

RESEARCH REPORT

Psycho-Epistemological Styles and Religious Beliefs

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The purpose of the present study is to investigate the relationship between psycho-epistemological styles and three religious dimensions. The psycho-epistemological items which were used in our study are based on the three factors (naive realism, logical inquiry, and sceptical subjectivism) Wilkinson and Migotsky (1994) found in their attempt to develop a single comprehensive measuring device. The factor analysis with varimax rotation on the 32 epistemological items did indeed reveal three significant factors, but those could better be interpreted as dualism, relativism, and commitment (Perry, 1970). The religious dimensions were orthodoxy, historical relativism, and external criticism (Hutsebaut, 1996, 1997a, 1997b). Results showed that dualism correlates with orthodoxy and external criticism, and that relativism and commitment correlate with historical relativism.

People have always been interested in what knowledge is and how it can be acquired, and have always asked questions such as: How can we be sure about what we think we know? Such questions have led to many trends in philosophy and more specifically these questions can be situated at the core of *epistemology*, which is the science of knowledge. Epistemology deals with the type of questions we presented above and tries to illuminate the philosophical assumptions that define the different epistemological stances, for example: realism, romanticism, constructionism, empiricism, rationalism, pragmatism, and many more. Epistemology evaluates various knowledge beliefs and is usually applied in a narrow traditional manner. Some

researchers (Erwin, 1981; Royce, 1967; Royce & Mos, 1975), however, have tried to use these epistemological “-isms” as potentially useful sources of human variation. Wilkinson and Migotsky (1994) performed a factor analysis on some of these epistemological-style inventories. In this context, an *epistemological style* is defined as the way in which an individual thinks about knowledge and its acquisition, and, of course, there are various styles of this kind that can be identified. At this point, epistemology is often referred to as *psycho-epistemology* because it focuses on the individual differences rather than on the broad philosophical terms.

REVIEW OF PAST APPROACHES

One of the first researchers who referred to psycho-epistemological styles was Royce (1964). He detected three epistemological dimensions which he labeled *rationalism*, *empiricism*, and *metaphorism*. Each of these styles has its own value-system, affective system, cognitive processes, and criteria concerning justified knowledge. Because people have different preferences along these dimensions, each individual has his or her own worldview. In further research, Royce (Royce & Mos, 1980) constructed a questionnaire: The Psycho-Epistemological Profile (PEP). With this test people could be situated on the three dimensions. This profile reflected an individual epistemological style. Despite the work of Royce, research with the PEP has never played a dominant role in psycho-epistemological research. A few exceptions are the studies conducted by Kearsley (1976), Lyddon (1989; 1991), and Hill and Stuckey (1993).

A second important approach is Perry's (1970). He studied the cognitive development and intellectual growth of college students, and found an evolution from dualism to relativism to commitment over nine phases. The three highest phases comprise *commitment*. People can stagnate in one of these nine positions or even regress to an earlier position. Although Perry spent many years on researching his model, he did not create a test to evaluate people on his scheme. Later on, however, Erwin (1981) developed his Scale of Intellectual Development (SID), which contains a few psycho-epistemological dimensions, including the concepts dualism and relativism, (Perry, 1970) and Ryan (1984a, 1984b) constructed a brief Adherence scale, to measure the relative presence of dualism and relativism in the individual's thinking. In contrast with the PEP, there has been a lot of research on Perry's scheme. Besides the investigations of Erwin and Ryan, we can mention some other interesting studies, such as those conducted by Meyer (1977), Wilkinson and Schwartz (1987), and Bennet, Niggle, and Stage (1990).

Another important scale, The Attitudes About Reality scale (AAR), was later constructed by Unger, Draper, and Pendergrass (1986). The scale tries to measure the implicit causal assumptions about the relationship between people and the social or physical context in which they live, and focuses on one particular dimension in

epistemology: a continuum from a logical-positivist to a social-constructivist point of view. People on the former pole tended to view our understanding of reality as stable, irreversible, and determined, whereas people on the latter pole tended to have a different approach: They tended to agree with views presenting our understanding of reality as changeable and depending on historical and cultural definitions. According to the authors, these personal epistemologies are related to demographic markers such as religion and birth order as well as to variables such as age and sociopolitical identification. Jackson and Jeffers (1989), however, claim that the AAR measures a different continuum from what its authors suppose. They claim that it measures at least two dimensions (possibly three), which they label *social determinism* and *individual determinism*. The possible third dimension, *logical-positivism*, would, as a construct, be irrelevant.

