Moral maturity and environment as predictors of undesired behavior

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Abstract

The current study looked at the environment and moral maturity as two factors that can influence a person's undesired behavior. The first part of the study examined whether moral maturity was related to previous undesired behavior and to find out whether moral maturity was a good predictor of different types of undesired behavior. In the second part of the study we analyzed data from an experiment where participants could lie and leave trash and we related this to the environment they were in and the moral maturity score they obtained. The first part of the study showed that different moral maturity aspects were indeed related to different kinds of undesired behavior. The second part showed that the environment had a significant effect on leaving trash. Lying was both explained by a trend for environment and a significant effect for an aspect of moral maturity. This study showed that different factors could explain for different kinds of undesired behavior. This new information could result in a more nuanced understanding of criminal and undesired behavior.

Keywords: Undesired behavior; Moral maturity; Disorder; Personality.

Samenvatting

In dit onderzoek is er gekeken naar de effecten van de omgeving en van morele volwassenheid op eerder vertoond ongewenst gedrag. Het eerste deel van het onderzoek vergeleek of morele volwassenheid gerelateerd was aan eerder vertoond ongewenst gedrag. Ook werd er gekeken of morele volwassenheid een goede voorspeller was van verschillende soorten ongewenst gedrag. In het tweede deel van het onderzoek is er data geanalyseerd van een experiment waarbij mensen rommel achter konden laten en de mogelijkheid kregen om te liegen. Dit werd gerelateerd aan de omgeving en aan de morele volwassenheid score die de participanten hadden behaald. Het eerste onderzoek toonde aan dat de verschillende aspecten van morele volwassenheid inderdaad effect hadden op verschillende soorten ongewenst gedrag. Het tweede onderzoek liet zien dat de omgeving een significant effect had op het achterlaten van rommel. Liegen werd verklaard aan de hand van een trend van omgeving en een significant effect van een aspect van morele volwassenheid. Dit onderzoek heeft aangetoond dat verschillende factoren een verklaring kunnen zijn voor verschillende soorten ongewenst gedrag. Deze nieuwe informatie zou kunnen resulteren in een beter en meer genuanceerd begrip van crimineel en ongewenst gedrag.

Introduction

Studies have already shown that the environment plays a role in predicting undesired behavior (Wilson and Kelling, 1982; Keizer, Lindenberg and Steg, 2008). This is also true for personality (Krueger, Schmutte, Caspi, Moffitt, Campbell and Silva, 1994; Eysenk, 1964). However, within these studies the focus most often lies on only one explanation, it is either because of the environment (Wilson and Kelling, 1982 and Keizer, Lindenberg and Steg, 2008) or because of personality (Eysenk, 1964 and Krueger et al. 1994). In the present study the focus was on researching whether there can be more then one explanation for certain undesired behavior. It also researched the possibility that different factors could explain for different aspects of undesired behavior.

The effect of a disorderly environment on undesired behavior was first shown by Philip Zimbardo in 1969 (Zimbardo, 1969). He created an experiment where he left a car, with its hood up, abandoned in the Bronx, and one abandoned in Palo Alto, also with its hood up, near Stanford University. He found that from the car in the Bronx everything valuable was removed within 24 hours. When nothing was left to be stolen, random destruction occurred. When after a week nothing had happened with the car in Palo Alto, Zimbardo decided to smash part of it in. Soon passersby started to join in and the car was demolished in just several hours.

This experiment showed that when the environment is disorderly - for example, it is filthy, there is graffiti or things are broken- there is a good

chance that the environment will only get worse. Because of this, more extensive undesired behavior may occur, as shown with the car in the Bronx. The car in Palo Alto shows that everyone can commit violence and vandalism when, through descriptive and injunctive norms, it seems to be acceptable. Descriptive and injunctive norms affect behavior because they provide information about which behavior is most appropriate in a given situation (Cialdini, Reno & Kallgren, 1990). These norms are an important component of the theory of planned behavior (Azjen, 1991), and are presumed to combine with attitude and perceived behavioral control to predict behavioral intention and, ultimately, behavior (Azjen, 1991). This implies that vandalism can occur anywhere once communal barriers, the sense of mutual regard and the obligations of civility, are lowered by actions that seem to signal that "no one cares"′ (Wilson & Kelling, 1982). Property that is unattended and shows signs of neglect and decay becomes acceptable for people out for fun or plunder, even for people who ordinarily would not dream of doing such things and who probably consider themselves law-abiding (Wilson & Kelling, 1982). This forms the basis of the broken windows theory. Descriptive and injunctive norms are important factors within the broken windows theory therefor the focus of our research of environment lays on these norms.

