

Cognitions about friends' opinions in moral information integration

Wilfried Hommers* & Andreas Schütt

University of Würzburg, Germany

The present study contributes to the unification of two major theories of moral judgment: Kohlberg's stage theory and Anderson's theory of information integration. The subjects were told about the thoughts of a burglar stealing something out of a car. These thoughts represented Kohlberg's stage 3 and had three levels. In addition, stage 1 was represented by thoughts about the Personal Risk of being caught, and stage 4 by thoughts about the Societal Risk when everyone would do so. The thoughts were presented singly and in combinations (Friends' Opinions x Personal Risk and Friends' Opinions x Societal Risk). The subjects judged how many hours of social work the actor deserves as punishment. The data supported the averaging model of information integration theory, whereas Kohlberg's theory has no way to handle the integration problem. Results in contrast to expectations from stage theory were, (1) the effect size of the stage 3 informer was very small compared with the large effects of the stage 1 and of the stage 4 informers the latter being larger than the former, (2) Personal and Societal Risk correlated positively not expected by Kohlberg's stage theory.

There are two major theories of moral judgment Kohlberg's stage theory (Kohlberg, 1969, 1976) and the theory of information integration (Anderson, 2008). The unification of both theories was inaugurated by Kaplan (1989) and followed by others (Hommers, 1997; Hommers & Lee, 2010; Hommers, Lewand & Ehrmann, 2012). This paper reports about an examination of the integration of the moral concept of friends with other moral informers because the concept of friends is a major concept in

* Correspondence address: Prof. Dr. Wilfried Hommers, Department of Psychology, University Wuerzburg, Marcusstraße 9-11, 97070 Würzburg, Germany. E-mail: hommers@psychologie.uni-wuerzburg.de. This paper reports about the diploma thesis of the second author. The authors appreciate the helpful comments of the anonymous reviewers on an earlier draft of this paper.

Kohlberg's and in other developmental theories about moral judgment and behavior.

Friends in morality

Many social scientists believe that close friends contribute to an adolescent's social and personal maturity in ways similar to those the child's parents performed at an earlier time (Munsinger, 1975, p. 512). Peers appear as a promoter of moral development, e.g. in Piaget's general theory of moral development based on his observations of the rule concept in children's plays (Piaget, 1932/1965; Damon & Killen, 1982). In Piaget's theory the child first adapts to the morality of constraint and at least partially replaces it by a morality of cooperation, which "formed out the reciprocal relationships among status peers and based on mutual, rather than unilateral, respect" (Flavel, 1963, p. 296).

In Kohlberg's stage theory of moral reasoning the opinion of friends is part of his conventional level. In his conventional stage 3 (mutual interpersonal expectations, relationships, and interpersonal conformity), the attitudes of the family and the group of fellows become predominant in moral reasoning. According to Fisher & Lazerson (1984, p.535) in stage 3 the person should conform to the standards of a person's family and friends. In the subsequent conventional stage 4 (social system and conscience) the moral standards of the wider society, not just of family and friends, dominate reasoning and the person comes to understand that laws and rules are necessary for a smoothly functioning of society.

By using Kohlberg's Moral Judgment Interview (MJI) stage 3 was attributed to the reasoning of the majority of subjects between the ages of 14 and 21 years in Colby, Kohlberg, Gibbs and Liebermann (1983, Figure 1). This group data result showed up in individual data as well (Colby et al., 1983, Figure 2 to Figure 5, p. 48-49). Also, stage 3 arguments were observed most frequently cross-culturally in Mexico, Taiwan, USA for 13-year-olds and 16-year olds (Edwards, 1982).

Research on moral behaviour underlines the importance of friends for the development of morality as well. Frequently juvenile delinquency occurs in groups of juveniles in which deviant behaviour has high evaluation and gets reinforcement (Elliott, 1994). Having delinquent friends is among the risk factors of delinquency as the Cambridge Study of Delinquent Development and similarly the Pittsburgh Youth Study found that having antisocial friends predicted the later onset of a boy's antisocial behaviour (Keenan, et al., 1995). The risk of delinquency rises fourfold for male juveniles and sixfold for female juveniles when being related to

deviant peers (Farrington, 2004). Having fewer friends at the age of 8 years was negatively related to antisocial personality behaviours of 14-year-olds (Howitt, 2002, Table 5.2., p. 82). Similarly having no delinquent friends at the age of 14 years appeared negatively associated with delinquency in young adults (Farrington, 1986, p. 376). Moral reasoning may furthermore be associated to illegal or aggressive behaviour. According to Gasser & Malti (2012, p. 358) "friends' moral reasoning was more consistently related to children's aggressive behaviour" than children's own moral reasoning about typical overtly aggressive behaviour. Stams, Brugman, Dekovic & van Rosmalen (2006) reported that moral reasoning is lower amongst delinquent than non-delinquent adolescents.

