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Finders are Keepers - Empirical Examinations of Criminal Opportunities using Scenario Techniques

Psychologische Forschungsberichte, herausgegeben von Hans D. Mummendey, Universität Bielefeld, Fakultät für Soziologie, Postfach 10 01 31, 33501 Bielefeld hans.mummendey@uni-bielefeld.de Finders are Keepers – Empirical Examinations of Criminal Opportunities using Scenario Techniques

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Abstract

Criminal opportunities frequently present themselves in everyday life. The study presented here analyzes the situation of keeping money found from the perspective of the Routine Activity Approach (Cohen & Felson, 1979) and the General Theory of Crime (Gottfredson & Hirschi, 1990). Influences of person and situation on actors' behavioral choices are analyzed within a methodological approach using a scenario technique. Video presentations of criminal opportunities are used within an experimental design (2x2-factorial) which is applied to n=80 subjects. Data analyses examine the main and interactive effects of the level of self-control and specific situational conditions, i.e. the absence of capable guardians and the availability of suitable targets. Log-linear analyses revealed the following results: Neither a direct effect of self-control nor a combined effect of self-control and situational features could be established. Thus, keeping money found turned out to be influenced by situational characteristics only. Results are discussed with regard to the methodological approach chosen and the underlying theoretical ideas.

Introduction

Please imagine the following situation:

It is Saturday morning. You've been shopping in town and decide to have a coffee break afterwards. Therefore you go to a nice café and take a seat. Putting your shopping bag on one of the other chairs you remark the following: A purse is lying on that chair. Somebody must have forgotten it.

Situations like the one described here should be easy to imagine and usually frequently present themselves in everyday life. Facing such a situation, it can be assumed that actors take the possibility of keeping the purse into account even if such a behavior conflicts with the legal code and is defined as criminal. From the perspective of criminology it is interesting to analyze why actors would perform a behavior like stealing the purse in everyday life situations similar to the one described.

Previous criminological research chose a different approach to the etiology of criminal behavior. Crime rates or criminal behavior were analyzed on the basis of data from official statistics or self-reports, usually employing correlational designs (cf. Farrington 1973; 1977). However, only few researchers devoted themselves to a situational analysis of criminal behavior, in spite of early claims for it by several authors in the field of criminology. Lemert, for example, has undertaken a situational analysis of check forgery which he interpreted as the result of a process of "risk-taking". Following his definition of risk-taking, "this concept refers to situations in which persons who are caught in a network of conflicting claims or values choose not deviant alternatives but rather behavioral situations which carry risks of deviation. Deviation then becomes merely one possible outcome of their actions, but is not inevitable" (Lemert 1967, p. 11). Though Gibbons (1971) called for more exploration of situational elements in criminality, only few studies in criminology have taken up such a perspective so far (cf. Farrington & Knight, 1979, 1980a+b; Simon & Gillen, 1971; Farrington & Kidd, 1977; Goldstone & Chim, 1993; Kamat & Kanekar, 1990). These studies mostly employed experimental designs in the situational analysis of criminal behavior since these techniques allow to determine which situational features exert causal influences on actors behavioral choices. The higher external and internal validity of experimental designs in criminological research has been emphazised (Farrington & Knight 1979, 1980a+b). While Farrington and colleagues used the lost-letter technique in field experiments on stealing (Farrington & Knight 1979, 1980a+b; Farrington & Kidd, 1977), Kamat & Kandekar (1990) used scenario techniques including verbal descriptions of hypothetical situations, and Goldstone & Chim (1993) conducted non-invasive observations.

However, most of the studies mentioned mainly focused on an exploratory analysis of the situational conditions of criminal behavior. The study of Kamat & Kandekar (1979) led to the result that honesty emerges in crowded as opposed to deserted surroundings. Farrington & Knight (1977) have shown that victim characteristics are related to the probability of stealing money: The probability of males to fall victim of stealing is higher compared to females. In another study, Farrington & Knight (1979) revealed relationships between victim characteristics and stealing: They stated that higher class people more often fall victim of stealing compared to lower class people which seems to be independent of the amount of money. In a field experiment, Simon & Gillon (1971) have shown that the amount of money in a "lost" letter did not influence the return rate.