The broken windows theory shows that the environment has an influence on undesired behavior. However, the environment might not be the only factor that explains for this behavior. Personality could play a substantial role as well.

The personality trait we looked at is the moral maturity of the respondents. This trait was chosen because moral maturity is formed by both upbringing and personal make-up, which together make up personality. Moreover, multiple studies have already shown that moral maturity can be used to predict undesired behavior. For example, Hugins and Prentice (1973) showed in their comparison of delinquent to non-delinquent boys, that non-delinquent boys used more moral mature reasoning then did the delinquent boys. Research of Haines, Diekhoff, LaBeff and Clark (1986) has also shown that people with a low moral maturity are more prone to engage in undesired behavior. They showed that people with a lower moral maturity were more likely to cheat on exams then were people with a higher moral maturity. According to their research moral maturity is a good predictor of undesired behavior. However there are multiple facets to moral maturity and we wanted to find out whether these different aspects also effect different components of undesired behavior. These aspects may focus on relationships, on justice perceptions or on abiding the law and these different aspects might very well effect very different kinds of undesired behavior. With this study we wanted to explore these different aspects of moral maturity and their relationship with undesired behavior.

Looking at both the environmental factor and the moral maturity of people could result in a much broader perspective in explaining criminal and undesired behavior. Looking at multiple factors in one study could give much insight within the reasoning behind engaging in undesired behavior. Maybe

deviancy is not hereditary, maybe it is not created by upbringing, but deviancy might occur because of many factors coming together.

To see whether the different aspects of moral maturity are indeed good predictors of undesired behavior, and whether people with a lower moral maturity on certain aspects do engage in more undesired behavior of a certain type, we first wanted to find out whether there is a link between the moral maturity aspects and previously committed undesired behavior. According to the previously mentioned studies, we expected that there would be a link present. We expected that a lower score on moral maturity would result in more participation in previous undesired behavior. We also expected that specific aspects of moral maturity (e.g. relationships, justice, life) would particularly be related to kinds of undesired behavior within the same domain.

Therefore the first hypothesis is:

H_1: The higher people score on moral maturity aspects, the lower the undesired behavior, particularly in related domains,

According to research by Cialdini, Reno and Kallgren (1990), a messy environment leads to leaving more trash. Research by Wilson and Kelling (1982) and Zimbardo (1969) also states that this can progress into more deviant behavior such as violence and vandalism. We wanted to find out whether this more deviant behavior can be explained solely by the broken windows theory and thus by the environment, or whether this can also be explained by the moral maturity of a person. To find out if both factors are

influential or whether one might be more dominant than the other, we wanted to know whether leaving trash and lying can be explained by a messy environment or by a lower moral maturity. Perhaps both. Because of injunctive and descriptive norms and the research by Cialdini, Reno and Kallgren (1990) we expected that leaving trash would mostly be influenced by the environment. This leads to our second hypothesis:

H_2: The messier the environment People find themselves in, the higher the chance that people will leave trash themselves.

Since the broken windows theory does state that the environment may lead to more extensive undesired behavior, we did expect lying to be explained by the environment. However, the injunctive and descriptive norms that are a part of the the broken windows theory cannot fully explain for lying, since participants do not get an indication that other people have lied as well. Therefore, we also expected that lying would be explained by the moral maturity of a person, which leads to our third and fourth hypothesis:

H_3: The higher people score on moral maturity, the lower the chance on lying.

H_4: The messier the environment people find themselves in, the higher the chance they will lie.

Method

Participants and design

This research was performed with students of the University of Twente, who participated for course credit. Within this research multiple

questionnaires were used as well as an experimental research set up. In total, 288 people participated in the questionnaires. Of these 288 people, 77 people participated in the experimental set up as well. For the questionnaires, the proportion of men was 20,7% and female 79,3%. The mean age of the participants was 20,7 years. For the experimental set up 36% of the participants was male and 64% female. The mean age of the participants in this part of the study was 20,7 years.

