Everyday value conflicts and integrative complexity of thought

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This study examined the value pluralism model in everyday value conflicts, and the effect of issue context on complexity of thought. According to the cognitive manager model we hypothesized that respondents would obtain a higher level of integrative complexity on personal issues that on professional and general issues. We also explored the relations of integrative complexity to value priorities, measured by the Schwartz Value Survey, and to emotional empathy. The value pluralism model was not supported by the data collected from 126 university students from social science, business and technology. The cognitive manager model was partially confirmed by data from females but not from males. Concerning value priorities, more complex respondents had higher regard for self-transcendence values, and less complex respondents for self-enhancement values. Emotional empathy was also significantly related to complexity score.

Key words: Integrative complexity; value conflicts; value priorities.

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The strength of the values that people hold is obviously linked to their decision-making strategies in value conflict situations (Tetlock, 1984, 1986; Tetlock, Armor & Peterson, 1994). Tetlock’s value pluralism model proposes that people are likely to think about an issue domain in integratively complex ways – that is, to use more differentiated and on the other hand more integrated forms of thinking – to the degree that the issue domain activates conflicting values that people perceive both as important and as being of approximately equal importance. How are the value conflicts of everyday life solved in terms of complexity of thought? This is the first issue addressed by this paper. We also investigate, secondly, the effect of issue context on value conflict problem-solving, and, thirdly, the relationships between value priorities and the complexity of thought in different fields of study.

It has been argued that decision-making in value conflicts usually is unpleasant for individuals; comparing the positive and negative features of the alternatives and compromising basic values might be laborious and dissonant (e.g. Tetlock, 1986). People might adopt different strategies in difficult decision-making situations. They may, for example, simply deny one alternative and/or bolster the other (Abelson, 1959, 1968; Festinger, 1957). In fact, people are often claimed to be cognitive misers, who prefer simple solutions to problems because complex decision-making causes cognitive strain that they try to reduce by minimizing information gathering and processing (e.g. Abelson & Levi, 1985; Fiske & Taylor, 1991).

Denying and bolstering tactics are especially plausible when the conflicting alternatives are very unequally valued; it is easier to deny the less important and bolster the more important one (Abelson, 1959, 1968). Several studies in the domain of politics indicate that simple decision-making is usual for advocates of monistic ideologies (Tetlock, 1981, 1983b, 1984). When conflicting alternatives are approximately equally valued, denying and bolstering are no longer adequate strategies for decision-making. This kind of situation might require more complex and cognitively demanding decision-making strategies, such as differentiation (splitting the alternative into two parts) and integration (combining the alternatives into larger units organized on a superordinate level) (Abelson, 1959, 1968). According to Tetlock and his associates (Tetlock 1981, 1983b, 1984; Tetlock, Hannum & Micheletti 1984), advocates for pluralistic ideologies are more inclined to use complex modes of decision-making.

Tetlock used the integrative complexity scoring system, which is the most frequently used technique to assess the complexity of thought in problem-solving settings. The method was originally developed for scoring responses to a semi-projective test designed to measure individual differences in cognitive style (Schoroder, 1971; Schoroder, Driver & Streufert, 1967). Integrative complexity is a structural rather than content variable, and it is defined in terms of two cognitive structural properties: differentiation and integration. Differentiation refers to the number of characteristics or dimensions of a problem that an individual takes into account. Integration refers to the development of complex connections among differentiated characteristics (Schoroder, 1971; Suedfeld, Tetlock & Streufert, 1992).

Previously, integrative complexity – then called conceptual complexity – was considered to be a relatively stable personality characteristic or ability. Later versions of the theory, especially the integrative complexity viewpoint, have tended to view complexity more as a state variable, a joint outcome of trait and environmental mediators, and the trait view has been in abeyance. However, one of the interesting questions, demonstrated by, for example, Suedfeld et al. (1992), is whether some people are more flexible in changing their complexity level to fit a given situation (consciously or not). For example, Suedfeld (1988) has argued that “good decision makers are those who have intuitive understanding...
of the level of complexity appropriate to the occasion”. Thus, in some situations it may be appropriate to use simple decision-making strategies, and on some occasions more complex ones. The growing evidence that the level of complexity can be modified, for instance by discussions, information gathering, and certain experiences (e.g. Gruenfeld & Hollingshead, 1993; Pancer & Hunsberger, 2000), indicates that complexity might, at least to some extent, be a trait that is more changeable than previously thought.

Besides the differences in reasoning between advocates of different political ideologies, the value pluralism model has explained decision-making strategies in the ideological reasoning of university students (Tetlock, 1986). The results showed that people use more complex modes of resolution when the conflicting values are seen as both important and as being of approximately equal importance. Tetlock measured values using Rokeach’s (1973) Value Survey and his issues included Rokeach’s “terminal” values – national security, individual freedom, social equality, comfortable and prosperous life, and world of beauty – which were placed against each other in different combinations.