A theory-driven approach to situational influences on actor's behavioral choices, however, is presented by Farrington & Kidd (1977) who analyze the behavior of financial dishonesty from a rational choice perspective. In their field experiment the utility of dishonestly accepting a coin was varied by the value of the coin. The cost of dishonesty was varied by an

experimenter's statement. While the study revealed an effect of cost of dishonesty for male subjects only – the probability of dishonest behavior was higher in the low cost conditions, according to the theoretical ideas, more dishonest decisions could be observed in the low cost and high utility condition for female and male subjects.

However, the concept of risk-taking as mentioned by Lemert (1967) has not been employed in a situational analysis of criminal behavior so far. At this point, it seems appropriate to bring in a criminological theory which elaborated the concept of risk-taking recently, namely the General Theory of Crime (GTOC, Gottfredson & Hirschi, 1990). The theory could also prove useful in analysing situational elements of criminal behavior since it includes the concept of opportunities, i.e. a situation which facilitates a criminal behavior.

Following the research perspectives established in the situational analysis of criminal behavior, the study presented here employs an experimental design. It takes up a research technique which has been used in previous studies on situational crime prevention, i.e. video presentations of hypothetical everyday life situations facilitating criminal behavior which is keeping money found in this case (cf. Bennet & Wright 1984). It is assumed that visual presentations of situations allow a more appropriate simulation of everday life situations. In evoking scripts more accurately (cf. Bartlett, 1932; Schank & Abelson, 1977) visual stimuli perhaps improve the external validity of studies on the conditions of criminal decision making.

1. Theoretical Background

1.1 Risk-Taking in the Presence of Opportunities

The GTOC may be able to explain why it is that some actors place the pleasurable consequences of criminal behavior in the forefront of their perceptions and values and are possibly deterred less by the risk of being sanctioned. In the GTOC criminal behavior is conceptualised as action based on choice and determined by two basic drives, pain avoidance and pleasure seeking (Gottfredson & Hirschi, 1990). In principle it focuses to all actions people carry out for the spontaneous satisfaction of the wishes or needs of the moment while at the same time underestimating the risk of possible negative consequences of such actions. Thus, stealing money found can be regarded as a behavior with possibly positive consequences in the short run, but one which, seen in long run, may incur considerable risks of being sanctioned.

First, the central principle of the theory will be explained in more detail. This is the assumption that faced with decisions on how to act, some actors tend to focus more on how desires can be satisfied in the short term. Actors differ, however, in the extent to which they give way to the temptation to achieve short-term pleasure while inadequatly considering the risk of long-term negative outcomes. This tendency of people to differ in the extent to which they choose actions which allow a spontaneous realisation of pleasure, even when these actions are associated with pain in the longer term, is referred to as Self-Control in the GTOC. On the basics of the GTOC it can be assumed that actors with a strong tendency to consider short-term pleasure, i.e. actors with low self-control, are more likely to keep money found in a respective everyday life situation. In addition to the definition of self-control the authors of the GTOC describe people with low self-control. According to the author's description, "(...) people who lack self-control will tend to be impulsive, insensitive, physical (as opposed to mental), risk-taking, short-sighted, and nonverbal (..)" (Gottfredson & Hirschi, 1990).

Several empirical analyses of the GTOC have already been carried out. The theory has been applied to various forms of delinquent and criminal behaviors as well as on risk-behaviors (Arneklev et al. 1993, Arneklev et al. 1999, Cochran et al. 1998, Farrington 1995, Hirschi &

Gottfredson 1994, Junger & Tremblay 1999, Nagin & Paternoster 1993, Longshore 1998, Longshore et al. 1996, Longshore & Turner 1998, Winfree & Bernat 1998). Several studies are devoted to methodological problems of empirically analyzing the GTOC in particular (Arneklev et al. 1993, Longshore et al. 1996). As Pratt & Cullen's (2000) meta-analytic review of previous research on the GTOC has shown, the assumption that self-control is related to the behaviors in question has been supported by the relevant studies on the whole (for critical remarks on the GTOC cf. Akers 1991, Benson & Moore 1992, Polakowski 1994, Reed & Yeager 1996).

