	.999		
	Total	1056.000			
Learned pattern	Between groups	13.016	13.166	13.016	.000
	Within groups	1042.984	.989		
	Total	1056.000			

As for INTUITIVE PATTERN activation level during the process of moral thinking at the abstract level, there is no statistically significant difference among male and female respondents. Therefore, the research results have proved the first hypothesis regarding the complex structure of people's moral thinking as there were two independent patterns extracted. Moreover, the second hypothesis was proved too as gender affects the patterns activation level.

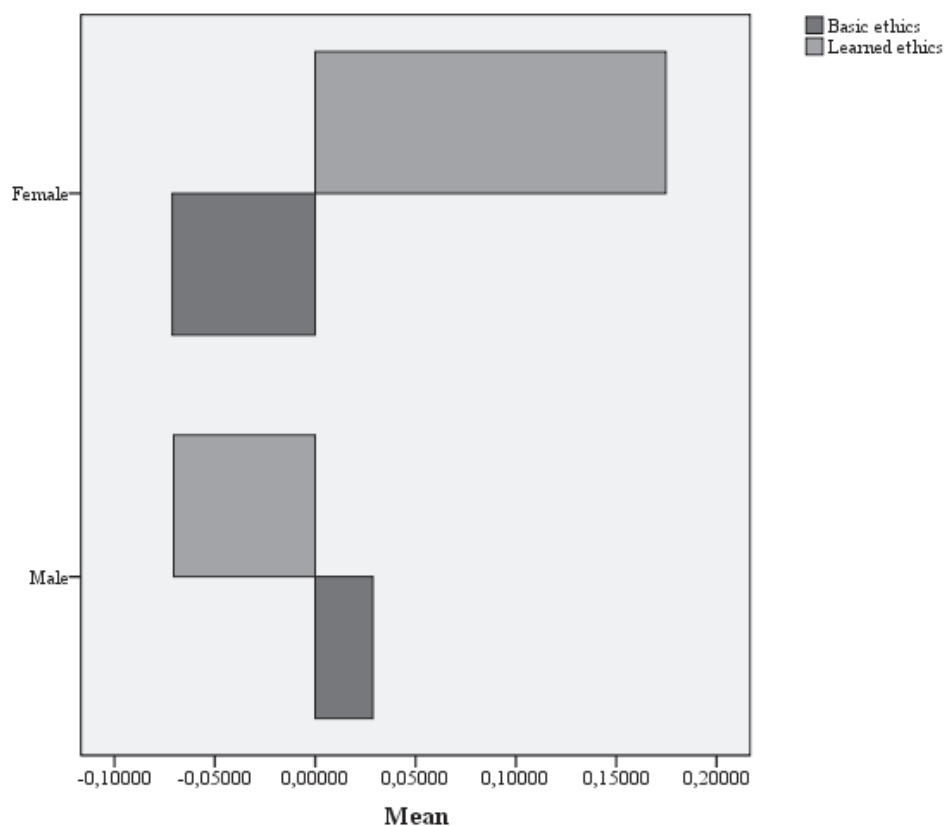


Illustration 1 Graph 1: Pattern's activation level presented by the gender

Discussion

Research findings show that moral thinking at the abstract level is a unique dimension of one's behavior, as well as that it is very complex. Identifying the structure of moral thinking (considered as a process) will help understand better what moral thinking at the abstract level and moral behavior are since the findings suggest that moral thinking at the abstract level consists of an inherent part, as well as of a part that results from complex environmental factors that affect an individual. It seems that the Rest's model is insufficient in explaining the complexity of one's ethical behavior and thinking in the process of ethical decision-making. Moreover, realistic identification of the morality structure leads to formulating a new theoretical concept of the process of moral thinking at the abstract level analogous with Cathel's model of fluid and crystal intelligences whereupon fluid intelligence gradually deteriorates, and crystal intelligence improves. Therefore, it may be that INTUITIVE PATTERN activation level during the process of moral thinking at the abstract level deteriorates over years, whereas LEARNED PATTERN activation level improves. The INTUITIVE PATTERN dimension would not represent sheer morality that develops on its own. LEARNED PATTERN would represent morality acquired over years and through experience. Forsyth (1992) argued that two basic dimensions of personal moral philosophies (i.e., relativism and idealism) can impact moral thinking at the abstract level. Idealism refers to the individual's concern for the welfare of others. Strong idealism, according to Karande et al. (2002), indicates a belief that "harming others is always avoidable" and a preference to "not choose the lesser of two evils that will lead to negative consequences for others". On the other hand, relativism refers to a belief in how moral principles apply to a particular situation. Forsyth (1980) states that relativism "rejects the possibility of formulating or relying on universal moral rules when drawing conclusions about moral questions." Strong relativism indicates a person places more emphasis on the situation and the moral principle to determine if it is good, while weak relativism indicates a belief that moral principles should be followed regardless