In the present study, the values are assessed in terms of the Schwartz (1992) model of universal content and structure of values. It divides values into distinct motivational types that serve different interests or motivational goals. From Schwartz’s original list of 56 values, 11 value types can be formed. Value types and their contents are as follows (single values included in each value type are in parentheses):

1. **Power**: societal prestige and controlling others (social power, wealth, authority).
2. **Achievement**: personal success and competence according to social norms (successful, capable, ambitious, influential).
3. **Hedonism**: pleasure and satisfaction of sensual needs (pleasure, enjoying life).
4. **Stimulation**: excitement, novelty and challenge in life (daring, a varied life, an exciting life).
5. **Self-direction**: independent action and thought, making one’s own choices (creative, freedom, curious, independent, choosing one’s own goals).
6. **Universalism**: understanding, tolerance and protection for the welfare of all people and for nature (social justice, broad-minded, world at peace, wisdom, a world of beauty, unity with nature, protecting nature, equality).
7. **Benevolence**: protecting the welfare of close others in everyday interaction (helpful, forgiving, honest, loyalty, responsible).
8. **Tradition**: respect, commitment, and acceptance of the customs and ideas that one’s culture or religion impose on the individual (accepting my portion of life, devout, respect of tradition, humble, moderate).
9. **Conformity**: restraint of actions, inclinations and impulses likely to upset or harm others, or violate social expectations or norms (obedient, self-discipline, politeness, honoring parents and elders).
10. **Security**: safety, harmony, and stability of society, of relationships and of self (family security, national security, social order, clean, reciprocation of favors).
11. **Spirituality**: searching for purpose of life and for inner harmony (inner harmony, a spiritual life, meaning in life).

Value types form a special structure on two levels. Firstly, value types can be divided into two categories according to whether they serve individual or collective interests. Power, achievement, hedonism, stimulation, and self-direction are value types that serve individual interests; and benevolence, tradition, and conformity serve collective interests. Universalism and security are value types which serve both of these interests and are situated in the boundaries between the two (Schwartz, 1992).

Secondly, the goals and interests that value types serve can be either compatible or in conflicting with each other. The value types form a two-dimensional continuum, in which the first dimension is *openness to change versus conservation*. People can either show the motivation to follow their own intellectual and emotional interests (value types self-direction, stimulation and hedonism), or they can prefer the status quo and the certainty provided by relationships with close others, institutions and traditions (value types tradition, conformity and security). The second dimension is called *self-transcendence versus self-enhancement*. The former shows the extent to which people are motivated to transcend selfish concerns and promote the welfare of others (value types benevolence and universalism). To the other end belong values which motivate people to enhance their own personal interests, even at the expense of others (value types power and achievement) (Schwartz, 1992). The value types are thought to represent a two-dimensional circle from power to security.

In everyday life, people regularly have to make choices between values. Issues might concern basic ideological values, like equality and freedom, or they may activate conflict between personally important values, like helpfulness and success. Based on Tetlock’s (1986) results, we expect that respondents would use more integratively complex thinking when the conflicting values are high in the respondent’s value hierarchy.

Several other factors can also affect the level of complexity people hold in different situations: for example social role (Tetlock, Bernzweig & Gallant, 1985), accountability (Tetlock, 1983a), familiarity of the issue (Hunsberger & Pratt, 1994), and major life events (e.g. Pancer, Pratt, Hunsberger & Gallant, 2000; Suedfeld & Bluck, 1993). Furthermore, psychological distance and emotional availability have been shown to have effects on complexity of thought. Suedfeld, Bluck and Ballard (1994) found that, contrary to their expectations, low psychological distance between the decision-maker and those who are directly affected by the decision was associated with lower levels of complexity than was high or medium psychological distance. Emotional involvement of the decision-maker in the situation, on the other hand, was positively correlated with integrative complexity. Also, Pratt & Hunsberger’s (1992) study showed that people obtained...
higher levels of complexity in personally meaningful dilemmas. These results corroborate the cognitive manager model (Suedfeld, 1992), which suggests that a topic that engages one's emotions, even if it leads to some stress, should motivate more laborious decision-making and should also engage a more differentiated and integrated set of solutions. Suedfeld et al. (1994) used as a “low psychological distance” condition a situation in which respondents had to write an essay about a disagreement (argument or misunderstanding, etc.) with a close friend. They admitted that this type of setting may have led to unidimensionality and a decline in the level of complexity.

The value dilemmas presented to our respondents varied the context of the issue as well as the supposed psychological distance between the decision-maker and the persons involved in the issue. The conflicting values in each setting were always the same. For issues in the personal context, the agent is the respondent her/himself (Should you . . . ); in the professional context, the agent is a professional from the target's profession (Should a social worker/engineer/economist . . . ) (in fact participants were students attending courses relevant to these three professions); and in the general context the agent is a person in general. In line with the cognitive manager model (Suedfeld, 1992), we hypothesized that respondents would think about an issue in a more integrative, complex way in the personal context, when the psychological distance is low, because personally relevant problems will justify the investment in more information search and processing. It is plausible that respondents in the professional condition would identify themselves at least to some extent with their profession (the professional in the situation), and for that reason would have higher scores in integrative complexity (medium psychological distance) than respondents in the general condition (high psychological distance).