Worth mentioning here is the Myers-Briggs Type Indicator (MBTI). Although it is used as a psychometric questionnaire for nonpsychiatric personality types, it seems to us that it also corresponds with cognitive and psycho-epistemological styles. In the MBTI, each individual can be situated on four bipolar scales: the introversion/extraversion scale, the sensation/intuition scale, the thinking/feeling scale and the judgement/perception scale. Bruhn, Bunce, and Greaser (1978), Cornman and Platt (1988), and Schmidt and McCutcheon (1988) suggested that cognitive and epistemological variables like flexibility, field-dependence/independence, rationalism/empirism, and tolerance for ambiguity are all connected with certain types of the MBTI. Redford, McPherson, Frankiewicz, and Gaa (1995) correlate the MBTI-types with the phases of moral development proposed by Kohlberg (using the Defining Issues Test), of which Bokoros, Goldstein, and Sweeney (1992) suggest that they are also cognitive styles. Finally, Wilkinson and Migotsky (1994) consider the thinking/feeling scale as a psycho-epistemology measure.

Another important inventory that was developed is the Scale of Adult Intellectual Development (SAID), based on the reflective-judgments model of Kitchener, King, Wood, and Davison (1989). This model describes seven qualitatively different sets of epistemic presuppositions. These are sequentially and hierarchically ordered, each higher level demanding more complex and more effective forms of justification. It implies a connection with age since it is a developmental model in which no stages can be skipped. Epistemic-cognition is differentiated from cognition (e.g., memorizing, calculating) and meta-cognition (e.g., evaluation of an algorithm used to solve a problem). Kitchener et al. developed the reflective-judgments interview to evaluate the participants and to situate them in one of the stages. Participants are presented with four relatively unstructured problems that represent two opposing points of view. More often, however, the SAID-65, a questionnaire based on the reflective-judgments model, is used to determine which stage is appropriate to a certain participant.

Because theories of psycho-epistemology have been developed in conjunction with cognitive and personality theories as well, there are numerous theories, and

TABLE 1
 Psycho-Epistemological Dimensions and Definitions

<i>Authors</i>	<i>Dimensions or Factors</i>	<i>Definitions</i>
Royce (1964, PEP)	Rationalism	Knowledge is obtained through logical, conceptual, and analytical thinking.
	Empiricism	Knowledge is born of structured observations and data.
	Metaphorism	Knowledge is subjective; true knowledge is personal, involving integration and the use of symbols.
Pery (1970, SID)	Dualism	Knowledge equals facts, these facts being stable and absolute.
	Relativism	Knowledge is context dependent, and there are no absolutes.
	Commitment	Choices are made, responsibility is important. Knowledge is not absolute but there is more than naive relativism.
Unger, Draper & Pendergrass (1986, AAR)	Logical-positivism	Knowledge is stable and irreversible and beyond our control.
	Social-constructivism	Knowledge is dynamic and context dependent.
Gold & Reimer (1974, T-F)	Thinking	Knowledge is the result of logic and intellectual reasoning.
	Feeling	Knowledge is defined through feelings, emotion, and affect.
Martin, Silva, Newman & Thayer (1994)	Absolutism	Knowledge can be apprehended either through one's senses, through algorithmic calculation, or through the experts who possess them.
	Relativism	Knowledge is an arbitrary choice and context dependent.
	Evaluatism	The knower is assumed to be an agent who has access to the world, but not a fully determined or explicit access. Responsibility and value-judgements are important.
Wilkinson & Migotsky (1994)	Naive-realism	Knowledge consists of facts, doubts are annoying, and one right answer exists for all question.
	Logical Inquiry	Knowledge is based on logic, reasoning, understanding, and, to a lesser extent, empirical observation.
	Sceptical-subjectivism	Knowledge is the antithesis of Naive Realism and gives a perspective of uncertainty, reflection and complexity.