of the circumstances. According to Hunt and Vitell (1986), one's moral thinking at the abstract level is dependent on the existence of a perceived ethical issue(s). The perception of an ethical problem provides the “catalyst” for the process of moral thinking at the abstract level. Singhapakdi et al. (2000) identify that the “perception of an ethical issue or problem is considered to be an important prerequisite for moral thinking at the abstract level”. Studies have been conducted to empirically validate this proposition. There has been a general assumption that intention will lead to action.

This research shows that during the process of moral thinking at the abstract level both patterns are activated simultaneously (analogy with the computer dual core processor) and that difference in their activation level determinate direction of someone's moral behavior. Putting in this way this model **overcomes gap** between moral thinking and moral acting. On the other hand CFA (see Graph 3) confirmed our findings so this new view on process of moral thinking at the abstract level should be accepted but still we have unsolved problem of thinking-acting gap problem. One fresh theory (Belimp theory) created by Petrides (2011) provides us fruitful approach to this problem (see Graph 2).

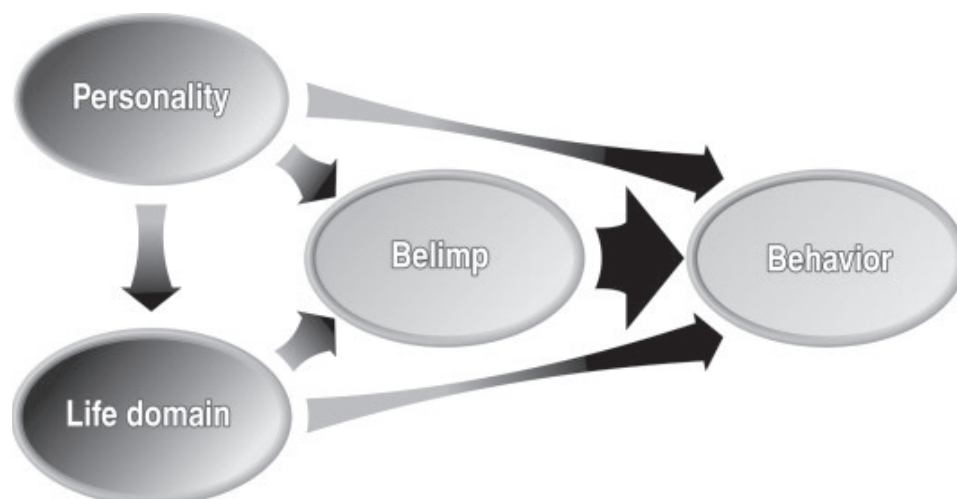
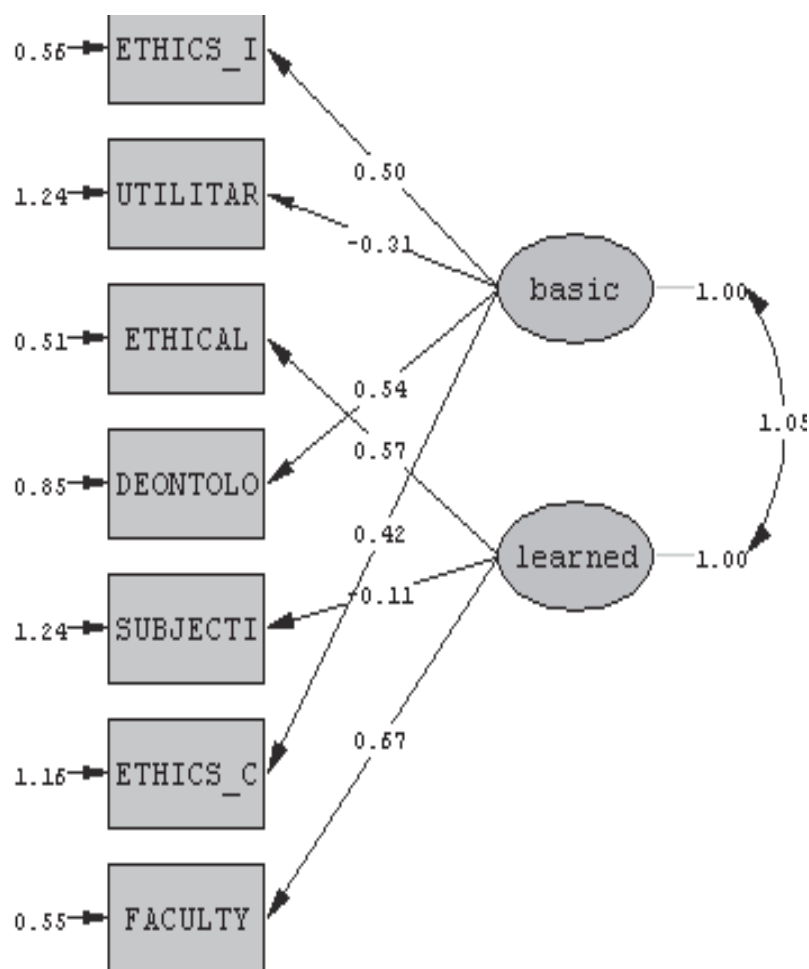