One sceptical opinion about the impact of friends on development was given by Brown (2004) who distinguishes among dyadic relationships, small groups, or crowds. He claims that rates of peer influence were overstated by crude and inaccurate measurement strategies. For example, correlations between self-reports of behaviour and self-appraisals of the behaviour of peers as a valid indicator of peer influence (p. 375) should be replaced by accurate measurement. As a consequence, the present information integration approach intends to measure the influence of peers on moral judgments by well established experimental methods. It was hypothesized that the amount of friends and their attitudes may play a role not only in behaviour but also in judgment moderating the direct influence of peers.

Friends in the present approach

The present IIT-approach to Kohlberg's stage theory follows Hommers (1997) who used specific content from each of selected stages. Friends as a specific moral informer of Kohlberg's stage 3 is studied here by using a novel task which avoids limitations of Kohlberg's Moral Judgment Interview (MJI). Reliance on interviews and extensive scoring protocol is in basic in Kohlberg's approach and has been criticized on its demands on verbal facility as "production measures require verbal expressiveness in order for the subject to be credited with a cognitive structure" (Rest, 1986, p. 462). Other than in the interview approach, the novel task presents Kohlbergian stage informers as thoughts of the acting agent. Furthermore, the content of the stages is presented in a stimulus design. The moral informers of distinct content differ in value, for example high and low, and may be combined. One may assume that differences in effect of those pieces of information should be substantial for a person at a specific moral stage, but small for a person at a different stage.

The integration concept appeared in claims of stage theorists. For example, Colby et al. (1987, p. 2) assumed that moral concepts are not “used independently of one another but rather are bound together by common structural features” and that their focus is “on the relations among ideas in the individual’s thinking”. Similarly, Rest (1983) saw stages as “involving the integration of the various considerations” (Rest, 1983, p. 561) or as “frameworks for prioritizing and integrating considerations” (Rest, 1983, p. 563). But, Kohlberg’s followers had no way to study directly the integration of the diverging multiple determinants contained in the dilemmas and interview protocols. Fortunately, the theory of information integration offers a frame for studying the integration problem. Therefore, content of stage characteristic moral informers are presented. In particular, thoughts about whether friends would do like the actor representing Kohlberg’s stage 3 are employed aside two other Kohlbergian contents: Personal Risk and Societal Risk, as characterized by Colby et al. (1987, p. 18). Thoughts about the Personal Risk of being caught represent Kohlberg’s first pre-conventional stage, stage 1, heteronomous morality. Thoughts about the Societal Risk, when everybody would act similarly represent the second conventional stage, stage 4, social system and conscience. Each of those Risk informers represent relevant aspects of judgments about criminal behavior independently of specific moral theories. Those moral informers are varied and combined systematically in order to study the integration of multiple determinants in moral judgment when the subjects rate how much punishment the actor deserves after they heard about his thoughts when acting.

The novel task has several advantages. First, methodological problems of Kohlberg’s task are avoided: (a) extensive training for the lengthy and individually administered verbal protocol of the Moral Judgment Interview, (b) subtle influences of interviewing, i.e. stage content may be elicited by the questions of the interviewer, (c) mistakes due to the subjectivity of the person who scores the verbal protocols by a scoring manual (d) any implicit assumption of the interpretative stage diagnosis from verbal protocols (Colby et al., 1987), (e) the objection that the standard protocol method confounds moral stage with verbal ability. Second, the less demanding response and the experimentally controlled stimulus situation can be employed with elementary school children and in cross-cultural research (Hommers & Lee, 2010), both of which are major aspects of moral development. Third, the novel task has ecological validity as it proceeds like the interrogation of a judge who is interested in the motives of the culprit and who might simply ask, “what did you think when you were violating the law?” By putting the subjects into the judge’s place

they can reveal their moral capacities. Thus, the novel task allows to be closer related to everyday life morality than the dilemmas of Kohlberg's.