However, the theory has not been applied to a situational analysis of criminal behavior so far. At this point it might be interesting that there are two different interpretations of GTOC concerning the assumption of relationships between self-control and criminal behavior. Some authors have interpreted the theory as suggesting a direct relationship between self-control and criminal behavior (Arneklev et al., 1993). Others have viewed it as implying an interactive effect of self-control and an opportunity on criminal behavior, i.e. they assume a relationship between self-control and criminal behavior only in situations where criminal behavior is in fact possible (Longshore, 1998; Longshore & Turner, 1998). Independent of those interpretations of the GTOC, an opportunity is regarded as a situation in which a motivated offender is able to receive immediate gratification through criminal behavior.

The authors of the GTOC refer to Cohen & Felson's Routine Activity Approaach (RAA; 1979) in defining the concept of opportunity. The RAA has been concerned with explaining victimisation risks initially, i.e. it was a contribution to the analysis of why certain social groups fall victim of criminal activities. The RAA refers to criminal activities which are defined as "illegal acts in which 'someone definitely takes or damages the person or property of another" (Glaser, 1971, p. 4, Cohen & Felson, 1979, p.589). This definition features illegal acts carried out by a single offender which finds himself confronted with at least one victim or at least one object. Of central importance here is the idea that victimisation risks are related to the respective activity patterns of everyday life. The concept of routine activity, originally developed by Hawley (1950), refers to activities upon which everday existence is based, i.e. earning one's living, shopping, etc. It is assumed that activity patterns of certain social groups lead to specific patterns of crime distribution. The likelihood of crimes occuring is increased in the presence of three essential conditions which have to coincide: "1) motivated offenders, 2) suitable targets, and 3) the absence of capable guardians" (Cohen & Felson, 1979, p. 589). Thus a theft may occur if a person finds herself/himself in the presence of easily transportable, attractive objects. If, for example, an elder lady is robbed of her handbag a potential offender has to be interested in the purse possibly kept in that handbag, the handbag has to look like a good catch, and the robbery does not have to be foiled by any bystanders. Following the RAA, these situational features are taken as the minimal conditions of criminal activities. As can be seen from the previous descriptions Cohen & Felson's approach is not restricted to the analysis of victimisation risks. Rather, situational features which facilitate criminal activities and increase their likelihood can be derived from the RAA. In the field of criminology, situations which facilitate criminal behavior are defined as opportunities (cf. Cohen & Felson, 1979). Thus, given a potential offender the availability of suitable targets and the absence of capable guardians can be taken as situational conditions of criminal decisions (cf. LaFree & Birkbeck, 1991).

These situational features are the starting point of the following study. The RAA is applied to the analysis of social interaction. The question here is whether the absence of capable guardians and the availability of suitable targets proove to be useful in explaining offender's decisions. We specifically look at situations which facilitate the keeping of money found which is taken here as stealing.

¹ If a potential offender is motivated before the opportunity presents itself or if his/her motivation emerges in the presence of an attractive and unobserved object, remains uncertain and is not clarified here.

From the perspective of the RAA alone it might not be clear what is meant by the concept of motivated offender. If one adds the concept of self-control from the GTOC to the concept of opportunity from the RAA, a motivated offender is a person who lacks self-control: In this regard, a motivated offender strives for immediate gratification by choosing a criminal behavior in the presence of opportunities. Having the above mentioned two interpretations of the GTOC in mind, it has to be analyzed if self-control is related to criminal behavior in general or if self-control is related to criminal behavior only in situations which display the features of the absence of capable guardians and the availability of suitable targets. From the GTOC the thesis can be derived that actors who tend to make decisions about actions on the basis of short-term pleasant consequences are generally more likely to find themselves in situations which facilitate criminal behaviors. This principle of self-selection to situations due to traits has been empirically supported for another area of behavior recently (Eifler, 2000). It is questionable, however, whether it is useful to address the principle of self-selection to situations within the framework of the study presented here. Since we focus our analysis on everyday life situations which arise spontaneously in the course of actor's daily activities we concentrate on decisions for criminal behavior in the presence of opportunities. From the theoretical considerations presented so far the following independent and dependent variables are derived (see Figure 1).

Independent variables (IV)	 absence of capable guardians availability of suitable target self-control
Dependent variable (DV)	intention to keep money found (stealing)

Figure 1. Independent and dependent variables

1.2 Research Questions

The study deals with a situational analysis of decisions to keep or not to keep money found. The following questions arise within the perspective of the GTOC and the RAA. Firstly, whether self-control on the one hand and situational features, i.e. the availability of suitable targets and the absence of capable guardians, on the other hand influences actor's behavioral choices. And secondly, whether self-control and situational features exert an interactive effect on keeping money found.