Instruments

All participants who participated in the questionnaires completed a moral maturity questionnaire and a self-report questionnaire on previous undesired behavior.

Moral maturity

The moral maturity questionnaire that was used in this research is the Sociomoral Reflection Measure-Short Form (SRM-SF) (Gibbs, Basinger and Fuller, 1992). This questionnaire contains eleven open questions divided over five domains (α= 0.58). The first domain is named 'contract and truth' and it consists of four questions. In this part, questions were asked about keeping promises and lying. An example of a question from this domain is; *Think about when you've made a promise to a friend of yours. How important is it for people to keep promises, if they can, to friends?* In this domain three other open questions of comparable nature were asked (α= 0.48). The second domain is 'affiliation' (r= 0.12). This domain exists out of two questions about friendship and relationships with parents and other people. An example of a question

from this domain is; *Let's say a friend of yours needs help and may even die, and you're the only person who can save him or her. How important is it for a person (without losing his or her own life) to save the life of a friend?* The next domain is focused on life. This entails saving someone's life and the worth of a life. What would you do, for example, if you can save the life of a person who does not want to be saved? This domain is measured by two questions of this nature (r= 0.12). The fourth domain looks at 'property and law'. This domain contains two questions regarding respect for other people's belongings and the personal notion of the participants regarding the law (r= 0.24). How important is the law, and is it really necessary? The last domain contains only one question, namely: *How important is it for judges to send people who break the law to jail?* This domain measures the sense of justice of the participants.

For every question, the participants had to say whether they found it very important, important or unimportant and explain why. These explanations were coded into scores ranging from 1 to 4, together with the transition scores 1|2, 2|3 and 3|4, this gave seven different scoring options. For example, for the question; *Think about when you've made a promise to a friend of yours. How important is it for people to keep promises, if they can, to friends?* Of the first domain that we also discussed above, possible answers might be: 'you should always keep a promise' (level 1) and 'society is build on trust and promises' (level 4). In this manner every answer got a score. This way, every domain got its own score by calculating an average of the scores on the questions belonging to a domain. Also, averaging out the scores of all

questions produced a total score for moral maturity.

The questionnaires were coded by two coders. Answers were coded by means of the criteria devised by the SRM-SF. Both coders, coded the same answers until an interrater reliability was realized of 0.89, where an interrater reliability of 0.80 was required according to Gibbs, Basinger and Fuller (1992). After this, the other questionnaires were divided and each was coded by one of the coders.

Self report on Previous undesired behavior

In order to find out if moral maturity has an effect on criminal behavior the scores of the moral maturity questionnaire were related to a self-report survey on previous undesired behavior. In this survey for previous undesired behavior 18 statements were formulized ranging from; *'Did you ever ride the train without buying a ticket?'* to *'have you even hurt anyone on purpose?'*. For this questionnaire participants answered according to a seven point Likert scale. Possible answers were; never, once, seldom, from time to time, sometimes, regularly and often (α= 0.79).

Because the data was strongly skewed to the right we decided to subdivide the scores into three new variables: never(1), once(2) and more often(3). With the scores obtained on the self-report questions we grouped the statements into subdivisions that correspond to different crime types as found in literature (Ressler, 1985; Siegel, 2010). A principal component analysis was

also executed and the results of the analysis can be found in Table 1. These results corroborated the subdivision into the following four components:

Property crime (component 1), which consists of all aspects of stealing, breaking and entering and vandalism (α= 0.68);

Public order offenses (component 2), which accounts for being drunk in public, using soft drugs, riding the train without a ticket and having unprotected sexual intercourse (α= 0.58);

D*rug use* (component 3), accounts for the different questions about using XTC, speed, heroine and LSD (r= 0.36);

And violent crime (component 4), this consists of all aspects that have to do with aggression. Such as participating in fights and purposely hurting other people (α= 0.50).

An average score on all four components was generated so every participant had a score of one to three for each component.

Table 1
Results of the principal component analysis executed on the previous behavior data.