Of course, the design should provide the necessary fit to other aspects of the Kohlbergian research. Therefore, subjects of a large age range are employed, since the development of morality across this age range is Kohlberg's topic.

METHOD

The novel task consisted of two parts: a background story which was presented in the beginning as a moral dilemma, and the thought scenario.

Dilemma. The new background task about a burglary was given as fixed information: The 15-years old Peter did not get much money from his parents. He could not compete with his friends and peers. Peter decided to steal valuables out of cars to sell them to get money for his expenses. But he was caught.

Stimuli. Following this fixed information the task differed from the original Kohlbergian choice and interview procedure as variations of three Kohlbergian informers were presented as thoughts of the actor. The thoughts of each informer were varied and presented singly as well as in combination after a training phase.

The stage 3 stimulus variable, Friends', had three levels: "One/Many/All friend(s) was/were willing to go along with me". The stage 1 stimulus variable, Personal Risk, had the following two conditions: "The risk of being caught and severely punished is low (versus: high)". The stage 4 stimulus variable, Societal Risk, had the following two conditions: "If everybody acted like me, law and order would be at low (versus: at high) risk in the long run".

The levels of the Friends' informer were combined with the levels of the Personal Risk informer, to present the Stage 1 x Stage 3 combinations. They were also combined with the levels of the Societal Risk informer as well to present the Stage 4 x Stage 3 combinations.

A two-factorial version of the four 2 x 3 Personal Risk x Friends combinations was: "Peter thought: The risk of being caught and severely punished is low (or high, respectively). One friend was (or All friends were, respectively) willing to go along with me."

A two-factorial version of the four 2 x 3 Societal Risk x Friends combinations was: "Peter thought: If everybody acted like me, law and order would be at high (or low, respectively) risk in the long run. One friend was (or All friends were, respectively) willing to go along with me."

Note that the present study included three generally agreed Kohlbergian stage contents. Kohlberg's stage theory assumes currently five stages (Colby et al., 1987). But, as the postconventional stage V was found rarely, Gibb's two-phase model (Gibbs et al., 2007) cancelled even the fifth stage and used only the first four of Kohlberg's six. Thus, the present study appears to represent the Kohlbergian stage theory sufficiently.

Subjects. In total 469 German subjects served in the two experiments. Their ages ranged from 9 years to 21 years. The subjects were grouped according to the age limits in the German criminal law: below 14 years ($N=28$), 14 to 16 years ($N=225$), 17 to 18 years ($N=151$) and above 18 years ($N=65$). About half of the subjects were female.

Procedure. The subjects were told to assume a criminal code with applicable punishment ranging in 21 levels from 0 to 20 hours of social work in order to anchor the graphical rating scale. They should take the perspective of a judge and were informed about their rating task in three steps similar to standard integration-theoretical manner (Anderson, 2008). First, they were introduced to the 21 levels graphical rating scale by giving an initial judgment on the Peter dilemma without added thoughts. Second, after this initial judgment thoughts of the actor were given in a list. The subjects were to choose those thoughts which they considered morally demanded of Peter when acting. Aside from the Friends' informer (that his friends would do so) the list included two levels for the probabilities of Personal Risk and Societal Risk as well, for personally offering recompense, and for assuming damages paid by insurance. The subjects first checked whether Peter actually would have thought about the particular content before acting. In order to sensitize the subjects to the moral nature of the task they afterwards indicated whether Peter should have thought about it before acting.

Third, punishment ratings of single levels of thought informers were obtained as training. The seven levels of single Kohlbergian stimulus informers were given and two supposedly non-moral informers about "I liked the car" versus "I did not like the car".

Finally, after those three steps of the instruction the two sets of 2 x 3 combinations of Kohlbergian informers were presented intermixed with the

seven single Kohlbergian and the two non-moral informers in the main phase.

A booklet in German language presented each stimuli and the scale on a separate page and was administered groupwise in classrooms with the teachers present.

Preliminary analyses. Neither age, gender nor harshness (initial judgment) came close to significant effect.

RESULTS

Information Integration

The conditions of the Friends informer “Many” and “All” did not differ: $F(1,468)=0.66$, $p=0.418$, their mean difference being less than 0.1 hours of social work. Therefore, the two panels of Figure 1 present the means of the two 2 x 2 designs (solid lines) and the two single Risk informers (broken lines) for the total group of subjects to report the results about information integration.