Although integrative complexity is theoretically expected, and several studies have indicated it to be, at least to some extent, a domain-specific variable (e.g. Feist, 1994; Hunsberger, Lea, Pancer, Pratt & McKenzie, 1992; Hunsberger & Pratt, 1994); it has been found to correlate significantly, for example, with moral judgement (deVries & Walker, 1986; Pratt, Diessner, Hunsberger, Pancer & Savoy, 1991; Pratt, Pancer, Hunsberger & Manchester, 1990). In Tetlock, Peterson & Berry's (1993) study, complex persons scored higher on openness and creativity and lower on social compliance and conscientiousness. Furthermore, they saw themselves as more empathic, as measured by Hogan's (1969) Empathy Scale, than persons low on complexity. On the other hand, integratively complex individuals rated themselves relatively low on orderliness and responsibility, and low on sensitivity to others. They also scored high on power motivation.

In the Schwartz value model, creativity belongs to the self-direction value type, which forms, together with stimulation, the openness to change dimension. Social compliance, in turn, is compatible with the conformity value type, which belongs to the conservation dimension. We expect that respondents high on integrative complexity would value more the openness to change dimension, and respondents on lower levels of complexity would score higher on the conservation dimension. Moreover, we hypothesized that emotional empathy would relate positively to integrative complexity.

Responsibility and sensitivity to others, on the other hand, are compatible with the self-transcendence values (“responsible” is in fact one of the values included in benevolence), whereas power belongs to the self-enhancement dimension. Based on the Tetlock et al. (1993) findings, we could argue that more complex respondents would score lower on self-transcendence and higher on self-enhancement than their less complex counterparts.

METHOD

Respondents and procedure

The sample consisted of 138 university students from three universities: social science students from University of Helsinki (n = 41), students from the Helsinki School of Economics (n = 46), and students from Helsinki University of Technology (n = 51). In the whole sample there were 74 females (53%); the mean age was 25 years (SD = 5.6). The respondents were on average in their third year at the university (SD = 2.1). The 12 students who answered for only three or fewer issues were discarded from the analysis. The final sample therefore consisted of 126 respondents, 57% of whom were females.

For the business and technology students the survey was delivered in class. They were asked to fill it out at home and return it for the next class. For social science students part of the surveys were mailed and part were collected in the same way as in other groups. The questionnaire consisted also of other measures, not dealt with in this article, and it took about an hour to complete. The order of the items, used in this study, on the questionnaire was: demographic questions, value conflicts, the Schwartz Value Survey, and the Questionnaire Measure of Emotional Empathy. Participation in the study was voluntary and no compensation was provided. The response rate was about 40%.

Measures

Value conflicts. We presented to respondents value conflicts pertaining to everyday life (interaction with other people, taking care of nature, etc.). In generating the value conflicts we selected values from the Schwartz Value Survey which could be easily situated in different contexts and which were from both opposite and adjacent types of the Schwartz model. To identify the issues that brought different combinations of values into conflict, six raters performed a value content analysis of an initial pool of 11 questions. Raters were asked to write down which values were in conflict in each situation. For use in the final study, the six issues for which there was highest agreement of the conflicting values were selected.

Issues were presented to respondents in different contexts, even if the value conflict was always the same. The respondents were randomly assigned to one of three conditions: personal context, low psychological distance; professional context, medium psychological distance; general context, high psychological distance.

The six issues used in the final study, and the values that were in conflict in them, were as follows: (a = personal, b = professional, c = general issue):
1. (a) Should you help the beginners in your leisure activity although it would constrain your competition training? (b) Should a social worker/economist/engineer help beginners at their workplace although it would constrain their career development? (c) Should people help their infirm close ones although it would constrain their success in life? (Conflicting values: helpfulness vs. success.)

2. (a) Should you comply with your parents’ hopes for your career although it would be in conflict with what you want? (b) Should a social worker/economist/engineer accept a task given by the employer although it would be in conflict with her/his values? (c) Should people comply with the way of life their community wants them to follow although it would be in conflict with what they want? (Conflicting values: obedience vs. choosing one’s own goals.)

3. (a) Should you reveal a secret your friend has told you if it would dispel a suspicion regarding another friend? (b) Should a social worker/economist/engineer reveal confidential information obtained from a client if it would dispel a suspicion regarding another party? (c) Should people reveal a secret they have heard if it would dispel a suspicion regarding another group? (Conflicting values: loyalty vs. social justice.)

4. (a) Should you conform to the way your partner’s family is used to celebrating holidays although it would restrict your freedom? (b) Should a social worker/economist/engineer conform to the way their work team is used to operate although it would restrict her/his creativity? (c) Should people conform to the way their community is used to operate although it would restrict their freedom? (Conflicting values: respecting tradition vs. freedom.)