2. Method

The study was carried out within the framework of an undergraduate research project in the Faculty of Sociology of the University of Bielefeld, Germany, in 1999.

2.1 Sample

The study carried out a convenience sample of undergraduates. A total of 80 undergraduates aged 18 to 38 with equal properties of male and female subjects took part in the study. A large proportion of the participants were students from the social sciences (38,8%) and the

humanities (35,5%), a smaller proportion of the undergraduates were students from the jurisprudence (11,4%), the natural sciences (12,7%) and the economics (1,6%).

2.2 Procedure

The study used a scenario technique to assess the situational conditions of criminal behavior. Criminal behavior in this case was stealing money found occasionally. In order to present extensive descriptions of opportunities as they arise in the course of actor's daily activities video tapes of three everyday life situations were produced. These videotapes were presented to the subjects who were asked to put themselves in the everyday life situations presented. The videotapes included three scenarios. The first scenario shows a person who finds an amount of money at a cash-dispenser. Somebody must have forgotten the money there. The second scenario shows a person who finds money at a photocopier in a campus copy-shop. The third scenario shows a person who recognises that another person walking in front of him/her looses a banknote. The application of the scenario technique described here was based on an experimental design (2x2 between subjects factorial design). Manipulations of the situational features specified within the RAA, namely the availability of suitable targets and the absence of capable guardians, were introduced. The availability of suitable targets was manipulated by varying the amount of money found (cash-dispenser: either 50 DM [low] or 100 DM [high]; photocopier: either 5 DM [low] or 50 DM [high]; person loosing money: either 10 DM [low] or 50 DM [high]), low coded 0 and high coded 1. The absence of capable guardians was manipulated by varying the number of potential observers. In each scenario the person finds money either in crowded [0 no] or deserted [1 yes] surroundings. Besides these manipulations all other situational features were held constant. Subjects were allocated randomly to the resulting four experimental conditions (see Figure 2).

	absence of capa	ble guardians (IV1)
Availability of suitable target (IV2)	IV1-0 "no"	IV1-1 "yes"
IV2-0 "low"	11	12
IV2-1"high"	21	22

Figure 2. 2x2-factorial design

The subjects were asked to take the role of the person who finds money in the everyday life situation described. After presenting the first scenario a questionnaire was administered to the subjects. Initially, the subjects were asked what they would do in such a situation. The answers were recoded using a binary response format (0 not keeping money; 1 keeping money). The intention to keep money found was taken as a criminal decision. Secondly, subjects were asked which behaviors might be possible in such a situation besides the one they reported in their first answer. This item asked whether subjects who reported not to keep the money found consider the situation presented as a criminal opportunity. The same procedure followed for the second and third scenario. After that subjects answered a Self-Control-Scale developed by *Grasmick et al.* (1993). Only those dimensions of the Self-Control-Scale which are clearly related to the concept of risk-taking were used, namely the impulsivity, the simple task, and the risk-seeking components.

Impulsivity (Cronbach's $\alpha = .64$; m = .10,1; s = 2,5)

I often act on the spur of the moment.

I don't devote much thought and effort to preparing for the future

I often do whatever brings me pleasure here and now, even at the cost of some distant goal I'm more concerned with what happens to me in the short run than in the long run.

Simple Task (Cronbach's $\alpha = .64$; m = 10,1; s = 2,3)

I frequently try to avoid things that I know will be difficult.

When things get complicated, I tend to quit or withdraw.

The things in life that are easiest to do bring me the most pleasure.

I dislike really hard tasks that stretch my abilities to the limit.

Risk-Seeking (Cronbach's $\alpha = .61$; m = 10,3; s = 2,4)

I like to test myself every now and then by doing something a little risky

Sometimes I will take a risk just for the fun of it.

I sometimes find it exciting to do things for which I might get in trouble.

Excitement and adventure are more important to me than security.

Figure 3. Items for the assessment of self-control (Grasmick et al., 1993)

The subjects were asked to respond to the self-control items using four point rating scales (4 strongly agree; 1 strongly disagree). The items were summarized according to self-control subscales, which were subsequently dichotomised using median splits (0 low self-control; 1 high self-control). Figure 3 shows the items according to the subscales as well as information regarding the reliability, the means and standard deviations of each subscale (Cronbach's α ; m; s).