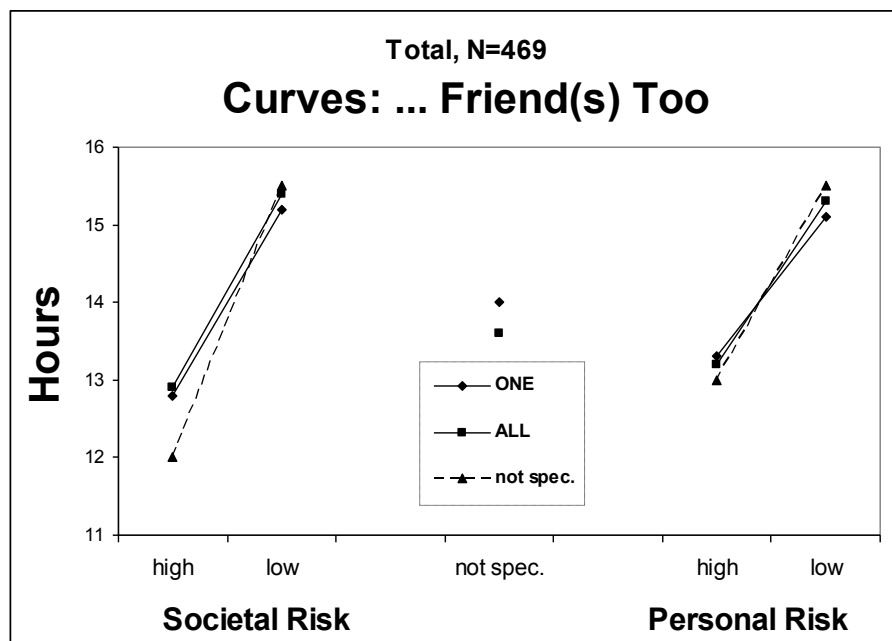


Figure 1: Mean punishment in hours of social work as a function of the Risk conditions (horizontal axis) and the thoughts about the Friends' conditions (curve parameter).

The small vertical distances of the solid curves in both panels show small effects of the stage 3 informer about how many friends of the actor supposed will do alike. The effect of Friends in the combined stimuli was very small (0.1 hours in average), corresponding to the small frequency (9%) of crossing that his friends would do so as morally demanded in the training phase. The Friends' effect, $F(1,465)=4.15$, was marginally significant ($p=0.042$) only for the Societal Risk combinations ($F<0.5$ for Personal Risk). This statistical significance was probably due to the large N of the total group which was in contrast to the $F(1,465)=96.25$ for the Societal Risk combinations and $F(1,465)=83.69$ for the Personal Risk combinations ($p<0.001$ for both).

By the large slopes in Figure 1 strong effects of Societal Risk (left panel) and Personal Risk (right panel) were shown which replicate results by Hommers (1997) and Hommers, Lewand & Ehrmann (2013). The effect of Societal Risk amounted to 2.5 hours of social work (in average) being larger than the Personal Risk effect which was 1.9 hours (in average). Note that for both Risk informers the Low level was rated harsher than the High level. This corresponds to the frequencies of crossing the high levels of Personal Risk (74%) and Societal Risk (83%) as morally demanded in the list given in the training phase.

The broken curves for the Risk stimuli in which the stage 3 informer was not specified crossed the solid curves in both panels supporting the averaging model of IIT (Anderson 1965, 1981). The added informer averages up the low level and averages down the high level. Any kind of additive model would predict same directional effect of the added informer at low and high levels. Another support for the averaging model was shown by the data points between the two panels. The mean difference of those two friends'-only stimuli (0.4 hours) was greater than that mean difference in the combined stimuli (0.1 hours) when averaged across the four Risk conditions. Note that the One level of the Friends informer was more punished than the All level.

The statistical tests of the interactions of single and combined stimuli confirmed the support of the average model of IIT: For the crossovers of the broken curves with the solid ones, $F(1,468)=22.24$ ($p<0.001$) for Societal Risk (left panel), and $F(1,468)=10.30$ ($p<0.001$) for Personal Risk (right panel); for the comparison of the Friends'-only stimuli (separate points) with the combined stimuli (solid curve distances), $F(1,468)=7.15$ ($p=0.008$).