Items*	1	2	3	4
Component 1				
Have you ever stolen a purse or a wallet?	.688	.	.	.
Have you ever stolen a bike?	.592	.	.	.
Have you ever broken anything on purpose that was not yours?	.536	.	.	.
Have you ever broken into a house, school, gym etcetera?	.479	.	.	.
Component 2				
Have you ever used soft drugs?	.	.724	.	.
Have you ever been drunk in public?	.	.629	.	.
Have you ever had unsafe sex with someone you did not know (well)?	.	.416	.	.
Have you ever ridden the train, tram, bus etcetera, without a valid ticket?	.	.605	.	.
Component 3				
Have you ever used drugs like XTC or speed?	.	.	.596	.
Have you ever used drugs like LSD, heroin or coke?	.	.	.750	.
Component 4				
Do you ever carry a weapon (bigger then a pocketknife) with you?	.	.	.	.686
Have you ever hurt anyone on purpose?	.	.	.	.623
Have you ever participated in fight?	.	.	.	.644
Eigenvalues	4.867	1.607	1.246	1.221
Total percentage of variance explained	16.30	11.67	11.31	10.39

Extraction methode: Prinicipal Component Analysis
Rotation methode: Varimax with Kaiser Normalization
*Values of less then 0.4 were excluded.

Procedure

Questionnaires

Both questionnaires were completed at the same time, some participants completed it at a controlled location at the University of Twente and others completed it at home as an internet questionnaire. The participants who completed it at the University of Twente were in a group together with one experimenter. Participants at home were by themselves. There were significant differences found between the 'at home' group and the

controlled group at the university for each component of the self-report questionnaire on previous undesired behavior. Results are shown in Table 2. There was also a significant difference found for three of the five moral maturity domains, namely: affiliation ($t(234)=-4.493$, $p<0.001$); life ($t(234)=-3.362$, $p<0.001$) and property and law ($t(234)=-3.142$, $p=0.004$). For all significant differences the 'at home' group had higher scores then the controlled group at the University of Twente. Since there were significant differences and this is research where people have to be honest about things they may be ashamed of and things that are illegal, a private setting may result in more honest answers. Therefor we decided to only take the data of the 'at home' group into consideration.

Table 2

Differences between 'at home' and 'controlled' for the 4 components.

Predictor	*t(252)*	*p*
Property crime	*-5.011*	*<.001**
Public order offenses	*-4.804*	*<.001**
Drug use	*-5.443*	*<.001**
Violent crime	*-4.851*	*<.001**

Experimental set up

The data from the experimental set up came from an experiment conducted by drs. Anja Jansen from the University of Twente (Jansen, Giebels, Austrup and Junger, under review). The experiment was conducted with n=77 participants. These participants were situated in a room, which was either very tidy or messy. While in the room they had to fill in an informed consent form and they got instructions on what they could expect.

After this the participant was left alone and he or she could start on the first task. This first task involved solving puzzles on a computer, for each correct answer the participant would receive money. Nearly at the end of this task the computer would crash, as programmed by the experimenter. This gave the participant the opportunity to lie to the experimenter about the number of puzzles solved correctly. The second task involved solving anagrams. Of the 21 anagrams showed, 16 had to be correct for an additional bonus. However, only 15 could actually be solved. The participant had to report back to the experimenter and say how many he or she got right. This created a second opportunity to lie. After this the participant received the amount of money the participant had said to have earned. During the experiment the participant had the chance to eat and drink something. And therefore, the chance to either clean up after him or herself or leave trash behind. The scores generated from the experiment are whether or not they lied on the tasks and whether or not they left trash behind. The scores on both lying and leaving trash were either yes or no.

Statistics

In order to test hypothesis 1, whether moral maturity has an effect on undesired behavior, a multinomial logistic regression was executed. A logistic regression is used to predict in which category a person belongs according to given other information about this person (Field, 2009). In this case, we want to see if the moral maturity score of a person can predict to which category of previous behavior this person will belong. We used a multinomial logistic

regression because there are three possible scores on previous undesired behavior, as said before: never, once and more often.

For hypothesis 2, 3 and 4 we used a binary logistic regression because both lying and leaving trash are dichotomous. Again, we use the logistic regression to see if we can predict lying or leaving trash by the moral maturity score of a person or the environment this person is in.

Results

Previous behavior & moral maturity

Hypothesis 1 predicts that people, who score lower on moral maturity, score higher on previous undesired behavior. Previous behavior was subdivided into four components. Moral maturity was dividable in five different aspects. It was expected that different components would correlate with aspects of moral maturity within the same domain. Means and standard deviations of both previous behavior and moral maturity are shown in Table 3.