Illustration 2 Graph 2: Belimp Theory

By linking traits to processes within a model wherein personality consistency and flow can coexist (as the master and conditional belimp planes, respectively), belimp theory can relieve the uneasy cohabitation of the trait and social-cognitive approaches to personality. From the point of view of trait theory, we have a mechanism that, unlike traits, which are identified at an aggregate (population) level, is identified and can be applied at the level of the individual. Such mechanisms can help substantiate the reality of personality traits by bestowing explanatory power on them. Belimp theory should yield significant efficiencies and perhaps also improvements in our ability to predict action (behavior) over existing personality inventories. We expect this, first, because the belimp mechanism is a more proximal determinant of behavior than personality and, second, because position in a concordant belimp plane will reflect both one's personality traits as well as their attitudes towards a context (life domain), thus carrying more information than either personality or context alone. The predictive power of belimp theory in relation to a particular criterion will be progressively enhanced as life domains become more concordant, and maximized when the life domain matches the criterion (e.g., work as the life domain with job performance as the criterion). Personality is a distal determinant of behavior and the mechanisms through which it affects it are largely unknown. If such mechanisms were to be successfully isolated, they should prove significant mediators or moderators (Baron & Kenny 1986) of personality traits. In fact, because concordant belimp planes are hypothesized as more proximal and partially contextualized determinants of behavior, there may be cases where they emerge as full mediators and perhaps even as incremental predictors.

Research has shown that LEARNED PATTERN activation level during the process of moral thinking at the abstract level is more dominant among women of the same age, which means that women's process of moral thinking at the abstract level is prone to the influences of the environment, so they more develop moral thinking that is a product of environmental influences.

On the other hand, INTUITIVE PATTERN activation level during the process of moral thinking at the abstract level is higher among male respondents, whereas their LEARNED PATTERN activation level is quite below the average. These findings coincide with the findings obtained so far related to the gender difference in the process of ethical decision-making. These findings also shed a new light on the nature of the difference since women are more ethical with respect to a cultural model or a philosophical construct.



Chi-Square=253.61, df=13, P-value=0.00000, RMSEA=0.121

Illustration 3 Graph 3: Confirmatory Factor Analysis

There is a serious question regarding the nature of the philosophical construct that INTUITIVE PATTERN is grounded on. It is evident that there are different philosophical concepts that LEARNED PATTERN is based on, but what about INTUITIVE PATTERN? There is, however, no single, broadly accepted model of moral intuition (INTUITIVE PATTERN). In fact Dane and Pratt (2007) list 17 different offerings in the literature, and these exclude definitions specific to ethical decision making. The contending theories of moral intuition vary primarily in the temporal sequence of the non-conscious processing of morally relevant information. There is also the question of whether the improvement of LEARNED PATTERN supports one's morality or interferes with the dimension of INTUITIVE PATTERN. According to the Universal Moral Grammar model (UMG), affect is not the triggering component for the process, it is an outcome of intuitive cognitions that are innate and have had functional importance to human survival throughout the millennia. In part, this occurred because human interaction requires cooperation and altruism in order to survive (Cosmides & Tooby, 2005; Cosmides & Tooby, 2008; Harman, 2000; Wright, 1994). An additional common theme among these models is that intuitive cognitions are **deontological** in nature. That is, a person perceives a stimulus and automatically applies a behavioral rule to it, rapidly and spontaneously, without the deliberative calculations necessary for moral rationality. This deontological characteristic is an important aspect of moral intuition recognized by both social psychologists working in the areas of moral psychology (Hauser, Cushman, Young, Jin & Mikhail, 2007; Mikhail, 2007, 2008) as well as those researching **"protected values"** (Baron & Spranca, 1997; Ritov & Baron, 1999). The implication of this deontological, innate nature, is that these rules are hard-wired and naturally occurring, universal components of the moral mind.