There were no age trends in the two Risk informers, but a small age effect of 0.4 hours of social work was found for the Friends' informer, $F(3,465)=3.29$ and 3.54 ($p=0.020$ and $p=0.015$) for the combinations with

Societal Risk and with Personal Risk respectively. The means of both, the Societal Risk as well the Personal Risk combinations showed that only the youngest group (below 14 years) had a statistically reliable Friends' effect of 0.8 hours of work. For comparison, their effects of the two other moral informers were considerably larger: for the Societal Risk informer 3.2 hours of work and for the Personal Risk informer 2.3 hours. This age trend for the Friends' informer appeared similarly in the single stimuli presentation. In the youngest group the All level was punished harsher than the Low level (0.8 hours of work), in the group of 14 and 15 year olds both levels were punished equally, whereas in the two oldest groups the One level was punished harsher than the All level (1.0 or 1.2 hours respectively). Thus, its moral impact depends on age although for all age groups its effect was considerably smaller than both of the Risk effects when presented only (4.1, 2.1, 2.1, and 2.4 for the Personal Risk effects and 4.7, 4.8, 3.6, and 4.2 for the Societal Risk effects among the four age groups from the youngest to the oldest respectively). Accordingly, the diminishing age trend in the effect of the Friends' informer was found together with stability in the considerably larger size of the two Risk effects and with stability of their relative sizes.

Individual Differences

Individual differences are of major concern in moral judgment. Two approaches are employed: Cluster analyses with the eight judgments on combined stimuli as presented in Figure 1 and correlational analyses of individual effect sizes which were calculated by subtracting the punishments for the high from those for the low level of the informers. The cluster analysis served two specific purposes: Check of the very small effect of the Friends' informer and check of the generality of the patterns in the effects of the two Risk informers. The correlational analyses should allow comparison with the results of previous studies.

Cluster analysis. Three Risk Regular clusters ($N=373$ in total) emerged representing around 80% of the subjects comparable to 83% in similar approach to check for individual differences (Hommers et al., 2013). All Risk Regular clusters showed higher punishments for conditions of low than of high Risks and had larger effect sizes each for Societal Risk than for Personal Risk. Among each other they differed in harshness (high, medium, and low; with group sizes of 186, 126, and 61 respectively) and in the absolute effect sizes as the medium harsh group had twice as large effect sizes than the harsh and lenient group. As a validity check, those harshness differences were already present in the initial judgments without added

thoughts which were not involved in the cluster analysis: 15.9, 13.0, and 10.6 hours of work, respectively. Similarly to the means of the total group, the support of the averaging model was present by crossovers or steeper broken curves compared with the solid curves ($p < 0.05$) in the harsh and medium group.

The remaining Risk Irregular cluster ($N=96$) had irregularities in comparison to the effects of the Risk informers of the total group, since the panels showed no (for Personal Risk) or inverse (for Societal Risk) effects of the two Risk informers in contrast to Figure 1 and the three other clusters. The initial punishment without thoughts added was 12.6 hours of work for this cluster similarly to the medium harsh group.

With respect to the Friends' informer the check of its weak effect by clustering suggests the independence of its individual differences from those in the Risk informers. However, another interpretation is that the individual differences of the Friends' effects in the four clusters express chance variation. The Risk Regular clusters showed a reversal in the Friends' effect, $F(2,370)=24.19$, $p < 0.001$. By the medium group the All level was rated harsher than the One level (2.0 hours of work more for the All condition than for the One condition, $p < 0.001$). The harsh group showed nearly no effect of the Friends' levels (0.3 hours of work more for the All condition than for the One condition, $p=0.092$). The lenient group rated the One level harsher than the Low level (1.4 hours of work more for the One condition than for the All condition, $p < 0.01$) and similar to them the subjects of the remaining so called irregular Risk Irregular cluster assigned 0.9 hours of work more for the One condition than for the All condition: $F(1,95)=12.25$, $p=0.001$. The Risk Irregular cluster may be called Friends-only cluster.

However, the group sizes of the medium group ($N=126$) and of the two groups with inversed effects of the Friends' informer ($N=157=61+96$) may support the conclusion that the clusters show chance variations of the Friends' informer. Therefore the Risk Irregular cluster may represent subjects who punish in dependence of the burglary only without referring to the presented thoughts of the actor.