5. (a) Should you conceal your friend’s cheating in an examination to protect her/him? (b) Should a social worker/economist/engineer conceal a colleague’s cheating to protect her/him? (c) Should people conceal their close one’s cheating to protect them? (Conflicting values: honesty vs. true friendship.)

6. (a) Should you recycle your milk cartons although the nearest recycling centre is 1.5 km far away? (b) Should a social worker/economist/engineer always take the environment into account in work although she/he would have to make more effort? (c) Should people always take the environment into account (e.g. recycle) although they have to make more effort? (Conflicting values: protecting nature vs. enjoying life.)

Four issues concerned values with conflicting motives according to the Schwartz model (helpfulness vs. success; obedience vs. choosing one’s own goals; respecting tradition vs. freedom; protecting nature vs. enjoying life), and two values with compatible motives (loyalty vs. social justice; honesty vs. true friendship).

**Integrative complexity.** Respondents first had to take a yes or no stand in response to the issue, and then write down in 5 minutes all thoughts that occurred to them relevant to the issue (as in Tetlock, 1986). A primary coder, who had obtained a 0.93 reliability with an expert coder from University of British Columbia, scored all protocols according to the integrative complexity scoring manual (Baker-Brown, Ballard, Bluck, deVries, Suedfeld & Tetlock, 1992), blind to the data. Integrative complexity scores range from 1 to 7, with 1 representing absence of differentiation and integration; 3 representing moderate or high differentiation but no integration; 5 representing moderate or high differentiation and moderate integration; and 7 representing high differentiation and high integration. Scores 2, 4, and 6 represent intermediate levels of differentiation and integration. A second coder, who was unaware of the hypotheses of the study, scored 33 of the protocols, and the interrater agreement was 87.5%. Disagreements were resolved by discussion.

Value priorities. Value priorities were measured using the Schwartz Value Survey (Schwartz, 1992). It contains 56 single values measured on a nine-point scale (−1 = opposed to my values; 0 = not at all important; 7 = of supreme importance). Five work-related values (hardworking, conscientious, orderly, punctual and long-term planning) were added to the standard version.

From the single values, 12 value types were formed. Reliabilities (Cronbach’s alphas) of the value types were as follows: power 0.76, achievement 0.74, hedonism 0.64, stimulation 0.67, self-direction 0.59, universalism 0.76, benevolence 0.70, tradition 0.45, conformity 0.54, security 0.59, spirituality 0.61, and work 0.79.

**Emotional empathy.** Mehrabian and Epstein’s (1972) Questionnaire Measure of Emotional Empathy (QMEE) was used to measure empathy. The QMEE contains 33 items assessed on an 8-point scale (−4 = strongly disagree; 4 = strongly agree). The total empathy score was calculated through all the items (alpha = 0.87).

**RESULTS**

**Value pluralism model**

In order to test the value pluralism model, we conducted a series of hierarchical regression analyses with integrative complexity on each issue, in turn, as the dependent variable. As predictors we used four hypothesized determinants of integrative complexity. Following Tetlock et al. (1994) we derived three of the predictors from the value pluralism model: (1) the degree to which respondents gave close to equal importance ratings to the two values in conflict (the absolute value of the difference in rating; DVI = |V1 − V2|); (2) the degree to which respondents gave high importance ratings to both values in conflict (the average of the two importance ratings; AVI = (1/2)(V1 + V2)); (3) the value conflict index, which assessed the interactive effect of similarity of value strength and average value importance on how respondents thought about issues (VCI = (1/2)(V1 + V2)/(|V1 − V2|)). In those cases where the conflicting values had the same rating (i.e. DVI = 0), the value conflict index was formed from the average value importance (AVI) solely. The fourth predictor was the average integrative complexity of respondents’ thoughts on the five other issues (ACOI). It assessed how strongly cross-issue individual differences in ways of reasoning predict integrative complexity in particular issues.

The results of the hierarchical regression analysis are reported in Table 1. In simultaneous regression equations the average integrative complexity on other issues (ACOI) was a strong predictor in all six issues (p < 0.001). For five issues (helpfulness vs. success; loyalty vs. social justice; respecting tradition vs. freedom; honesty vs. true friendship; protecting nature vs. enjoying life) it was the only significant predictor of complexity of thought. The other predictors (DVI, AVI and VCI) made a significant contribution to the integrative complexity of respondents’ thoughts on only one of the six issues (obedience vs. choosing one’s own goals). On one issue (honesty vs. true friendship) the predicting power of DVI and VCI approached significance. It was possible to explain...
between 27% (helpfulness vs. success) and 38% (loyalty vs. social justice) of the total variation in integrative complexity on five of the issues. For one issue (protecting nature vs. enjoying life) the predictors explained only 13% of the total variance.