Conclusions, restrictions, directions for future research

It goes without saying that this research has serious limitations that do not allow for the generalization of the research findings. One of the restrictions is age since the respondents are all peers. On the other hand,

the questionnaire items pose a restriction as the questionnaire was designed for that occasion only and it can be remarked that if the items had been different, the questionnaire would have yielded different results too (questionnaire reliability from 0.716; contributes to a better impression of the research instrument). Moreover, a serious remark can be that the acquired results are a generalization of the Rest's model in a way. It would be important to conduct this research among different age groups so as to find out whether its structure is subject to change in accordance with the respondents' age. Future research goals should aim toward evaluating the interplay between conscious moral reasoning (LEARNED PATTERN) and intuitive responses (INTUITIVE PATTERN), especially as they relate to each other and to behavioral outcomes, and further specifying the nature of intuition (INTUITIVE PATTERN).

This research offers few primary contributions. First, that the process of student's moral thinking at the abstract level underlie of the different moral orientations of different intensity under the simultaneous consideration (not of the unique orientation under the consideration). Second: When we submitted these results to the exploratory factor analysis (in depth), we realized that process of moral thinking at the abstract level with our examinees consists of the following patterns: the INTUITIVE and the LEARNED pattern. We emphasize again that these patterns are activated simultaneously during the process of the moral thinking¹⁰ Third: Difference between our male and female subjects in the learned pattern level of activation indirectly supported Gilligan's theory about girls care orientation (higher activation level of learned pattern).

Based on the size and structure of the sample (1.057 respondents) it can be claimed with considerable confidence that the obtained results are a real projection of the process of moral thinking at the abstract level examined people of that age in Serbia, which all adds to the significance of the research. The respondents in this research were all students and it would be interesting to conduct the research among non-student population. All in all, this research

was just the first step towards creating a better approach to the examination of an individual's moral thinking at the abstract level and their general ethical behavior.

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Footnotes

¹ **Moral thinking** takes place at two levels. At the lower, or intuitive, level we simply applied principles that we have learnt, without questioning them. At this level descriptivism (the view that moral judgments are purely descriptive) can seem plausible, and so can intuitionism, which is one of its main versions. We do, at this level, have moral convictions which we cannot easily doubt. However, these convictions support rather simple general principles, which can conflict in awkward cases. For this reason, and because we need to be sure that the convictions are the right ones to have (many people are completely convinced of the most deplorable moral principles), a higher level of thinking is required, to justify them and decide conflicts between them.

² **A pattern**, from the French patron, is a type of theme of recurring events or objects, sometimes referred to as elements of a set. These elements repeat in a predictable manner. It can be a template or model which can be used to generate things or parts of a thing, especially if the things that are created have enough in common for the underlying pattern to be inferred, in which case the things are said to exhibit the unique pattern. Pattern matching is the act of checking for the presence of the constituents of a pattern, whereas the detecting for underlying patterns is referred to as pattern recognition. The question of how a pattern emerges is accomplished through the work of the scientific field of pattern formation. The most basic patterns are based on repetition and periodicity. A single template, or cell, is combined with duplicates without change or modification. For example, simple harmonic oscillators produce repeated patterns of movement.

³ The word **deontology** derives from the Greek words for duty (deon) and science (or study) of (logos). In contemporary moral philosophy, deontology is one of those kinds of normative theories regarding which choices are morally required, forbidden, or permitted. In other words, deontology falls within the domain of moral theories that guide and assess our choices of what we ought to do (deontic theories), in contrast to (aretaic [virtue] theories) that fundamentally, at least guide and assess what kind of person (in terms of character