Note. This table is based on the scale-definitions Wilkinson and Migotsky (1994) used in their article.

we will have to limit ourselves here to those approaches that address differences in learning-styles. In contrast to Perry (1970), Schommer (1990, 1993), Schommer, Crouse, and Rhodes (1992), and Schommer and Walker (1995) argue that personal epistemology is not unidimensional and does not develop in a fixed progression of stages. Perry supposes that psycho-epistemologies are composed of several more or less independent dimensions: the structure, certainty, and source of knowledge as well as the control and speed of knowledge acquisition. Gregorc (1984) makes a classification into four psycho-epistemic styles based upon the crossing of sequential or random processing with concrete or abstract data. Kolb (1984) presents four styles which are defined by an intersection of his two dimensions: apprehension versus comprehension and extension versus intention.

Because of the proliferation of models of psycho-epistemological styles, it seems necessary to compare the theories and come to more general concepts and better insights. Martin, Silva, Newman, and Thayer (1994) did such an investigation into the structure of epistemological styles. More concretely, they compared the SAID with other psycho-epistemic concepts. Factor analysis of the items of the SAID revealed three factors, interpreted as representing three underlying and overlapping developmentally related epistemic strategies: absolutism, relativism, and evaluatism. In relating these strategies with other concepts, they found, among other things, significant correlations between absolutism and dualism (i.e., SID) and between relativism (i.e., SAID) and relativism (i.e., SID).

Of particular interest to our study as well was the article of Wilkinson and Migotsky (1994), in which they perform a factor analysis on a few epistemological-style inventories. Table 1 summarizes their factor dimensions and definitions. Their long-range goal was the development of a single, comprehensive measuring device. Seven epistemological scales were involved in this study, taken from five epistemological inventories. The seven scales were relativism, dualism, and rationalism (taken from the SID), empiricism, and metaphorism (taken from the PEP), social-constructivism/logical-positivism (the AAR) and Gold and Reimer's Thinking-Feeling (T-F; 1974). Three factors were extracted, which were labeled *naive realism*, *logical inquiry*, and *sceptical subjectivism*.

OUR INVESTIGATION

Dimensions

The purposes of the present study was twofold: to identify more general psycho-epistemological styles, and to correlate these dimensions with different religious beliefs.

The psycho-epistemological dimensions we used in our research are based upon the factors of Wilkinson and Migotsky (1994), completed with items from

other psycho-epistemological inventories. To relate these dimensions to religious beliefs, we used the three factors which Hutsebaut (1996) found: Orthodoxy, External Critique, and Historical Relativism. These dimensions were found in several studies after factor analysis of religious items. They can be situated on the two dimensions *literal versus symbolical thinking* and *acceptance versus rejection of transcendence*, as shown in Figure 1. This representation is based on the work of Wulff (1991, p. 631; 1997, p. 635; see also, Hutsebaut, 1996).

Orthodoxy means that there is a tendency to hold the opinion that on each religious question there is only one right answer, which is sustained by authority and which remains the same over time. Prototypical orthodox believers accept the answers from persons perceived as religious authorities. Moreover, they are very certain about their beliefs and they report a positive relation to God, although this relation also includes elements of frustration, guilt, and anxiety. In addition, they are literal religious thinkers and believers, although they tend to accept any religiously coloured statement. This religious style is positively correlated with anxiety in the face of new questions, with feelings of anomia and with ethnocentricity (Hutsebaut, 1997b). Orthodoxy is thought to be a measure of what Wulff (1997, pp. 635–636) calls “Literal Affirmation.”

External Critique means that there is a tendency towards nonbelief, or at least the meaning and possibility of religious belief is fundamentally questioned. Prototypical persons taking the external critique position want to be sure of their belief content (which they are not) and reject literal as well as symbolic thinking about religious statements. Moreover, they feel rebellious toward God and want to be autonomous, relying on their own norms instead. This religious style is positively correlated with fear of uncertainty and with feelings of anomia (Hutsebaut,