3 Results

In a first step, the question was addressed whether the three situations described in the video material are perceived as opportunities to keep money found. Of 40 subjects, all reported that they either regarded a behavior like keeping money found as a possible reaction to each of the situations described or would be likely to perform the behavior in question. It follows from this that the sceneries are perceived as opportunities independent of the subjects individual realizations in self-control and independent of the four experimental conditions employed.

In a second step, the question was analyzed how many of the subjects would decide to keep the money found in each of the situations. As *Table 1* shows, between 6,3% and 50% of the subjects reported that they would keep the money found. The number of subjects taking the risky decision thus varies across situations, it is lowest in the scenario which presents the victim, namely the person loosing money. As *Table 2* shows, depending on their self-control subscore, between 28,7% and 88,7% of the subjects can be classed in the group of people, whereas between 11,3% and 71,3% of the subjects could be assigned to the group of people with lower self-control.

Situation	criminal behavior				
	not keep	oing money	keeping money		
Scene 1: cash dispenser	37	43,3%	38	47,5%	
Scene 2: photocopier	39	48,8%	40	50,0%	
Scene 3: person loosing money	75	93,7%	5	6,3%	

Table 1. Univariate distributions of dependent variables

	0 (low self-control)		1 (high self-control)	
Impulsivity	25	31,3%	55	68,7%
Simple task	9	11,3%	71	88,7%
Risk seeking	57	71,3%	23	28,7%

Table 2. Frequencies of low and high self-control

A third step examined the main and interactive effects of self-control and the situational conditions, i.e. the availability of suitable targets and the absence of capable guardians on keeping money found. Log-linear analyses of two-dimensional contingency tables were carried out using LEM (*Knoke & Burke*, 1993). It follows from *Table 3* that the self-control subscores under examination are not related to the item aimed at determining the probability of criminal behavior in the situations analyzed (*Table 3* shows log-linear γ coefficients and the results of the z-tests of the log-linear λ -parameters). *Table 3* also shows that the situational conditions are significantly related to the item measuring keeping or not keeping money found in the cash-dispenser scenario only.

	scene 1		scene 1 scene 2		scene 3	
main effects	β	γ	β	γ	β	γ
absence of capable guardians (IV 1)	- 0,817*	0,442	0,216	1,241	- 0,127	0,881
availability of suitable target (IV 2)	- 0,634*	0,531	- 0,216	0,806	- 0,229	0,795
self-control (IV 3)	β	γ	β	γ	β	γ
impulsivity (IV 3_1)	- 0,227	0,797	-	<u>-</u> -	0,314	1,369
simple task (IV 3_2)	- 0,377	0,686	- 0,369 -	0,691	0,112	0,894
risk seeking (IV 3_3)	0,24	1,272	0,269	1,309	0,458+	0,633
interactive effects	β	γ	β	γ	β	γ
IV 1 * IV 2	0,197	1,218	0,187	1,205	- 0,135	0,874
IV 1 * IV 3_1	-0,051	0,950	-	-	- 0,237	0,789
IV 1 * IV 3_2	0,494	1,638	-		0,461	1,586
IV 1 * IV 3_3	0,123	1,131	-	- .	- 0,089	0,915
IV 2 * IV 3_1	0,354	0,702			- 0,271	0,762
IV 2 * IV 3_2	-	-	-	· -	- 0,564	0,569
IV 2 * IV 3_3	- 0,171	0,843	-	-	0,448	1,565

⁻ coefficients could not be calculated

Table 3: Results of log-linear analyses

As might have been expected from the Routine Activity Approach, the probability of keeping money found is higher if no potential observers are present ($\beta = -.817$). Table 4 displays the respective frequencies of keeping money found. Contrary to the prediction derived from the RAA, the probability of taking the risky decision is higher if the value of the banknote is lower ($\beta = -.634$). Table 5 shows the frequencies of keeping money found depending on the availability of suitable target.