traits) we are and should be. And within that domain, deontologists, those who subscribe to deontological theories of morality, stand in opposition to consequentialists. If any philosopher is regarded as central to deontological moral theories, it is surely Immanuel Kant. Indeed, each of the branches of deontological ethics, the agent-centered, the patient-centered, and the contractualist can lay claim to being Kantian. The agent-centered deontologist can cite Kant's locating the moral quality of acts in the principles or maxims on which the agent acts and not primarily in those acts' effects on others. For Kant, the only thing unqualifiedly good is a good will. The patient-centered deontologist can, of course, cite Kant's injunction against using others as mere means to one's end. And the contractualist can cite, as Kant's contractualist element, Kant's insistence that the maxims on which one acts be capable of being willed as a universal law willed by all rational agents. Having canvassed the two main types of deontological theories (together with a contractualist variation of each), it is time to assess deontological morality more generally. On the one hand, deontological morality, in contrast to consequentialism, leaves space for agents to give special concern to their families, friends, and projects. At least that is so if the deontological morality contains no strong duty of general beneficence, or, if it does, it places a cap on that duty's demands. Deontological morality, therefore, avoids the overly demanding and alienating aspects of consequentialism and accords more with conventional notions of our moral duties. Likewise, deontological moralities, unlike most views of consequentialism, leave space for the supererogatory. A deontologist can do more that is morally praiseworthy than morality demands. A consequentialist cannot, assuming none of the moves earlier referenced work. For the consequentialist, if one's act is not morally demanded, it is morally wrong and forbidden. For the deontologist, there are acts that are neither morally wrong nor demanded, some, but only some, of which are morally praiseworthy.

⁴ The most common forms of ethical **subjectivism** are also forms of moral relativism; however there are also universalist forms of subjectivism such as ideal observer theory that all moral standings are only matters of personal taste. Ethical subjectivism stands in opposition to moral realism, which claims that moral propositions refer to objective facts, independent of human opinion; to error theory, which denies that any moral propositions are true in any sense; and to non-cognitive, which denies that moral sentences divine command theory. Ethical subjectivism also includes, and sometimes refers specifically to, individualist ethical subjectivism. Ethical subjectivism is compatible with moral absolutism, in that an individual can hold certain of his moral precepts to apply regardless of circumstances. Ethical subjectivism is also compatible with moral relativism when that is

taken to mean the opposite of absolutism, that is, as the claim that moral precepts should be adjusted to circumstances.

⁵ In general, **utilitarianism** holds that an act is good or right as long as it produces more good than bad for a particular group of people. An action is ethical when it provides the most good for the most people. The most important authors of this vain are: Jeremy Bentham, John Stewart Mill J. Utilitarianism offers a relatively straightforward method for deciding the morally right course of action for any particular situation we may find ourselves in. To discover what we ought to do in any situation, we first identify the various courses of action that we could perform. Second, we determine all of the foreseeable benefits and harms that would result from each course of action for everyone affected by the action. And third, we choose the course of action that provides the greatest benefits after the costs have been taken into account. The principle of utilitarianism can be traced to the writings of Jeremy Bentham, who lived in England during the eighteenth and nineteenth centuries. Bentham, a legal reformer, sought an objective basis that would provide a publicly acceptable norm for determining what kinds of laws England should enact. He believed that the most promising way of reaching such an agreement was to choose which policy that would bring about the greatest benefits to society once the harms had been taken into account. His familiar motto was “the greatest good for the greatest number.”

⁶ **A Likert item** is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective criteria; generally the level of agreement or disagreement is measured. Often five ordered response levels are used, although many psychometricians advocate using seven or nine levels; a recent empirical study found that a 5 or 7 point scale may produce slightly higher mean scores relative to the highest possible attainable score, compared to those produced from a 10 point scale, and this difference was statistically significant. In terms of the other data characteristics, there was very little difference among the scale formats in terms of variation about the mean, skewness or kurtosis. The format of a typical five-level Likert item is:

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

⁷ “Since factor analysis incorporates analytic possibilities as a theory and empirical techniques for connecting the theory to social phenomena, its potentiality promise much theoretical development for the social sciences. Looking ahead for a century factor analysis and the

complementary multiple regression model are initiating a scientific revolution in the social sciences as profound and far-reaching as that initiated by the development of the calculus in physics.” (Rummel. 1988)

⁸ **A factor score** is a numerical value that indicates a person’s relative spacing or standing on a pattern (latent factor).

⁹ An important technique for analyzing the effect of categorical factors (in our case gender) on a response (in our case the student’s factor scores on the established dimensions of moral thinking) is to perform an Analysis of Variance. An **ANOVA** decomposes the variability in the response variable amongst the different factors. Depending upon the type of analysis, it may be important to determine: (a) which factors have a significant effect on the response, and/or (b) how much of the variability in the response variable is attributable to each factor. A one-way analysis of variance (ANOVA) is used when the data are divided into groups according to only one factor. The questions of interest are usually: (a) is there a significant difference between the groups? And (b) If so, which groups are significantly different from which others?

¹⁰ These results are related with **neurophysiological data** about simultaneous activation of different brain locations during the process of moral thinking at the abstract level.