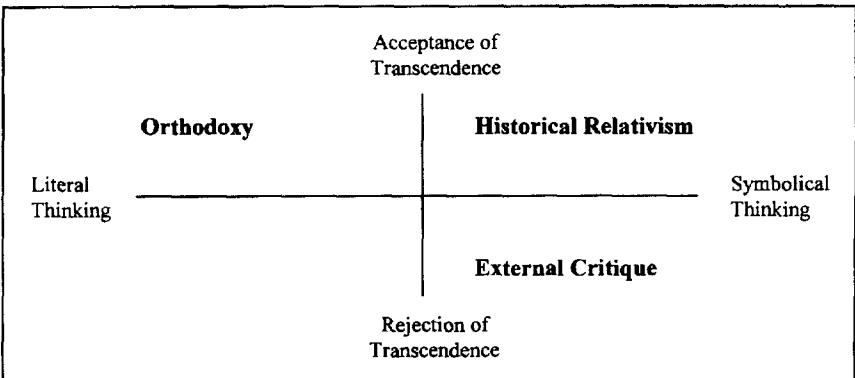


Figure 1 The three religious dimensions situated on the dimension Literal vs. Symbolical Thinking and Acceptance vs. Rejection of Transcendence.

1997b). External Critique is thought to be a measure of what Wulff (1997, pp. 637–638) calls a “Reductive Interpretation.”

Historical Relativism means that there is a tendency towards believing, but there is also a tendency to think and speak about belief in a historical way. Prototypical persons taking the historical relativism position think about religion in a symbolical way and are therefore aware of the fact that other religious meanings are also possible and that meaning can change over time. For them speaking about the absolute is a searching process, a possibility beside other possibilities. This religious style is positively correlated with openness to complex questions and negatively correlated with anxiety in the face of new questions, with feelings of anomia and with ethnocentricity (Hutsebaut, 1997b). Historical Relativism is thought to be a measure of what Wulff (1997, pp. 638–639) calls a “Restorative Interpretation.”

Hypotheses

We anticipate correlations between the psycho-epistemological dimensions (taken from Wilkinson and Migotsky, 1994) and the religious ones. More concretely, it seems to us that “Naive Realism” can be expected to correlate with “Orthodoxy,” because of the importance of authority, the dualism, the literal thinking, and the inability to cope with doubts that are characteristic of both concepts. “Historical Relativism” and “External Critique” could be connected with “Sceptical Subjectivism” because they are both characterized by reflection and the acceptance of uncertainty. “Logical Inquiry” could be related to “External Critique” as both emphasize rational thinking.

METHOD

Participants

In contrast to many other studies in psycho-epistemology we did not solely use students in our investigation. The questionnaire was distributed via relatives and friends, making use of a snowball-effect. The total number of questionnaires was 218. Participants consisted of 99 men (45%) and 119 women (55%). The mean age of the participants was 40.23 ($SD = 12.29$, $min = 18$, $max = 75$). Men and women differed little in mean age by gender ($M = 40.45$, $F = 40.05$). In our analysis, we classified all participants in four age-groups: less than 25, 25 to 40, 40 to 55, and above 55. The participants were sorted into four categories according to their educational level. The most highly educated group (68.8%, $n = 150$) consisted of participants who obtained a university-degree or who were students at a university. The lowest level (1.4%, $n = 3$) consisted of people who completed elementary school only. The second group (20.6%, $n = 45$) was larger than the third (9.2%, $n =$

20). The participants in our study were thus highly educated in comparison to the general population. Considering attendance at weekly church service: 45.2% ($n = 98$) of the participants attend every week and only 12.9% ($n = 28$) never go, not even on special occasions. These percentages do not represent the average church-attendance in Flanders, since only 17% of the people go to church regularly. Of all participants, 98.2% ($n = 213$) described themselves as being raised Catholic, whereas 82% ($n = 172$) still call themselves Catholics today.

Instruments

The first thing participants had to do was to choose one out of six belief-statements: (a) absolute believer (25.1%, $n = 54$), (b) believer with questions (43.7%; $n = 94$), (c) doubter (18.1%, $n = 39$), (d) rather non-believer (6.5%, $n = 14$), (e) non-believer (3.3%, $n = 7$), or (f) agnostic (3.3%, $n = 7$).