Contrarily to the questionable individual differences in the Friends' effect, the effects of the non-moral stimuli were not different in the four clusters, $F(3,465)=0.464$, $p=0.707$. Their mean difference was 0.3 in the total group comparable to 0.4 for the Friends effect, 2.5 for the Personal Risk effect, and 3.5 for the Societal Risk effect with single stimuli presentations.

Correlational Analyses. Kohlberg's stage sequence predicts that the individual differences of the levels of different Kohlbergian moral stage informers should correlate negatively as would follow from the simple stage hypothesis above and from the MJI data which Colby et al. (1983, p. 48 – 49, Figures 2 to 5) reported about four participants in their longitudinal research. The stage hypothesis was not supported for the correlations of two Risk informers. All of those (between their individual effects) were positive and substantially varied between $r=+0.20$ and $r=+0.59$ ($p<.001$), similarly to former results (Hommers & Lee 2010; Hommers et al., 2012).

However, among the effect correlations of the two Risk informers with the individual effects of the Friends', i.e. the stage 3, informer the hypothesis of negative correlations was principally supported. Only some of them were positive, but were small, and most were negative with a total range from $r=-0.25$ to $r=+0.08$. As the individual effects of the stage 3 informer correlated positively among themselves ranging from $r=+0.27$ to $r=+0.46$, ($p<0.001$) this result was in line with the stage hypothesis.

The individual effects of the non-moral informer Car Attractiveness should be uncorrelated with the individual effects of the three Kohlbergian stage informers. This prediction was well supported as those correlations ranged from $r=-0.13$ to $r=+0.14$ for Risk and ranged from $r=-0.08$ to $r=+0.12$ for Friends'. The individual effects of the non-moral informer in the training phase correlated $r=+0.54$ ($p<0.001$) with those of the main phase.

Factor Analysis can summarize those correlation results by the loadings of its three principal components which follow from the Eigen Values: 3.631, 1.983, 1.555, 0.861, 0.767. The pattern of varimax rotated loadings in Table 1 is very near to simple structure supporting three latent variables of individual differences. The individual differences among the Risk effects (first component) form a latent individual variable which is independent from the individual differences in the effects of the Friends' informer (second component) and independent from the individual differences in the non-moral informer (third component). The six differences from the two Risk informers had high loadings only on the first component replicating results of Hommers (1997) in support of a latent risk variable. The four differences from the Friends' informer had high loadings only on the second component, and the two differences of the non-moral Car-Attractiveness informer had one high loading only on the third component supporting the two other latent variables.

Table 1: Varimax-Rotated Loadings of PCA of twelve difference variables.

Differences of Individual Ratings	Component		
	1	2	3
Personal Risk low vs high training phase	,620	-,249	,147
Personal Risk low vs high main phase	,746	-,193	-,073
Societal Risk low vs high training phase	,718	-,024	,136
Societal Risk low vs high main phase	,749	,028	,081
Personal Risk low vs high, comb. Friends	,784	-,136	,013
Societal Risk low vs high, comb. Friends	,821	,021	-,111
Friends one vs all training phase	-,062	,691	-,036
Friends one vs all main phase	-,026	,819	-,078
Friends one vs all, comb. Personal Risk	-,151	,713	,011
Friends one vs all, comb. Societal Risk	-,083	,672	,133
Car Attract. posit. vs negat. training phase	,040	-,031	,855
Car Attract. posit. vs negat. main phase	,064	,060	,876

DISCUSSION

The results support the unification of two major approaches to moral judgment by generalizing to the Kohlbergian informer Friends' Opinions. Functional measurement showed the selected Kohlbergian stage concepts to be operative as multiple determinants of moral judgment as shown before (Kaplan, 1989; Hommers, 1997; Hommers & Lee, 2010). Different from those former studies the cross-over test again identifies the form of the integration process as an averaging model as reported by Hommers et al. (2012). This evidence for moral algebra adds to those by others, e.g. in the blame scheme of intent and consequences or in equity research (Anderson, 1991, chapter 5; 1996, chapter 7; 2008, chapter 7 for details). Thus, the idea of moral algebra which goes back to Aristotle's model of distributive justice found further empirical basis.