Table 3

Mean and standard deviations of all components and aspects involved in hypothesis 1.

Aspect (scores range from 1 to 4)	*Mean*	*Standard Deviation*
Contract and Truth *(e.g. lying, keep promises)*	3.18	.21
Affiliation *(e.g. helping others, relationships)*	3.11	.32
Life *(e.g. valuing life, saving people)*	3.28	.30
Property and Law *(e.g. stealing, use of laws)*	3.27	.41
Justice *(e.g. punishment, justice)*	3.45	.46

Component (scores range from 1 to 3)	*Mean*	*Standard Deviation*
Property crime *(e.g. stealing, vandalism)*	1.30	.52
Public order offense *(e.g. being drunk in public)*	2.32	.61
Drug use *(e.g. using heroin, LSD, speed)*	1.08	.28
Violent crime *(e.g. wounding, carrying weapons)*	1.36	.56

Since the data from the participants who completed the questionnaires in the controlled environment at the university were excluded the multinomial logistic regression was executed with the data of n=142 participants. The dependent variables used in this execution were the four components of previous undesired behavior. The independent variables were the scores on the morality aspects. For every component of previous undesired behavior, a separate multinomial logistic regression was executed. The reference category for each test was 'never', so all scores on 'once' and 'more often' were compared to this.

Property crime

On the component of property crime, 76,5% of participants had never participated in any kind of property crime. 22,4% had once participated in property crime and only 1,2% had done this multiple times. Since this percentage for participating in property crime multiple times is very low we decided to exclude this data from further analysis. Two aspects of moral maturity showed a trend towards participating in property crime once, which is the aspect 'property and law' with p=0.081 and the aspect 'contract and truth' with p=0.083. The aspect 'property and law' consist of questions regarding right and wrong, for example: why should you, or should you not

steal? The trend obtained on this aspect means that a lower score on the moral maturity aspect 'property and law' explains for a higher chance on participating in property crime once. This does confirm our first hypothesis. The aspect 'contract and truth' consists of questions regarding honesty and relationships. This trend means that a lower score on the moral maturity aspect 'contract and truth' explains for a higher chance on participating in property crime once. This again, does confirm the first hypothesis. Table 4 shows the complete results of the multinomial logistic regression executed for this component.

Table 4

Results of the multinomial logistic regression method for 'property crime'.

	Predictor	*β*	*S.E. β*	*W χ²*	*d df*	*p*	*e(B)*
Once	*Intercept*	*11.14*	*8.21*	*1.84*	*1*	*.175*	
	Contract & Truth	*-2.92*	*1.69*	*3.00*	*1*	*.083*	*.05*
	Affiliation	*.60*	*1.03*	*.33*	*1*	*.565*	*1.81*
	Life	*.00*	*.94*	*.00*	*1*	*.997*	*1.00*
	Property & Law	*-1.44*	*.83*	*3.04*	*1*	*.081*	*.24*
	Justice	*-.07*	*.65*	*.01*	*1*	*.915*	*.93*

Reference category is: never.

Public order offense

The component public order offense only shows a small percentage of people who have never participated in it (9,4%). A much larger group participated in public order offenses once (56,5%) and 34,1% of people did this multiple times. For this component one aspect showed to be significant, namely: Justice (e.g. punishment, law and justice). Participants with a higher

moral maturity score on 'justice' have a higher chance of never participating in public order offenses opposed to doing this once. This does confirm the first hypothesis. Complete results can be found in Table 5.

Table 5

Results of the multinomial logistic regression method for 'public order offenses'.