The remainder of our investigation was based on a questionnaire, containing items to which participants responded on 7-point Likert-type scales ranging from 1 (*complete disagreement*) to 7 (*complete agreement*). Because we wanted to get the broadest possible view of psycho-epistemology, we constructed our own questionnaire concerning psycho-epistemological styles. The use of this questionnaire can be seen as purely exploratory. Relying on the factors found in the study of Wilkinson and Migotsky (1994) we constructed a pool of 24 items: eight for each factor they represented. Ten of these items were selected from the highest-loading ones on these factors. We then added items representing dimensions that were found in studies using other inventories which could be supposed to load on the Wilkinson and Migotsky factors: three were taken from the AAR, five from the Adherence scale from Ryan (1984a, 1984b), five from the PEP and one from the MBTI. In addition, eight commitment-items, extracted from some interviews Perry (1970) mentioned, completed this section of the questionnaire. Finally, the 32 items we acquired in this way were translated into Dutch.

Twenty-eight items were used to capture the religious dimensions, eight for orthodoxy and external critique and twelve for historical relativism. Twenty-four of these items had already been used in the earlier research (i.e., Hutsebaut, 1996, 1997a) that resulted in the expected factors.

RESULTS

Psycho-Epistemology

We did an iterative factor analysis (using a varimax rotation) on the 32 items of psycho-epistemology. This exploratory analysis revealed three factors, but not precisely those reported by Wilkinson and Migotsky (1994). These factors had eigenvalues of 3.12, 1.06, and 1.95, explaining 69% of the total variance. The

Cronbach's alphas were, respectively, .76, .65, and .65 (on the raw variables). Searching for another interpretation, we concluded that the factors of our analysis can be interpreted as Perry's dimensions: dualism (\approx Factor 1), relativism (\approx Factor 2) and commitment (\approx Factor 3). Factor 1, called dualism, is characterized by items expressing a preference for unambiguity. There is only one right answer for all problems and doubts are annoying. Knowledge consists of absolutes and can only be guaranteed by authority. The second factor is very obviously relativism. All items are characterized by the fact that knowledge is context-dependent and there are no absolutes. The third factor, called commitment, is characterized by items capturing more than simple relativism: Although there are no absolutes, choices are made and responsibility is important.

Religious Dimensions

An iterative factor analysis (factor extraction via principal components method) and a varimax rotation on the religious items resulted in the expected factors which accounted for 84% of the total variance. The eigenvalues of external criticism (\approx Factor 1), orthodoxy (\approx Factor 2) and historical relativism (\approx Factor 3) were 5.34, 3.02 and 1.64. The Cronbach's alphas were respectively .79, .72, and .67.

Relations

Because we did not find the factors we expected on psycho-epistemology, our initial hypotheses had to be reformulated. Taking into account the positions identified by Perry (1970) and the definitions of the religious dimensions, we anticipated the following patterns. Orthodoxy can be expected to correlate with dualism, and historical relativism can be expected to correlate with relativism and commitment. The connections between external critique and the psycho-epistemological dimensions were rather unclear to us. The results presented in Table 2 confirmed these hypotheses, although we have to admit that the correlations, though significant, are relatively small. In addition, the results showed that external critique was correlated with dualism.

Besides the correlations between the psycho-epistemological and the religious factors, we also found a relation between these dimensions and some demographic variables. Regarding gender, the only significant difference was found between educational levels. The men in our sample were more highly educated than the women. Age correlated positively with all psycho-epistemological and religious dimensions, except for external critique. However the highest correlations were found for dualism ($r = .35, p < .0001$) and orthodoxy ($r = .32, p < .0001$). For these two variables, there were significant differences between almost all age groups ($\alpha = .05, df = 201$ for dualism; $\alpha = .05, df = 208$ for orthodoxy). This finding, that as

TABLE 2
Correlations Between the Psycho-Epistemological Dimensions and the Religious Dimensions of Hutsebaut (1996; 1997).

<i>Psycho-Epistemological Dimensions</i>	<i>Religious Dimensions</i>		
	<i>Orthodoxy</i>	<i>External Critique</i>	<i>Historical Relativism</i>
Dualism	.32**	.29**	-.08
Relativism	0.0	-.09	.38**
Commitment	-.07	-.07	.22*

* $p < .001$. ** $p < .000$.