We scrutinized further the value pluralism model by performing hierarchical regression analyses for each of the three conditions separately, although knowing that it will reduce the predicting power of independent variables because of the reduced number of cases (in the personal condition n = 50; professional n = 34; general n = 42). Table 2 presents the results of these analyses. It shows that in the personal condition the average complexity on other issues was the only significant predictor in every issue, and it was possible to explain between 8% (protecting nature vs. enjoying life) and 38% (loyalty vs. true friendship) of the total variation in integrative complexity. In the professional context average complexity on other issues was the most powerful predictor in all but the last issue (p < 0.001), and the other predictors reached only moderate significance. In the last issue the average value conflict (AVI) made a significant contribution to the integrative complexity of respondents’ thoughts. The predictors explained from 33% to 49% of the total variance of the complexity level. In the general condition average complexity on other issues made a significant contribution to complexity in four issues (helpfulness vs. success; loyalty vs. social justice; respecting tradition vs. freedom; honesty vs. true friendship). For the last issue (protecting nature vs. enjoying life) a significant change in $R^2$ was found only for average value conflict (AVI). The predictors explained between 7% (protecting nature vs. enjoying life) and 32% (loyalty vs. true friendship) of the total variance of the complexity level.

### Table 1. Summaries of hierarchical regression analysis for predicting integrative complexity scores

<table>
<thead>
<tr>
<th>Issue 1: helpfulness vs. success</th>
<th>B</th>
<th>Beta</th>
<th>t</th>
<th>R^2 change</th>
<th>R^2</th>
</tr>
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<tr>
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<tr>
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<td>0.23***</td>
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<th>Issue 2: obedience vs. choosing one’s own goals</th>
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<th>Beta</th>
<th>t</th>
<th>R^2 change</th>
<th>R^2</th>
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<tbody>
<tr>
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<td>-0.47</td>
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<td>AVI</td>
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<tr>
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<td>-2.01*</td>
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<tr>
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<td>6.96***</td>
<td>0.26***</td>
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<th>Issue 3: loyalty vs. social justice</th>
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<tr>
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<td>ACOI</td>
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<tbody>
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<td>0.34</td>
<td>3.90***</td>
<td>0.11***</td>
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* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$, **** $p < 0.001$. 

Because the complexity scores on all six issues were highly intercorrelated, as presented in Table 3, we decided to combine them into a total average complexity score for further analyses. The total average complexity score varied notably through the contexts. The results and univariate tests for the complexity score are reported in Tables 4 and 5.

The total average complexity score ranged from 1 to 4.33 ($M = 2.28$, $SD = 0.69$) in the whole sample. There was a significant interaction between issue context, gender and field of study for the complexity of thought. In the personal context, business females obtained the highest scores, whereas business males showed the lowest level of complexity. Technology males obtained slightly higher scores than business males, but they were on a lower level than social scientists and females from technology. In the professional context, technology females achieved the highest scores, followed by social scientists. Business students were intermediate, and technology males obtained the lowest scores. In the general context, technology females had the highest and technology males the lowest level of integrative complexity. Business males scored somewhat lower than technology females, followed by business and social science females. The main effects for issue context and field of study were not significant, whereas the main effect of gender indicated a clear gender difference on complexity favouring females, $F(1, 124) = 16.48, p < 0.001$.

Further, the analyses revealed a significant interaction for issue context and field of study, $F(8, 117) = 2.17, p < 0.05$. This was mostly due to the social science students, whose complexity scores varied notably through the contexts. The post hoc comparisons showed that social scientists in the professional context obtained significantly higher scores than social scientists in the general context (Scheffe’s adjustment, $p < 0.01$). Business and technology students showed no significant variation on integrative complexity scores between the issue contexts.
A similar pattern was found for the interaction of issue context and gender, $F(5, 120) = 7.27, p < 0.001$. The post hoc comparisons revealed that females' scores in the professional context were significantly higher than in the general context (Scheffe's adjustment, $p < 0.01$). Males' complexity scores were approximately on the same level in every context. There were also significant gender differences favouring females both in the professional context, $t(32) = 4.74, p < 0.001$, and in the personal context, $t(48) = 2.60, p < 0.05$. However, in the general context no gender difference was found.

Furthermore, Table 5 indicates a significant interaction of gender $\times$ field of study, $F(5, 120) = 4.50, p < 0.01$. In the social science group, males achieved slightly higher complexity level than females, while for other groups the order was the
reverse. Technology females obtained significantly higher scores than technology males, $t(42) = 4.08$, $p < 0.001$, while in the business group the difference did not reach significance.

Value priorities, empathy and complexity of thought

The differences among value types and in emotional empathy according to field of study and gender are reported in Myyry and Helkama (2001). The relationships between integrative complexity scores, value types and emotional empathy are presented in Table 6, which shows correlations according to both issues and total complexity score. Value types power and hedonism had significant negative correlations with the total complexity score. For issue domains, power was related significantly to three issues (loyalty vs. social justice; respecting tradition vs. freedom, and honesty vs. true friendship), and hedonism with one (respecting tradition vs. freedom).