	Predictor	*β*	*S.E. β*	*W* χ^2	*d df*	*p*	*e(B)*
Once	*Intercept*	*-3.80*	*13.20*	*0.83*	*1*	*.773*	
	Contract & Truth	*4.23*	*2.71*	*2.44*	*1*	*.118*	*68.57*
	Affiliation	*1.13*	*1.47*	*.60*	*1*	*.440*	*3.11*
	Life	*-.17*	*1.38*	*.02*	*1*	*.901*	*.84*
	Property & Law	*-.08*	*1.28*	*.00*	*1*	*.954*	*.93*
	Justice	*-2.90*	*1.41*	*4.21*	*1*	*.040**	*.06*
More often	*Intercept*	*-.09*	*13.39*	*.00*	*1*	*.995*	
	Contract & Truth	*4.15*	*2.75*	*2.28*	*1*	*.131*	*63.40*
	Affiliation	*-.32*	*1.44*	*.05*	*1*	*.822*	*.72*
	Life	*-.31*	*1.39*	*.05*	*1*	*.824*	*.73*
	Property & law	*-.61*	*1.28*	*.23*	*1*	*.632*	*.54*
	Justice	*-2.09*	*1.44*	*2.11*	*1*	*.146*	*.12*

Reference category is: never.

Drug use

Most participants had never participated in the use of hard drugs such as heroin and speed (92,9%). 7,1% had done this once and no participants in this sample had done this multiple times. On participating on drug use once, there were no significant effects found on any of the moral maturity aspects as shown in Table 6. This does not confirm the first hypothesis.

Table 6

Results of the multinomial logistic regression method for 'drug use'.

	Predictor	β	S.E. β	W χ^2	d df	p	e(B)
Once	Intercept	1.53	14.40	.01	1	.916	
	Contract & Truth	-.65	2.74	.06	1	.811	.52
	Affiliation	-1.69	1.40	1.46	1	.227	.19
	Life	-.76	1.42	.29	1	.594	.47
	Property & Law	.20	1.42	.29	1	.884	1.22
	Justice	1.38	1.37	1.02	1	.313	3.98

Reference category is: never.

Violent crime

A large percentage of the participants (74,1%) had never participated in any form of violent crime. 24,7% had done this once and only 1,2% had done this multiple times. Since the percentage for participating in violent crime multiple times is again very small, we decided to exclude this data. No liable assumptions could be made with this little data. As Table 7 shows, there were no moral maturity aspects that showed a significant effect on violent crime. This does not confirm hypothesis 1.

Table 7

Results of the multinomial logistic regression method for 'violent crime'.

	Predictor	β	S.E. β	W χ^2	d df	p	e(B)
Once	Intercept	-8.32	8.06	1.06	1	.302	
	Contract & Truth	.62	1.54	.16	1	.689	1.85
	Affiliation	-.40	.87	.21	1	.646	.67
	Life	.37	.87	.18	1	.671	1.45
	Property & Law	.46	.81	.33	1	.568	1.58
	Justice	1.06	.71	2.22	1	.136	2.87

Reference category is: never.

Experimental set up

Hypothesis 2 predicts that the environment has a dominant effect in leaving trash. Hypotheses 3 and 4 state that both the environment and the moral maturity have an effect on lying. For the experimental set up a total number of n=34 people participated who also completed the moral maturity questionnaires online. A binary logistic regression was executed with leaving trash and lying as dependent variables and environment and morality as independent variables.

Leaving trash

Table 8 shows the results yielded from the binary logistic regression that was executed. For the dependent variable 'leaving trash' no moral maturity aspect had a significant effect. Environment however, showed a significant effect with p=0.040. This would mean that the moral maturity of a person does not influence whether a person leaves trash behind, but the environment the person is in, does. A messy environment enhances the chance that people will leave trash themselves. This confirms hypothesis 2. Next to the binary logistic regression a regression analysis was executed to find if there was an interaction between the environment and the moral maturity. This was not the case as can be seen in Table 9.

Table 8

Results of the binary logistic regression method for 'Leaving trash'.

Predictor	*β*	*S.E. β*	*W* χ^2	*d df*	*p*	*e(B)*
Environment	*-1.86*	*.90*	*4.23*	*1*	*.040**	*.16*
Constant	1.01	.58	3.00	1	.083	2.75

Table 9

Results of the regression analysis for 'Leaving trash'.

Predictor	*t*	*p*
*Environment * Contract and Truth*	*.090*	*.930*
*Environment * Affiliation*	*-.902*	*.383*
*Environment * Life*	*-.315*	*.758*
*Environment * Property and Law*	*.696*	*.499*
*Environment * Justice*	*-1.200*	*.251*
Constant	.359	.726

Lying

When we looked at lying, the environment did not show a significant effect however, it did show a trend (p= 0.068). When looking at the separate dimensions of moral maturity, the aspect 'life' showed a significant effect (p=0.044). This entails that a lower score on the moral maturity aspect 'life' increases the chance of lying. These results do confirm the third and fourth hypotheses. The complete results can be found in Table 10. Again a regression analysis was executed to find out if an interaction was present. However, this was not the case as can be seen in Table 11.