In the integration patterns for Personal Risk and Friends' Opinions and for Societal Risk and Friends' Opinions the "frameworks for integration" and the "common structural features" of Kohlbergian stage theorists turned out to be incidents of information integration. By categorizing interview statements these explications of the integration process may not be possible, although the importance of integrating

multiple determinants was recognized when fairness was equated with “balancing or weighing of conflicting claims” (Colby et al., 1983, p. 7). Apparently, the present IIT approach resolves the problem that the hermeneutical procedure and the theoretical basis of sociomoral perspectives include no theory about balancing or weighing of conflicting claims and of other important moral concepts. Thus, the unification of Anderson’s information integration theory and Kohlberg’s stage theory may enhance the understanding of morality.

Some comments about the Friends’ informer appear noteworthy. First, although the Kohlbergian stages 1 and 3 are well separated in the reported stage frequencies in group and individual data (Colby et al., 1983, Figure 1 to Figure 5, p. 47-49), they were still operative as multiple determinants of moral judgment, but with inverse impact. The stage 1 informer should have much lower impact than the stage 3 informer, but it had a 20 times larger effect than the Friends’ informer, Personal Risk being nearly as large in effect size as Societal Risk which according to the stage frequencies should appear similarly large as the Friends’ informer.

Second, the dramatically small effect of the specific content of the Friends’ informer differed from the results of Kaplan’s integration approach where nearly equal effect sizes for the Kohlbergian pre-conventional and conventional levels were observed (Kaplan, 1989). In Kaplan’s study moral informers were employed which summarized stage 3 and stage 4, both of which were from the conventional Kohlbergian levels. Therefore, that approach may have been misleading. But, the special kind of the Friends’ informer in the present study may have had less importance for moral judgment than purported by its importance for delinquent behaviour. Varying the number of friends supposedly acting like the actor may have represented only a minor aspect of the actor’s friends for morality.

Third, although the supported averaging model suggests that cognitions about friends are true moral informers, they are distinct from both of the two Risk-informers. This moral distinctness of the Friends’ informer is demonstrated in the individual differences as shown by the factor analysis and the correlations. This fits to the view that juveniles differ in their dependency on friends’ opinions (Steinberg & Monahan, 2007).

Fourth, whereas the small age trend in the Friends’ informer was consistent to expectation, the lack of age trends in the two Risk informers contradicted Kohlberg’s stage theory. The impact of Personal Risk should decline and that of Societal Risk should increase contrarily to the results. Furthermore, contrarily to expectations from Kohlberg’s results the individual differences present in the two Risk informers were not negatively

correlated, but belong closely together as shown in the factor analysis. This replication of former results (Hommers, 1997; Hommers et al., 2012) appears to be in sharp contrast to efforts of probabilistic validation of Kohlberg's stages (Boom et al., 2007).

REFERENCES

- Anderson, N.H. (1965). Averaging versus adding as a stimulus-combination rule in impression formation. *Journal of Experimental Psychology*, *70*, 394-400.
- Anderson, N.H. (1981). *Foundations of information integration theory*. New York: Academic Press.
- Anderson, N.H. (1991). *Moral-social development*. In N.H. Anderson (Ed.), *Contributions of Information Integration Theory. Vol. III: Developmental* (pp.136-187). Hillsdale, NJ: Erlbaum.
- Anderson, N.H. (1996). *A Functional Theory of Cognition*. Mahwah, NJ: Erlbaum.
- Anderson, N.H. (2008). *Unified Social Cognition*. New York: Psychology Press.
- Boom, J., Wouters, H., & Keller, M. (2007). A cross-cultural validation of stage development: A Rasch re-analysis of longitudinal socio-moral reasoning data. *Cognitive Development*, *22*, 213-229.
- Brown, B.B. (2004). *Adolescents' relationships with peers*. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of Adolescent Psychology. Second Edition* (pp. 363-394). Hoboken: J. Wiley.
- Colby, A., Kohlberg, L., Gibbs, J., & Lieberman, M. (1983). A longitudinal study of moral judgment. *Monographs of the Society for Research in Child Development*, *48*, 1-94.
- Colby, A., Kohlberg, L., Speicher, B., Hewer, A., Candee, D., Gibbs, J., & Power, C. (1987). *The measurement of moral judgment. (Vol. I, Vol. II)*. New York: Cambridge University Press.
- Damon, W., & Killen, M. (1982). Peer interaction and the process of change in children's moral reasoning. *Merrill-Palmer Quarterly*, *28*, 347-367.
- Edwards, C.P. (1982). *Moral development in comparative cultural perspective*. In D.A. Wagner & H.W. Stevenson (Eds.), *Cultural Perspectives on Child Development* (pp. 159-184). San Francisco: Freeman.
- Elliott, D.S. (1994). Serious violent offenders: Onset, developmental course, and termination. *Criminology*, *32*, 1-21.
- Farrington, D.P. (1986). *Stepping stones to adult criminal careers*. In D. Olweus, J. Block, & M. Radke-Yarrow (Eds.), *Development of Antisocial and Prosocial Behavior. Research, Theories, and Issues* (pp. 359-384). Orlando, FL.: Academic Press.
- Farrington, D.P. (2004). *Conduct disorder, aggression, and delinquency*. In R.M. Lerner, & L. Steinberg (Eds.), *Handbook of Adolescent Psychology. 2nd ed.* (pp. 627-664). Hoboken, NJ: Wiley.
- Fisher, K.W., & Lazerson, A. (1984). *Human Development. From Conception through Adolescence*. New York: Freeman.
- Flavell, J.H. (1963). *The Developmental Psychology of Jean Piaget*. New York: Van Nostrand.
- Gasser, L., & Malti, T. (2012). Children's and their friends' moral reasoning: Relations with aggressive behaviour. *International Journal of Behavioral Development*, *36*, 358-366.