Furthermore, stimulation had significant negative correlations with two issues (obedience vs. choosing one’s own goals, and honesty vs. true friendship), and tradition with one (protecting nature vs. enjoying life).

The value type benevolence was most strongly associated with integrative complexity. It had significant positive correlations with four issues (obedience vs. choosing one’s own goals; loyalty vs. social justice; respecting tradition vs. freedom; honesty vs. true friendship). Complexity on one issue (honesty vs. true friendship) had a significant positive correlation with universalism. In addition, conformity correlated significantly with one issue (obedience vs. choosing one’s own goals). Contrary to expectation, openness to change and conservation were not related to the total complexity score. By contrast, self-transcendence had significant positive correlation and self-enhancement a significant negative correlation with the total complexity score. Openness to change was in fact negatively related to the total complexity score, and it had a significant negative correlation with one issue (honesty vs. true friendship). Conservation had one positive (obedience vs. choosing one’s own goals) and one negative (protecting nature vs. enjoying life) significant correlation.

Moreover, Table 6 indicates that emotional empathy was associated positively with those issues where the moral values (benevolence or universalism values) were placed against each other or some other value (helpfulness vs. success; loyalty vs. social justice; honesty vs. true friendship). On the other three issues the correlations were near zero.

DISCUSSION

Value pluralism model

This paper assessed Tetlock’s (1986) value pluralism model in terms of everyday value conflicts. We administered to our
thoughts, but not more differentiated ones. Because people are prone to cognitive misers (e.g. Abelson & Levi, 1985), respondents six issues with two values were placed against each other. Our data in general did not support the value pluralism model. Only on one issue (obedience vs. choosing one's own goals) did the similarity of value strength, average value importance, and their cross-product, value conflict index, emerge as significant predictors of integrative complexity. The analysis revealed the average complexity on other issues to be the most powerful predictor on every issue. When we examined the contribution of the predictors to the complexity level in each of the conditions separately, the average complexity on other issues also appeared to be the most powerful predictor on most of the issues in every context. However, in the professional context it was possible to explain more of the variation in complexity of thought in every issue than in the other two contexts, sometimes twice as much compared with the personal context (helpfulness vs. success), and even four times as much compared with the general context (protecting nature vs. enjoying life).

These results are not consistent with Tetlock’s (1986) finding that the average complexity on other issues was not a very powerful predictor of conceptual differentiation and conceptual integration (which he separated in his 1986 study). He also found that the pattern of significant predictors was somewhat different for these two variables. While the cross-product of average value difference and average value importance reached significance on only one issue for conceptual differentiation, it was a significant predictor for all six issues for conceptual integration. Tetlock (1986) argued that the presence of both components of value conflict might encourage people to produce more integrative thoughts, but not more differentiated ones. Because people are prone to be cognitive misers (e.g. Abelson & Levi, 1985), Tetlock continued, they might use more complex reasoning only when they consider it absolutely necessary, that is, only when values which they give very high priority are in conflict with each other. It is possible that values we used were not salient enough to our respondents to activate the value conflict, and push them to apply more complex decision-making strategies. Furthermore, it could be argued that the failure to confirm the value pluralism model might also be due to the inadequate statistical ranges of the conflicting values. However, investigation of the variances of these values shows that all of them ranged sufficiently (from 5 to 8 points) in the value measure.

Considering also the fact that complexity scores across issues were highly intercorrelated, it seems that our respondents were inclined to be fairly consistent in their level of complexity across issues. These results indicate that the predictive validity of the value pluralism model for integrative complexity might be more limited than previous studies suggest.

Table 6. Correlations between integrative complexity scores, value types and emotional empathy