Table 10

Results of the binary logistic regression method for 'Lying'.

Predictor	*β*	*S.E. β*	*W χ²*	*d df*	*p*	*e(B)*
Environment	*-2.22*	*1.21*	*3.34*	*1*	*.068*	*.11*
Life (e.g. valuing life, saving people)	*-4.76*	*2.36*	*4.06*	*1*	*.044**	*.01*
Constant	7.96	7.72	1.07	1	.302	2869.09

Table 11

Results of the regression analysis for 'lying'.

Predictor	*t*	*p*
*Environment * Contract and Truth*	*-.024*	*.981*
*Environment * Affiliation*	*.163*	*.873*
*Environment * Life*	*.102*	*.920*
*Environment * Property and Law*	*.488*	*.632*
*Environment * Justice*	*-.027*	*.979*
Constant	.359	.726

Discussion

Undesired behavior is everywhere around us. Who has never littered, lied, rode the train for free or drank in public? But why would people do this? And why do some people progress to more serious forms of undesired or even criminal behavior? There are many theories with single explanations, for instance; heritage, upbringing, personality and environment. Nevertheless, there are not many studies, which combine multiple explanations. In this study this was our main goal, to look at both the environment and the personality of a person in the form of moral maturity.

Our findings showed that different aspects of moral maturity had an effect on specific components of previously conducted undesired behavior. On the component 'property crime' we found the moral maturity aspect 'property and law' to show a trend as did the aspect 'contract and truth'. In this case, a lower moral maturity score on the aspects 'property and law' and 'contract and truth' increased the chance that someone would have participated in property crime once in their lives. This confirms our prediction made in hypothesis 1; this undesired behavior could be explained

by moral reasoning on the associated domain. The moral maturity aspect of property and law entails questions about stealing, and peoples right to their own property. People who have a low score on this aspect might value property that does not belong to them less. They may have less respect for other people's belongings. Therefore, stealing and vandalizing property might not seem important or a big deal to these participants. The trend on the aspect 'contract and truth' shows that people who do not value relationships and honesty have a higher chance of participating in property crime once. This shows a lack of respect for people, which in turn could lead to a lack of respect of people's property. This could be the reason that people with a lower score on this aspect could participate in stealing and vandalism more easily.

The component violent crime showed no aspect with a significant effect. This may be because the moral maturity questionnaire asks questions about friendship, relationships, the value of life, obeying the law and stealing but nothing about violence. It is possible that aggression and violence are explained by different aspects of moral maturity not present in this questionnaire. When more information is wanted about the more violent and aggressive aspects of undesired behavior another measuring device might be needed. This moral maturity questionnaire might not be adequate in obtaining detailed information on violent crime.

The component 'drug use' showed no significant effects. This is possible because the percentages of participation on drug use were very low.

Not many people had ever participated in it, and if they had participated it was only once. It is possible that this data is so limited, not much liable information can be extracted from it. Which could explain the fact that there were no significant effects found. To gain more usable data it is advisable to conduct this research with a broader sample. As is also described in more detail below. The sample is quit narrow with only college students, and a more general depiction of the population might result in different and more usable data.

The final component is that of 'public order offenses'. The results showed one significant effect, Namely: 'justice'. A lower score on the aspect 'justice' results in a higher chance of participating in public order offenses once. Justice exists out of punishment and the law. It is very well possible that people who uphold the law very rigidly and thus have a higher score on 'justice' will not participate in behavior that is illegal or questionable. Behavior like riding the train without a ticket or being drunk in public. No other aspect showed a trend or significant effect. This is not unexpected since our sample consists solely of university students. There are students who are very principled and therefor might want to uphold the law very rigidly. However, university students are also known to have a certain lifestyle and it is not strange that they have participated in being drunk in public and other undesired behavior. Bowers (1968) corroborates this, he found that many college students participated in deviant behavior and many other studies found that college students participate in heavy drinking (e.g. Wechsler, Dowdall, Davenport and Castille, 1995 and Wechsler, Lee, Kuo and Lee,

2000). Thus, the component public order can be explained by moral reasoning but also the fact that all participants are college students might have its influence.