- Gibbs, J.C., Basinger, K.S., Grime, R.L., & Snarey, J.R. (2007). Moral judgment development across cultures: Revisiting Kohlberg's universality claims. *Developmental Review, 27*, 443–500.
- Hommers, W. (1997). Integration of Kohlbergian information in punishment. *European Journal of Applied Psychology (Revue Européenne der Psychologie Appliquée), 47*, 31-37.
- Hommers, W., & Lee, W.Y. (2010). Unifying Kohlberg with information integration: The moral algebra of recompense and of Kohlbergian moral informers *Psicológica, 31*, 689-706.
- Hommers, W., Lewand, M., & Ehrmann, D. (2012). Testing the moral algebra of two Kohlbergian informers. *Psicológica, 33*, 515-532.
- Howitt, D. (2002). *Forensic & Criminal Psychology*. Harlow: Pearson.
- Kaplan, M. (1989). *Information integration in moral reasoning: Conceptual and methodological implications*. In N. Eisenberg, J. Reykowski, & E. Staub (Eds.), *Social and moral values. Individual and societal perspectives* (pp. 117-135). Hillsdale, NJ, Lawrence Erlbaum.
- Keenan, K., Loeber, R., Zhang, Q., Stouthamer-Loeber, M., & van Kammen, W. (1995). The influence of deviant peers on the development of boys' disruptive and delinquent behavior: A temporal analysis. *Development and Psychopathology, 7*, 715-726.
- Kohlberg, L. (1969). *Stage and sequence: The cognitive-developmental approach to socialization*. In D.A. Goslin (Ed.), *Handbook of Sozialization Theory and Research* (pp. 347-480). Chicago: Rand McNally.
- Kohlberg, L. (1976). *Moral stages and moralization: the cognitive-developmental approach*. In T. Lickona (Ed.), *Moral development and behaviour: Theory, research, and social issues* (pp. 31-53). New York: Holt, Rinehart & Winston.
- Munsinger, H. (1975). *Fundamentals of Child Development (2nd ed.)*. New York: Holt, Rinehart & Winston.
- Piaget, J. (1965). *The moral judgment of the child*. (M. Gabin, Trans.). New York: Free Press (original work published 1932).
- Rest, J.R. (1983). *Morality*. In P.H. Mussen, J.H. Flavell, & E.M. Markmann (Eds.), *Handbook of child psychology: Vol. III. Cognitive development. (4th. ed., pp. 556-629)*. New York: Wiley.
- Rest, J.R. (1986). *Moral research methodology*. In S. Modgil, & C. Modgil (Eds.), *Lawrence Kohlberg. Consensus and Controversy* (pp. 455-469). Philadelphia: Falmer Press.
- Steinberg, L., & Monahan, K.C. (2007). Age differences in resistance to peer influence. *Developmental Psychology, 43*, 1531-1543.
- Stams, G.J., Brugman, D., Dekovic, M., & van Rosmalen, D. (2006). The moral judgement of juvenile delinquents: A meta-analysis. *Journal of Abnormal Child Psychology, 34*, 697-713.