<table>
<thead>
<tr>
<th>Issue 1</th>
<th>Issue 2</th>
<th>Issue 3</th>
<th>Issue 4</th>
<th>Issue 5</th>
<th>Issue 6</th>
<th>Total average complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>−0.16</td>
<td>−0.12</td>
<td>−0.20*</td>
<td>−0.21*</td>
<td>−0.19*</td>
<td>−0.01</td>
</tr>
<tr>
<td>Work</td>
<td>−0.05</td>
<td>0.07</td>
<td>−0.06</td>
<td>0.00</td>
<td>0.02</td>
<td>−0.02</td>
</tr>
<tr>
<td>Achievement</td>
<td>0.00</td>
<td>0.07</td>
<td>−0.02</td>
<td>0.04</td>
<td>0.07</td>
<td>0.06</td>
</tr>
<tr>
<td>Hedonism</td>
<td>−0.15</td>
<td>−0.08</td>
<td>−0.18</td>
<td>−0.18*</td>
<td>−0.17</td>
<td>0.04</td>
</tr>
<tr>
<td>Stimulation</td>
<td>−0.08</td>
<td>−0.18*</td>
<td>−0.15</td>
<td>−0.10</td>
<td>−0.21*</td>
<td>0.08</td>
</tr>
<tr>
<td>Self-direction</td>
<td>−0.06</td>
<td>−0.09</td>
<td>−0.16</td>
<td>−0.07</td>
<td>−0.18</td>
<td>0.14</td>
</tr>
<tr>
<td>Universalism</td>
<td>0.06</td>
<td>−0.15</td>
<td>0.07</td>
<td>0.02</td>
<td>0.22*</td>
<td>−0.01</td>
</tr>
<tr>
<td>Spirituality</td>
<td>0.04</td>
<td>−0.07</td>
<td>0.18</td>
<td>0.13</td>
<td>0.15</td>
<td>0.10</td>
</tr>
<tr>
<td>Benevolence</td>
<td>0.11</td>
<td>0.23*</td>
<td>0.32**</td>
<td>0.25**</td>
<td>0.25**</td>
<td>0.07</td>
</tr>
<tr>
<td>Tradition</td>
<td>0.07</td>
<td>0.12</td>
<td>−0.05</td>
<td>−0.06</td>
<td>−0.15</td>
<td>−0.18*</td>
</tr>
<tr>
<td>Conformity</td>
<td>0.07</td>
<td>0.25**</td>
<td>0.04</td>
<td>0.06</td>
<td>−0.11</td>
<td>−0.17</td>
</tr>
<tr>
<td>Security</td>
<td>−0.11</td>
<td>0.06</td>
<td>−0.16</td>
<td>−0.14</td>
<td>−0.08</td>
<td>−0.18</td>
</tr>
<tr>
<td>Openness to change</td>
<td>−0.08</td>
<td>−0.16</td>
<td>−0.18</td>
<td>−0.10</td>
<td>−0.22*</td>
<td>0.12</td>
</tr>
<tr>
<td>Conservation</td>
<td>0.02</td>
<td>0.22*</td>
<td>−0.08</td>
<td>−0.07</td>
<td>−0.17</td>
<td>−0.26**</td>
</tr>
<tr>
<td>Self-enhancement</td>
<td>−0.17</td>
<td>−0.09</td>
<td>−0.21*</td>
<td>−0.18*</td>
<td>−0.15</td>
<td>0.03</td>
</tr>
<tr>
<td>Self-transcendence</td>
<td>0.13</td>
<td>−0.01</td>
<td>0.24**</td>
<td>0.15</td>
<td>0.34**</td>
<td>0.03</td>
</tr>
<tr>
<td>Empathy score</td>
<td>0.21*</td>
<td>0.04</td>
<td>0.26**</td>
<td>0.09</td>
<td>0.23**</td>
<td>0.05</td>
</tr>
</tbody>
</table>

*p < 0.05, **p < 0.01, two-tailed.
studies no gender differences have been found (e.g. Suedfeld have been reported to be higher in complexity, and in many found in previous studies is mixed; both females and males The data for gender differences in integrative complexity also a massive gender difference in the total average complexity that social science students were mostly females. We found for social scientists but not for other fields of study might be on complexity score between contexts. other fields of study and for males we found no differences on complexity score between contexts.

The reason why the treatment manipulation worked only for social scientists but not for other fields of study might be that social science students were mostly females. We found also a massive gender difference in the total average complexity score favoring females, and no main effect for field of study. The data for gender differences in integrative complexity found in previous studies is mixed; both females and males have been reported to be higher in complexity, and in many studies no gender differences have been found (e.g. Suedfeld et al., 1992). In Pancer et al.’s (2000) study, however, females were more complex in thinking of transition to parenthood than males. It is possible that issues that concern the welfare other persons promote especially females’ complexity of thought, at least in contexts where they consider it worthwhile. Perhaps the professional issues were found to be more challenging than issues in other contexts. This is in line with the assumption of the cognitive manager model that a decision-maker may choose, perhaps implicitly, the adequate level of complexity after considering the costs and benefits of different possible decision strategies (Suedfeld, DeVries, Bluck, Wallbaum & Schmidt, 1996). In addition, females might be more used to or willing to deal with and discuss this kind of value conflict situation. Pratt et al. (2000) speculated in their transition-toparenthood study that females’ higher complexity might have been due to the greater experience and familiarity with parenting issues. These notions are in line with other previous studies which indicate that familiarity with the issue or topic may increase the level of complexity (Hunsberger & Pratt, 1994; Pancer & Hunsberg, 2000).