This brings us to one of the limitations of this study. The research sample does not depict the general population. However the study does represent the age group most susceptible to criminal and undesired behavior. The study does still hold limitation for the fact that it has been executed with a relative intelligent population. And this study does in fact show very high scores on moral maturity, this might be because cognitive ability may play a role in our moral reasoning (Campagna and Harter, 1975). Within a broader sample of the population we would expect to see lower average scores on moral maturity. Whether we would also see higher scores on undesired behavior is something to find out in further research.

Another difficulty we encountered were the socially desirable answers people could give. In this study, as the results show, this was indeed the case. Participants could fill the questionnaires in at home or at the university. Where a difference was found between these groups, it was because the participants who filled the questionnaires in at home, scored higher. This could mean that when the questionnaires are filled in with an experimenter people are more careful about their answers, maybe scared or ashamed to admit certain things. This was dealt with by excluding the group who completed the questionnaires in a controlled environment from our analysis. However, for further research, it would be advisable to have all participants

answer questionnaires of this sort in a private setting without supervision. This could result in more truthful answers. And by having the entire sample completing the questionnaires in this setting there would be more usable answers.

For the moral maturity questionnaire, the correlations were quit low. This could be because within these domains (affiliation, life and property and law) there was always one question that every participant scored very high on. This resulted in a difference between the two questions within the domains. For instance with the aspect life, the question: Would you save someone who does not want to be saved? Almost always got the answer that a person had to make that decision him- or herself. Which always scored a 3|4. It might be that, especially in this rather intelligent sample, this questionnaire did not completely suffice. For further research this might be avoided by using a broader sample as explained above.

For the second part of the study, we looked at environment and moral maturity as predictors of undesired behavior. We found that leaving trash was best predicted by the environment, as is consistent with the descriptive and injunctive norms theory of Cialdini, Reno and Kallgren (1990). A messy environment increased the chance that people would leave trash themselves. From the broken windows theory (Wilson and Kelling, 1982) and within the studies of Keizer, lindenberg and Steg (2008) an effect was seen that a messy environment could also lead to other, more deviant behavior. As expected from this research, the environment did show a trend on lying in our

research. This means that the environment does show to have some influence on lying. Moreover, next to this trend on the environment a significant effect was found on one of the moral maturity aspects, namely: 'life'. The results showed that a lower score on the moral maturity aspect 'life' increased the chance on lying. This result on 'lying' is what we had hypothesized. However, the fact that only the aspect 'life' showed a significant effect and no other aspects could be caused by socially desired behavior. Lewis and Saarni (1993) state that almost everybody lies, be it to avoid punishment, to save people from hurt or to make themselves look better. When the participants started with the tests they were told that most people got around 20-25 answers right for the puzzle task, while the actual average score was around 12. For the anagram task the suggestion was given that most people solved more than 16, while only 15 of the anagrams were possible to solve. Participants may have lied to make themselves fit in, look more intelligent, or to not look dumb. This shows that the more extensive undesired behavior, in this case lying, could be caused by multiple factors. Environment has an influence and moral maturity has a significant influence. But other remaining factors might have an influence as well.

There were no interaction effects found in this research. This shows that different kinds of undesired behavior can be explained by different factors. However, in this case one factor and not both of them explain one type of undesired behavior. More extensive research might be done in looking at different types of undesired behavior and criminal activity, and the

different factors that may explain this. It is possible that when looking at more serious types of crime more interactions of factors will be found.

This study showed that looking at just one explanation for undesired behavior is not always, and might not ever, be enough. There are multiple possible explanations for undesired behavior. As Icek Ajzen (1991) said: 'explaining human behavior in all its complexity is a difficult task. It can be approached at many levels'. We therefore encourage combining theories and looking for interactions within criminal, deviant and undesired behavior. Much further research is necessary to find the true cause of criminal and undesired behavior. However, this study showed that different factors could explain for different kinds of undesired behavior, and should therefor all be considered. It also showed that it is important to look at the different domains of moral maturity and the different crime types, because this study revealed that different aspects of moral maturity have a different impact on undesired behavior. Knowing this can result in a more nuanced understanding of criminal and undesired behavior.

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