^{*} p ≤ .05

 $⁺p \le .10$

Scene 1: cash-dispenser

Absence of capable guardians	criminal behavior			
(IV 1)	"no"	"yes"		
"yes"	11 13,8%	26 32,5%		
"no"	26 32,5%	12 15,0%		
	37 46,3%	38 47,5%		

Table 4. Frequencies of keeping money found depending on the absence of capable guardians

Scene 1: cash-dispenser

Availability of suitable targets (IV 2)	criminal behavior			
	"no"	"yes"		
"no"	13 16,3%	25 31,25%		
"yes"	24 30,0%	13 16,25%		
	37 46,3%	38 47,5%		

Table 5. Frequencies of keeping money found depending on the availability of suitable targets

It follows from *Table 3* that no interactive effects of each self-control subscore and each of the situational features regarding the three situations presented (no higher order interactions could be calculated because of sample size).

4 Discussion

The central focus of this study has been the analysis of the situational conditions under which actors specified by their risk-taking orientation decide for or against keeping money found in everyday life situations. To this end, a theory-driven approach was used referring to the General Theory of Crime (Gottfredson & Hirschi, 1990) and the Routine Activity Approach (Cohen & Felson, 1979). The purpose of this approach was to explain the decision to keep or not to keep money found in everyday life situations. It was suspected that the personality trait self-control specified in the General Theory of Crime and the situational features availability of suitable targets and absence of capable guardians specified in the Routine Activity Approach influence the probability that actors decide to keep money found. To test these assumptions, an empirical study was carried out employing a 2x2-factorial design. The study used video-presentations of three everyday life situations which offered the opportunity to keep money found.

The main result to emerge from the empirical analyses reported here is undoubtedly the observation that the personality trait self-control is not related to the probability of keeping money found in any of the three situations under consideration. Only in one situation, the situational features availability of suitable targets and absence of capable guardians are related

to the probability of the behavior in question. Subjects who were asked to put themselves in a situation where a banknote was found at a cash-dispenser reported higher probabilities of keeping the money found if no potential observers were present and the value of the money was low. This result corresponds to the study of Kamat & Kandekar (1990) who found higher probabilities of honesty in crowded locations. Very low frequencies of keeping money found were observed in a situation were the victim was present, namely a situation in which a person looses a banknote, i.e. the presence of the victim might have been the strongest predictor for keeping money found. Another situation facilitated keeping money found which was obviously lost at a photocopier. However, the probability of keeping money found was not related to self-control or the situational features availability of suitable targets and absence of capable guardians. This result might be a problem of measurement as it might have failed to take appropriate manipulations of the value of the target.

The results of the study summarized here must nevertheless be treated with caution in various respects. For one, the study only recorded the intention to keep money in hypothetical situations. The question remains how, in a real situation, this intention would relate to the behavior in question. Despite of the ethical problems of giving subjects the opportunity to carry out criminal behaviors within the framework of field experiments such an approach would be more desirable with respect to the external and internal validity of research. A further reservation is that the study failed to ask what experiences with similar situations actors have already had. Finally, due to limited sample size, the study did not permit the analysis of subgroups of the sample according to features such as age or gender.

With regard to previous research, the GTOC hasn't been applied to a situational approach to criminal behavior so far. Unlike previous research on the GTOC (Arneklev et al., 1993; Arneklev et al., 1999; Cochran et al., 1998; Nagin & Paternoster, 1993; Longshore, 1998; Longshore et al., 1996; Longshore & Turner, 1998; Winfree & Bernat, 1998) the study presented here did not support the theories main assumptions. The Routine Activity Approach was applied to the explanation of criminal behavior in the study presented here. Since this approach was originally aimed at explaining victimisation risks, the interpretation of the theory employed here is possibly unusual. Influences of situational features might not allow statements of the empirical status of the theory but might have been related to measurement issues, i.e. the amount of money chosen in each situation as manipulations of the availability of suitable targets.

On account of the design of the study, the validity of the results presented here is restricted for the time being to those groups which constituted the sample, that is, undergraduates from the University of Bielefeld, Germany. It also remains restricted to situations such as that presented in the video material, i.e. the situation at the cash-dispenser, at the photocopier and the person loosing a banknote. All in all the presentation of video material seemed to be an appropriate technique to simulate criminal behavior in everday life situations which could be used in future studies in principle. It would surely be of heuristic interest to compare the results of studies each using different approaches to simulation, e.g. verbal material as opposed to visual stimuli, or field experiments ("in vivo") as opposed to experiments referring to hypothetical situations ("in vitro"). Further research on criminal decisions in everyday life situations could be guided by this considerations.

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