Finally, we explored the associations of integrative complexity with value priorities and emotional empathy. Neither the expected positive relationship between complexity scores and the openness to change dimension, nor a negative relationship with the conservation dimension were found. Moreover, contrary to our expectations, the analysis revealed that respondents who had higher regard for self-transcendence values tended to use more complex thinking, and that self-enhancement values were negatively associated with integrative complexity. Of the self-transcendence values, benevolence was especially clearly related to complexity of thought. In addition to the total average complexity score, it had significant correlations with four issues. A corresponding pattern of negative correlations for power was observed in the data. Power, which serves a motivational goal conflicting with benevolence in the Schwartz model and which belongs to self-enhancement dimension, had significant negative correlations with three issues, and with the total average complexity score. According to Sheldon and Johnson (1993), people high in intimacy, motivation and nurturance need made more frequent use of others’ perspectives in viewing others’ experiences, whereas power motivated persons tended to retain their own perspectives on others’ experiences. Although in Tetlock et al.’s (1993) study complex persons scored higher on power motivation, it is plausible that benevolence values, which refer to concern for the welfare of close others in everyday interaction (e.g. helpful, honesty, loyalty), motivate respondents to search for more complex modes of decision-making, and that high regard for power would lead to more simple solutions.

Because of the small number of items included in the indexes for each value type, the reliabilities of some of the value types were only moderate. However, considerably lower reliabilities have been found also in other studies, for example ranging from 0.38 to 0.70 for Sagiv and Schwartz (1995), and from 0.41 to 0.78 for Spini (1997). Especially tradition and self-direction often have shown low reliabilities (e.g. Feather, 1995; Spini, 1997). However, correlations between the value types and complexity scores confirm the sinusoid curve hypothesis (Schwartz, 1992), which suggests that based on the compatibilities and conflicts among the value types, correlations between the value types and other variables should form a sinusoid curve. If for example variable x correlates positively with achievement, it should correlate negatively with benevolence, and this correlation should decrease monotonically as one moves around the circular structure of value types in both directions from achievement to benevolence. Thus, in spite of the weaknesses of Cronbach’s alphas for some value types, the pattern of correlations between the value types and complexity scores suggests the reliability of the value measure.

Emotional empathy was positively related to the total average complexity score, and to the complexity level on those issues where moral (i.e. benevolence or universalism) values
were in conflict. Empathy has frequently been found to relate to prosocial behaviour (e.g. Mehrabian & Epstein, 1972). One possible explanation is that empathy, requiring cognitive role-taking ability and including an emotional component (feeling compassion, etc.) (e.g. Hoffman, 1981), fosters complexity of thought on issues where value conflict activates the concern for other peoples’ welfare.

General conclusions

The revised version of the value pluralism model (Tetlock et al., 1996) suggests that when the conflicting values are highly important or even sacred to the individual, the value conflict does not produce more integratively complex thinking but moral outrage and unidimensionality of thought. Tetlock, Orie, Elson and Lerner (2000) defined sacred values “as any value that a moral community implicitly or explicitly treats as possessing infinite or transcendental significance that precludes comparisons, trade-offs, or indeed any other mingling with bounded or secular values”. Although love and justice, for example, could be treated as sacred values (Tetlock et al., 2000), it is quite unlikely that the values used in this study would have been considered more sacred by respondents giving higher priority to self-enhancement than to self-transcendence or by males than by females, and that this reduced the level of complexity of the former. Schwartz (1992) has defined values as guiding principles in people’s lives, and it is assumed that values can motivate people and guide their behavior and evaluation. For instance, there is evidence that self-transcendence values are related to preferences for cooperation in social dilemmas (e.g. Gärling, 1999; Schwartz, 1996). Thus, it is plausible that respondents who give high priority to self-transcendence values respond to the conflicts in a more flexible, complex and integrative way because their value priorities motivate them to consider different perspectives and compare alternatives.

The considerable consistency in the complexity level across issues concords with more the trait view of integrative complexity than with the state view. It could perhaps be argued that the experimental manipulation did not work properly because the situational factors remained the same for each respondent (the survey context), and therefore did not reveal the state characteristic of integrative complexity. Moreover, it is possible that the design, with three conditions with different dilemmas (although involving the same two values), led to the lack of differences between issue contexts. For follow-up work, it might be better to generate fully parallel dilemmas that could be altered only in terms of the protagonist.

Nevertheless, the professional context seems to differ from the other two: complexity in each issue was better explained by the predictors in the professional context than in the others, and females’ complexity level was significantly higher there than in the general context. The revised value pluralism model (Tetlock et al., 1996) suggests further that social contexts where individuals feel accountable for their decisions to audiences that enhance motives for accuracy and vigilance will lead to integratively complex thinking. The results suggest, then, that the professional context might be a condition of high value conflict and accountability for females but not for males. Tetlock postulated in his 1986 article of political ideologies that the points of maximum value conflicts might be different among leftists than among rightists. For future work we might examine, for example, in what domains and/or issues females show higher complexity than males, and vice versa.

The observed interaction between gender and field of study is also noteworthy; in spite of the unequal number of females and males in the social science and technology student groups. The data were gathered in ordinary class settings and the number of females and males in each group represents approximately the gender ratio in these fields of study in Finland. It would also be intriguing to test the hypotheses with a sample with a more equal number of females and males in each subgroup, which would make the comparisons more reliable, and would make it more practicable to investigate the impact of the field of study on the level of integrative complexity.

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