TABLE 3
Correlations of Psycho-Epistemological and Religious Dimensions and Age With Belief-Statements

<i>Dimension</i>	<i>r With Belief Statements</i>
Dualism	-.02
Relativism	-.02
Commitment	.03
Age	.20*
Orthodoxy	.36**
External Critique	-.59**
Historical relativism	.30**

* $p < .001$. ** $p < .0001$.

age went up, so did dualism as well as orthodoxy, was rather surprising and will be addressed in the Discussion section.

The scale of six belief-statements proved also to be correlated with the religious dimensions, but not with the psycho-epistemological styles (see Table 3). This finding suggests the limitations of very simple measures of religion. It should be clear that simply asking people whether they believe or not does not reveal *how* they think about their belief position. Nor does it provide information on *why* they do or do not believe. The correlations between the belief-statements and the religious dimensions were as could be expected: positive ones for orthodoxy and historical relativism, a negative one for external critique, and a slightly positive one for age.

Further analysis showed that orthodox people were mainly "absolute believers" (statement a; $\alpha = .05$, $df = 203$), whereas historical relativists were to be found in the first three statements (a, b, and c; $\alpha = .05$, $df = 196$) with an emphasis on a belief with questions. The statements c, d, e, and f were significantly more chosen by people who were external critics ($\alpha = .05$, $df = 195$).

DISCUSSION

In our exploratory search for common factors in psycho-epistemology we found the dimensions of Perry (1970) instead of the expected factors of Wilkinson and Migotsky (1994). This does not mean that the factors of Perry are the dimensions in psycho-epistemology. There is considerable overlap among many psycho-epistemological dimensions (cfr. the definitions in Table 1). In particular, we think of the dimensions Absolutism (\approx Dualism), Relativism (\approx Relativism) and Evaluatism (\approx Commitment) in the publication of Martin, Silva, Newman, and Thayer (1994), and of the dimensions Logical Positivism (\approx Dualism) and Social Constructionism (\approx Relativism) in the publication of Unger, Draper, and Pendergrass (1986). Wilkinson and Migotsky (1994) make a serious effort to capture the broad range of dimensions in psycho-epistemological research. However, the results in our investigation point to the concepts dualism, relativism and commitment.

We cannot fully agree, however, with the notion that the concepts of Perry (1970) are embedded in a developmental scheme. In our investigation, for example, older participants were found to think more dualistically, which is opposed to Perry's ideas. These results could be explained if we consider relativism as a contemporary phenomenon, which is also suggested by Perry. Therefore, we did not find any indication in our results that favors this developmental approach. We should, however, not forget that Perry's study was of college students only, so maybe if the correlations with age were limited to the university age sample Perry's progression would show up.

Another problem is the operationalization of the psycho-epistemological dimensions. This problem especially exists for the factor "commitment". Psycho-epistemology may well be impossible to capture fully, even in a good questionnaire, since it is such a personal variable. Therefore, it might be too ambitious to classify participants in three or more groups, or to create an epistemological profile for each subject on the basis of only 10 items. To clarify our view on the different dimensions found in several findings and to examine the significance of developmental elements in psycho-epistemology, we feel it necessary to start with extensive interviews. These should not only be conducted with students. These interviews could then become the basis for a more reliable and a more multidimensional questionnaire.

The analysis on the religious items did result in the expected factors which can be described as three religious-cognitive styles: orthodoxy, historical relativism, and external critique. Both orthodoxy and external critique turned out to correlate significantly only with dualism. It seems that both groups use a common dualism between church and bible on the one hand and (critical) society and scientific discoveries that call into question any form of belief on the other hand. Although orthodox participants make a choice in favour of the church, whereas external critics

accept the scepticism of society and science, the underlying thought processes seem to be the same.

Historical relativism turned out to correlate with relativism and commitment. Of course, this could be expected, since both dimensions are considered to be part of this religious-cognitive style. On the one hand, historical relativists are aware of the relative aspect in believing but on the other hand they have a certain "commitment" which helps them to cope with these doubts.

Nevertheless, in spite of its short-comings, psycho-epistemological research appears to be able to contribute to the understanding of other concepts in psychological science because psycho-epistemological dimensions represent a personal worldview, which has an enormous impact on all aspects of an individual's life. The significance of these dimensions is shown in our investigation.

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